

American Medicine

A WEEKLY JOURNAL
FOUNDED, OWNED, AND CONTROLLED BY
THE MEDICAL PROFESSION OF AMERICA

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

VOLUME IX
JANUARY-JUNE, 1905



PHILADELPHIA
AMERICAN-MEDICINE PUBLISHING COMPANY



299515
1.5:34

7
bom
A

4

American Medicine

CONSTITUTION

Entered According to Act of Congress
in the year 1905

BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

In the office of the Librarian at Washington

ALL RIGHTS RESERVED



R
15
A8
v.9

212992
NOV 21

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Orthopedic Surgery

H. AUGUSTUS WILSON

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Dermatology

M. B. HARTZELL

Laryngology, Etc.

D. BRADEN KYLE
Ophthalmology

WALTER L. PYLE

Pathology

ALLER G. ELLIS

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 1.

JANUARY 7, 1905.

\$5.00 YEARLY.

The Isthmian Medical Service.—The United States Civil Service Commission announces examinations for physicians, surgeons, hospital internes, pharmacists, and nurses, to serve the country under the Isthmian Canal Commission. This brings up once more the medical aspects of that gigantic project, and the questionable probabilities of its ultimate success. The engineering problem can no doubt be solved; at any rate *American Medicine* is as hopeful as any that no insuperable mechanical difficulty is inherent in any of the four plans under consideration. The time estimates of eight to fifteen years for completion have an air of definiteness, but the hygienic difficulties of the enterprise have not been sufficiently considered, and when these are brought to bear upon the progress of actual work the date of completion may be indefinitely deferred. In that event it may be said that these difficulties were unforeseen, though every medical journal has spoken on the subject, and some of the ablest medical men in America have presented their views at the national capital. The profession has declared, as one man, that these difficulties are impossible to forecast, but certain to be greater than any heretofore overcome by sanitary science. Without the comfortable assurance of a single authoritative voice upon the commission to support the special needs of the Isthmian medical service, a choice lot of American sanitary experts have undertaken to make it possible for the engineers to proceed with their magnificent task. The news from Panama in the next few months may be uninteresting, and will certainly not be sensational. Successful sanitary work will never be worth more than a two-line head in the secular press, while failure—well, in that event the news may be delayed in transmission. Meanwhile we shall keep mindful of our fellows at the Isthmus, who are facing unknown odds, and whose fortunes concern us as vitally as the whole project concerns the country.

Factors of the Hygienic Problem.—Once more, (for the vital relations of the hygienic problem are not yet generally admitted), until the known factors of the hygienic problem are reduced to workable terms, the canal project will be as idle as a proposition to send ships past the Isthmus by flying or by diving through a marine subway. If the difficulty of the task consists

wholly in its magnitude, the probabilities of success are as strong as we dare hope for. Conceivably the Isthmian medical service, perfectly armed with scientific knowledge and a practical method, may still be defeated by the sheer immensity of the work. The amount of necessary sanitary work, however, can hardly exceed the resources of the commission, and the commission is surely wise enough to provide sufficient means. Among the known agencies of disease in that region, the mosquito is easily chief. Are we to assume that what we have learned of the mosquito in other parts of the world will apply exactly to the mosquitos of Panama? That would be a very rash assumption, for we know very little indeed about mosquitos in the torrid zone. The malarial fevers of the Isthmus we know to be particularly virulent; perhaps we are justified in assuming that the life cycle of the malarial organism there, as elsewhere, includes only man and a variety of the anopheles mosquito.

The mosquitos of the Isthmus may have surprising resources, and may, in spite of all efforts at destruction, survive in great or at least in sufficient numbers. Our knowledge of the habits and breeding places of mosquitos in the temperate zone is extensive, perhaps complete, and many enthusiastic people believe that the pest may be practically annihilated, but no conspicuous success has hitherto attended the work of mosquito extermination anywhere. If the task of destroying mosquitos at the Isthmus includes, so far as the habits of the insect are concerned, no greater difficulties than the same work in New Jersey, the resources of the commission may be very heavily taxed for results no more satisfactory. If comparatively little profit is to be expected from a war against mosquitos whose habits are familiar, what results may we anticipate if at the Isthmus the breeding places of mosquitos are difficult to discover, or inaccessible, or not to be broken up by the usual means? Is it not very probable that insect life may present wholly strange and most refractory conditions regarding man's ability to contest possession of the soil in that climate of excessive heat, excessive moisture, and exuberant vegetation. Suppose, for instance, the Isthmian mosquitos are arboreal in their habits.

The destruction of mosquitos has not, however, anywhere up to this time had a demonstrable influence

on the prevalence of malaria or any other mosquito-borne disease, and we shall not subdue malaria at the Isthmus without attacking it in man. The parasite can be destroyed by quinin in the blood of its human host, but this method has never been employed on a large scale. Its success in this instance would depend on information very difficult to obtain concerning the number and identity of infected individuals among the native population, and after that upon their docility. It is profitable, undoubtedly, to exclude mosquitos from contact with infected persons, but here again the same difficulties are encountered. We do not know what percentage of inhabitants on the Isthmus constantly harbors the malarial parasite, and, possessing such knowledge, there still remains the problem of dislodging the parasite from wilful, insubordinate, guileful man.

In the prevention of malaria the most striking results so far obtained have depended upon the personal defenses of healthy individuals against mosquito bites, and have been demonstrated only against the anopheles of nocturnal habits. If the Isthmian anopheles should prove to be a diurnal insect, or worse, to bite at all hours, defensive dress and mosquito-proof houses would not serve the needs of a laboring population. Indeed, it might become a serious problem in that climate to defend a hospital against mosquitos. Among the known causes of morbidity in that region, malaria is at once the most formidable and the one whose etiology is best understood. Strictly parasitic to man and the mosquito, the closed cycle of the malarial plasmodium offers conditions apparently most favorable to prophylaxis. But in practice the prevention of malaria has required very strict personal and domestic hygiene, while larger sanitary operations, promising so much for the defense of communities, have hitherto yielded very small rewards. If, happily, the local problem presents no strange or baffling characteristics, the control of malaria on the Isthmus will still be a large task, though probably not beyond the strength of the men engaged. Our friends in the Isthmian medical service are exposed to unknown odds. Within certain limits of time and means they must do their best against strange foes and against old enemies in new disguises. The token of their success is to be a great ditch. The compliments of the season to the Isthmian medical service.

Paper Milk-bottles.—The many disadvantages of the glass milk-bottle as now almost universally employed are well known. One of the most serious is the difficulty in securing proper cleansing before it is refilled, with the accompanying possibility of spreading infection. Efforts to secure improvement in this detail of milk service have heretofore been unsuccessful, mainly because of failure to obtain a satisfactory substitute. Recent investigations by Dr. A. H. Stewart,¹ of the Bacteriologic Department, Philadelphia Bureau of Health, indicate that at last a very acceptable container has been found in what he designates a single service paper milk-bottle. It is made of heavy spruce wood

fiber paper, conic in shape to facilitate nesting, and with an ingenious locking device to retain the bottom. An important feature of the bottle is its saturation with paraffin by being dipped in that substance at 212° F., and then baked. This sterilizes the bottle and prevents the milk coming in contact with the paper itself and adhering, as it does to the glass bottle. For shipment, the bottles are packed in nests of 20, three nests being sealed in a sterile bag; the lids are also put up in sterile packages. Bacteriologic tests with sample bottles were exceedingly satisfactory. As received from the manufactory, none were found to contain microorganisms. Closed bottles were sent to several dairies near Philadelphia, a glass bottle and a paper bottle at each being filled from the same lot of milk. When received at the bureau, the glass bottles invariably showed slight leakage around the caps, the paper bottles did not. In every instance the milk in the paper bottle contained fewer bacteria than did that in the glass bottle, the average being a fourth as many as in the latter. Certified milk in the paper bottles kept sweet two days longer than that in glass bottles. If these paper containers give such results in general use, the delivery of milk in cities bids fair to be revolutionized. They are light, tightly sealed, perfectly clean and sterile, and are to be used but once, thus doing away with all bottle washing in private houses and in milk depots. Their cost is such that they may be used without increasing the price of milk to the consumer. The subject is one that should at once be thoroughly investigated to determine if everyday use confirms these laboratory findings. If it does, a very great advance has been made. Further, with the use of this bottle, it appears that the very desirable accomplishment of bottling milk at the farm may be an achievement of the near future.

The Workings of the "System" in State Benevolent Institutions.—The investigations and exposures by Steffens, Baker, White, Tarbell, Folk, and others of that new group of practical sociologists who are performing valiant service in awakening and stimulating public conscience, have made the "system" in its varied aspects familiar to us. We have learned of it and of the manner in which it operates to anesthetize the public while that public is being plundered; we learn of its "safe" men, its contempt for "reformers," and its "grafters" who flourish through the corruption of municipal, State, and national policy. The tentacles of this hydra entwine themselves in many directions in our modern life and blight everything with which they come in contact. The reign of thievery, still outside the reach of our laws, deadens the consciences of its devotees and thus the most sacred of our establishments become objects of its predatory activity. But even with a full knowledge of the temptations which the "system" holds out to those too weak to stand unsullied, we would be loath to believe that its operations extended to the noblest, the most nearly ideal of public establishments—those for the care, treatment, or retreat of society's unfortunates, afflicted morally, mentally, or physically, and in consequence wards of the State in its benevolent, charitable, or reformatory institutions. In all its

¹ Sanitation, December, 1904.

abhorrence, however, we must face the mournful fact that many of these institutions have fallen into the grasp of a "system" as pernicious and inexorable as any recently portrayed by the writers above alluded to. One has not far to go to find this most serious and disheartening statement verified, particularly to the institutions of the middle and western United States. Go to the capital of one of these States with an intelligent friend and he will point out, perhaps, a former steward of an institution, who is reputed to have stolen \$100,000 during his incumbency, and who parades the streets a free man to corrupt others and to impede the efforts of the righteous. Or he may direct you to a former superintendent of another institution, living without visible means of support after his forced retirement from office, and working mischief for his successors. Inquire of this friend about "graft" in the State institutions, and he will multiply instances to illustrate the workings of the "system," and will express the general conviction that this scourge more or less infects them all.

The "System" and Political Machinery.—Just as it operates in other fields, so the "system" in State institutions uses the political machinery of the State, and its workings can be traced from the locality in which a particular institution is found through the city, county, district, and to the State's capital, with votaries at all these points. "Political pull" instead of merit largely controls the appointments. Supernumeraries appear on the pay rolls in which the salaries are often graded without respect to the service performed. Building contracts fall into the hands of the "system's" adherents, and dishonest "profits" accrue to the expense of the taxpayers. Purchases in the local market are dictated by the predominating political ring, and various essential commodities procurable outside are handled through the wider circle of the "system's" votaries. Instances of each of these manifestations of the fabric of graft enveloping these institutions are readily procurable; indeed, it is a generally prevalent impression in and out of our profession that these conditions exist. A wave of righteous reaction against the "system" in other fields is now sweeping over our American public. Is not that public justified in looking to the medical profession to expose and to set about the correction of the evils menacing the stability of its benevolent and charitable institutions, especially those of a distinctly medical aspect? It is the incubus imposed by the "system's" perversion of the funds and functions of these grand establishments of the State that today renders them unattractive to the best class of medical men, and prohibits the fulfilment of their higher humanitarian and scientific medical ideals. There is no more promising field for medical political endeavor than this one of purity in our State institutions. Here is, indeed, a golden opportunity for the organized medical profession of a State and nation! As Virchow found himself called upon to abandon his scalpel and his laboratory to enter the lists of political action in behalf of his principles and his people, so a group of American physicians may now set about a crusade for the uplifting of society's most altruistic establishments—the State institutions.

United States Public Health and Marine-Hospital Service.—The report of Surgeon-General Wyman for the fiscal year 1904, gives increased evidence of the value of this service. It safeguards the people of the entire country to a degree not generally appreciated. National quarantine service was carried on during the year at 40 stations, a total of 7,021 vessels being inspected and 323 disinfected before entry. Aid in suppressing disease was extended to the health authorities of many States, notably in the matter of smallpox in Maine, yellow fever in Texas, and the plague in California. The efficient service rendered in these and other instances was enhanced by the harmonious relations with local authorities, convincing proof of the inherent helpfulness of the service as now administered. The future maintenance of a high standard is assured by the division of scientific research and sanitation which has charge of the hygienic laboratory where men are trained for their varied duties. The syllabus of the course in pathology and bacteriology there given under the supervision of Director Rosenau, issued during the year, well shows the thoroughness of that instruction. Congress will do well in providing for the laboratory the additional building now asked for the second time. Dr. Wyman directs attention to the fact that the object of this national service, with international ramifications, is not merely the exclusion and suppression of the great epidemic diseases. These do not inspire the terror of former years and attention is now directed to diseases of lesser epidemic standing, but really productive of more deaths and far greater distress. For the control and prevention of these diseases by improving general sanitary conditions, the department stands ready to aid State and local authorities, or, when necessary, to take the initiative. For this reason the Public Health and Marine-Hospital Service more intimately concerns the people of the United States than does either the army or navy medical corps. The personnel of the service shows there is steadily increasing demand upon its time. Commissioned officers now number 118, an increase of 9 during the year. The noncommissioned officers far outnumber them, there being 194 acting assistant surgeons; at the beginning of the year there were 179. The entire force, including hospital attendants, numbers 1,047. The people of the United States should be congratulated upon the protection afforded by this corps of men engaged in the conservation of the public health. We know of no branch of the government service more efficiently administered.

Physical Economics.—We have from the author, Dr. E. E. Holt, a reprint of a paper¹ setting forth his method of determining the normal earning ability of the body; upon this is based the rating of damages from injury and disease in a manner equitable and just to all concerned. It appeals to us as being an ingenious as well as a very practical method that merits careful study, especially by pension examiners and courts of law. The principles involved have also a higher application than that of merely assessing damages for actual injuries. Dr. Holt bases his mathematic formula for the normal

¹ Journal of Medicine and Science, September, 1904.

earning ability of the body upon three factors designated as its functional, its technical, and its competing ability. Representing each of the four elements by the initial of its most prominent word gives the formula of the normal earning ability of the body as $E = F T C$. F , the functional ability, is subdivided into four parts, consisting roughly of the osseous, circulatory, digestive, and nervous systems. These are always to be multiplied instead of added, hence, if any one of the four is zero, the entire formula becomes zero. Dr. Holt cites illustrations of the working of his formula, of which we have given only the outline, and compares them with the standards of the Bureau of Pensions of the United States. He maintains, and apparently is justified in so doing, that the methods of the latter are based upon empiricism, and hence, contain inconsistencies that might and should be remedied. The formula suggested has a scientific basis; the principal element to be introduced is the index of the radical of the competing ability. This must be determined individually for each case and would doubtless give rise to differences of opinion. No method can be devised, however, that does not, to a greater or lesser degree, depend for its application upon the personal equation of the appraiser. As a further application of this scientific method, Dr. Holt believes the time is coming when the earning ability of every man will be rated and will be just as valuable in the labor market as is at present his financial ability or possessions in the business world. This at once means systematic examination of every person, best begun during childhood, and the vital necessity for each to attain a high physical standard. The effect of such stimulus upon right ways of living would be enormous. The paper contains many extremely pertinent suggestions.

Defective Speech.—Much has been written relative to eyestrain and faulty hearing as causal factors in the backwardness of school children and comparatively little attention has been given to the similar influences of defective speech. There is no physical act so closely related to the mind as that of articulate speech. It has been called by one the "tool" and by another the "mirror" of the mind and the muscles involved have been called the mental muscles." For the normal development of speech, therefore, there must exist contemporaneously a normally developing mind and the first indication oftentimes of deranged mental process is a tardy or faulty development of speech. On the other hand we are beginning to recognize the fact that as speech is largely the product of the mind, so the mind depends for normal activity and development upon perfect freedom of speech. As the workman cannot do the best work with poor tools, so the mind cannot functionate properly with a defective means of expression. Not only is it handicapped by the mere presence of friction in the machinery of speech but the consciousness of difficulty, even though it be slight, will lead to a confusion of thoughts that is entirely incompatible with normal mental development. It is in school that this latter factor often assumes enormous proportions. A child will bear almost any thing better than the ridicule of its mates, and the dread of being made fun of on account of

a defect of speech is an insurmountable obstacle to progress. Moreover children with defective speech not only shrink within themselves but suffer great mental anguish because they appear to themselves to be different from others and because they are unable to express their thoughts freely. Helen Keller's case furnishes an example of the great longing for speech that possesses the mind of those thus afflicted, and of the mental development that follows persistent scientific speech training. Not only are those having marked defects of speech the subjects of neglect on the part of school boards and medical directors, but it may be said that all school children should have more attention given to their speech and voices. The moral and educational advantages of speech and vocal culture are very great to say nothing of its esthetic value and as a preventive and remedial agent in all throat affections it seems to be almost entirely overlooked. It is a fact that almost all school children have some defect of speech. Some are only a little worse than others. A higher standard of excellence should be required, first in the teacher who furnishes the example and second in the pupils who are to be future teachers. Only in this way can we remove the nasal and throaty twang from the American speech and voice.

BOOK REVIEWS

Epilepsy and Its Treatment.—By WILLIAM P. SPRATLING. Published by W. B. Saunders & Co., Philadelphia, New York, and London.

This is a book of 500 pages, dealing with the entire subject of epilepsy and its treatment. The author states that since no complete treatise on the subject has appeared in the United States since the time of Echeverria, some 33 years ago, he deemed it wise to compile such a volume. The work embraces the author's experience as Superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., during a period of 10 years. It is written from the standpoint of the clinician, rather than that of the pathologist, and is therefore of particular interest, not only to the neurologist, but to those interested in clinical medicine as well. Every phase of the subject is discussed, but special reference is paid to the subject of treatment, both surgical and medical. The tendency of recent years has been rather toward the hygienic treatment of epilepsy, and the author dwells upon this at length and gives his experience at Craig Colony, and the results of the various forms of treatment there employed. Dr. Spratling has contributed a valuable volume on the clinical and sociologic aspects of epilepsy, and particularly on treatment of this disease.

Surgery on the Heart and Lungs.—By BENJAMIN MERRILL RICKETTS. The Grafton Press, New York.

This is a work of some 500 pages devoted to a historic review of the literature concerning reported operations which have been done upon the heart and lungs, the conditions found therein, with special reference to pneumotomy, pneumectomy, bronchotomy, and cardiotomy and cardiorrhaphy, this, not only as applied to the human subject, but experimental research upon the lower animals as well. Interest in heart and lung surgery has received a marked impetus during the past few years and the author has met a want in collecting the various reported cases and pointing out their attendant pathologic conditions and discussing in an intelligent manner the findings. So far as we know no previous work devoted entirely to this line has been undertaken, particularly in the United States, and to those interested in that line of surgical work the book would apply. The work contains a number of valuable illustrations, is well written, and attractive in form.

Progressive Medicine. A Quarterly Digest of the Advances, Discoveries, and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Vols. II and III, 1904. Lea Brothers & Co., Philadelphia and New York, 1904.

Volume ii contains a digest of recent literature on the surgery of the abdomen, including hernia, by William B. Coley; on gynecology by John G. Clark; on diseases of the blood, diathetic and metabolic diseases, disease of the spleen, thyroid gland, and lymphatic system by Alfred Stengel; and on ophthalmology by Edward Jackson. Volume iii contains a digest of recent literature on diseases of the thorax and its viscera, including the heart, lungs, and bloodvessels by William Ewart; on dermatology by William S. Gotthell; on diseases of the nervous system by William G. Spiller; and on obstetrics by Richard C. Norris. The recent literature on the different subjects is very fully considered, noteworthy advances being practically without exception referred to, and the critical comments of the editors add personality to the discussions and materially increase the value of the publication.

Manual of Physiologic and Clinical Chemistry.—By E. H. BARTLEY. Second edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1904.

The author still adheres to the belief that chemic teaching in medical schools should consist in giving the fundamental principles and their application to the diagnosis and treatment of diseased conditions. The manual has been thoroughly revised and much new original matter added. The author believes it contains all the physician needs for ordinary clinical examination of the urine, gastric contents, blood, feces and milk. With this we agree; the book is one of the best of the smaller works dealing with these subjects.

Manual of Serum Diagnosis.—By DR. O. ROSTOSKI, University of Würzburg. Authorized translation by DR. CHARLES BOLDUAN. New York: John Wiley & Sons, 1904.

In the 86 pages of this manual are included the material published in the *Würzburger Abhandlungen* in 1903, and also the details of work accomplished during the past year, viz., Ficker's Typhoid Diagnostic, the test with formalin typhoid cultures, and material on paratyphoid. The book is a very valuable review of the subject and furnishes much information regarding the practical employment of precipitins, agglutinins, and bacteriolysins. Bolduan is rendering a service to English physicians in translating these authoritative monographs.

Beriberi: Its Symptoms and Symptomatic Treatment.—By PERCY N. GERRARD, Dublin University. Philadelphia: P. Blakiston's Son & Co. 1904.

This book of 95 pages is an essay upon beriberi, with special reference to symptoms, diagnosis, and treatment. An elaborate chart of differential diagnosis and another showing the non-dependence of the disease upon rainfall or other climatic conditions are valuable features of the essay. A smaller pamphlet contains extracts from the essay and also includes the differential chart; this is bound separately from the complete treatise. The text contains a great deal of material regarding the disease, but includes nothing that is new.

Examination of the Urine.—By G. A. DE SANTOS SAXE, M.D. W. B. Saunders & Co., 1904. Philadelphia, New York, London.

Dr. Saxe has presented a manual on examination of the urine, which is complete, concise and absolutely up-to-date. It will be found to meet fully the requirements of the student and practitioner without burdening him with unnecessary analytic procedures. The theory of urinary secretion and the methods of functional examination of the kidneys have been given a rather more prominent place than has been done in other textbooks. The character of the urine in various diseases is also described in detail. Special attention has been paid to technique and to the interpretation of findings. The author has also inserted some new methods of working, developed in his own experience. The work will be useful because it is practical.

The Suppression of Tuberculosis.—By PROFESSOR E. VON BEHRING. Authorized translation by Charles Bolduan, M.D. New York: John Wiley & Sons.

This book is valuable not only to the medical profession, but to the dairymen and cattlemen, officers of health boards, sanitary engineers, etc. It contains observations concerning phthisiogenesis in man and animals, and suggestions concerning the hygiene of cow stables and the production of milk for infant feeding, with special reference to tuberculosis. It has chapters devoted to the following subjects: The Suppression of Tuberculosis, Observations Concerning Phthisiogenesis in Man and Animals, Suggestions Concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, Synopsis of the Method of Making Protective Inoculations of Cattle in Agricultural Practice, and Conditions Concerning the Distribution of Protective Virus.

Mechanical Vibration and Its Therapeutic Application.—By M. L. H. ARNOLD SNOW, M.D. Published by the Scientific Authors' Publishing Company: New York, 1904.

The student of physiologic therapeutics will be intensely interested in the full and clear descriptions and illustrations of methods and instruments contained in this book. Its physiology, its pathology and its physics are largely conjectural, and its therapeutic reports lack the critical element. Doubtless there is a field for mechanical vibration, and the empiricism of enthusiasts will help to develop it and define it. Many useful hints for practice will be found in this book, but as a whole, it is not to be followed without considerable conservative modification, both as to methods and expectations.

Report of the Superintendent of Government Laboratories in the Philippine Islands for the year ended September 1, 1903. Bureau of Insular Affairs, War Department.

Much of the contents of this report of nearly 300 pages has previously been issued in various pamphlets. In their assembled form they furnish a better idea of the amount and character of the work carried on in this laboratory. A large part of the report deals with trypanosomiasis, which was the subject of the most extensive investigation. The summary of the organization of the laboratory and its present condition, as well as its future needs, by the Superintendent, is an instructive feature.

Regional Minor Surgery.—By GEORGE GRAY VAN SCHAICK. Second edition, enlarged and revised. New York: International Journal of Surgery Co., 1904.

The second edition of this book is a decided improvement on the first; its early appearance is evidence that general practitioners are appreciating the value of the simple and concise directions for performing the minor surgical operations which everyone is called upon to do. The work now contains 218 pages and 74 illustrations. It deserves a wide circulation.

A Textbook of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis.—By HOBART AMORY HARE, M.D., B.Sc. Tenth edition, enlarged, thoroughly revised, and largely rewritten. Illustrated. Lea Brothers & Co., Philadelphia and New York, 1904.

Ten editions come to no medical treatise unless that treatise meets a distinct need. Hare's method of statement is positive, brief, and direct. This commends the book to a large class of students and practitioners. Theoretic discussions are omitted. References to authorities are few and far between. Results only are given, and these are what the practical doctor is looking for. The revision of this edition has been thorough, and the merited popularity of the work will be increased.

Elementary Exercises for Students in Materia Medica and Pharmacy.—By PIERRE A. FISH, D.Sc., D.V.M. Second edition. Revised and enlarged. Published by the author. Ithaca, New York, 1904.

This edition has been improved by cutting out drugs little used and by inserting diagrams for public record of work. It is a useful laboratory companion.

AMERICAN NEWS AND NOTES

GENERAL.

Must Mark Adulterated Food.—Recent news from Washington states that the Department of Agriculture has directed that hereafter all canned goods containing coloring matter must be so marked. The order directs that all food products colored with copper sulfate should contain a label to that effect, and that food products artificially colored with other substances should bear upon the label an inscription showing that they have been artificially colored or dyed.

Air Purified of Bacteria by Snow Falling.—The Bulletin of Chicago's Health Department states that recently the laboratory has been making a systematic examination of the air, to determine the cleansing effect of snow. It was found that even a slight snowfall produced a decided reduction in the number of bacteria in the air. The greatest reduction (falling upon 10 square inches of surface in a minute) noted was a decrease from 1,020 on November 26 to 23 on December 3, produced by the slight fall of snow on the last-named date.

No Fear of Yellow Fever Epidemic.—Señor Quesada, the Cuban minister, has given out a statement which is in part as follows: The rate of mortality in the island of Cuba has steadily decreased since the establishment of the republic. From official data the annual deathrate in the last 4 months has been, in the district of Havana, as follows: August, 19.49; September, 18.24; October, 17.31, and November, 16.60 per 1,000, and for the whole island, 15.51, 15.45, 13.40, and 14, respectively. This compares most favorably with the best showings of the States of the union, and of the countries of Europe. There has been no epidemic of quarantinable diseases. Yellow fever, smallpox, cholera, and the plague have not developed in Cuba since the proclamation of the republic. Neither of the two cases of yellow fever at Punta De Sal, in October and November, has propagated beyond the original case. The government of Cuba is doing its full duty in the matter, and intends to continue improving the sanitary conditions of the small, as well as the larger towns, which now can be compared, without any disadvantage, with those of any other country.

Features of Modern Naval Surgery.—In an article to the *National Review*, entitled "A Visit to Sasebo, the Japanese Naval Hospital," Dr. Freeman is credited with the following statement: The essential feature of the work at Sasebo Naval Hospital is that 90% of cases of ordnance wounds are inflicted by shell and not by bullet. Here, then, for the first time in history, the science of shell wounds is being studied under good modern conditions. For in South Africa hardly 5% of wounds, even early in the war, were inflicted by shell, and these were scattered up and down the country, through a dozen different hospitals, so that a concrete study of their peculiar features was impossible. In the Spanish-American and Chinese wars there were few casualties from artillery, and earlier wars are of as little use to the modern surgeon as to the modern officer of artillery. During the first 6 months of the present war, 180 cases of naval shell wound had survived to reach Japan. The report, therefore, of the medical department of the Japanese navy at the conclusion of the war will make a definite addition to surgical science.

In the Directory of Institutions and Societies Dealing with Tuberculosis, which is about to be issued jointly by the Committee on the Prevention of Tuberculosis of the New York Charity Organization Society and the National Association for the Study and Prevention of Tuberculosis, the attempt is made for the first time to present a review of all the organized work that is being done in the United States and Canada for the care and cure of the tuberculous and the prevention of tuberculosis. The directory is a volume of 270 pages, and some 60 illustrations. It is divided into six parts: 1. Sanatoriums, hospitals, and camps. 2. Special dispensaries. 3. The tuberculous insane. 4. Tuberculous prisoners. 5. Municipal control of tuberculosis. 6. Association for the prevention of tuberculosis, including societies, committees and State commissions. Part 1 is by far the most important section of the book, consisting, as it does, of descriptions and views of the 125 hospitals and sanatoriums in which the tuberculous may receive treatment, with short introductory articles by Dr. E. L. Trudeau, of the Adirondack Cottage Sanitarium, on "Essential features in sanatoriums for incipient cases," and by Dr. Lawrence F. Flick, of the Henry Phipps Institute in Philadelphia, on "Essential features in hospitals for advanced cases." Other contributors to the volume are Dr. Edwin O. Otis, superintendent of the Boston Dispensary; Dr. J. B. Ransom, of Clinton Prison, N. Y.; Dr. A. E. McDonald, formerly medical superintendent of the Manhattan State Hospital, East; Dr. Hermann M. Biggs, medical health officer of New York City, and Edward T. Devine, general secretary of the New York Charity Organization Society. The directory will be ready for distribution about December 20, and the price will be one dollar. Orders may be sent in advance to the Charity Organization Society, 105 East Twenty-second street, New York City.

Food Adulterations on the Increase.—In a recent address, in Philadelphia, before the American Chemical Society, Dr. Lemuel L. Watters, a chemist of New York, is quoted with the following statement: Labels have come to mean nothing, and even in the case of chemicals for the use of men who are supposedly the best able to detect adulteration, the designation C. P. often comes nearer meaning crude product than chemically pure. So far has the evil extended that it is almost if not quite impossible to obtain certain articles which are true to their names. It is doubtful whether pure olive oil is to be had in this market except from dealers of the highest standing, and cottonseed oil sold under that designation is almost universal. In almost every case vinegar sold at low prices is fortified by the addition of mineral acid. Cocoa is adulterated with an excessive amount of starches, with ground shells and sugar. It is an old story among food chemists that ground coffee is duplicated by drying, baking and powdering hog's liver, which is mixed with chicory and sufficient coffee essence to give it flavor, while even the whole bean is duplicated by an artificial article of such a form as to defy casual detection. Pure maple sugar is almost an unknown quantity. Whisky is sometimes manufactured from spirits by the use of "beading oils," with various flavors and caramel coloring. The greater part of gin consumed in this country has never been prepared by distillation over juniper berries, but is made by adding oil to diluted spirits. Mustard is loaded with flour; tincture of Jamaica ginger is reinforced with capsicum, and the greater part of our ground spices are adulterated. One of the most baleful manifestations of the nefarious operations of the adulterator is in connection with drugs and medicines.

Famous Brainless Cornell Frog is Dead.—Cornell's decerebrized frog is dead. The animal lived for more than five years after the removal of its cerebral hemispheres. Dr. Wilber, head of the physiologic department at Cornell, contended that in animals the cerebrum was the seat of consciousness and volition. To prove his theory in 1899 he chose a green frog and by a delicate operation removed both its cerebral hemispheres. The operation was successful and the wound healed rapidly. The decerebrized frog was put into a large open jar, where it remained for five years, until its death a few days ago. During all this period the animal never once showed signs of any initiative, its only movements being very slight and attributed to muscular ennuet, like that of persons asleep. The eyes, optic nerves, and optic lobes of the brain were uninjured, and the animal could evidently see, but without understanding. The most attractive frog food put before it was absolutely unnoticed, and it has been fed every day for five years by an attendant, who would open its mouth and with forceps push a bit of fresh meat or fish far enough back into its throat to arouse the reflex mechanism of swallowing. If touched, it would move or leap; if placed in water, it would swim until some support was reached; if turned upon its back, it would promptly and vigorously right itself—but it would never move of its own accord. The decerebrized frog has served to impress upon many successive classes in physiology the functions of the cerebrum, of which it was deprived, as well as the functions of the other parts of the brain which it retained. The animal was exhibited at the meeting of the American Physiological Association in Washington, and has long attracted attention among physiologists.—[New York Sun.]

NEW YORK.

Colored Orphan Asylum Buys New Site.—The colored orphan asylum has bought a new site at Riverdale, upon which a new asylum will be built. The present institution on Washington Heights will be sold and the money applied to the construction of a new and enlarged institution.

The New York Skin and Cancer Hospital.—Dr. J. Riddle Goffe and Dr. Andrew F. Currier have been appointed gynecologists at this institution. This is the only service in this country devoted exclusively to malignant disease, its preventive, curative and palliative treatment. A gynecologic clinic will be held at the hospital, corner Second avenue and Nineteenth street, every Tuesday and Friday, from 2 to 3 o'clock and patients will be gladly received. It is requested that physicians come with their patients or send a letter with them in order that they may be kept informed as to the patient's condition. Patients in the early stages of cancer are especially welcome.

Twenty-two Thousand Dollars for Life Cripple.—The jury in the case of Bernard McGovern, who sued the Manhattan Elevated Railroad Company for \$100,000 damages, brought in a verdict recently in McGovern's favor for \$22,000. The claimant was struck by a Third Avenue elevated railroad train while repairing the company's track, and his back broken. He was brought into the courtroom on a stretcher to give his testimony. Physicians testified that he would be compelled to remain on a cot or stretcher for the rest of his life. Counsel for McGovern alleged that the accident was due to the negligence and carelessness of the railroad company in not providing flagmen and signal shouters at the point where the trackmen were at work.

PHILADELPHIA, PENNSYLVANIA, ETC.

Personal.—Dr. Alfred Gordon has been appointed examiner of the insane at the Philadelphia Hospital.—Dr. Carl Beck has been elected a corresponding member of the Munich Medical Society. This honor has not been conferred upon an American physician previous to this time.

Syrup Dealers Held for Using Coaltar Coloring.—Three grocers in Philadelphia have recently been arrested and held for trial on the charge of using coaltar coloring matter in syrups. The municipal chemist testified that he had found abundant traces of coaltar in the syrup sold by the three dealers.

The American Oncologic Hospital.—The management announces to the medical profession of Philadelphia and vicinity that, in connection with its other work, a dispensary for the treatment of indigent persons suffering from carcinoma, sarcoma, or other tumors has been opened at the northwest corner of Forty-fifth and Chestnut streets, Philadelphia.

A Tribute to Dr. William M. Welch.—The William M. Welch Medical Society, with a membership of 25, held its first formal meeting December 19, at the residence of Dr. Welch. The society is composed of ex-resident and some of the present resident physicians of the Municipal Hospital, and was formed and named in honor of Dr. Welch, long at the head of that institution. Dr. Welch was made physician-in-charge of the Municipal Hospital in 1870, and served in that capacity until 1903.

For the Tuberculous of Pittsburg.—According to *Charities*, organized and systematic efforts for the tuberculous have been initiated in Pittsburg by an association of citizens. The first piece of work will be the establishment of a free hospital. Four acres of ground on a hill in the heart of the city, together with buildings which can be adapted to hospital uses, have been given for the purpose. The house has a capacity of 50 beds, and there are other buildings suitable for an infirmary and an attendant's cottage. The situation at an altitude of 1,200 feet commands a view of the Allegheny and Ohio river valleys, and is considered by medical authorities in the city the most desirable that could be secured.

Increased Work in the Coroner's Office during 1904.—Large as was the record for the coroner's office for 1903, when 3,357 inquests were held, that of 1904 exceeded it by 110 cases, or a total of 3,467. Casualties, which included railroad accidents, injuries by falls, being run over by vehicles, caught in machinery, crushed by elevators, etc., claimed 1,065 victims. Of the deaths by railroad accidents, 72 were on the Pennsylvania railroad, 66 on the Reading, 10 on the Baltimore and Ohio, 1 on the West Jersey and Seashore and 1 on the Lehigh Valley. There were 54 trolley car victims. Of the persons mentioned in the remaining cases 448 died of heart disease, 209 committed suicide, 148 died of burns or scalds, 99 were drowned, 43 were victims of homicides; gunshot wounds, accidental and suicidal, took 52; asphyxia, accidental and suicidal, 156; malpractice, 38; poisoning by strychnin, wood alcohol, atropin, arsenic, carbolic acid, hydrochloric acid, fishberries, potassium cyanid and opium, 21; tetanus, 9; electric shock, 6; heat stroke, 2; lightning, 1.

Resolutions Concerning Tuberculosis.—At the meeting of the Philadelphia County Medical Society, December 28, the following resolutions were offered to the society to be acted upon later.

WHEREAS, The State of Pennsylvania has, up to the present time provided no adequate accommodation for the care and treatment of its tuberculous sick. And

WHEREAS, The plans now in projection throughout the State, even when successfully executed, will provide for but a mere fraction of the number of those who need skilful care and medical direction, both for the saving of their lives and the protection of the community. And

WHEREAS, Experience has shown that by properly directed open-air treatment the great majority of cases of incipient tuberculosis can be permanently cured, and that a large percentage of the daily new infections can be avoided if such patients are removed from close association with others not yet infected. Be it

Resolved, That the Philadelphia County Medical Society does hereby petition the Legislature of the State of Pennsylvania: 1. For the appropriation of a certain sum of money, not less than \$500,000, to be devoted to the establishment of State camps or sanatoriums for the tuberculous sick of the Commonwealth of Pennsylvania. 2. For the appointment of a Commission of Physicians to inquire into the most suitable method of establishing such camps or sanatoriums with instructions to arrange for the submission of plans and drawings, and estimates for the same. 3. For the setting aside of such portions of the State Forestry Reserve as may be recommended by the aforesaid Commission, with a view to accommodating the buildings that may be deemed necessary for the care of tuberculous patients, and for their scientific study and treatment. Further, be it

Resolved, That the President of this Society be authorized and instructed to appoint a committee of three from the membership of the society. 1. To secure the cooperation of the County Medical Societies throughout the State. 2. To draft a brief argument demonstrating the need of State aid in the attempt to suppress tuberculosis. 3. To prepare a bill, calculated to provide for this need, for introduction at the next meeting of the State Legislature.

SOUTHERN STATES.

To Fight Tuberculosis in Maryland.—At a meeting of the executive committee of the Maryland Society for the Prevention of Tuberculosis, held December 29, steps were taken to go forward immediately with the crusade against tuberculosis, and it was decided that as the first undertaking for the society was prevention, public instruction upon the nature of the disease is the first plan of attack. This is to be effected through an educational committee, which will instruct the public through lectures, leaflets and meetings in neighborhood and social settlement houses. It was decided also to have a financial committee, which will undertake to increase the membership, to collect the dues and to raise any further funds which are necessary. A press committee will also be appointed to assist in putting the progress of the work before the public. It was also determined to lay great stress upon the propagation of the aims of the society throughout the State and an extension committee will be formed.

WESTERN STATES

No Race Suicide in This Family.—According to newspaper reports, for the fifteenth time in 12 years a couple of South Chicago are again happy parents. President Roosevelt will be notified. What makes the occasion more than ordinarily interesting is, that while these 15 babies have come within the last 12 years, there are no twins among them.

Cabbage Snakes a Myth.—In Vermillion county, Ill., a number of rather mysterious deaths have been attributed to worms which inhabit the cabbage. Dr. George T. Palmer and Dr. J. A. Egan, of the Illinois State Board of Health, after visiting the locality in which the deaths occurred and making a thorough investigation, assert that the cabbage snakes, so-called, are a myth, and no deaths have occurred from any such cause.

FOREIGN NEWS AND NOTES

GENERAL.

Personal.—Manuel Garcia, the eminent teacher of singing, and inventor of the laryngoscope, will celebrate his hundredth birthday on the seventeenth of next March.

Status of Hospital Ships.—Information from the Hague, on December 22, says: The convention on the status of hospital ships, agreed upon by the delegates of the Powers to the International Conference on the subject, was signed today in the presence of the foreign minister. Subsequently Queen Wilhelmina and the queen mother received the delegates. The convention exempts hospital ships from port dues and other charges in time of peace.

Typhoid among the German Troops in South Africa.—News from Berlin under date of December 20, says: Almost daily the authorities have made public lists of deaths by typhoid fever among the German troops in southwest Africa, and public concern therefrom has caused the Government to publish the statistics to November 30. The total number of cases was 974, of which 184 died; 67 were sent home; 282 recovered in Africa; and 441 are in the hospitals.

Plague in Russian Factories.—News from St. Petersburg under date of December 19, says: The governor of Viatka reports a serious outbreak of Siberian plague in factories in the districts of Viatka and Slobodskoi, which are preparing fur coats for the troops in Manchuria. Two hundred and forty-seven cases have already been reported. The plague has been traced to sheepskins, and the delivery of fur garments to the troops has been suspended. Viatka is a government in north-eastern Russia. The town of Viatka, capital of the government, is 653 miles northeast of Moscow.

The Propagation of Plague.—Dr. B. Sorrentino, formerly physician to the lazaretto of the island of Nisida, where the cases of plague were treated during the epidemic of that disease at Naples, two years ago, says: Plague is an infection capable of prevailing as an epidemic and as an epizootic. As an epizootic, it occurs among rats and rarely among mice. Not all species of rats are equally susceptible under natural conditions. Some species are receptive in the laboratory only. Many animals are exceptionally attacked by the infection under special conditions not yet understood, though the attack never takes an epizootic form. In the case of monkeys, the disease may exceptionally take an epizootic form, although these animals are not ordinarily susceptible. Plague, according to the view of some authorities, is not properly a human disease, but a zoonotic disease transmissible to man by rats. The recent discovery of a chronic form of plague among rats may explain the long passage of time between outbreaks of plague. In its bubonic form plague is not ordinarily contagious, but in its grave septicemic and pneumonic forms it is highly so. Widespread plague is rarely propagated from man to man. In outbreaks of pneumonic plague the disease has a tendency to remain localized in the place first visited, except in cases where new foci are initiated by moving infected persons. The propa-

gation of plague in the immediate neighborhood is due to the emigration of rats. The importation of the disease into distant localities may be by means of men, rats, or of fomites, especially merchandise, like grain, which especially attracts rats. No limit of distance establishes natural immunity. When human cases are introduced in a given locality, a certain time, ordinarily a month, passes before indigenous cases appear. In the interval the infection passes to rats, becomes epizootic among them, and then returns to man. The first cases are few in number among men in this instance and succeed each other without apparent relation to one another. The intervention of rodents is not enough to explain all the epidemic phenomena observed. There is necessity for an intermediate agent. This is found in the ectodermic parasites of man and rats, namely, fleas, bed-bugs, lice, mosquitos, etc., but especially fleas. It has been demonstrated that fleas sucking the blood of plague-infected persons carry the germs of the disease in their bodies even for eight days, and then may deposit the bacilli by puncture in other animals. The intervention of rats and fleas, Doctor Sorrentino concludes, accounts for nearly all the epidemic phenomena of plague phenomena which can not be otherwise explained.

OBITUARIES.

Byron C. Pennington, aged 47, one of the best known physicians of Atlantic City, January 1, after a long illness. A trip to the Bermudas in the early winter failed to restore his health. Dr. Pennington was one of the vice-presidents of the American Medical Association, president of the Atlantic County Medical Society, and a member of various medical organizations. The high esteem in which he was held by his fellow physicians of Atlantic City was attested by the fact that on October 17 they presented to him a handsome silver loving-cup before his departure for the Bermudas.

D. M. Echemendia, December 19, from malignant fever, in Havana, Cuba. He was acting assistant surgeon of United States Public Health and Marine-Hospital Service; a noted yellow fever expert and an authority on tropic diseases. He served during the epidemics of yellow fever in Florida in 1888 and in 1889, and assisted more recently in ridding Havana of yellow fever.

Henry C. McLean, aged 55, December 23, at his home in Brooklyn. He was a graduate of the New York University medical department, in 1873, and for twenty-five years had practised medicine in Brooklyn. Much of his work had been done for the poor of Brooklyn under the auspices of the Society of St. Vincent de Paul.

William C. Haven, aged 53, December 26, at his home in North Coventry, Conn. In 1897 he was elected to the General Assembly of the State, and in 1899 he was elected senator from the twenty-third district; was a member of the Tolland County Medical Society, and of the Connecticut Medical Society.

William M. L. Fiske, aged 63, December 21, at his home in New York, as a result of heart disease, from which he had suffered for four years. A graduate of Bellevue Hospital Medical College, in 1863. He served as an assistant surgeon in the Federal service during the latter part of the Civil war.

William Gillilan, aged 71, at his home in Brooklyn, N. Y., after a brief illness, from bronchitis. He was a graduate of the University of Edinburgh, Scotland, in 1855, a member of the faculty of Long Island College Hospital, and member of the King's County Medical Society.

Clarence L. Elebash, aged 45, December 20, of typhoid fever, at his home in New York City. He was a graduate of the College of Physicians and Surgeons of New York City, in 1891; member of the American Medical Association, and a well-known ophthalmologist.

John F. Baggot, aged 78, December 14, from heart disease, at his home in Bamberg, S. C.; a graduate of the Medical College of Georgia (Augusta), in 1859. A surgeon in the Confederate service during the Civil war.

Madison H. Rose, aged 72, December 16, from heart disease, at his home in Thornonton, Ind.; a graduate of the University of Buffalo medical department, in 1861; a surgeon in the Federal service during the Civil war.

William John L. Miller, aged 65, December 19, as the result of a fall from a street car, at his home in St. Louis; a graduate of the medical department of the University of Buffalo, N. Y., in 1884.

Frederick H. Griffin, aged 47, committed suicide at his home in Philadelphia, by inhaling illuminating gas. He was a graduate of the University of Pennsylvania medical department.

Edward J. Doud, aged 51, December 12, from an overdose of morphin, at his home in Trenton, N. J.; a graduate of the College of Physicians and Surgeons, Baltimore, in 1880.

Henry B. Bessac, aged 59, December 3, from septicemia, at his home in Oroville, Cal.; a graduate of the University of Michigan, medical department, Ann Arbor, in 1873.

Charles W. Manker, aged 54, December 7, at his home in Elliott, Ia.; a graduate of the State University of Iowa, College of Medicine, Iowa City, in 1876.

Henry Pigeon, aged 65, December 7, at his home in Peterborough, Ont., Canada, a graduate of the College of Physicians and Surgeons, Toronto, Ontario, in 1884.

Frank E. Yerkes, aged 38, December 27, at his home in Ambler, Pa., from erysipelas; a graduate of Hahnemann Medical College, Philadelphia, in 1894.

Daniel E. Hartnett, aged 29, December 14, from acute gastritis, at his home in Toledo, O.; a graduate of Starling Medical College, Columbus, in 1897.

Samuel Hemingway, aged 50, December 18, from heart disease, at his home in New York City; a graduate of Bellevue Hospital Medical College, in 1875.

Conrad Wesselhoueff, aged 70, December 17, at his home in Newton Center, Mass.; a graduate of Harvard University Medical School, in 1856.

John S. Brown, December 17, from paralysis, at his home in Taylor, Texas; a graduate of the Kentucky School of Medicine, Louisville, in 1883.

Thomas A. Smith, aged 57, December 19, at his home in Kansas City, Mo.; a graduate of Rush Medical College, Chicago, in 1876.

Lyman Leavitt, aged 74, December 30, at his home in Trenton, N. J.; a graduate of the Pennsylvania Medical College, in 1856.

John T. Merrill, aged 69, December 18, at his home in Mount Ayr, Ia.; a graduate of Rush Medical College, Chicago, in 1856.

Clarence Willard Butler, aged 64, December 22, at his home in Montclair, N. J.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 30, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
Florida:	Jacksonville.....	Dec. 17-24.....	1	
Illinois:	Chicago.....	Dec. 17-24.....	20	1
	Springfield.....	Nov. 28-Dec. 21.....	5	
Kentucky:	Louisville.....	Dec. 15-22.....	1	
Louisiana:	New Orleans.....	Dec. 18-24.....	7	
			4 imported	
Michigan:	At 70 localities.....	Dec. 10-17.....	Present	
Minnesota:	Meeker County.....	Dec. 12-19.....	1	
	Otter Tail County.....	Dec. 12-19.....	1	
	Rice County.....	Dec. 12-19.....	12	
	Wilkin County.....	Dec. 12-19.....	1	
New Jersey:	Camden.....	Dec. 18-24.....	1	
New York:	New York.....	Dec. 18-24.....	1	
Ohio:	Cincinnati.....	Dec. 16-23.....	2	
Pennsylvania:	Johnstown.....	Dec. 17-24.....	1	
	Philadelphia.....	Dec. 17-24.....	1	
South Carolina:	Charleston.....	Dec. 10-17.....	2	
Tennessee:	Nashville.....	Dec. 17-24.....	4	
Washington:	Pierce County (Tacoma included).....	Nov. 1-30.....	2	
	Walla Walla Co.....	Nov. 1-30.....	5	
	Seattle.....	Nov. 1-30.....	1	
Wisconsin:	Milwaukee.....	Dec. 10-24.....	40	

SMALLPOX—FOREIGN.			Cases	Deaths
Argentina:	Bahia-Blanca.....	Nov. 18.....	Present	
	Buenos Ayres.....	Sept. 1-30.....	22	
Austria:	Prague.....	Nov. 26-Dec. 3.....	18	
Brazil:	Bahia.....	Nov. 12-26.....	28	
	Rio de Janeiro.....	Nov. 6-27.....	373	160
Ecuador:	Guayaquil.....	Nov. 30-Dec. 7.....	3	
France:	Lyon.....	Nov. 26-Dec. 3.....	1	
	Paris.....	Dec. 3-10.....	9	
Great Britain:	Glasgow.....	Dec. 8-16.....	2	
	London.....	Nov. 26-Dec. 10.....	3	
	Newcastle-on-Tyne.....	Nov. 3-10.....	21	
	Nottingham.....	Dec. 3-10.....	3	
	South Shields.....	Dec. 3-10.....	2	
India:	Bombay.....	Nov. 22-29.....	5	
	Calcutta.....	Nov. 19-26.....	2	
Italy:	Palermo.....	Nov. 26-Dec. 10.....	38	15
Russia:	Odessa.....	Nov. 26-Dec. 3.....	1	
Turkey:	Constantinople.....	Nov. 17-Dec. 4.....	15	

YELLOW FEVER.			Cases	Deaths
Ecuador:	Guayaquil.....	Nov. 23-Dec. 7.....	3	
	One case on steamship Limari at Puna from Panama.			
Mexico:	Coatzacoalcas.....	Dec. 10-17.....	2	
	Juchitan.....	Dec. 11-17.....	1	
Panama:	Panama.....	Dec. 12-19.....	8	

CHOLERA.			Cases	Deaths
India:	Bombay.....	Nov. 22-29.....	1	
Russian Empire:	Erivan.....	Nov. 22-28.....	914	363
	Jelissavetpol.....	Nov. 16-22.....	Present	
	Tachken.....	Nov. 27.....	18	8
	Tiflis.....	Nov. 16-22.....	Present	
Turkey in Asia:	.....	Nov. 28.....	72	43

PLAGUE.			Cases	Deaths
Africa:	Cape Colony.....	Nov. 6-19.....	5	
Arabia:	Aden.....	Nov. 18-25.....	19	12
Argentina:	Tucuman Province.....	Nov. 18.....	1	

Brazil:	Bahia.....	Nov. 12-26.....	6
	Rio de Janeiro.....	Nov. 6-27.....	101 35
Egypt:	Tukh District.....	Nov. 19-26.....	2 2
India:	Bombay.....	Nov. 22-29.....	74
	Calcutta.....	Nov. 19-26.....	8
	Karachi.....	Nov. 20-27.....	14 14
Paraguay:	Asuncion.....	Oct. 6.....	
Peru:	Guadalupe.....	Twenty cases weekly, estimated	
	Lima.....	Dec. 7.....Present	
		Oct. 1-15.....	6

Changes in the Medical Corps of the U. S. Army for the week ended December 31, 1904.

JONES, First Lieutenant PERCY L., assistant surgeon, is relieved from duty on the transport Sumner, and will report to the officer in charge of the medical supply depot, New York city, for temporary duty pertaining to the inspection of supplies now being delivered at that post.

STEVENSON, EPHRAIM, sergeant first class, Philippine Islands, will be discharged.

OLIVER, ROBERT T., examining and supervising dental surgeon, leave granted December 1, is extended fourteen days.

ENDERS, WILLIAM J., contract surgeon, leave granted for fourteen days, is extended eleven days.

HALL, Colonel JOHN D., assistant surgeon-general, is relieved from duty in the Philippine Division, and will proceed to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders.

SMART, First Lieutenant ROBERT, assistant surgeon, leave granted November 17, is extended fourteen days.

GREENE, EARL P., sergeant first class, when his services are no longer required aboard the transport Sumner, New York harbor, will be sent to Fort Jay for temporary duty.

WILSON, EGERTON T., contract surgeon, is relieved from farther duty with troops and will proceed to his home, Owosso, Mich., for annulment of contract.

BUCK, First Lieutenant CARROLL D., assistant surgeon, is relieved from farther duty with the Philippine Exposition board in charge of its hospital.

McMILLAN, C. W., contract surgeon, is granted leave for fifteen days, from about January 10.

BUCK, First Lieutenant CARROLL D., assistant surgeon, is granted leave for ten days, to take effect upon being relieved from duty with the first battalion Philippine scouts, Louisiana Purchase Exposition Grounds, St. Louis, Mo.

Changes in the Medical Corps of the U. S. Navy for the week ended December 31, 1904.

GRUNWELL, A. G., surgeon, detached from the Dixie and ordered to the Naval Hospital, New York, N. Y., for treatment—December 23.

LEDBETTER, R. E., passed assistant surgeon, detached from the Lancaster and ordered to the Dixie—December 23.

KENNEDY, J. T., passed assistant surgeon, ordered to the Naval Station Guantanamo, Cuba, and to additional duty on the Amphitrite—December 23.

PAGE, J. E., passed assistant surgeon, ordered to the Lancaster—December 24.

MEANS, V. C. B., surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—December 24.

BELL, W. L., passed assistant surgeon, when discharged from treatment at the Naval Hospital, New York, N. Y., ordered home and granted sick leave for three months—December 24.

JANNEY, W. H., acting assistant surgeon, detached from the Marcellus and ordered to the Caesar—December 24.

GROVE, W. B., surgeon, detached from the Atlanta and ordered home to wait orders—December 23.

Changes in the Public Health and Marine-Hospital Service for the week ended December 23, 1904:

SMITH, A. C., surgeon, detailed as inspector of unserviceable property at Camp Hutton, La.—December 18, 1904.

ROSENAU, M. J., passed assistant surgeon, detailed to represent Service at Second Annual Mosquito Exterminating Convention, New York, N. Y., December 16-17, 1904—December 14, 1904. Detailed to represent Service at annual meeting of Society of American Bacteriologists at Philadelphia, Pa., December 27-28, 1904—December 21, 1904.

VON EZDORF, R. H., passed assistant surgeon, to report in person to Rear Admiral Walker, U. S. N., for duty in connection with quarantine in the Isthmian Canal Zone, Republic of Panama—December 27, 1904.

McCLINTIC, T. B., passed assistant surgeon, granted leave of absence for 5 days from December 27, 1904, under paragraph 191 of the regulations.

KORN, W. A., passed assistant surgeon, granted leave of absence for 7 days—December 27, 1904.

BERRY, T. D., assistant surgeon, to proceed to Perth Amboy, N. J., and assume temporary charge of service during absence on leave of Passed Assistant Surgeon W. A. Korn—December 27, 1904.

SALMON, T. W., assistant surgeon, to report at the bureau, Washington, D. C., for special temporary duty—December 27, 1904.

Board Convened.

Board convened to meet at the Hygienic Laboratory, Washington, D. C., on call of the chairman, for the examination and marking of applications for appointment as technical assistants in zoology, chemistry and pharmacology. Detail for the Board—Passed Assistant Surgeon M. J. Rosenau, Director of Hygienic Laboratory, Chairman. Ch. Wardell Stiles, Chief of Division of Zoology. Reid Hunt, Chief of Division of Pharmacology, Recorder—December 22, 1904.

SOCIETY REPORTS

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Birmingham, Alabama, December 13, 14 and 15, 1904.

[Specially reported for American Medicine.]

[Continued from page 1181.]

Officers.—President, Lewis C. Bosher, Richmond, Va.; First Vice-president, John D. S. Davis, Birmingham, Ala.; Second Vice-president, I. S. Stone, Washington, D. C.; Secretary, W. D. Haggard, Nashville, Tenn., reelected; Treasurer, Charles M. Rosser, Dallas, Texas, reelected. Louisville, Ky., was selected as the place for holding the next annual meeting, in December, 1905.

Unveiling Exercises.—The monument erected by the association to its founder, the late W. E. B. Davis, was unveiled in Capitol Park with fitting ceremonies Wednesday, December 14, at 11 o'clock. About 5,000 people attended these exercises, including the members of the Association. After an invocation by Rev. L. S. Handley, Charles M. Rosser, of Dallas, Texas, was introduced, and delivered the address of presentation. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the physician. R. M. Cunningham, acting governor of the State of Alabama, accepted the statue in behalf of the State in an eloquent address. The statue, in behalf of the city, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

A Review of the Treatment Immediately before and after Abdominal Section.—L. S. McMURTRY (Louisville) stated that the directness and simplicity of surgical methods were proportionate to the accuracy of pathologic knowledge. The marked changes which had characterized the evolution of the modern aseptic surgical technic illustrated the truth of this observation. Present methods were wonderfully simplified in comparison with those of the early antiseptic era when chemic germicides played a conspicuous role in every phase of the scheme of operation. The general indications for preparatory treatment in cases of abdominal section were to cleanse the alimentary canal thoroughly without violent disturbance or exhaustion; to put all the eliminative functions in the best possible condition, and to favor in every way a tranquil state of mind and body. More than a year ago he became satisfied that to put the patient to bed for three days, or even longer, as was practised by many, was not the best course of preparatory treatment. There was a positive advantage in having the bowels cleaned out in a relatively short time, as the patient was not relaxed by purgation and was less prone to suffer from toxic changes. Prolonged and irritating catharsis increased the nausea and vomiting of ether and chloroform anesthesia. A prolonged period of preparatory treatment impaired the patient's strength and depressed the nervous system. There were exceptional cases, of course, such as associated functional and organic disease of other organs than that for which the operation was proposed. If these disturbances were the result of the disease for which the operation was to be done, no good could come of delay, but when such associated conditions were distinct from the disease for which the operation was contemplated, and which might be improved by treatment, a judicious course of preparatory treatment should be observed. The same rule should be applied to cases of anemia, and in cases of acute diffuse infection which might become circumscribed, preparatory treatment might be utilized with advantage. In the cleansing and disinfection of the skin, we must accept at the outset the established fact that sterilization of the skin from a bacteriologic standard was impossible; yet mechanical cleansing would for all practical purposes free the skin of all active germ action and provide for immediate primary union of wounds. In the effort to accomplish this, the important fact had been overlooked that the unbroken skin was endowed with a power of resistance to the activity of its own and other germs; and when the epidermis was cracked, denuded and broken by irritating germicides, and scrubbing with hard brushes, this natural resistance was impaired and infection occurred. Mechanical cleansing would remove germs readily from smooth and unbroken cutaneous surfaces. For these reasons the brush and chemic germicides should be discarded, and only soap and water and alcohol should be used, applying these with gauze instead of the brush. In the after-treatment only the most simple course was necessary in average cases. The routine use of purgatives here, as in the preparatory treatment, was to be avoided. The patient should be allowed to move about in bed freely, and should be given water as soon after operation as it could be retained.

The Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, etc.—WILLIAM P. NICOLSON (Atlanta, Ga.) said that celluloid was a material which remained indefinitely in the tissues without irritation or disturbance, and the physical character of it was such that it could be easily shaped with scissors to the required size and shape for adjustment to the opening to

be covered. Its harmlessness in the tissues was demonstrated to him many years ago by the absence of any irritation from a celluloid testicle introduced by him into a patient's scrotum. Given such a material, one was enabled to enlarge the opening in the skull to whatever size he might desire, knowing that he could cover the opening and protect the brain from subsequent injury or from undue protrusion from want of support. In operations for epilepsy it not only protected the brain from subsequent pressure, but left an increased space, which was measured by the thickness of the individual's skull. After describing the technic of inserting the celluloid, he reported a case of cyst of the brain which produced epilepsy. He also reported two cases of Jacksonian epilepsy, and one of exploratory operation on the brain. Although the duration of the cases reported did not give a long observation of results, the author felt safe in making the following claims for the routine application of this principle to all operations, when the surgeon was compelled to make openings of any size in the skull: 1. It was safe, and did not add any extra risk to the operation. 2. It not only removed the pressure and irritation, which the surgeon was endeavoring to combat, but by its resistance prevented a recurrence from the subsequent consolidation of the coverings in a false position, due to atmospheric pressure. 3. It protected the patient from external influences, and not only made him feel safer, but he was actually safer. 4. It enabled surgeons to be much more untrammelled in the amount of bone that they could remove. 5. It prevented deformity, which especially, when beyond the hair line, was necessarily great in large bone removals.

Traumatic Synovitis of the Knee-joint.—EDWARD A. BALLOCH (Washington, D. C.) made a plea for earlier operative intervention in cases of traumatic synovitis, the author's contention being that so-called conservative measures should not be tried too long. The reluctance of surgeons to open the joint was ascribed in part to a fear of sepsis, and in part to a lack of a precise knowledge as to the normal structure of the joint. Illustrative cases were cited, showing the advantages of early operative intervention. The following conclusions were reached: 1. In most, if not all cases of traumatic arthritis of the knee, there was an injury to some of the structures of the joint. 2. Conservative measures should not be persisted in too long. Three weeks was proposed as a fair length of time for a trial of these measures. If no improvement was manifest at the end of that time, the propriety of operative intervention should be considered. 3. Arthroscopy, properly performed, was not an essentially dangerous procedure, and might do great good. 4. Early operative intervention would give a greater proportion of useful joints in a shorter space of time than any other method.

Cases in Which Early Diagnosis of Cancer of the Body of the Uterus Was Made.—RUFUS B. HALL (Cincinnati, Ohio) reported two cases to show that an early diagnosis of primary cancer of the body of the uterus was possible, or that a diagnosis could be made while the disease was yet very limited in extent. Of the many cases of cancer of the body of the uterus coming under his observation only these two were seen early enough to make a diagnosis while the disease was limited to a very small area. Adenocarcinoma was found to be the variety of the disease in each case. It was this form of the disease that most frequently attacked the body of the uterus, and if recognized early it promised great immunity from recurrence. The disease could be diagnosed in its incipency if surgeons systematically curetted every suspicious case and made repeated microscopic examinations of the scrapings removed from the uterus until they confirmed or disproved the presence of malignant disease.

Contribution to the Origin of Adenomyoma of the Uterus.—J. WHITRIDGE WILLIAMS (Baltimore, Md.), after calling attention to the anatomic appearance of adenomyomas of the uterus, and the various theories which had been advanced according to the origin of the epithelial structures contained in them, described a uterus removed at autopsy from a woman who died just after delivery as the result of hemorrhage from placenta previa. At the time of its removal the uterus apparently presented the characteristic appearance of the organ immediately following delivery, except that the area of placental attachment covered two-thirds of its interior, instead of being more circumscribed and limited to the anterior or posterior wall, thus indicating in all probability that interference with its blood supply had led to a much more extensive implantation of the placenta than usual. On making a sagittal section through the uterus after hardening, numerous irregularly-shaped, more or less oval areas, of a dull white appearance, and varying from a millimeter in diameter to structures 5 mm. by 10 mm. in their various dimensions, could be seen throughout the entire thickness of the uterine walls, which measured 3 cm. in their thickest parts. These areas were most abundant immediately beneath the endometrium, but could be traced outward through the entire thickness of the uterine wall to its peritoneal covering. Upon microscopic examination they were found to consist of typical decidual tissue, which was made up of the characteristic decidual cells and glandular spaces lined by cuboidal epithelium. So far as he could ascertain this was the first case in which such a distribution of decidual tissue had been observed; he then discussed the importance of such an observation in contributing toward determining the derivation of the epithelial structures contained in adenomyomas. In his specimen there could be no doubt as to the origin of the decidual areas, and every one must agree that

they were derived from the uterine mucosa. Their wide distribution throughout the uterine muscle precluded the possibility of their having resulted postpartum, and indicated most conclusively that they must have existed prior to the onset of pregnancy. Such being the case, the specimen afforded a most beautiful example of the presence of tissue derived from the endometrium being scattered throughout the myometrium of an adult woman, and should myomas happen to develop in their vicinity a most satisfactory basis for the development of an adenomyoma would be offered. In not a few cases the glandular elements in typical adenomyomas showed changes identical with those occurring in the menstruating endometrium, and held that the development of the decidual tissue in his case seemed to make it probable that where portions of müllerian tissue were scattered through the myometrium they might undergo the same changes as the normal endometrium, namely, menstruation and decidual formation. Von Recklinghausen's contention that adenomyomas were of wolffian body origin, which at first had been received with great enthusiasm, had gradually lost ground, so that the vast majority of recent writers hold that such structures are developed more frequently from müllerian than from wolffian body elements, some even going so far as to state that only the former mode of origin is possible. The speaker, however, made it clear that he did not wish to be understood as taking so extreme a ground, but felt that while the vast majority of such growths was clearly derived from müllerian tissue, conclusive evidence against the wolffian body origin of certain cases had not yet been and probably never could be adduced.

Development of Fibroids of the Uterus after Ablation of the Appendages.—J. WESLEY BOVÉE (Washington, D. C.) stated that the large number of published cases of fibroid tumors that had undergone malignant degeneration, or that had broken down, became infected or underwent other changes in structure detrimental to the lives of their unfortunate possessors had swept away the old ideas as to their benignancy. Pathologists were now searching for a distinct borderline between benign and malignant soft uterine myomas. Recurrent myomas, while not so positively dangerous as cancer, must be considered malignant. Between these and sarcomas there was not always a distinct difference. Five cases were cited. Of these, 2 were operated upon for noninfectious disease, 2 were victims of infection, and in 1 the condition requiring removal of the appendages was not known. Did the sudden change in the pelvic circulation incident to the ligation of the uteroovarian bloodvessels in double salpingoophorectomy act as a cause of the subsequent fibroid degeneration of the uterus? This question might be reasonably answered negatively, else such degeneration might logically be seen commonly instead of rarely. Yet it might be possible that hemorrhagic infarcts in the uterus might occasionally in that manner be formed that would result in hyperplasia of connective tissue and be the origin of fibromas. In considering the changes in the uterus after ablation of the appendages in the lower animals, Bovée quoted the experimental work of Hunter, Robb, and others, and stated that from these experiments and investigations, one could find but one theory upon which to base a cause for the development of fibroids after double salpingoophorectomy. This was the endarteritis obliterans, noted by Benckeiser. The speaker wished the relation was clearer and more cases could be cited in substantiation. In all the cases of development of fibroids of the uterus after removal of the appendages cited in the paper, the tumors were multiple, showing the existence of a number of foci, and pathologists had been interested in endarteritis obliterans in the uterus as the origin of fibroid tumors. The cases of such development of fibroids after castration were probably rare, and their existence must be due to some rare cause, such as was this form of endarteritis. In the absence of a better explanation, he was disposed to accept this one.

The Effect of Suspensio-uteri on Pregnancy and Labor.—JOSEPH TABER JOHNSON (Washington, D. C.), contended that very few if any such injurious effects need be feared as had been frequently charged against the operation of suspensio-uteri. That it sometimes failed to cure was true, but that was not the charge. By ventrosuspension he did not mean ventrofixation. He was free to admit that the uterus should not be securely fixed into the abdominal wound or to the abdominal wall in women likely to become pregnant. It was quite certain that some of the pains of pregnancy and difficulties of labor which had been charged against suspension were really the result of fixation. In over 100 suspensions done by himself he only knew of two pregnancies. These were both normal. In one case the labor was so rapid that the child was born before the doctor's arrival, and he knew from recent examinations that there had been no return of the retroversion. The other case he delivered in November last after a five-hour normal labor, without chloroform or forceps. The author mentioned the number of suspension operations performed by other operators, and concluded by saying that when the retrodisplaced or prolapsed uterus was suspended, not fixed, according to the technic of the author of the operation, it appeared to him to be the best operation yet devised for the great majority of women suffering with this displacement irrespective of the fact that they might become pregnant subsequently.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

REMOVAL OF THE APPENDIX.

BY

BARTON COOKE HIRST, M.D.,
of Philadelphia.

To the Editor of American Medicine:—In reference to the article by Dr. Howard A. Kelly, in your last issue, on an ideal method of removing the appendix, it might interest your readers to know of a similar, but, I think, a better method which has been employed in the Howard Hospital for the past year. The appendix is gripped near its base by two hemostats with a groove on the back such as Downes devised for securing small bloodvessels in such an operation as amputation of the breast; the end of an electrocautery knife, white hot, is pressed into the grooves in each hemostat for 30 seconds and is then drawn between them, severing the appendix. The hemostat is removed from the stump which is perfectly sealed and disinfected. The stump is inverted in the usual manner.

NATIONAL CONTROL OF LEPROSY.

BY

GEORGE W. WEBSTER,
of Chicago.

President of Illinois State Board of Health.

To the Editor of American Medicine:—I notice by *American Medicine*, December 10, 1904, that Congress has under consideration a bill known as the Platt-Wanger Leper Bill, which contemplates the setting aside of a square mile of land somewhere in the United States, on which is to be erected a national leper sanatorium under the control of a Commissioner of Leprosy to be appointed by the President; and that "it is proposed to transfer in the four territories named (Louisiana, California, Minnesota and Florida) the control of the lepers from the local authorities to the United States Public Health and Marine-Hospital Service, the expense of such supervision to be met with special appropriations by Congress." You further state that "the object to be attained is the same in all, the government control of a serious, loathsome, little understood, and by no means rare disease." What I wish to know is, whether such an act of Congress would be constitutional? The tenth amendment to the constitution says: "The powers not delegated to the United States by the constitution and not prohibited by it to the States, are reserved to the States or to the people." In the face of this strong language and in the absence of any specific or implied grant of public health power to the national government, the conclusion seems uncontrovertible that such power belongs exclusively to the States.

By the adoption of the federal constitution a national government was created, and to it certain powers were delegated, the powers so delegated being specifically enumerated. Unless it can be pointed out in the constitution that public health powers were so surrendered to the national government, they must remain with the States and it may, I think, be safely asserted that no such clause can be pointed out, hence the conclusion seems uncontrovertible that such public health powers still belong to the States.

All health powers are a part of the "police power" of the State, and Chief Justice Shaw defines "police power" as "the power vested in the Legislature by the constitution to make, ordain, and establish all manner of wholesome and reasonable laws, statutes, and ordinances, either with penalties or without not repugnant to the constitution, as they shall judge to be for the good and welfare of the Commonwealth, and of the subjects of the same."

That this view, that health powers belong to the State, is sustained by the United States Supreme Court in the case of *Gibbons vs. Ogden*, 9th Wheaton, p. 203, in which Chief Justice Marshall said: "Inspection laws, quarantine laws,

health laws of every description as well as laws for regulating the internal commerce of a State and those which affect turnpikes, roads, etc., form a portion of that immense mass of legislation which embraces everything within the territory of a State not surrendered to the general government. No direct general power over these subjects is granted to Congress, and consequently they remain subject to State legislation."

The object of the proposed act of Congress is not the treatment or cure of those afflicted with leprosy, it is the protection of the well who have a right to demand protection. The sanitary rights of the people depend to a large extent upon what Hobbs describes as "that law which men are bound to observe because they are members, not of this or that community, but of a community," and these rights, and the obligations connected with them, can be defined with reasonable clearness and precision, when it follows that they are proper subjects for legislation wherever such definition becomes expedient.

If the control of leprosy can be assumed by the federal government by act of Congress, then the same Congress can assume control of all other public health matters and police powers of the State, including medical education and licensure, the control of tuberculosis, smallpox, etc.

INJUSTICE IN MEDICAL LEGISLATION.

To the Editor of American Medicine:—I wish to direct the attention of the profession to a form of injustice, or, if you please, outrage, which is still being perpetrated on good men by some of our State Boards of Medical Examiners. The function of a State Board of Examiners is, presumably, to protect the public and the profession, by preventing incompetent practitioners or would-be practitioners from obtaining a license to practise, and to license those who can give adequate evidence of fitness to practise. At present, nearly all of our State and Territorial Boards require examination in all of the branches required for graduation in our best medical colleges today. This is right for the recent graduate, who has not passed a State Board examination, but it is nothing short of an outrage to one who has practised several years, whether he has taken a State Board examination or not. Fancy the injustice of requiring a Billings, a Musser, a Senn, or a Keen to be subjected to examinations in chemistry, materia medica, physiology, and anatomy, such as are ordinarily given for graduation in our colleges. To be sure, they might be able to secure a "passing" grade—but where is the necessity? This requirement of the State Boards is an outrage on the man who has already passed a rigid State Board examination.

The United States is one nation. Is it reasonable that there should be some 50 different laws for medical licensure in a nation? It would seem that our profession should be liberal enough to get together on this question and formulate a law or a line of procedure which could be made to cover acceptably the whole country. It can and should be made easy to keep the incompetents, the scamps, and the charlatans out, and to let the bars down for the reputable and competent, when they move their permanent residences from one State to another. This can be done without subjecting the practitioner to the same examination given the recent graduate.

Unfortunately, many of our State Boards have in their membership men who are merely medical politicians, men who are puffed up with their newly acquired importance, and who seldom fail to act arbitrarily when they are in a position to do so; men who either could not be fair if they tried to, or who are not by nature disposed to be fair; men who, when placed in positions of authority, are not liberal, or even decent to their fellowmen who happen to be within reach of their power; men who cannot see things from the ordinary viewpoint of humanity and liberality; men who conceive it their duty, or exercise it as their pleasure, to down the competent and decent, as well as the incompetent and indecent, when they can find any excuse for so doing; men who split hairs, either knowingly or unknowingly, in order to inflict pain or injustice; men who will invariably sacrifice unfairly any other person's interests when they fancy these interests may or do in any way conflict with their own—no matter how remotely. What a train of evils

may, and does, follow in the wake of such conditions! It is bad enough when injustice occurs unavoidably.

For purposes of illustration, I would relate the particulars of a special case. At the last examination of the Texas State Board of Medical Examiners was a candidate with the following qualifications: Three years' attendance at a wellknown eastern medical college, then one year at another prominent college, from which he graduated. He passed a competitive examination and got a commission as lieutenant and assistant surgeon, United States Volunteers, later receiving commission as captain and assistant surgeon in the regular army.

It would seem only just that this man, known to be competent, ethical, and of good moral character, should, on the foregoing record, be permitted, without examination, to practise his profession in any State or Territory of the United States. In order to take the required examination, he was obliged to travel a round trip of 1,665 miles, beside incurring the expense and loss of time incident to such a trip. After having submitted to this and to the examination, he received an average grade of 72.9, just 2.1 short of the required average. For some reason, which he is unable to understand, he received a low but "passing" grade in obstetrics, although he considered the questions in this branch fair and easy to answer, as a whole—he has had a large maternity experience (six months in the New York Lying-in Hospital). Naturally, he cannot but think that the paper was not graded according to its merits. But where he fell ignominiously was in the chemistry examination. The examiner in chemistry was from his own town, and in some way became cognizant of this candidate's number. He informed the other members of the board that he knew the number, and either he expressed a desire to be relieved from grading the paper or the board as a whole decided it would be best for another to grade it. The grade was given as $\frac{30}{100}$, which, of course, not only cut down the general average tremendously but precluded as well the possibility, under the rules of the board, of obtaining the privilege of immediate reexamination in this branch. Following is a copy of the questions in chemistry given at this examination:

1. Describe nitrogen as to importance, properties, occurrence. State how to distinguish N from H.
2. Give the chemic name and formula of each of the following: Aqua regia, oil of vitriol, Paris green, sal ammoniac, copperas, carbolic acid.
3. Give in detail a qualitative test for albumin in urine, noting possible errors.
4. Give chemic name and formula of wood alcohol. How is it derived and what is its boiling point, centigrade?
5. What is ethyl hydrate, its formula; what prepared from? What is its specific gravity, and what is its boiling point (F.)?
6. What is the process of saponification and the difference between soap made with potash and with soda?
7. Give ordinary name and chemic formula of ethyl oxid. State from what it is derived. What is its specific gravity?
8. What percentage of water is there in genuine cow's milk? What is its specific gravity, and below what degree of temperature should milk be kept to prevent souring or "turning"?
9. Give chemic name and formula of salts of lemon.
10. Write chemic name and formula of laughing gas.

A glance at these questions demonstrates one of two things, either that the person who made them out did not apprehend the function of an examination of this sort and did not know what kind of questions to ask, or he purposely gave questions calculated to defeat $\frac{30}{100}$, or more, of practitioners of more than average qualifications. Before formulating these questions, did he put himself, as it were, in the place of the prospective candidate and ask himself how many of them he could possibly or probably answer—how many of them should be answerable by the average competent practitioner? I think not. And I would be willing to wager that were the one who gave these questions now shut in a room with them alone he could not answer enough of them to merit a grading above $\frac{50}{100}$.

Now, if such an examination be offered for submission to candidates for licensure, why is it not the duty of a board to see that it is modified sufficiently to make it fair to all? It seems as though one who fails on such an examination as that should have some recourse. Yet, this young man can do nothing but practise as an illegal practitioner in Texas for another year or

remove to another State or Territory, in which he may happen to hold a license (he has a license from Ohio and one from New Mexico), or in which he may take examination. This is an unmerited hardship, and especially so in this case, because the state of the man's health compels his residence in a special climate.

As to the rest of the examination referred to, the questions, as a whole, were not unsatisfactory, with the exception, possibly, of a few asinine and "catch" questions.

Another case which has been brought to my attention is that of a physician, aged 60, who had received his diplomas at two of the best known eastern colleges. He went to California to spend the remainder of his days. Although he had practised 30 years, held many high offices, and was in every sense an educated man in his profession, he had to stand an examination by the California State Board of Medical Examiners, and unfortunately failed by 1%. The absurdity of a method which makes the difference between 74% and 75% represent on the one hand professional competency, and on the other professional incompetency, must be manifest to any fair-minded man.

EQUITY.

THE SUTURE OF HEART WOUNDS.

BY

CHARLES I. WEST, M.D.,
of Washington, D.C.

Lecturer Topographic Anatomy, Herman University; Late First Assistant Surgeon, Freedman's Hospital, Washington, D. C.

To the Editor of *American Medicine*:—The issue of *American Medicine* of October 15, 1904, p. 696, "The Suture of Heart Wounds," states that "the surgical feat of suturing a human heart was first attempted in 1896."

I desire to call attention to the case of James Cornish, aged 24, a negro expressman of Chicago, Ill., who was successfully operated upon at Provident Hospital, Chicago, Ill., by Dr. Daniel H. Williams, on July 10, 1893, for a stab wound of pericardium and heart. Three and a half years later the operator published on March 27, 1897, in the *Medical Record*, this case, stating that his patient was then alive and well.

Dr. Daniel H. Williams further states that he examined all similar specimens in the pathologic department of the Army Medical Museum at Washington, D. C., a pathologic department thoroughly up to date by virtue of its director, Dr. Daniel S. Lamb, one of the world's greatest pathologists, and in no instance could he find a prior record of cardiac suture either from the specimens in the Army Medical Museum at Washington, D. C., nor in the Index Catalogue and Medicus of the National Medical Library, Surgeon-General's office.

The author further states that no operative history existed in any similar heart wounds.

The Surgeon's Heart.—A poor man from the West had been treated by his club doctor—a busy, overworked, good-hearted fellow—for glandular swelling in the neck. The merest chance brought the patient to London, and a concatenation of coincidents led to his meeting a St. Thomas' Hospital surgeon. "You come up to the hospital," said the latter. "You've no glandular swelling there." The poor fellow went. They looked him over. That supposititious glandular swelling was a thyroid abscess of a particularly malignant form. The man, seemingly so healthy, was what an insurance actuary would term a 10-minutes life. "Can you come in?" they asked him. He consented. Sir William MacCormac took him in hand. "This is the most delicate of operations," he said. "Will you trust us?" He would. In due course, before quite a gathering of surgical notabilities, Sir William operated. The case was as bad as it possibly could be, and the faintest fraction of error would have meant certain death; but the operation was perfect, one of those performances of which we laymen never dream, but which these inspired giants in life saving at the hospitals are accomplishing every day of their splendid lives. Next morning, before seven o'clock, the patient was gently roused from sleep. He opened his eyes and saw the strong kindly face of a man beaming in delight upon him. It was the great and wealthy surgeon, who had left his bed before six o'clock that bitter morning to come to see this poor, friendless man from the wilds of the West. The patient is a hale man today, and in his part of the world they regard St. Thomas' Hospital as a temple of miracles far more awe inspiring than any holy well.—[*St. James' Gazette*.]

ORIGINAL ARTICLES

THE BEHAVIOR OF NATIVE JAPANESE CATTLE IN REGARD TO TUBERCULOSIS (PERLSUCHT).¹

BY

PROFESSOR DR. S. KITASATO,

of Tokio, Japan.

In Japan it is a fact of common knowledge that the native Japanese cattle are free from tuberculosis (perlsucht) under ordinary conditions, while imported and mixed types of cattle (that is, such as descend from foreign cattle on the father's side, from native cattle on the mother's) contract the disease. This fact would be a very noteworthy one if we could suppose that our native animals are naturally insusceptible to tuberculosis, and are not simply so because they have not had the opportunity to become infected. As far as I know, no race of cattle is known to us which can prove ownership to a real natural immunity against tuberculosis. The claim has been made often enough, but each time the falsity of the claim could be demonstrated through inoculation experiments. To determine the position of the native Japanese cattle in regard to tuberculosis the following experiments were performed.

Before relating these experiments, however, I would like to make a few general remarks concerning tuberculosis of the human race in Japan. The statistics show that Japan lost by death during the past two years (1899 and 1900) 1,842,831 people; of these, 139,380 died as the result of tuberculosis, therefore 7.56% of the total mortality. In the following tables I will show how large the mortality of man is in Japan from tuberculosis:

TABLE I.—MORTALITY FROM TUBERCULOSIS IN JAPAN BETWEEN THE YEARS 1892 AND 1901.

Year.	Population.	Total number of deaths.	Pulmonary Tuberculosis.	Other respiratory diseases.
1892	41,044,789	894,875	57,292	109,705
1893	41,899,874	980,009	57,798	133,162
1894	41,788,335	845,293	52,888	66,963
1895	42,210,179	854,392	58,992	96,531
1896	42,628,931	904,473	62,790	105,697
1897	43,064,658	875,108	65,507	101,360
1898	43,540,768	891,359	72,708	113,365
1899	43,960,008	920,340	75,226	108,262
1900	44,457,973	910,517	78,472	120,761
1901	44,968,769	932,365	81,669	123,929

Year	The relation of the total mortality and mortality from tuberculosis to the total population (compared with 1,000 inhabitants).			Percentage of tuberculosis mortality to the total mortality.	
	Total mortality.	Pulmonary tuberculosis.	Other respiratory diseases.	Pulmonary tuberculosis.	Other respiratory diseases.
1892...	21.80	1.40	2.67	5.40	12.26
1893...	22.46	1.40	2.73	6.21	12.17
1894...	20.28	1.27	2.37	6.26	11.71
1895...	20.24	1.40	2.29	6.90	11.30
1896...	21.22	1.47	2.48	6.94	11.70
1897...	20.32	1.52	2.35	7.50	11.58
1898...	20.47	1.76	2.37	8.16	12.72
1899...	20.94	1.71	2.46	8.17	11.76
1900...	20.48	1.78	2.72	8.67	13.26
1901...	20.73	1.79	2.76	8.76	13.29
Average...	20.88	1.55	2.54	7.41	12.10

Mortality from tuberculosis in the eight largest cities, all of them having more than 100,000 inhabitants, and in the other towns of Japan during the years 1899 and 1900:

TABLE II.

Place and Year.	Number of inhabitants.	Total mortality.	Pulmonary tuberculosis.	Tuberculous meningitis.	Intestinal tuberculosis.	Tuberculosis of other organs.	Total tuberculosis.	Other respiratory diseases.
Tokio..... (1899)	1,468,953	29,274	4,238	343	499	37	5,117	2,812
..... (1900)	1,497,675	27,589	4,254	336	458	56	5,104	3,767
Kioto..... (1899)	356,956	7,905	1,132	99	168	14	1,413	918
..... (1900)	364,673	7,703	1,204	159	176	25	1,564	803
Osaka... (1899)	835,201	16,407	2,257	175	316	9	2,757	2,002
..... (1900)	865,021	15,991	2,431	221	337	17	3,006	2,086
Yoko-hama (1899)	195,364	2,829	278	40	44	00	362	353
..... (1900)	201,086	2,487	401	32	34	3	470	305
Kobe..... (1899)	225,970	5,360	711	36	88	1	836	590
..... (1900)	240,917	4,808	719	27	74	5	825	642
Naga-saki (1899)	114,144	1,480	196	12	15	1	224	192
..... (1900)	125,231	1,804	234	22	34	4	295	189
Nagoya.. (1899)	243,767	4,622	543	29	84	3	659	591
..... (1900)	252,068	4,675	597	19	65	1	682	627
Hiro-shima (1899)	126,139	1,937	207	3	24	4	238	305
..... (1900)	133,732	2,179	256	16	20	2	294	289

TOTAL OF THE EIGHT CITIES.

1899.....	3,566,394	69,823	9,562	737	1,238	69	11,606	7,663
1900.....	3,680,851	67,516	10,097	832	1,198	113	12,240	8,658

ALL OTHER PLACES.

1899.....	40,393,614	862,264	46,376	2,014	7,178	435	56,003	105,792
1900.....	40,777,622	843,228	49,428	2,344	7,228	531	59,531	116,613

SUM TOTAL OF ENTIRE JAPAN.

1899.....	43,960,008	982,087	55,938	2,751	8,416	494	67,009	113,455
1900.....	44,457,973	910,744	59,525	3,176	8,426	644	71,771	125,271

THE RELATION OF THE TOTAL MORTALITY AND MORTALITY FROM TUBERCULOSIS TO THE NUMBER OF INHABITANTS (CALCULATED TO 1000 INHABITANTS).

Place	Total mortality.	Pulmonary tuberculosis.	Total tuberculosis.	Other respiratory diseases.
Tokio.....	19.23	2.86	3.45	2.22
Kioto.....	21.63	3.24	4.13	2.38
Osaka.....	19.06	2.76	3.39	2.37
Yokohama.....	13.41	1.71	2.10	1.41
Kobe.....	21.78	3.06	3.56	2.64
Nagasaki.....	13.76	1.80	2.17	1.59
Nagoya.....	18.75	2.80	2.70	2.46
Hiroshima.....	15.64	1.78	2.05	2.29
Average of 8 cities.....	18.95	2.71	3.29	2.25
Other towns.....	21.01	1.18	1.42	2.74
Average figure.....	20.84	1.31	1.58	2.71

THE PERCENTAGE OF THE TUBERCULOSIS MORTALITY TO THE TOTAL MORTALITY.

Place	Pulmonary tuberculosis.	Total tuberculosis.	Other respiratory diseases.
Tokio.....	14.86	17.80	11.51
Kioto.....	14.97	19.07	11.03
Osaka.....	14.47	17.79	12.46
Yokohama.....	12.77	15.65	10.50
Kobe.....	14.56	16.84	12.12
Nagasaki.....	13.09	15.76	11.57
Nagoya.....	12.26	14.42	13.10
Hiroshima.....	11.25	12.93	14.43
Average of 8 cities.....	14.31	17.36	11.88
Other towns.....	5.62	6.77	13.04
Average figure.....	6.27	7.56	12.95

A valuable paper on the statistics of tuberculosis has been written by Tamaye Ogiya, under the directorship of Professor Sata, from the pathologic institute at Osaka. This authoress states that during a period of three and a half years she has found among 250 autopsies 116 cases of tuberculosis, amounting to 46.4% of the total. Of the tuberculous patients, 20 (17.3%) were under 18 years, 96 (82.2%) were more than 18 years; among these patients she found 90 (77.6%) who presented lesions showing primary pulmonary tuberculosis, 12 (10.34%) who had primary intestinal tuberculosis. Among the latter 6 were more and 6 less than 18 years. Basing the statement upon this paper, it may be said

¹ Read before the International Congress of Arts and Science at St. Louis, on September 22, 1904.

that the occurrence of primary intestinal tuberculosis is not rare in Japan either among adults or children, although cow's milk is employed but little by us for the nourishment of children.

The following table refers to districts in which man suffered from tuberculosis, but his cattle were free from it (the years considered are from 1896 and 1903); they are the districts Mikata and Osaka at Tasima in Hiyogo-Ken; these districts possess only native cattle:

TABLE III.

Place and year.	Population.	Total number of deaths.	Deaths from tuberculosis.	Total number of cattle.	Number of diseased cattle.	Perlsucht.
1896 { M.....	43,815	807	23 (2.35 %)	5,188	36	.....
1897 { O.....	44,029	768	18 (2.34 %)	5,585	16	.....
1898 { M.....	43,357	936	32 (3.41 %)	5,389	21	.....
1898 { O.....	45,026	697	60 (8.60 %)	1,964	37	.....
1899 { M.....	43,370	805	31 (3.85 %)	5,870	25	.....
1899 { O.....	35,104	704	80 (11.30 %)	1,952	115	.....
1900 { M.....	43,821	778	33 (4.24 %)	5,491	20	.....
1900 { O.....	35,246	673	51 (7.55 %)	2,257	75	.....
1901 { M.....	44,093	701	48 (6.85 %)	5,473	32	.....
1901 { O.....	35,526	642	39 (6.07 %)	2,214	67	.....
1902 { M.....	45,043	762	58 (7.61 %)	5,109	37	.....
1902 { O.....	35,607	684	42 (6.14 %)	2,245	31	.....
1903 { M.....	.....	766	62 (8.09 %)	5,352	25	.....
1903 { O.....	.....	678	88 (13.00 % )	.....	46	.....

M., Mikata; O., Osaka.

TABLE IV.—SIMILAR TABLE FROM THE DISTRICT ABU IN YAMAGUCHI-KEN FOR THE YEARS 1901 TO 1903.

Township.	Year.	Population.	Total mortality.	Mortality from tuberculosis.	Total number of cattle.			Number of diseased cattle.			Perlsucht.
					Native.	Mixed race.	Imported.	Native.	Mixed race.	Imported.	
Sammi...	1901	3,246	51	1 (1.96 %)	426	.....	.....	2	.....	.....	.....
	1902	3,333	48	7 (14.58 %)	436	.....	.....	1	.....	.....	.....
	1903	3,262	73	3 (4.10 %)	418	.....	.....	.....	.....	.....	.....
Udago.....	1901	2,022	33	1 (3.00 %)	202	.....	.....	1	.....	.....	.....
	1902	2,058	29	1 (3.44 %)	203	.....	.....	.....	.....	.....	.....
	1903	2,015	43	.....	203	.....	.....	.....	.....	.....	.....
Fukuga.....	1901	2,839	79	.....	581	.....	.....	3	.....	.....	.....
	1902	2,892	47	2 (4.25 %)	511	.....	.....	3	.....	.....	.....
	1903	2,901	71	2 (2.81 %)	521	.....	.....	3	.....	.....	.....
Susa.....	1901	5,223	98	5 (5.10 %)	418	.....	.....	2	.....	.....	.....
	1902	5,225	91	4 (4.40 %)	414	.....	.....	3	.....	.....	.....
	1903	5,292	106	4 (3.77 %)	404	.....	.....	3	.....	.....	.....
Akiraki.....	1901	2,924	49	3 (6.10 %)	278	.....	.....	.....	.....	.....	.....
	1902	2,547	40	1 (2.50 %)	257	1	1	3	.....	.....	.....
	1903	2,603	39	1 (2.56 %)	268	12	.....	2	.....	.....	.....
Nako.....	1901	3,957	78	4 (5.12 %)	262	.....	.....	1	.....	.....	.....
	1902	3,932	79	4 (5.06 %)	262	.....	.....	.....	.....	.....	.....
	1903	4,058	54	1 (1.85 %)	257	.....	.....	2	.....	.....	.....
Ogawa.....	1901	4,180	106	9 (8.49 %)	825	.....	.....	2	.....	.....	.....
	1902	4,205	87	2 (2.80 %)	734	9	.....	1	.....	.....	.....
	1903	4,247	86	6 (6.97 %)	593	25	.....	2	.....	.....	.....
Tama-saki.	1901	3,952	89	5 (5.61 %)	309	.....	.....	.....	.....	.....	.....
	1902	3,994	83	4 (4.81 %)	267	.....	.....	.....	.....	.....	.....
	1903	3,851	95	4 (4.21 %)	257	.....	.....	2	.....	.....	.....

The following table shows the number of cases of tuberculosis (perlsucht) among the slaughtered cattle found during the years 1901 to 1903 in five large cities:

TABLE V.

Place.	Native cattle.		Mixed races.		Imported.	
	Number of slaughtered head.	Perlsucht.	Number of slaughtered cattle.	Perlsucht.	Number of slaughtered cattle.	Perlsucht.
Tokio.....	72,750	40	5,299	2,293 (43.27%)	4	2 (50%)
Tokio.....	.....	.....	4,416	7 (0.16% )	.....	.....
Kioto.....	17,643	.....	1,139	566 (49.69%)	9	9 (100%)
Osaka.....	50,173	.....	2,808	641 (22.89%)	41	13 (31.7%)
Yokohama.....	30,275	24	4,021	555 (13.85%)	.....	.....
Kobe.....	38,135	.....	501	159 (31.73%)	.....	.....
Kobe.....	.....	.....	1,700	.....	.....	.....
Kobe.....	.....	.....	(calves)	.....	.....	.....

It must be remembered that for a long time neither Tokio nor Yokohama have possessed any purely native cattle; it is highly probable that the tuberculous animals mentioned in the foregoing table as native animals belonged in reality to mixed races, inasmuch as we have mixed races which resemble the native animals so closely that even an experienced veterinary physician cannot distinguish between them.

The examination of bovines (inclusive of the mixed races and the imported cattle) for tuberculosis (perlsucht) which has been carried on in Japan since last September and up to March of this year through tuberculin injections and other methods of examination, has given the following results:

TABLE VI.

Calculations are made on a basis of 1,000 bovines; among them were found the following number of tuberculous:

Tokio-Fu.....	377.54	Yamagata-Ken.....	47.45
Kioto-Fu.....	133.44	Akita-Ken.....	36.72
Osaka-Fu.....	57.66	Fukui-Ken.....	273.98
Kanagawa-Ken.....	147.89	Ishikawa-Ken.....	20.19
Hiyogo-Ken.....	220.79	Toyama-Ken.....	91.93
Nagasaki-Ken.....	45.72	Toritori-Ken.....	14.49
Niigata-Ken.....	26.13	Shimane-Ken.....	2.94
Saitama-Ken.....	332.83	Okayama-Ken.....	11.43
Gumma-Ken.....	298.64	Hiroshima-Ken.....	36.27
Chiba-Ken.....	26.18	Yamaguchi-Ken.....	41.63
Ibaraki-Ken.....	162.72	Wakayama-Ken.....	79.79
Tochigi-Ken.....	187.50	Tokushima-Ken.....	39.89
Nara-Ken.....	209.37	Kagawa-Ken.....	1.47
Miyu-Ken.....	114.30	Yehime-Ken.....	10.48
Aichi-Ken.....	333.47	Koochi-Ken.....	5.30
Shizuoka-Ken.....	14.00	Fukuoka-Ken.....	188.05
Yamanashi-Ken.....	199.77	Oita-Ken.....	20.53
Shiga-Ken.....	169.83	Saga-Ken.....	75.74
Gifu-Ken.....	64.62	Kumamoto-Ken.....	60.06
Nagano-Ken.....	93.08	Miyasaki-Ken.....	55.21
Miyagi-Ken.....	97.20	Kagoshima-Ken.....	24.96
Fukushima-Ken.....	40.89	Hokkaido-Ken.....	87.30
Iwate-Ken.....	6.78	.....	.....
Aomori-Ken.....	7.15	Average of all.....	56.71

The following table shows how little cow's milk is partaken of in Japan:

TABLE VII.

For every 10,000 inhabitants there are milk cows in

Tokio-Fu.....	17.50	Akita-Ken.....	2.64
Kioto-Fu.....	15.78	Fukui-Ken.....	4.90
Osaka-Fu.....	8.21	Ishikawa-Ken.....	5.05
Kanagawa-Ken.....	11.81	Toyama-Ken.....	1.98
Hiyogo-Ken.....	5.60	Toritori-Ken.....	1.35
Nagasaki-Ken.....	5.88	Shimane-Ken.....	2.96
Niigata-Ken.....	3.91	Okayama-Ken.....	3.12
Saitama-Ken.....	2.32	Hiroshima-Ken.....	3.05
Gumma-Ken.....	7.68	Yamaguchi-Ken.....	5.63
Chiba-Ken.....	18.50	Wakayama-Ken.....	4.75
Ibaraki-Ken.....	1.75	Tokushima-Ken.....	1.70
Tochigi-Ken.....	2.70	Kagawa-Ken.....	2.52
Nara-Ken.....	2.86	Yehime-Ken.....	1.42
Miyu-Ken.....	6.49	Koochi-Ken.....	2.00
Aichi-Ken.....	5.08	Fukuoka-Ken.....	3.31
Shizuoka-Ken.....	9.46	Oita-Ken.....	1.36
Yamanashi-Ken.....	2.86	Saga-Ken.....	3.33
Shiga-Ken.....	5.08	Kumamoto-Ken.....	2.37
Gifu-Ken.....	6.37	Miyasaki-Ken.....	1.64
Nagano-Ken.....	9.35	Kagoshima-Ken.....	2.28
Miyagi-Ken.....	3.73	Okinawa-Ken.....	1.84
Fukushima-Ken.....	1.33	Hokkaido-Ken.....	10.16
Iwate-Ken.....	1.61	.....	.....
Aomori-Ken.....	2.05	Average of all.....	5.65
Yamagata-Ken.....	4.87	.....	.....

One milk cow furnishes with us in the course of a year a daily average of five liters of milk. From this follows that in Tokio-Fu each individual consumes daily 8.85 cm., and in entire Japan 2.825 cm. of milk.

I. EXPERIMENTS CONCERNING THE SUSCEPTIBILITY OF NATIVE BOVINES TO IMPORTED PERLSUCHT.

Experiment A.—On January 22, 1904, we treated altogether 15 native calves of pure race (from three to six months old and having a body-weight of from 60 to 90 kilograms), which came from a region where, until now, no foreign cattle had ever been imported, in the following manner:

Each of seven animals was inoculated with 1 cm. of an emulsion containing a pure culture of highly virulent perlsucht bacilli; in two of the animals the injections were made into the cervical vein, in two into the abdominal cavity, in two into the trachea, and one was injected subcutaneously. Each of three calves was permitted to inhale 0.5 gm. of living, but dried up bacilli. The remaining five were each infected with 1 cm. of an emulsion from tuberculous organs, all of which

contained very large numbers of tubercle bacilli; in one the intravenous route, in two the intraperitoneal, in one the intratracheal, and in one the subcutaneous route was chosen.

As control animals, were employed five animals of mixed races. One of these received an injection of the emulsion of the tuberculous organs into the cervical vein, three into the abdominal cavity, and one was permitted to inhale a dried up pure culture.

Before beginning the experiments, each of the calves was injected with 0.3 cm. tuberculin, to determine the existence of previous tuberculosis, but all were found free of the disease.

Three animals died 24 to 72 days after the experiment: the remaining 12 were killed after periods varying from 225 to 363 days.

One calf, which had been given an intraperitoneal injection of an emulsion of the pure culture of *perlsucht* bacilli, died as soon as the twenty-fourth day. At the autopsy it was found, that the intraperitoneal lymphatic glands were swollen, and that the outer lower part of the left kidney contained yellowish nodules. The lungs were markedly hyperemic and contained but little air, but tubercles could not be demonstrated in any part of them. In the renal nodules the microscope revealed a small number of tubercle bacilli, which, when inoculated into the subcutaneous tissues of a guineapig, produced typical symptoms and signs of tuberculosis.

A second animal, which had been injected intravenously with the emulsion from tuberculous organs, was found dead on the fortieth day. The lungs contained very large numbers of tuberculous nodules and the glands of the thoracic cavity were swollen to an enormous size.

The third animal, which had received an injection into the trachea with the tuberculous emulsion, died after 72 days. The postmortem examination revealed both thyroid glands hyperemic and swollen; at the point of injection the trachea was the seat of a mass the size of a pigeon's egg; the surface of this mass was covered with countless miliary tubercles. The lungs contained similar miliary nodules, and the right lung was even adherent to the pleura. The mesenteric glands were normal.

The remaining 12 calves were killed; three of them were more or less tuberculous. The one, which had inhaled 0.5 gm. pulverized tubercle bacilli, was killed after 259 days; the tuberculin reaction before its death gave a doubtful result. The autopsy showed the presence of a few very small nodules in the laryngeal mucous membrane and of one nodule in the anterior wall of the left cardiac chamber; this last one contained very many tubercle bacilli.

The second animal had been injected with 1 cm. of the emulsion from the tuberculous organs; it was killed after 256 days. The tuberculin reaction was positive before its death. The postmortem examination showed the inguinal glands in the neighborhood of the point of injection very much swollen; the liver contained a few nodules; all the intraperitoneal glands were swollen, and some of them were already the seat of cheesy degeneration. The lungs were normal.

The third heifer had received an injection of 1 cm. of the emulsion from a tuberculous lung into its abdominal cavity; it was killed after 280 days. The tuberculin reaction before its death had also been positive. The section revealed the peritoneum and liver to be the seat of a small number of tubercles varying in size from a pea to a small bean; some of them were cheesy. Both lungs were studded with numerous grayish-white, hard miliary nodes.

The other nine animals were found to be entirely free from tuberculosis.

The five control animals were killed after from 217 to 364 days. The autopsy showed four of them to be suffering from tuberculosis and one to be free from it.

If the above mentioned results are considered collectively it will be seen that from among 15 experimental animals six became tuberculous, while nine were demonstrated to be insusceptible. It is further worthy of note that the changes in the infected organs were relatively very slight.

From a review of the entire experiment it can be seen that the native Japanese bovines are to some extent susceptible to *perlsucht* experimentally, but only if doses of tubercle bacilli are inoculated so large as never to be received in the course of a natural infection. We can conclude from this that our native cattle show so little susceptibility to *perlsucht*, that natural infection appears almost impossible.

Experiment B.—The same experiment was repeated on May 27 of this year; this time 33 native calves from 3 to 8 months old, and weighing from 40 kilograms to 90 kilograms were employed. The method of the experiment was exactly the same as in Experiment A. To obviate too frequent repetitions, these experiments will be reported only briefly.

Fifteen of the animals were infected intravenously; in 10 pure cultures of *perlsucht* bacilli were employed, and in 5 the emulsion from tuberculous organs; 8 were infected intraperitoneally (5 with pure cultures and 3 with emulsion from organs); 3 were treated with inhalations of pure cultures, while the last seven were infected subcutaneously (5 with pure cultures, 2 with organ emulsions).

Four mixed race animals were employed as control; in two of them the injections were made intravenously (one with pure cultures and one with organ emulsion); in the other two intraperitoneal injections were given (one with pure culture and one with organ emulsion).

Before the experiment all of the animals were injected with tuberculin; in none of them was a positive reaction obtained.

Of the 33 animals, 7 perished in from five to 63 days after the inoculation with the *perlsucht* bacilli, from a number of different causes. Five of these animals showed some traces of the disease; the other two were entirely free from it.

The remainder of the 33 calves are still alive (August 10, 1904), and apparently in the best of health.

II. EXPERIMENTS CONCERNING THE SUSCEPTIBILITY OF NATIVE BOVINES AND OF THE MIXED RACES TO HUMAN TUBERCULOSIS.

The experiments were performed on 14 calves, of which 6 were Japanese, and 8 belonged to the mixed types. Eight of them were treated with pure cultures; 2 of them were given intravenous, 3 intraperitoneal, and 1 intratracheal injections; 2 were given inhalations; the other 6 were treated with an emulsion made of the organs of a man, whose death was due to miliary tuberculosis; the organs contained numerous fresh tubercle bacilli; 3 were infected intravenously, and 3 intraperitoneally.

The tuberculin reaction before the experiment was negative in all the instances.

Two of the native animals, having had pure cultures injected into the cervical vein, died after 30 days and 56 days. One of them developed high fever eight days after the injection, this persisting for some time; the animal died on the thirtieth day, with symptoms of general debility. The autopsy showed the apices of both lungs dark red, and moderate swelling of some of the glands of the thoracic cavity. The mucous membranes of the pharynx and larynx were inflamed; the neighborhood of the vocal cord was covered with mucus, in which a small number of tubercle bacilli could be demonstrated.

The second animal developed considerable fever about the tenth day, which also lasted for a long time. After 40 days, conjunctivitis appeared in both eyes, this gradually becoming so violent as to destroy vision entirely; death resulted on the fifty-sixth day after the injection, and as in the case of the first animal, seemed to be due to weakness. The organs of the thorax and abdomen were found normal, excepting that the left lung contained a very small pea-sized tubercle, in which a few tubercle bacilli were demonstrable. None of the other organs contained anything abnormal.

In neither of these cases are we permitted to speak of infection, as in the first place, the duration of illness was too short, and in the second place, the tuberculous lesions so slight that they could be found only with difficulty, and it goes without saying that in the short time having elapsed between injection and death the tubercle bacilli introduced into the organism could still have been alive.

The rest of the calves, 12 in number, were killed after from 101 days to 327 days, but in no instance could a trace of tuberculosis be found.

The number of calves and heifers used for these experiments was altogether 71; of these 52 were purely native animals and 19 had descended from mixed races.

The tubercle bacilli from the pure cultures as well as from the tuberculous organs before being utilized for the experiments, had been inoculated into guineapigs to note whether or not their virulence was great enough. All of the guineapigs perished after the usual lapse of time of typical tuberculosis.

From the results mentioned the following conclusions can be drawn:

1. Human tuberculosis is as frequent in Japan as in the civilized countries of Europe and America.
2. Primary intestinal tuberculosis is relatively common in adults and children, although cow's milk plays no role at all in the feeding of children.
3. There are large districts in Japan, where, in spite of the existence of human tuberculosis the cattle remain absolutely free from the disease. In these regions it is not customary to consume either meat or milk from bovines.
4. This is very important proof for the fact that under ordinary conditions human tuberculosis is not infectious for bovines, as the opportunities for infection certainly cannot be lacking.
5. Among Japanese in general very little cow's milk is used and especially is it employed but little for the dietary of children.
6. Under natural conditions the native animals show but very little susceptibility for *perlsucht*. If large doses of *perlsucht* bacilli are inoculated into them either intravenously or intraperitoneally, they become tuberculous to a certain degree; they do not seem to be at all susceptible to subcutaneous infection.

7. The imported and mixed race animals are very susceptible to perlsucht.

8. Human tuberculosis is not infectious for native and mixed race animals.

Before concluding I would like to say a few words concerning the two opposing opinions of Koch and von Behring. As is well known, Koch, at the congress in July, 1901, at London, made the statement, that human tuberculosis is absolutely different from bovine tuberculosis, a conclusion which he had come to after two years of experimentation on young heifers. Von Behring took issue with this statement at the Congress of Natural Scientists, at Kassel, in September of last year. Von Behring believes that the milk taken by nurslings (cow's milk) is the chief source for the development of tuberculosis. He also stated that human tuberculosis is identical with that of bovines.

The fact has already been mentioned, that primary intestinal tuberculosis is quite frequent in Japan, even though the natives drink but very little cow's milk, and even though they employ it but very little for the nourishing of their children; if the mother's milk does not suffice, a wet nurse is instantly taken into the house. This clearly proves that human tuberculosis in Japan can only be transmitted from man to man. And from the fact, that native Japanese cattle are free from tuberculosis, and also are so little susceptible to it, as to make it almost impossible for natural infection to take place, we can conclude, that bovine tuberculosis was imported into Japan only after the introduction of foreign cattle. These importations however began only about 30 years ago, while human tuberculosis has existed in Japan as long as we have chronicles. Of especial deciding importance for the statement, that human tuberculosis is different from that of bovines, is the following: If this were not the case, it would be impossible, to find districts, in which bovines are entirely free from tuberculosis, in spite of their close connection with tuberculous human beings, and who are constantly giving the domestic animals the opportunity to infect themselves.

On account of these reasons it is impossible to trace the tuberculous infection of man back to cow's milk respecting bovine tuberculosis and therefore I must subscribe to the opinion of Koch and say, that the danger of the conveyance of tuberculosis from man to man occupies first place. Concerning the views of von Behring in relation to the mode of infection, I must confess that by us in Japan the milk fed to nursing infants (cow's milk) cannot play a role in the contraction of tuberculosis.

IS MORTALITY NECESSARILY HIGHER IN TROPICAL THAN IN TEMPERATE CLIMATES? ¹

BY

COLONEL V. HAVARD, M.D.,

of New York.

Assistant Surgeon-General United States Army.

Is mortality necessarily higher in tropical than in temperate climates? It is a fact that mortality has been in the past, and is still much higher in tropical than in temperate climates, but is it because of the inherent and necessary effect of meteorologic conditions, therefore inevitable, or is it perhaps mostly the result of the violation of sanitary laws, and therefore preventable? Such is the subject I wish to present to the Medical Association for discussion, a subject which, in view of the extension of our colonial empire may be deemed interesting and important.

According to Cullimore, mortality is greatest within the tropics and gradually decreases as we advance northward. Thus the ratio of deaths from the equator to 20° of latitude is 40 per 1,000; from 20° to 40° is 28; from 40° to 60° is 23; from 60° to 80° is 20. This statement

of Cullimore may contain more or less truth, but is open to so many exceptions that it is almost entirely useless as a practical guide to the study of the vital statistics of any country, the health of cities being the resultant of many factors, of which latitude is only one, and, in my opinion, not the determining one. For instance, we know that New Orleans has a higher mortality than New York, but who will venture to say that it is simply because of its being 10° of latitude further south? London has a mortality ratio of 16, while Glasgow and Edinburgh (4° or 5° further north) have one of 22 or 23, and St. Petersburg (still further north) one of 24 or 25.

It is as yet impossible to state, without indulging too much in speculation, what should be the minimum mortality made possible by modern sanitary science; it will answer our purpose to take as a basis the ratio of the city of New York for 1903, which is 18.18 per 1,000, the lowest yet attained. Let us see what it is in the tropics, especially in those countries which concern us most.

The ratio of deaths for Manila, P. I., since the American occupation, that is for the four years 1900-1903, inclusive, is 45.18 per 1,000; that of the last year being 40.85, therefore showing improvement. The ratio for the city of Havana during the decade preceding the Spanish war, namely, 1888-1897, was 36 per 1,000; this, however, was speedily brought down under American rule. In the city of Mexico, it is commonly above 40; in the Republic of Panama, it ranges from 50 to 60, while in India it often rises above 100.

If we consult the last reports of the Surgeon-General of the United States Army, we find interesting data bearing on our subject. Thus, during the year 1902, our army was about equally divided between the United States and the Philippines (including other Pacific islands and China). While at home the mortality from disease was only 5.66 per 1,000, in the Philippines (Filipino troops excluded) it was 20.85, or nearly four times larger, and for Filipino troops, 22.59. In 1903, medical officers in the Philippines had learned how to contend against the diseases that beset them, and the mortality fell to 11.14 for American troops, and to 18.17 for the Filipino troops. In Cuba and Porto Rico, the 3,274 troops stationed in those islands in 1902, gave a ratio of only 3.36, much lower than that for troops in the United States.

European armies have had the same experience; thus, in 1896, the mortality of British troops in India was 15.29 and at home only 3.58. In 1890, the mortality of French troops at home was 5.81 and in Algeria 11.94.

It is in war time that disease mortality runs beyond all bounds in the tropics, owing to the rapid dissemination in large bodies of men of epidemic infection. Thus, during our little war with Spain in 1898 the ratio of 71 was reached during the month of September, mostly from malarial and typhoid fevers. The highest rates from disease in tropical warfare during the second half of the nineteenth century were reached by French troops in the Soudan in 1888-89, when out of each 1,000 men, 280 died, and in Madagascar in 1895, where, to quote one of their surgeons, "everybody was sick and 50% died." In both of these expeditions the mortality appears to have been chiefly caused by malarial infection, rendered more deadly by the entire disregard of sanitary laws.

In conclusion, let us recognize and admit, that up to this day there has been a greater liability to sickness and death in the tropics.

What are the physical or meteorologic elements of a hot climate capable of affecting health? These are chiefly two: (1) Great and continued heat; (2) high degree of humidity. Regarding the effect of heat and humidity upon body functions and health, a good deal of useful knowledge has already been acquired, but much remains to be ascertained for practical results.

In the tropics, the amount of sweat is enormously increased, often to double the amount excreted in

¹ Read before the Medical Society of Greater New York, October, 1901.

temperate climates; the effect is a diminution of the total amount of blood and low arterial tension. The urine is also much reduced, as well as the output of urea. The excretory function of the kidneys being diminished, more work is thrown upon the liver. Skin and liver are thus liable to be more or less congested, while the lungs are depleted. The pulmonary air cells expand and permit a larger quantity of air to be inhaled; but this greater respiratory capacity is more than offset by the decrease in the number of inspirations per minute, according to Rattray, in the proportion of 17 to 14, so that there is an actual loss of 7.56% in the amount of air breathed. But there is still a further deprivation of oxygen from the fact that, through heat expansion, tropical air contains less of that gas than air of colder latitudes. The result is decreased metabolism, the amount of carbon thrown off by the lungs daily being at least one ounce less. It is an obvious fact, however, that we need less oxygen in the tropics than in colder regions, since the calorific process is much less active. The main object of the oxygenation and metabolism of tissues is the production of heat and nervous energy; but since less heat is lost, through direct conduction and sweat evaporation, in the tropics, less has to be generated, therefore less oxygen is needed.

The atmospheric humidity of tropical islands is often great, but does not always exceed that of our southern Atlantic coast, and is sometimes less; thus the rainfall and air humidity of northern Cuba are distinctly less than along the shore of the Carolinas and Georgia. Great atmospheric humidity prevents free evaporation of perspiration and must more or less interfere with the process concerned in heat generation and the active destruction and renovation of tissue, upon which depends bodily and mental vigor. This decreased evaporation is, however, less than generally believed, owing to the constant air movements on tropical islands, from land to sea during the night, and from sea to land during the day, so that, for instance, the average summer of Havana is less oppressive than that of Washington or any of our Southern cities.

The great central physiologic condition of human health in the tropics is that the production of bodily heat shall be kept down and not allowed to exceed certain limits. Nature helps, in diminishing the proportion of oxygen in the air and its supply to the lungs, and we should assist in reducing the fuel, especially the calorific articles of diet; we further assist by avoiding violent bodily exercise and very active manual and mental labor. The result of this necessary tropical regime is a reduction not only of heat, but also of nervous energy. By the use of a little prudence and discretion, the body is able to maintain itself in a state of normal equilibrium, but the loss of energy is chiefly felt by the mental faculties; there is a diminution of capacity for intellectual labor, an inability to do work requiring continued concentration. The North American or European going to the tropics will generally find it easier to avoid deterioration of body than feebleness of mind. One might infer, from the foregoing remarks, that a tropical climate is conducive to a placid, phlegmatic temperament, while, in fact, the creole, or mestizo, is, as a rule, quick tempered, excitable, and emotional; I leave the explanation to physiologists.

In this connection it may not be too much of a diversion to mention, incidentally, that the keen desire for meat in warm countries (which really exists and is gratified whenever possible, in spite of the opinion of theoretic physiologists that people in the tropics should live exclusively on rice, fish, and fruit), may arise from a need in the economy for a food easiest of assimilation, and capable of generating energy with the least possible heat, if it so happen that the two processes can be dissociated.

Another important effect of heat and moisture is a great increase and multiplication of bacteria, especially of the

saprophytic bacteria, so that decomposition of all organic matter is more rapid and complete. The part played by saprophytes upon human health is rather ill-defined; it is not unlikely that they are more beneficial than hurtful. In southern countries they eagerly attack all organic refuse, rendering the task of the buzzard as scavenger much easier and more agreeable. They are doubtless responsible for unpleasant odors, but it remains to be shown to what extent, if any, decaying animal or vegetable matter, however objectionable to our olfactory nerve and esthetic sense, is a cause of disease.

Pathogenic bacteria are abundantly generated in the tropics, but so are they in temperate climates. The cholera spirillum and *Bacillus pestis* develop as readily on the banks of the Thames and the Seine as those of the Ganges when given a fair chance. Even leprosy was in past centuries as common in Europe as now in Asia. The bacillus of typhoid fever and micrococcus of pneumonia are much more at home in temperate, or even cold climates, than in the tropics, while the ameba of dysentery seems to require a constant high temperature. As to the mosquito, this merciless enemy of the human race, we find it everywhere increasing in number and bloodthirstiness as we go northward, rendering life unbearable during the short summer in Alaska and within the Arctic Circle. It is probable that the *Stegomyia* of yellow fever does not extend very far north, but probably far enough to make possible an epidemic of that disease in any of the large cities of the United States. As to the *Anopheles*, there is probably not a single State in the union where it cannot be found. Even the mosquito responsible for filariasis is not uncommon in our country.

It is now my purpose to consider briefly the principal diseases of the tropics, those responsible for the high mortality, and see to what extent they are preventable, by the application of the modern laws of hygiene. The report of the Board of Health of Manila, the most valued of our tropical possessions, for the year ending April, 1904, will afford us a convenient text.

In spite of the best efforts of the skilled sanitarians who compose the Manila Board of Health, the rate of deaths in that city still remains about 40. Evidently conditions exist there over which the authorities have but little control. One of these is the very careless and ignorant manner in which infants and children are brought up by their parents, and the consequent frightful infantile mortality; thus, while the ratio of deaths under five years, in New York City, during 1902, was 35.80, that of Manila amounted to 57%, being 65, or, in round numbers, two-thirds of the whole during three months of the year. The great bulk of this mortality occurs in the first year of life. Its chief cause is "convulsions;" other causes, but coming far behind, are bronchitis, bronchopneumonia, meningitis, diarrhea and inanition; the result of handling of the stump of the umbilical cord with filthy hands, exposure, want of clothing, crowded and unventilated rooms, and bad or insufficient food. With a view to the reduction of this "slaughter of the innocents," the Board has prepared and disseminated a popular circular giving rules for the care of the newborn and the feeding of infants; a copy is sent to the parents of every child whose birth is reported, and another copy handed by the priest to every mother who brings her child to be baptized. It is expected that the education of the masses and their relief from utter poverty, will in time materially diminish this unnecessary sacrifice of infantile life.

In the city of Havana, where the great bulk of the population is white, and of a higher grade of intelligence than in Manila, children are better taken care of, and the infantile mortality is much less, ranging from a fifth to a fourth of the total number of deaths, therefore lower than in New York, the principal disease causing it being reported as meningitis, instead of convulsions, as in Manila, but probably the same affection in both cities, differently diagnosed.

The disease which is responsible for most victims in Manila, as well as in Havana, is tuberculosis; its rate, in Manila, for the year ending April, 1904, being 4.71 per 1,000, and in Havana, for the year 1902, 3.43. It is manifest that these cities are saturated with the tubercle bacillus, which has found there most favorable conditions for its growth and multiplication. Yet, as an indication that the climate is less at fault than local sanitary conditions, we find that the Americans and Europeans living in Manila, about 9,000 in number, had only 9 cases during the year, or just 1 per 1,000. Among the troops in the Philippines, in 1902, the rate was 1.27, while it was only 0.50 at home; but in 1903 the figures were reversed, being 0.26 in the Philippines and 0.86 in the United States, the greater ratio at home being partly accounted for by the repatriation of invalidated tuberculous patients.

Before the Spanish war, the number of cases of tuberculosis in Havana was about 1,500 per annum; it rose to 2,794 in 1898, year of the war. Under the American occupation, it fell to 1,307 in 1899, to 851 in 1900, rising again to about 900 in 1901 and 1902. The rate for 1902, in New York City, was 2.44, or nearly exactly one point less than in Havana.

The remedy which has proved most efficacious in tuberculosis, as we know, is pure air; but this is only imperfectly available, unless the climate be so mild and equable as to permit patients to spend most of the day and night out of doors. Therefore, this air cure is easiest, most practicable, and should be most successful in the tropics. Unfortunately, there is in Cuba, and other old Spanish colonies, a strong and inveterate prejudice against night air; it is believed to be deadly, and must be excluded at all hazards by closing doors, windows and all other sources of ventilation. This prejudice arose, naturally enough, from the havoc caused in the still watches of the night by those nocturnal insects, the yellow fever and malarial mosquitos. It is my opinion that when Cubans have learned to screen themselves from mosquitos without excluding the air, that when they realize the value of free aeration, night and day, using the flat house roof for dormitory, the danger of crowding in tenement houses, as well as the necessity of clothing their naked children, the chances of reducing the ratio of tuberculosis to the minimum, we should strive for, namely, 1 per 1,000, will be better for Havana than for New York.

One would naturally suppose that where pulmonary tuberculosis is so abundant, other lung diseases would be common; but such is not the case, showing once more the specific distinctness of pulmonary tuberculosis, and also, it seems to me, what little effect climate has in its production, since it does not also favor the development of other inflammatory diseases of the lungs and respiratory passages. Bronchitis, in the Philippines and Cuba, is almost entirely confined to infants and children under five; among adults, it is a negligible quantity. Diphtheria and croup are practically absent in the tropics, and have no effect upon statistics. Pneumonia is the most fatal disease in the city of New York, its ratio for 1902 being 2.58. In Manila (for year ending April, 1904), it is only 0.44, more than a third of the cases being among children under five. In Cuba, where the annual mean temperature is a degree or two lower, the rate is higher, about 1 per 1,000.

Next to tuberculosis, cholera is responsible for the greatest number of deaths in Manila, footing up a ratio of 3.20, while, among our soldiers, the ratio rose to 7.20. Cholera, like other water-borne diseases, is easily preventable, and the Board of Health of Manila has succeeded in extirpating it, so that their reports for March and April of this year do not show a single case.

Dysentery is one of the most dreaded of the endemic diseases of the Philippines, not only because of its mortality of 1.18, but also on account of its tendency to become chronic and inveterate. Only four deaths were reported among Americans and Europeans in Manila.

In 1902, the ratio for the United States soldiers scattered all over the islands, with no opportunity of procuring sterilized water, was 4.60, but, in 1903, under better hygienic conditions, it fell to 1.80. Dysentery is not so easily checked as cholera and still continues its ravages in the Philippines, but there is no doubt that an uncontaminated water-supply would speedily put an end to it. In Cuba, dysentery is hardly known, only three or four deaths from it occurring during the year in Havana.

Beriberi is a common disease of the natives in certain parts of the tropics, causing about as many deaths in Manila as dysentery. Even our troops are not entirely exempt in the Philippines; in 1902 there were 2 deaths from it among white soldiers, 1 among colored and 29 among Filipino soldiers; in 1903, the rates were 3.0 and 22, respectively. In Havana, beriberi is not even mentioned in the reports of the Board of Health as cause of death; it certainly exists in Cuba but is relatively rare. This puzzling disease, of which the germ has not yet been found, attacks mostly natives of poor constitution and undermined vitality. It is undoubtedly preventable, but until its mode of production and propagation is better known, no entirely successful result can be expected.

Yellow fever was once the scourge of the West Indies and South America. American intelligence and energy, during our occupation of Cuba, showed how easily that dreaded infection can be checked, controlled, and then completely stamped out.

Malarial fever, in its protean forms, is common in all warm countries, producing a mortality of 0.93 per 1,000 in Manila, although not a single death among Americans and Europeans. Among our soldiers in the Philippines the rates were as follows: In 1902, white and colored troops 0.66, Filipinos 1.66; in 1903, 1.05 and 2.51, respectively.

Considering the great mortality of malarial fever in the tropics, especially as seen in various military expeditions, it would seem that the plasmodium parasite possesses there a degree of perniciousness and virulence unusual in our northern countries. Whether this is due to the greater heat and moisture of warm climates, or to the natural intensiveness acquired by a parasite generated during long periods of time under most favorable conditions—or whether we have in the tropics (as seems most likely) one or more nonmalarial, still unrecognized types of fever, are interesting questions not yet satisfactorily solved. However that may be, the positive results obtained by the use of mosquito bars, as well as of door and window screens in this country, in Cuba, Italy, the Philippines, Japan, and other places, demonstrate that the prevention of malarial fever, whether mild or pernicious, is a comparatively simple problem.

Bubonic plague produced a mortality rate of 0.49 in Manila, there being but one death among Americans and Europeans. No death occurred among our soldiers, American or native, neither in 1902 nor 1903. It is not known in Cuba.

Typhoid fever was formerly considered a disease of white races, and of temperate or cold climates, but later experience shows that tropical and semitropical countries are also liable to become infected; the victims, however, are mostly foreigners, natives enjoying a large amount of immunity; thus, in Algeria, while the French troops suffer fully as much as at home, the native troops are almost absolutely exempt. Likewise in the Philippines, American troops have a ratio of 0.92, and Filipino soldiers only 0.21. Among our troops in Cuba and Porto Rico, there were but two deaths from typhoid fever in 1902, and none in 1903. During the Spanish war we had a number of typhoid cases among our troops about Santiago, enough to infect thoroughly that unsewered city and its unprotected water-supply; yet, after the departure of our troops, typhoid fever became as rare as it was before our invasion. It is likewise very rare in Colon and Panama in spite of abundant filth. The rate for the whole island of Cuba is quite

low, but for the still unsewered city of Havana, it rises to 0.20, or about that of New York City. Contrary to expectations, the rate is comparatively high in Manila (0.48), Americans and Europeans, with a population of about 9,000, contributing six deaths. It is interesting to note that in the Japanese armies now operating in Manchuria, typhoid fever is almost entirely absent.

Smallpox prevails in all countries and in all climates, whenever permitted to do so; its prevention is simply a matter of vaccination, in the tropics as in the United States. Cuba having enacted a law making vaccination obligatory, in 1900, is now free entirely from smallpox. That republic should have the credit of being first to follow the eminent example of Germany in making vaccination compulsory; since then, France and the Argentine Republic have done likewise. In Manila, 17 cases of deaths are reported, or a ratio of 0.08, about that of New York City for 1902.

Measles and scarlet fever are not tropical diseases; they are rarely met and almost always assume a mild type; they have no effect upon mortality.

There is a group of diseases which assumes great gravity in parts of the tropics. I refer to diseases of the nervous system. Thus, Manila reports the enormous rate of 19 per 1,000 for this group, or nearly half of the total mortality; this, however, includes almost the entire infantile mortality already adverted to, from 250 to 450 children being reported as dying of "convulsions" in that city every month. The infantile death-rate, caused in our large cities by diarrheal complaints, is chiefly produced in Manila by so-called "convulsions." Deducting all nervous affections of children under 5, there still remains a mortality for that class of diseases, in the remaining population, of at least 1 per 1,000. In Havana, the rate is exactly that of New York, namely, 1.50.

Another group of diseases deserving mention, as sensibly contributing to the death list, is that of diseases of the circulatory system, the ratio of its mortality being about 3 per 1,000 in Havana, and only 1.12 in Manila. While in Cuba, I was struck with the number of people suffering from arteriosclerosis; I am unable to offer an explanation for it, but as there were only 18 admissions for diseases of the heart and bloodvessels, and not a single death among our 3,274 soldiers in Cuba and Porto Rico, during the year 1902, the climate can hardly be considered an important factor. During 1903, the rates for American troops in the Philippines, and Filipino soldiers, were 0.25 and 0.84 respectively, while for home troops it was 0.28.

Let us also mention hepatitis and hepatic abscess as a tropical disease; it is generally the sequel of dysentery and will disappear with it. Among our soldiers in the Philippines, one American and two Filipinos died of it, in 1902, and none in 1903. Hepatic abscess is rare in Cuba and other West India Islands.

Leprosy is still too common among the natives of tropical and semitropical countries. No case of death has occurred among our American or Filipino soldiers in the Pacific Islands. That it can be readily reduced by strict isolation, and, in time, completely eliminated, is beyond doubt.

Lately public attention has been called to the dangerous anemia or cachexia caused by the intestinal parasite *Uncinaria duodenalis* (ankylostomum) in Porto Rico; but as this parasite is also common in Europe and in our Southern States, ankylostomiasis can hardly be considered a tropical disease.

Finally, worthy of a passing notice is the "sleeping-sickness" of Africa, produced by a blood parasite (*Trypanosoma*) inoculated into its victims by the bite of a fly, and therefore amenable to the same means of prevention as malarial fever.

After this brief survey of tropical diseases, their rates of mortality and the chances of lowering them, a few words now upon the prevailing diseases or groups of dis-

eases of temperate climates, taking, for comparison, the statistics of the city of New York for 1902, the latest at hand.

In the order of prevalence, these diseases are: (1) Pneumonia; (2) tuberculosis; (3) diseases of the circulatory system; (4) diarrheal diseases; (5) diseases of the nervous system; (6) Bright's disease and acute nephritis; (7) cancer; (8) bronchitis; (9) diphtheria and croup; (10) scarlet fever; (11) typhoid fever; (12) measles.

The first five have already been considered. Bright's disease and nephritis are more frequent in New York than in warm countries, in the proportion of 1.50 to 0.48 for Manila and 0.30 for Havana. Cancer is also more prevalent in New York, its rate being 0.67, as against 0.12 in Manila and 0.54 in Havana. Typhoid fever appears to be about the same, but its rate can be more easily brought down in the tropics, where it shows but little disposition to spread, in spite of the absence of sewerage and the presence of reeking filth.

Of diphtheria, scarlet fever, and measles, it may be said that they are a negligible quantity in the tropics.

To sum up and draw such conclusions as we may, at the risk of some repetition. It appears from the foregoing statistics that the high death-rate of the tropics (outside of the great infantile mortality characteristic of all semicivilized populous countries) is due to endemo-epidemic diseases whose cause and mode of propagation are now pretty well understood and which, therefore, are to a large extent preventable. It is only a question of a few years before yellow fever is completely eradicated from this continent. If, as we all believe, malarial infection is the result of the bite of the anopheles mosquito, a reduction of it to a negligible remnant is certainly within human probability before many generations have passed. As to cholera and bubonic plague they have already disappeared from our colonies in the Pacific. Leprosy may not be cured, but its extension is readily stopped, and its rapid diminution obtained by segregation. Beriberi results from unsanitary food and surroundings and, therefore, is readily amenable to the laws of hygiene.

The great scourge of the tropics, as it is of temperate and cold climates, is the "white plague," tuberculosis, and it is to be combatted by the same means, with better chances of success in warm climates. For reasons already stated, typhoid fever is less at home and less inclined to spread in the tropics. As to the diseases which make up most of the mortality in New York City, a large proportion are of a mild type, uncommon or practically absent in the tropics.

As a final conclusion, it is not warrantable to say that climate plays but a secondary role in the healthiness of any country; that mortality is chiefly dependent upon the character, intelligence, and knowledge of its inhabitants, of their understanding of the laws of hygiene, and the extent to which they apply them to their own special conditions. In other words, human health, in any country, is not according to its climate, but according to its degree of civilization and the quality of its government. This is illustrated in various parts of the world. Rome and Madrid are nearly on the same latitude, but the former has a mortality of 18, and the latter 33. Christiania and St. Petersburg are both on the 60° of latitude; the former has a mortality of 12 to 14, and the latter of 24 or 25. Rio Janeiro is about 22° latitude south and Calcutta about 22° latitude north; the former has a ratio of 22 or 23, and the latter of about 45.

When we occupied Cuba in 1898, we found that the mortality of Havana, for the previous 10 years, had been 36 per 1,000. Ordinary hygienic measures were at once applied and enforced, and means devised to provide work and food to the poorer classes, with the result that the mortality fell to 24 in 1900, and to 21.20 in 1902, remaining about the same in 1903 under the Cuban Republic. Outside of Havana and two or three other

cities, the Cuban mortality ranges from 12 to 16. Let us bear in mind that this result was obtained in Havana in the absence of any sewerage system, there being but a few segments of sewers badly constructed, mostly elongated cesspools, more harmful than useful. I am inclined to believe that when Havana has carried out its intention of constructing a complete modern sewerage system its rate of mortality will speedily fall below that of New York, and that if the Cuban Republic continues, as we sincerely hope, to govern itself with prudence and justice, its capital will become the favorite winter resort of North Americans.

I have already stated that, during the year 1902, the rate of mortality for the United States troops at home was 5.66, while it was only 3.36 for our soldiers in Cuba and Porto Rico; this means that in those tropical islands, as soon as American sanitarians had had time to get the prevalent diseases under control and guard our men from unsanitary influences, the ratio of mortality fell below that of the United States.

We have seen that the mortality of Manila is still very high, about 40. But how is it with the American and Spanish contingent in that city, that is, the more intelligent and well-to-do element of the population? The answer, as given by the statistics of the Board of Health, is interesting. The American contingent is, in round numbers, 4,400 strong, and its rate of mortality during the year ending June, 1904, is 9.05. However, it may be contended that most of the Americans are males, with comparatively few women and children; but it is certainly not so with the 2,500 Spaniards living in that city, most of them probably born and raised there; among them the mortality during the same year was 15.45.

From all that precedes, I may sum up with the closing remark that, with care in his habits and diet, the northerner going to the tropics has, in the absence of epidemic, as good chances of health and longevity as in temperate climates, but must resign himself to the loss of more or less of his bodily and mental activity.

THE TREATMENT OF CANCER OF THE CERVIX UTERI IN ADVANCED STAGES.*

BY

J. WESLEY BOVÉE, M.D.,

of Washington, D. C.

Professor of Gynecology, George Washington University, Washington, D. C.

Probably no disease of the human family causes more distress than does cancer. The great white plague—tuberculosis of the lungs, lays hold on a larger proportion, but even here cure is frequently brought about by fresh air and proper altitudes associated with proper feeding. For cancer no such hope can be offered or expected by such gentle means. It is true, cancer of the cervix uteri, when subjected to radical surgical treatment in early stages offers fair prospects of cure. Unfortunately the disease is of such insidious onset and of such rapid progress that it has passed the curative stage before the gynecologic surgeon is consulted. It has been estimated that fully 80% of the cases of this dread disease, when first seen by the gynecologist, have passed to such advancement as to be readily recognized as incurable.

It is not pertinent herein to discuss the reasons for this nor to offer such suggestions for improving the prophylactic treatment or even the methods of procedure in the early stages of cancer of the cervix. We propose to consider only the 80% of cases mentioned—those in which cure or complete relief is not within the range of

possibilities. One may well ask: "What are the conditions that afford differentiation between the hopeful and the incurable stages of the disease?"

Given a case of cancer of the cervix uteri, what evidence is necessary to determine whether reasonable hope of eradication is gone? This evidence may be well classed under eight different heads, as follows: 1. Age of the patient. 2. Family history. 3. Apparent duration of the disease. 4. Variety of the disease. 5. The amount of excavation already resulting from the disease. 6. The amount of infiltration of adjacent tissue. 7. Involvement of other distant parts. 8. The presence of other physical disabilities that preclude radical surgical operations.

The age of the patient has a marked influence upon the possibility of eradication. The disease has proved to have a much more rapid progress in young women than those far advanced in years. The woman of 60 to 90 will usually live much longer with this disease than will the woman of 28. The progress of the disease in the young woman is remarkably rapid, and usually causes death in 18 months if left alone. In the aged, I have seen them living for six years after I had pronounced them hopeless.

The family history is worthy of consideration, as the disease seems to be more tenacious to those in whose families it has previously manifested its presence. Personally, a family history of cancer presented by a cancer patient has a deterring influence regarding radical surgery. To me it seems wide, and early excision offers them less hope of eradication.

The apparent duration of the disease, as gleaned from the history, has oftentimes a marked bearing on its progress. In some cases, the progress of the disease in the cervix is quite slow, but extension of it to the iliac lymphatics may go on with the usual rapidity.

Variety of the Disease.—The pavement epithelial form of cancer of the cervix is more amenable to radical treatment than is the cervical adenocarcinoma. This latter is the most malignant type of disease of the cervix. That the first mentioned form is the easier eradicated seems almost paradoxical, when we consider that most recurrences after radical operations for cancer of the cervix occur in the cicatrix in the vaginal vault. Winter¹ found this to be the case in 54 of 58 cases he investigated.

The amount of excavation—the size of the crater, as a rule, is in direct proportion to the progress of the disease. This may be deceptive as the infiltration and sloughing of the cervix may be unusually rapid. Usually the large crater is present with marked infiltration of the ligaments and iliac glands. This latter, *infiltration of the surrounding structures*, is the chief guide for deciding cases that might otherwise be considered early ones. The uterosacral ligaments are commonly the first avenue of extension of the disease to surrounding structures. This is especially true if the disease springs from the posterior lip. If from the margins of a lateral tear, it may be that the broad ligament is involved equally early.

The chain of lymphatic glands running along the branches of the common iliac, and especially at their junction, are frequently involved. Emil Ries was the first to plan a really very radical operation for cancer of the uterus and in speaking of it before the session of the Mississippi Valley Medical Association two years ago, claimed it was necessary to remove not alone the uterus, but the broad ligaments, part of the vagina and adjacent tissue, the appendages, and pelvic lymphatics as well. He further says: "I made that claim, because I was convinced from microscopic investigations that carcinoma would invade the lymphatics long before it was suspected." Oehlecker² reports his examination of the glands in seven cases of carcinoma. In two of the seven cases he found microscopic metastases in some of the pelvic, lumbar or retroperitoneal glands and in none of

* Read at a meeting of the Medical and Surgical Society of District of Columbia, November 3, 1904.

them was macroscopic evidence of cancerous degeneration perceptible.

Kundrat³ reports from Wertheim's clinic that in 44 out of 80 cases of hysterectomy for cancer of the cervix the parametrium was involved. The connective tissue between the parametrium and the regional lymphatic glands and the lymph passages in the connective tissue were always found intact, even when the regional lymphatic glands themselves were carcinomatous. He examined 21,000 sections. In 22 the parametrium was intact, and in 8 the glands were invaded while the parametrium was intact. In 18 both were involved. The work along the same line by Wertheim and others in Germany, as well as that of Clark, Sampson, and myself, and the further work of Ries, demonstrates that evidence of involvement of the glands behind the pelvic peritoneum before the disease appears in the uterine ligaments, occurs too often to be considered a coincidence. This is merely mentioned as showing that even early cases that appear very promising may be doomed by this early extension, which is unrecognizable except by microscopic examinations of the pelvic lymphatic glands after operation.

In border-line cases such facts must have great weight in deciding the plan of treatment and reaching a prognosis.

The vaginal wall may be involved. In fact, being subjected to contact with the diseased cervix and the discharges arising therefrom, we should be surprised that vaginal implantation does not occur more frequently than reports indicate. Recurrence after operation is most frequent in this organ.

The bladder and the rectum may be attacked by the extending disease. The ureter may be surrounded by a mass of cancer that even constricts it materially without its becoming infiltrated with the disease. In one of my cases, in which the extended radical operation planned by myself was done in 1898, a ureter was resected because of its dilation above a constriction caused by a cancerous mass. Dr. James Carroll, U. S. A., carefully examined the specimen removed, and declared the mass of cancer surrounding the ureter had not penetrated the ureter itself. This woman died of uremia during my absence from the city last month, and I am informed carcinoma of the liver was suspected. I am led by even this one case to think the ureter is not attacked early by spreading of the disease from the cervix. Nevertheless obstruction to the flow of urine may produce renal complications that ultimately cause death.

Involvement of Other Distant Parts.—We have also to consider extension of the disease to such other organs as the liver, kidney, lung, spleen, and heart. It need not be suggested that ground for reasonable suspicion of such metastasis counterindicates radical surgery.

The Presence of Other Physical Disabilities That Preclude Radical Surgical Operations.—The presence of various other infirmities as severe lesion of the heart, lungs, kidney, etc., would negative radical surgery in even early stages of the disease and places all stages of it in the same category as relating to treatment.

From what has been said it would not seem difficult to find conditions in cancer cases, except very early ones, that would negative surgical procedures calculated to eradicate the disease and which have a primary mortality rate of 5% to 15% or the less dangerous operation, vaginal hysterectomy, which is not to be considered as a radical one.

The question of treatment calculated to give comfort and additional days or months has now to be considered. Of what does it consist? The consensus of opinion of gynecologists is based upon personal experience and particularly that of such specialists as the late John Byrne, of Brooklyn. Curetage and thorough cauterization seem the most successful. In my judgment the galvanocautery and the curet combined, furnish the very best local treatment so far as influencing the progress of the

disease is concerned. The curet should be used carefully but thoroughly, the flow of blood being controlled by either gauze or clamp compression.

The galvanocautery is then carefully employed to destroy practically all tissue between the culdesac of Douglas and the bladder and, laterally between the ureters. The cautery should be applied cold or slightly heated, and held steadily against the tissues until they are sufficiently cauterized. The cautery may then be changed to another point and the charring repeated. This process is continued until the whole area is treated. Great care should be exercised that bladder, ureters, peritoneum, and rectum be not penetrated or injured by overheating.

Of the few different ones I have used, the electrode made by C. Lentz & Sons, of Philadelphia, is the best for this purpose. It acts admirably to check discharges of all varieties from the diseased structures. Subsequent application of this treatment demands unusual care to avoid injury to adjacent structures.

It is very important that no fistula be produced, as in such event the subsequent suffering of the unfortunate woman is markedly enhanced. Another plan I have found of value is the local application of pepsin crystals and sodium salicylate in equal parts, twice weekly.

There are other conditions arising in the course of incurable carcinoma of the cervix that demand our attention. These are principally rectal and bladder fistulas, vaginal implantation or extension, constipation, and pain. Of these the last is most important, though many patients die of the disease without marked pain. When it is present little fear of the opium habit should be entertained. This drug should be given in suppository or pill when possible. Resort to hypodermic administration, or even in liquids by mouth, may be demanded in individual cases.

The dosage should always be governed by the analgesic effect produced. The pain should never be allowed to be severe.

Gelsemium, belladonna, cannabis indica, and hyoscyamus are valuable remedies for this purpose. The relief from pain afforded by the galvanocautery is usually very marked.

The various fistulas are to be treated by frequently changed pledgets of gauze, impregnated with a deodorant, and inserted into the vagina. Attempts by surgical means to close such fistulas through tissue infiltrated by cancer, will always prove unsuccessful to both patient and surgeon. Vaginal cancer is readily attacked by the cautery, and this should promptly be done. After the cautery has been employed to its fullest extent, a malodorous discharge may begin and be exceedingly annoying to the patient and others in close relation to her.

Vaginal douches of .5% to 2% solution of potassium permanganate is probably the most satisfactory remedy for it. These should be employed one to five times daily.

Sometimes the cervix is so much infiltrated that the canal is obstructed, and discharges becoming foul, are confined in the uterus. This is indicated by pain and high temperature. Evacuation and provision for future drainage is the proper treatment.

CONCLUSIONS.

1. Severe surgical operations, involving appreciable mortality rates or a marked degree of additional suffering, should not be employed in the treatment of carcinoma of the cervix uteri, except in very early cases.

2. According to the reports of the exhaustive microscopic examinations in serial sections of the tissue surrounding the uterus in cancer of the cervix, we have no means of knowing before operation that eradication is certain in any given case of this disease, and hence such attempts must be reserved for the very earliest and most promising ones.

3. The galvanocautery offers the best prospects for

prolonging life, relieving pain and lessening discharges in all other cases.

BIBLIOGRAPHY.

- ¹ Trans. German Gyn. Soc., 1901, p. 49.
² Zeitschrift für Geb. und Gynäkologie, 1903.
³ Arch. f. Gynäk., 1903.

AN EXPERIMENTAL STUDY OF LACTIC ACID FORMATION, WITH SPECIAL REFERENCE TO THE STOMACH.

BY

E. PALIER, M.D.,
 of New York City.

The subject of lactic acid in the stomach is of great interest to those who pay special attention to gastrointestinal diseases, and as these diseases enter within the scope of the general practitioner, it should be of some interest to every physician.

Boas first called attention to its presence in the stomach contents in cases of cancer of the stomach, and he considered it pathognomonic of this disease.

Some authors¹ do not attach to it the importance which Boas does, but many think that its presence denotes a grave lesion of the stomach. It seems to me that authors who have previously studied the subject think that lactic acid is formed by the stomach, the same as is hydrochloric acid. Indeed, it has been said² that in digestion lactic acid is first formed and then hydrochloric acid.

The prevalent idea that lactic acid is secreted by the stomach and is useful for digestion is evidenced by the fact that some proprietary mixtures contain it and that such mixtures are extensively prescribed by many physicians. A few years ago, lactic acid was said to be good for summer complaints of children and was prescribed in this affection by some practitioners. How totally irrational this is, will be seen from the simple experiments soon to be described.

The authors who first called attention to the subject of lactic acid deserve great credit; but, as a rule, they have limited themselves to investigating its presence in the stomach, without going so far as to see what takes place in the test-tube in the laboratory, and hence many erroneous opinions have arisen.

Pure lactic acid is a syrupy, colorless, or slightly yellowish, liquid, of a sour taste and an acid reaction. Its formula is $C_3H_5O_3$, and it is found in four isomeric states.³ Of these isomers, ethylidin lactic acid is said to be due to fermentation, and is called "fermentation" lactic acid⁴ and is understood to be due to bacterial development, whereas the other modifications of lactic acid, especially sarcolactic acid, which is found in muscles, is supposed to be formed by some other process than bacterial development, though it is not explained how. My experiments will show that wherever lactic or sarcolactic acid is formed it is due to bacteria, but the bacteria may be of a different nature. The qualitative test for lactic acid or its salts is either a plain solution of iron chlorid or Uffelmann's reagent. Of course, both tests can be applied. The plain iron chlorid test is applied in the following way:

A drop of the official liquor ferri chloridi is diluted with water in a test-tube till an almost colorless solution is obtained. About 5 cc. of this solution is poured into another test-tube, which we will designate as test-tube No. 2. A drop or two of the fluid to be examined is added to tube No. 2, and if the fluid contains lactic acid to a great extent, the almost colorless iron solution of the test-tube will assume a yellowish-greenish color. It is always good to compare tube No. 2, to which the fluid has been added, with tube No. 1, the original solution, and see the difference in color. If the fluid to be tested is turbid, it should be filtered first. If, however, the fluid to be tested contains

little lactic acid, one or two drops of it in about 5 cc. of a colorless solution of iron chlorid will not change its color, but the addition of half the volume or an equal volume of the iron solution will change it more or less to a greenish-yellow color.

This last point is important, as I have not seen it mentioned in books dealing with the subject. Another point is that the addition of some hydrochloric acid even in a weak solution, to the iron solution which has been rendered greenish-yellow by the presence of lactic acid, will immediately entirely decolorize the solution, rendering it entirely colorless. Furthermore, when hydrochloric acid is present, even in a small proportion, in a fluid which contains at the same time lactic acid, the fluid will not give any reaction with the iron solution, i. e., the presence of HCl will prevent the lactic acid from giving the characteristic color to the weak iron solution. To these points we shall revert again.

Uffelmann's¹ reagent is a weak solution of iron chlorid to which a few drops of carbolic acid are added, which give the solution a blue-amethyst color. The addition to it of a fluid containing lactic acid will discharge the deep amethyst color, and will make it greenish and almost colorless. But HCl will also render Uffelmann's reagent colorless; it is stated, however, that whereas the latter renders it absolutely colorless, lactic acid makes it somewhat greenish-yellow.²

I think, however, one can easily be mistaken. Furthermore, when the fluid to be tested contains little lactic acid, and more than a few drops have to be added to get the lactic acid reaction, I have found Uffelmann's reagent to be absolutely unreliable, as the addition of an equal amount of plain water will also decolorize the reagent. The plain iron solution is, therefore, more reliable, unless, as said before, one wishes to employ both tests.

I described the lactic acid test in detail not because I consider it of such importance so far as the stomach is concerned, but simply for the purpose of enabling one to detect this acid in the various articles of food. Its presence in the stomach will be discussed later.

How is lactic acid formed? Pasteur long ago called attention to the fact that bacteria are responsible for lactic acid formation.³ I regret to say that I was unable to obtain the original work of Pasteur on this subject, but as quoted by Macé, it would seem that lactic acid formation in sugar is due only to one kind of bacteria, namely, *B. acidi lactici*, which is a distinct type and labeled as such in the laboratories. This does not seem to be the case, as will be seen from my experiments. It is also well to remember what has been mentioned, namely, that it is said that only one of the isomers of lactic acid is the so-called "fermentation" product, due to bacteria; whereas, the formation of sarcolactic acid in meat seems to be generally assumed to be brought about in some other way.

I will briefly describe my experiments in this connection:

In a test-tube of water I dissolved some cane sugar and tested it for lactic acid. The lactic acid reaction with the tests described before was very faint at the end of an hour. However, by adding to a weak iron solution half its volume of the sugar solution, the reaction is more marked: The same with Uffelmann's reagent. At the end of 48 hours, if the sugar solution was kept at a temperature of 35°, the reaction was more marked. A strong reaction developed at the end of a week or so. On examining the tube at that time there was seen a whitish little mass at the bottom; this mass on being shaken up will rise to the top. The mass appears like a little tuft of down, and on microscopic examination, is seen to consist of fungi. The bacteria found in a hanging drop at the end of a week were few in number. At the end of a few hours bacilli could not be seen in a hanging drop, probably because they were so few. It takes them a long time to develop in cane sugar so as to give a marked lactic acid reaction. The bacillus found was very unlike *B. acidi lactici* of the laboratory. It is rod-shaped and much longer than the latter.

¹ According to Uffelmann, the solution is prepared as follows: Ten cc. of a 4% solution of carbolic acid is mixed with 20 cc. of distilled water, and to this is added a drop of the official liquor ferri sesquichlorati. Zeit. für klin. Medizin, Bd. viii, S. 392.

² Salkowski: Praticum der Phys. und Pathol. Chemie, p. 108.

³ Quoted by Macé, Traité de Bacteriologie, p. 877.

⁴ Riegel: Die Erkrankungen des Magens, I Theil, p. 125.
⁵ A. Mathieu: Traité de Maladies de l'Estomac et de l'Intestin, p. 25.

⁶ Foster's Physiology, p. 1041.

⁷ Aide memoire de chimie, par Ludovic Jammes, p. 211; also Foster's Physiology.

In glucose or grape sugar the bacterial development was more marked, and so was the lactic acid formation. In 48 hours there was a marked lactic acid development in a watery solution of glucose kept at 35°. At the end of a week the reaction was quite strong; a few drops of it added to 5 cc. of a weak iron solution or Uffelmann's gave a marked reaction. The whitish mass at the bottom was bigger than in the case of cane sugar and consisted of fungi and bacteria. The bacterial development at the end of a week was very considerable, the bacilli being *B. acidi lactici*. But in addition there were usually, though not always found an oidium, which seems to be *Oidium lactis* and also fungi. Yeast cells also usually appeared.

Next, I tried several microorganisms, in order to test their power of producing lactic acid.

I made a solution of cane sugar, which, as said before, gives by itself a very weak lactic acid reaction for a few days, distributed it in equal amounts in six test-tubes, kept one a control, and added to each of the remaining five tubes a loopful of a platinum wire of one of the following kinds of bacteria: *B. coli communis*, cholera bacillus, *B. acidi lactici*, *Oidium lactis* and staphylococci, which last I isolated from the stomach contents of a patient affected with carcinoma ventriculi. At the end of 48 hours I found that the lactic acid reaction in the test-tube, to which some of the first three kinds of bacilli was added, was slightly more marked than that of the control test-tube, and the reaction in all three of them was nearly similar; in the one containing cholera bacilli, it being somewhat weaker than in the other two, whereas in the test-tube to which *Oidium lactis* had been added, it was more marked than in the rest. The test-tube, to which the staphylococci were added, gave the weakest lactic acid reaction. I repeated the same experiment several times and found it the same.

I tried the same experiments in other media, but it cannot be so well demonstrated as in cane sugar, because it gives a clear solution, and the preformed lactic acid in it is extremely small, unlike the other media. It will be remembered that I said before that in a watery solution of glucose the bacterial, as well as the lactic acid development, is greater than in cane sugar, and that oidii also usually develop. In cane sugar, on the other hand, hardly any oidii develop. Now, if I add staphylococci to a solution of glucose, no great lactic acid reaction can be obtained. The same occurs in a greater degree yet when *Oidium lactis* and staphylococci are added at the same time to a solution of glucose or cane sugar. There is an antagonism between the staphylococci and the oidii and fungi in general, the former hindering the development of the other two. That this is so, I am convinced, from the fact that when I exposed to the air for 24 hours an open test-tube of staphylococci which I obtained from carcinoma ventriculi, no fungi appeared, though other microbes did appear; and when I inoculated the test-tube with oidii and fungi from another test-tube, they did not develop. This is quite the contrary of what takes place with cultures of other bacilli which get easily contaminated with fungi on being exposed to the air for a short while. The same antagonism to fungi, though to a lesser extent, a few other microbes seem to have. Without entering any further into a discussion of this phenomenon and the use we can make of it in clinical medicine, I will only say that from the foregoing we can learn that many kinds of bacilli by their development will bring about lactic acid formation, the striking exception being the staphylococci.

I also tried solutions of bread, barley, and oatmeal, with the following results:

In the hot summer months a solution of bread in water gave a slight lactic acid reaction at the end of an hour. At the end of 48 hours the reaction was marked; under the microscope a few bacilli could be seen in a hanging drop at the end of an hour, and in 48 hours, numerous bacilli could be seen. The bacteria of several samples of bread which I examined and cultures of which I made appear to belong to the so-called Friedländer group of bacilli, of which *Bacillus coli communis* is one. Indeed, Lehman states that he has isolated the latter bacillus from bread.¹ Barley behaved nearly the same as did bread, and the bacilli developing seemed to be of the same group. The lactic acid reaction remained for weeks without disappearing.

In cold weather a solution of bread or barley gave no lactic acid reaction in an hour, and a very slight one in 48 hours, even when kept in the incubator at 35°. Evidently the cold weather

has some hindering influence on the bacilli preexisting in the bread or barley before the solution is made. Indeed in 48 hours very few bacilli appear in a hanging drop of a solution of these substances in cold weather. In a week or so, however, the bacterial development as well as the lactic acid development is marked. On titrating the acidity at the end of a week with a decinormal solution of sodium hydrate, I found it 40% in barley and 20% for white bread.

Boas claims that oatmeal does not contain lactic acid to any appreciable extent, and he recommends it for a test-meal whenever it is desired to determine whether or not there is any lactic acid formation in the stomach, to avoid the introduction of this acid into the stomach by the food. But I found that oatmeal (I used a sample of the so-called Quaker oats, sold in closed boxes) gave a marked lactic acid reaction in 15 hours when kept at 35°, and there were also bacteria present, but not the kind that I found in bread and barley, but some of the kind which I found in putrefaction of meat, a bacillus which I described elsewhere² and named *Vibrio geniculatus* on account of its assuming a knee-shaped form, and which is anaerobic. In a week the lactic acid formation in a watery solution of oatmeal is 40% the same as in barley, and the bacterial development is considerable. There is also present a slight putrefactive odor as in meat, but much lighter. The oatmeal was tried in autumn. In bread and in barley, as stated before, the lactic acid and the bacteria were slower in developing. But, as the oatmeal had been in a closed box, the cool weather may not have had such an effect on it.

In order to find out whether lactic acid is formed only in the presence of glucose as stated by some,³ I tested the articles named for glucose, and found that bread and barley in a solution of water gave a strong glucose reaction as soon as the solution was made, whereas oatmeal did not show the presence of any sugar in fresh or old solutions, even on the addition of saliva. If some of the oatmeal solution is boiled and then some saliva is added, there is a glucose reaction.³ As for barley, the coarse as well as the fine variety gives the sugar reaction when raw; all we have to do is put some of it in a test-tube of water, shake it well, and examine as described. In barley soup, boiled with meat, I found a strong lactic acid reaction in autumn weather as soon as the soup cooled down after boiling.

The absence of preformed glucose in oatmeal should make it, a priori, an excellent article of diet in diabetes mellitus; the amount formed by the saliva in the mouth cannot be very great. But it has been my experience, and I think that of many others, that oatmeal acts more as a laxative, whereas barley more as a costive. I will not attempt to explain the reason of this, but merely wish to say that I have found oatmeal counterindicated when there is a tendency to diarrhea.

With regard to meat I have found the following:

When a piece of fresh raw meat, just brought from the butcher's, is put in a test-tube in water in summer, there is a lactic acid reaction within half an hour, and in a hanging drop many bacteria are seen. The bacteria which I isolated from some samples of raw meat at the end of an hour were *Proteus vulgaris* and a geniculated microbe, which I described elsewhere. In cold boiled meat, a few hours after it had been boiled, the lactic acid reaction developed in about an hour. The bacillus first found in boiled meat, is motile, and it has a spore at one extremity, which is club-shaped; it has the appearance of the tetanus bacillus, but it is a saprophyte. In 24 hours the lactic acid reaction was very strong, both in raw and in boiled meat; in cool weather it took a little longer to

¹ Medical Record, November 19, 1904.

² A. Mathieu, L. c.

³ I have found the following procedure for the detection of sugar, that is glucose, in any fluid medium to be infallible. Pour into a test-tube about 8 cc. of the fluid to be examined, then add about 4 cc., that is, about half the volume of the fluid, of normal solution of potassium hydrate—with sodium hydrate, the so-called Moore's test, the reaction is not so good—then heat the upper part of the fluid over a Bunsen burner for about two minutes, to make it boil up a dozen times, and if there is little glucose, the upper layer gets yellow-brown, if much glucose, the upper part of the fluid is port-wine red, the middle layer is yellow, and the fluid at the bottom is lighter in color than it was originally. If there is no sugar, there is no change in color. To the same test-tube can be added a few drops of copper sulfate solution, and the so-called Trommer's test tried. But Trommer's and Fehling's tests are very misleading to any one who is not thoroughly familiar with them.

¹ Sternberg's Bacteriology. The bacillus which I isolated seems to be also the coli bacillus.

develop. When meat, either raw or boiled, has been kept in a test-tube of water for about 10 days, till putrefaction has thoroughly set in, the lactic acid reaction greatly diminished, till it almost entirely disappeared. This occurred sooner in raw than in boiled meat. Evidently the lactic acid was transformed into other acids.

To a piece of boiled meat of about 2 cc. I added about 5 cc. of filtered gastric juice, containing the normal proportion of HCl, about 2 to 1,000, and no lactic acid reaction appeared for a few days. Then the solution in the test-tube was tested for HCl; the test was negative, showing that after a few days of contact with the meat the gastric juice, which previously had shown the presence of HCl by appropriate tests, failed to show it any longer. Evidently the free HCl had entered into combination with the meat, and had become what the French call *chlore combiné*, that is, combined chlorids. Of course, we cannot say that the HCl was evaporated or volatilized, for even if it were volatile, the test-tube was kept well closed.

The length of time during which HCl can be detected depends on the proportion of gastric juice to the meat, the more gastric juice the longer the presence of free HCl, and the slower the development of lactic acid. When the lactic acid developed, it persisted for months, unlike the meat to which only water has been added, in which case, as said before, the lactic acid reaction disappears in a few weeks.

This is due to the fact that the many putrefactive bacteria which appear in meat and water only, do not appear in meat to which some gastric juice has been added. One variety of bacteria does appear in the latter as soon as the free HCl disappears; this is the *Vibrio geniculatus* mentioned before, which also appears in the stomach contents in cases of deficiency of HCl. The lactic acid development in the test-tube containing meat and a deficiency of gastric juice as described, is very great; the fluid in the test-tubes after long standing assumes a yellowish color, and a drop of it gives a very strong lactic acid reaction with the reagents mentioned. Evidently the presence of lactic acid in great proportion in its turn prevents the development of putrefactive bacteria and putrefaction. In fact, at the end it arrests all bacterial development, and hence for obtaining lactic acid in a pure state from glucose and cheese, for instance, chalk is added in order to form a lactate, and thus prevent the destruction of bacteria by the acid, which it does as soon as it is formed in considerable quantity.

The same nearly occurs when meat is treated with a solution of pepsin and HCl in the proportion of normal gastric juice. The digestion in this case is, however, greater than with an equal quantity of normal gastric juice, and the lactic acid formation is much slower and less. When a sufficient quantity of artificial or natural gastric juice is added so as to digest the meat entirely, very little lactic acid is formed at first; but it does appear later in the test-tube, probably because the carbohydrates of the meat which are found in small quantities give rise to it, and also because of preformed acid that existed before digestion took place. By digesting egg albumen with artificial gastric juice no lactic acid appears, even months afterward. Egg albumen in itself gives hardly any lactic acid reaction.

When a solution of HCl without pepsin in the strength of 2 to 1,000 is added to meat in the proportion of five volumes of the former to one volume of the latter, lactic acid does not appear for several weeks, and bacteria cannot be seen in a hanging drop for many days. The HCl reaction also persists for a long time, but does disappear at length and some lactic acid makes its appearance.

In meat it is said that sarcolactic acid is formed, it being an isomere of lactic acid. But the tests for both are the same, and from a clinical standpoint it is also the same.

I think the foregoing experiments have clearly shown that in whatever medium lactic acid appears, in meat or elsewhere, it is due to bacteria, but the bacteria differ in the different media.

Before proceeding further I wish to state the following facts: The lactic acid reaction does not take place in the presence of HCl, or in fact any other mineral acid.

Furthermore, when the reaction does take place the addition of a solution of HCl decolorizes the fluid altogether. In other words, when to a weak solution of iron chlorid is added a fluid containing lactic acid, the iron solution turns greenish-yellow; if to this greenish-yellow solution is added HCl in the proportion of 2 to 1,000, it becomes clear like water. HCl also decolorizes Uffelmann's reagent. Lactic acid when present in a fluid, even in great quantities, will not give any reaction with the usual tests when HCl is at the same time present in the proportion of 2 to 1,000. When HCl is present in smaller proportion a lactic acid reaction can be obtained, though it is not very marked; but when the HCl is less than 1 to 1,000 the lactic acid reaction is not interfered with.

The presence of lactic acid in a fluid, then, does not mean the entire absence of HCl, nor does it mean that the latter had never been there. As said before, as digestion takes place the free HCl gradually disappears and fresh HCl must be constantly added, and as the HCl disappears, bacteria and lactic acid make their appearance.

Taking all that has been said into consideration, we can formulate the following laws:

1. Lactic acid develops in all organic substances containing carbohydrates, whether sugar or starch; and in some substances even while yet in solid form, such as bread and meat, for instance, at certain seasons which are especially favorable for bacterial development, some lactic acid exists already; and on dissolving such substances in water the lactic acid reaction can be soon detected.

2. Lactic acid formation is due in all cases to bacterial development, even the so-called sarcolactic acid of meat. Furthermore, many kinds of bacteria can by their development bring about the formation of lactic acid in substances containing carbohydrates; but the bacteria usually vary in the different substances.

3. Lactic acid does not give the usual reaction with the usual tests when an inorganic acid is also present in sufficient strength.

4. The lactic acid development is hindered when there is an antiseptic present, such as HCl, for example, acting against those bacteria which bring about the lactic acid development; but the lactic acid that had been formed before HCl was added is not destroyed when the latter is added. It is only masked as far as the ordinary reactions are concerned and its further development arrested; but it can be separated by means known to chemistry.

5. HCl enters in combination with albuminoids, and after some time it does not give the usual reaction, though it was marked when it was first added; and then bacteria appear, and also lactic acid begins to form, the latter in substances containing carbohydrates.

The foregoing laws are based on what takes place in the test-tube; but what takes place in the test-tube, also does in the stomach. The stomach can no more, nor does it, manufacture lactic acid than the test-tube. But whenever there is deficiency of HCl in the stomach, lactic acid will develop, owing to the bacterial development which takes place in such cases. The bacteria in the stomach, bringing about lactic acid formation, may be various; but whenever there is alimentary stasis with deficiency of HCl, there is usually a bacillus met with which I called *Vibrio geniculatus ventriculi*, and a full description of which I have given elsewhere. The same bacillus also appears in a few days in a test-tube containing cooked meat and gastric juice, the latter in insufficient quantity to digest entirely the former.

Many consider the presence of considerable quantities of lactic acid in the stomach and the deficiency of HCl, as pathognomonic of carcinoma ventriculi. This is, indeed, frequently the case, because in this disease

¹ The separation of organic from inorganic acids is based on Berthollet's law, which is as follows: When ether is added to a fluid containing organic and inorganic acids the former is taken up by the ether. The ether which floats on the top is decanted, then evaporated, and the organic acid thus obtained.

there is ordinarily a deficiency of HCl, and the seat of the disease is usually at the pylorus, which causes obstruction, leading to dilation of the stomach and to alimentary stasis, and hence to bacterial development and to lactic acid. Even when the seat of the cancer is not at the pyloric opening, it will sooner or later lead to weakening of the stomach, to some dilation, and consequently to alimentary stasis and to lactic acid development. Why there is usually a deficiency of HCl in cancer of the stomach, authorities do not explain exactly, but this is generally the case, though not always. In some cases which are, however, not frequent, a cancer may be engrafted on a pyloric ulcer in cases of hyperchlorhydria, and HCl may be present long after the cancer has developed.

But I think we must admit that in many cases of simple atony of the stomach with hypochlorhydria there will also be alimentary stasis and lactic acid present. For it would be quite unjustifiable to say that whenever there is deficiency of HCl and presence of lactic acid, showing alimentary stasis, it is due to carcinoma ventriculi. If it were the case, carcinoma ventriculi would unfortunately be a too frequent disease, for the condition just mentioned is met with in many people, especially in connection with neurasthenia.

The following can be said with regard to lactic acid as far as the stomach is concerned: Whenever the total acidity is 40% or more after a test-meal of a roll of bread and a glass of tea, and the HCl is insignificant or entirely negative, there is alimentary stasis of the previous day or days; for as stated before, the total acidity of bread and water in a test-tube is only about 20% at the end of week. Furthermore, the organic acidity in the stomach contents with a deficiency of HCl is mostly due to lactic acid, as comparatively little of the fatty acids develops in such cases.

I say deficiency of HCl and do not say absence, for in all cases in which there are present great quantities of lactic acid and lack of HCl in the stomach contents the latter is not entirely lacking, but is present either in combination with the albuminoids or in minute quantities in a free state; otherwise there would be putrefaction when there is alimentary stasis, especially if the patient has eaten animal food; and in such a condition as said before lactic acid development is hindered.

I must add that by mixing a few articles of food the lactic acid formation is increased; one way of obtaining this acid in a pure state is to dissolve glucose in water, add to it some cheese, in order to increase the bacterial development, and also chalk, in order to transform the acid into a lactate, that is a salt, and thus prevent the acid which is constantly formed from hindering bacterial development. This is then decomposed by sulfuric acid and extracted with ether. By keeping the mixture for a week I found it reach an acidity of 60%.

When the HCl is less than 1 to 1,000, there will be lactic acid development where there is alimentary stasis, and it will give the reaction with iron. When the HCl is above 1 to 1,000, especially when near 2 to 1,000, there will be no lactic acid development, even in alimentary stasis, and the lactic acid present, which has been introduced with the food, will give no reaction, owing to the presence of HCl. But as the lactic acid which exists preformed in the food is usually small, it is also very small both in chlorhydria and in hyperchlorhydria. In cases of hyperchlorhydria with alimentary stasis, the total acidity, *i. e.* HCl and organic, is sometimes very great. Thus I now have a patient suffering from hyperchlorhydria with alimentary stasis and dilation of the stomach, due probably to pyloric stenosis, though there is no evidence of an ulcer, whose total acidity in the morning an hour after a cup of milk and a roll of bread, reached 108, and the HCl only 40%. After an ordinary test-meal the organic and total acidity is lower, and the HCl is higher. In such cases the organic acidity is usually due to fatty acids, and very little to lactic acid. On sep-

arating the organic from the inorganic acids in the case of the patient just mentioned, I found the bulk of the former to consist principally of fatty acids.

We must not forget that bread may, in some cases, at the end of an hour in the stomach, give a marked lactic acid reaction in the absence of HCl, but as long as the acidity is not very high, we must conclude that there is not any alimentary stasis worth mentioning.

From the foregoing it will be seen that the presence or absence of lactic acid in the stomach contents can give us some information concerning the condition of that organ, but it is positively not pathognomonic of any particular affection, and any one who will rely much on this for making a diagnosis of cancer, for instance, as is done by some very good men, is surely apt to err, though he may succeed in guessing right a few times.

A number of fine tests, both qualitative and quantitative, for the detection of lactic acid in the stomach contents have been devised, but they are useless. If the acid exists in the stomach contents in small quantity, it is absolutely of no significance; if it is in large quantity it can be easily detected by the tests described.

For a test-meal it is generally advised by authors to give a roll of bread and a cup of weak tea without sugar, or at most only one piece. The fear of giving sugar with the test-meal is entirely without foundation, for a solution of cane and even grape sugar gives a very slight lactic acid reaction at the end of an hour. In the presence of a trace of HCl there is absolutely no lactic acid reaction at all. In fact, the other articles of diet, bread included, give sometimes a more marked lactic acid reaction at the end of an hour than does sugar. There is no fear, therefore, in allowing the patient two pieces of sugar with his tea. It will in no way mask the test.

It will also be seen from what has been said that when food is introduced into an empty stomach, there will first be lactic acid present, owing to the fact that some of it is always contained in the food, the amount varying with the kind of food introduced. As soon as the HCl secretion sets in, which occurs gradually, as it takes some time till the full normal quantity of HCl is reached, the lactic acid development is hindered, and its reaction is masked by the presence of HCl in normal digestion or in hyperchlorhydria. In a normal stomach with a light meal there should be no further lactic acid formation. But when the meal is too heavy and it remains in the stomach longer than the usual limit of five or six hours, if the HCl secreted is not sufficient in quantity to digest it thoroughly, lactic acid will develop to some extent. Thus, lactic acid may sometimes appear in a stomach which is fully capable of doing its work under proper conditions, when it is not abused.

It will also be seen that the exhibition of lactic acid in any case of indigestion is absolutely absurd. As an antiseptic it must be given in very large doses to have any effect, which, of course, would be very harmful.

SOME OBSERVATIONS UPON ASTIGMATISM.¹

BY

L. L. DOANE, A.M., M.D., Ph.D.,
of Butler, Pa.

Fellow of the American Academy of Medicine.

In the correction of ametropia, there is no part of the oculist's work more important than the accurate diagnosis of astigmatism. This word is derived from the Greek, and means that the rays of light from any observed point, passing through the refractive mediums of the eye, are not focused upon the spot (stigma) of most distinct vision at the posterior pole of the eye, but are more or less diffused, and produce a blurred image. In simple astigmatism, approximately half of the rays

¹ Read before the Butler County Medical Society, September 2, 1904.

are properly focused, and the part of the image thereby produced is clear and distinct, while the remainder, formed by the rays which have come to a focus too soon and crossed (myopic), or, not sufficiently bent toward each other by the refracting mediums to converge upon the stigma (hyperopic), form more or less indistinctness of outline. In compound astigmatism, hyperopic or myopic, the outlines are blurred in all directions, but more in some meridians than in those at right angles to them.

An astigmatic eye is one that is under a nearly constant strain during the waking hours. Unconscious impulses are continuously telegraphed by the mind to the ciliary muscles, to work in such a way as to produce the clearest image of the object looked at, and this way is an unnatural one, and one that requires an extra amount of muscular and nervous force. If one considers for a moment, he will easily comprehend that the eyes do an immense amount of work each and every day, for they are almost constantly looking in different directions, and focusing for different distances. And not alone in one eye, but the images must be rendered alike in both, and combined to form a harmonious whole, and in case astigmatism be present, the work is more or less, and in many cases very greatly, increased, and the results may be disastrous. The astigmatic eye is like the wheel with a clog—the team may be able to draw its load, but it may also break down in the effort. Certainly, it would do it more easily, and remain in better condition, without the extra work.

We often hear those who are evidently suffering from eyestrain, cite their ability to see well as proof conclusive that they do not need glasses. This is an illusion. A very large percentage of those who need corrective lenses have a moderate error, and one that can be overcome by an effort of the accommodation. There is a stimulus for an eye that can see clearly to do so, and, generally speaking, with a given error, the greater the acuity of vision, the greater will be the resulting strain.

As a basis for this paper, I have taken the records of my last 500 cases in private practice. Some might smile at the idea of drawing conclusions from such a small number, but I believe that a comparatively small number, carefully fitted and studied, is worth more, from a scientific point of view, than a larger number fitted by different persons, many of these assistants and students, who have not had sufficient experience in, nor a proper appreciation of, the importance of the work. It has been said that nothing lies so much as statistics. I believe that the records of a very large number of cases, carried out in such a manner as these referred to, would show very similar results, and I believe they are in accord with my earlier work. No small amount of labor is involved in obtaining the data for even this number of cases.

A cycloplegic was used for nearly all patients under 45, and in some above this age. To determine the state of refraction, the ophthalmometer, the skiascopic mirror, and the trial lenses were the principal instruments used. In some cases the Maddox rod, or the stenopeic slit was used. Parenthetically I would say, that so far as I am aware, I am the first to use the Maddox rod for finding the axis of astigmatism. I will digress sufficiently to describe the method.

The patient is seated 20 feet from a light which is admitted through a circular aperture about 1 cm. in diameter. The rod of light, if astigmatism be present, will be broken, and the segments displaced more or less laterally, in other than the meridian of greatest ametropia. The meridian at right angles to this is the axis of the astigmatism.

In compound astigmatism, the hyperopia or myopia may be first approximately corrected before proceeding to the foregoing. The patient sometimes selects the meridian at right angles to the true one. The method is not sufficiently accurate to be used to the exclusion of

others, but may be worthy of trial in properly selected cases, not usually in children.

In the 500 patients composing our study there were 31 (6.2%) without astigmatism of either eye, 26 (5.2%) hyperopic and 5 (1%) myopic. This is in striking contrast to the work of most opticians we meet; for nine-tenths of the people who come to me, after being fitted by such, are wearing spheric glasses before each eye. The right eye only was without astigmatism in 20 cases (4%). Of these 4 were myopic. The left eye only was found to be spheric in 15 cases, and all of these were hyperopic. The total number of cases therefore requiring spheric lenses before both or either eye, was 66 (13.2%). There was a total of just 100 cases of myopia, including myopic astigmatism, or 20% of all, which is, I believe, in accord with the findings of others. The myopia was bilateral in 83 cases (16.6%). In the right eye only, in 11 cases (2.2%), while the left eye only furnished 6 cases (1.2%). Without a cycloplegic the percentage of myopic cases would, of course, have been apparently greater. How often do we find persons with a little hyperopia, or hyperopic astigmatism, misfitted by the optician and wearing minus lenses:

Mixed astigmatism, that condition in which occurs a hyperopia in one meridian, and myopia in the opposite, was found in both eyes 33 times or (6.6%) of all cases; 21 times (4.2%) in the right, 25 times (5%) in the left, and 79 times (15.8%) in both or either. Some of these cases of mixed astigmatism may represent the transition stage in the passage from a hyperopic to a myopic condition.

In the majority of cases, the meridian of greatest corneal curvature is perpendicular, or at an angle between 45° and 135°. Therefore the cylindrical glass which will make the cornea symmetric in such cases must have its axis in some one of these meridians; either at, or inclining toward, the perpendicular in hyperopia, and in the correspondingly opposite meridian in myopia. This is called astigmatism (with the rule), and hence the exceptions are classed as astigmatism (against the rule). Of the 500 patients considered, 64 (12.8%) were found to have this disposition of the axes in both eyes; 41 (8.2%) in the right eye alone, and 29 (5.8%) in the left eye alone. Therefore, a total of astigmatism against the rule in one or both eyes, of 134 cases (26.8%). The percentage of these cases is really a little greater than these figures would indicate, for they should be compared with the total number of astigmatic cases, which is 469. This gives a percentage of astigmatism against the rule of 28.6%. Thus we find that this form of astigmatism is not very uncommon. It is said to cause more trouble than the same amount with the rule. It is also more prevalent in the later than in the earlier decades of life, and recently published statistics would show that there is a tendency in the same individual to a change of axis from the perpendicular toward the horizontal in hyperopic astigmatism, and conversely in myopic astigmatism, as he passes upward in years. A study of these 500 cases would tend to confirm these observations. For the purpose of comparison, a division of the cases was made at the presbyopic age, 43, and the number of persons at or above this age, with astigmatism against the rule in one or both eyes, was found to be 47. Under this age there were 87 cases of the same kind, making a ratio of practically a half. Corresponding cases with the rule, at 43 or above, were 80 in number, and those under 43 were 290, a ratio of less than one to three. In these estimates, an axis of 45° or 135° was considered to be with the rule. If these had been thrown out, the proportion of astigmatic cases against the rule would have been a little greater, but the ratio of the numbers given would probably not have been materially altered. Again, with reference to the axes, we find that of the 444 cases of astigmatism in both eyes, they were at 90° or 180° in 112 cases, about a fourth of all. In the right eye alone, the other being spheric, or having astigmatism

at an "off" axis (other than perpendicular or horizontal), the axis was at 90° or 180° in 50 cases, and correspondingly in the left in 63 cases, making a total of 225 cases wherein the axis was at 90° or 180° in either or both eyes, which is nearly half the total of astigmatic cases.

Another interesting point in the study of the axes of astigmatism, is in regard to their symmetry. They are said to be symmetric, when both axes are at 90° or 180°, or when they are at corresponding meridians between these two extremes; in other words, when both are at the same distance from, but on opposite sides of, the perpendicular. For example, as 90° is at the perpendicular, axes placed at 75° and 105° respectively, would be symmetric; also those at 15° and 165°, etc. Of the 444 cases of astigmatism in both eyes, 169 (38.1%) were symmetric, and 211 (42.2%) were within 5° of symmetric. Symmetry of axes tends to lessen the strain of astigmatism, or perhaps more aptly speaking, asymmetry tends to increase it; for the nervous impulse sent to the muscles of accommodation, should be the same in each eye, along symmetric nerve filaments to corresponding muscle fibers; and when the axes are not thus favorably placed, there must be a sort of counter-movement, or readjustment of the first impulse. Indeed it would be impossible to analyze precisely the minute steps in the series of processes undergone by nerve and muscle in these different forms of asymmetric astigmatism, and the resultant changes in local and systemic conditions. It may be readily perceived that one axis may occupy any meridian between 0° and 180°, and that the other may be at the same, or any other meridian between these two points. As a matter of fact, the axes are usually on opposite sides of the perpendicular, and of the 444 cases of astigmatism considered, only 23 (5.2%) were upon the same side. Curiously enough, of these 23, all but 7 had both axes in the same meridian, and out of these 7 cases, only one had both axes more than 15° apart. These patients with astigmatism with axes upon the same side, have always presented themselves to my mind as carrying two loads upon the same side, or being top-heavy, instead of dividing them between the two in order to be properly balanced.

Success in the fitting of glasses depends in large measure upon the accuracy with which astigmatism is corrected, both as to amount and position of axis, and this axis in the corrective glass should be carefully determined, and not guessed at. Many patients have the axis of their astigmatism, only a few degrees off the perpendicular or horizontal, and a cylinder with axis at 90° or 180° will not properly correct them.

Dr. Gould has recently called attention to the fact that spinal curvature may be caused indirectly by the axis of astigmatism in the predominating eye being at about 75° or 105°, the head being tipped to that extent to one side in order to obtain more distinctness of outline in objects observed. One will often notice this tilting of the head while the shadow test is being made, as well as during the testing by trial lenses.

Briefly recapitulating, of these 500 cases, selected by beginning with the last even hundred and counting backward, there were 31 bilateral spheric cases, 26 hyperopic, 5 myopic. The right eye only spheric in 20, the left in 15, and all hyperopic but 4 cases of myopia, which occurred in the right eye. Total of spheres required before both or either eye, 66. There were 100 myopic cases, including myopic astigmatism; bilateral in 83, right eye only, in 11, left eye only, in 6; 33 cases of mixed astigmatism in both eyes, 21 of the right, 25 of the left, and 79 of both or either eye. Bilateral astigmatism against the rule, 64 cases, right eye only 41, left eye only 29, and of both or either 184. Of these, 47 were at or above the presbyopic age, 87 under, while with the rule there were 80 cases above this age and 290 under, making the ratio of cases of astigmatism against the rule in the presbyopic, nearly twice as great as it is in those under this age. In about a quarter of all cases of

bilateral astigmatism the axes were at 90° or 180° in the right eye only 50, in the left eye only 63, and in both or either 225 times, nearly half of the total number of astigmatic cases; and of these again, the axes were symmetric in 169 cases, and within 5° of symmetric in 42 cases more. In 23 the axes were on the same side of the perpendicular, and more than two-thirds of these had their axes identical. Astigmatism, particularly the asymmetric forms, and those known as astigmatism against the rule, is the source of various local and general disturbances and requires an accurate correction for the allayment of these symptoms.

In conclusion, I would say that at this day and age, the refracting optician is an anachronism, and should be relegated to the same condition of oblivion as the surgeon barber. He cannot possibly be competent to do the work, and all young people with ailments referable to their eyes, and all presbyopic patients who have formerly enjoyed good vision, and cannot pick out glasses at a jewelry store that will give them comfort and satisfaction, should consult the oculist. Refraction properly belongs to the physician, and when the general practitioner, and in turn the laity, commonly appreciate this fact, there will be no room for the refracting optician.

FATAL CASE OF CEREBELLAR ABSCESS.

BY

JOHN H. ALLEN, M.D.,

of Portland, Me.

Aural House Surgeon, Massachusetts Charitable Eye and Ear Infirmary, Boston, Mass.

The following case of cerebellar abscess in which a correct diagnosis was not made, presents, on account of its somewhat indefinite course, certain features of interest:

History.—The patient, A. P., a male of 16, and a native of Newfoundland, presented himself at the outpatient clinic of the Massachusetts Charitable Eye and Ear Infirmary on July 8, 1904. He was found to be suffering from a left acute otitis media, with slight tenderness over the mastoid, and was admitted as a house patient the same day. He was a young man of good physique, good family, and fair education. He had been without previous serious sickness, and his history contained nothing bearing upon the present illness, except the occurrence of an earache, accompanied by a discharge of short duration about a year prior to the present attack. The present attack had begun three days before admission, with severe pain in the left ear. Tenderness over the mastoid had been noticed for two days. The membrana tympani was found to be moderately bulging in the posterior superior quadrant. There was a free discharge of mucus from a paracentesis cut which had been made, in the outpatient department before admission to the House. There was a moderate amount of mastoid tenderness, especially over the antrum and tip. The temperature was 100.2°, the pulse 90, and the respiration 25. A Leiter cold coil was applied over the left mastoid, and the ear syringed once in four hours. There were no unusual symptoms until two days after admission, when the patient vomited; he also complained of pain in the ear, and the drum-head was therefore freely incised, under gas. The next morning the condition was unchanged, except for very noticeable dulness and apathy; the patient answered questions intelligently and promptly, but immediately resumed a listless appearance, with the lower jaw dropped and a vacant expression. Pain in the ear was again complained of, and as the previous incision had partly closed, it was reopened. The following day the temperature reached 101°, the pulse was 80, there was no pain in the ear, but there was headache in the left temporal region, and numbness in the hands and feet. The posterior superior wall of the membranous canal, which had not before shown any sagging, was now slightly drooping, the tenderness over the tip and antrum continued, and the patient was prepared for operation.

Operation. (July 13, 1904.)—The usual mastoid operation was done and a considerable amount of pus found immediately beneath the cortex, the antrum was opened and pus and granulations removed by curetting. Cells containing granulations were found extending far backward toward the occipital bone.

Following the operation, the patient's general condition markedly improved, and for 10 days, except for a slow pulse, he seemed to be convalescing favorably and rapidly. His expression became natural and animated; the pallor which had previously existed was replaced by a good color and the headache and other disturbing symptoms disappeared; the pulse, however, which had previously been between 75 and 90, began

to drop after the operation until, on the third day after the operation, it reached 55°. For the next 10 days it averaged about 60°, usually dropping to 55° at night, and occasionally reaching as high as 80°; the temperature ranged a little above normal—from 99° to 100°; the wound was clean and granulating well; the middle-ear discharged slightly.

Ten days after the operation, the patient began again to complain of headache, now in the left frontal region; he became drowsy and the former condition of mental dulness returned. The headache (in the same location) and the drowsiness and hebétude continued unchanged for the next four or five days.

At this time the knee-jerks and other reflexes were normal; Babinski's sign was negative; there had been no aphasia; there were no sensory or motor pareses and no dizziness; the optic discs were clear; and there was no reduction in the high limits of hearing, as shown by the Galton whistle.

On the fifteenth day after the operation, he vomited in the morning, and, in the afternoon the temperature went up to 102°; the headache became violent and at night it was necessary to give morphin subcutaneously to control the pain. The temperature returned to normal the next morning and again reached 102° at night; during the day the headache was less severe. There was a leukocytosis of 15,000, and it was decided to reopen the wound and explore the dura for a possible path of entrance of infection to the brain.

Second Operation. (July 30).—The granulations were curetted out of the wound, and the sinus, which was normal in appearance, uncovered for a space of about 15 mm. The posterior wall of the bony canal was taken away, and the roof of the antrum and middle-ear removed, exposing the dura for an area of about 1 cm. in diameter, but, as the dura appeared normal, no puncture was made and the wound was closed.

Following this operation, for 24 hours there was little change in the patient's condition. The temperature remained slightly above normal, the pulse was in the neighborhood of 70, but the headache, which had previously existed in the frontal and temporal regions, was now transferred to the right occipital region and, on the second and third days after operation, the patient vomited several times. The headache became less, but a somnolent condition developed, which gradually increased and continued through the following day. The pulse which was 100 in the morning of the third day after the operation, dropped to 55 in the afternoon. The mental condition remained about the same as for the three days preceding; the patient apparently sleeping quietly, but being easily aroused and answering questions intelligently, though briefly; occasionally with some irritation of manner and a manifest desire to be left undisturbed. This condition continued until late in the afternoon, when a period of active delirium occurred, lasting an hour. An examination of the eyes showed them to remain normal.

At 1 the following morning (August 4), Cheyne-Stokes' respiration developed, and the patient was in a semicomatose condition, but could still be aroused, and recognized visitors.

Under these conditions, and, in the absence of any localizing symptoms, it was thought best to tap the temporal lobe, in the hope of finding an abscess.

Third Operation. (August 4, 10 a.m.).—The wound was reopened and the incision extended upward, making a flap over the squama. The squama was opened with chisel and rongeur, exposing the dura from the tegmen to a point 4 cm. or 5 cm. above, and for a space about 3 cm. in width. The dura appeared normal in color. An incision about 15 mm. in length was made in the lower part of the exposed area, and a grooved director passed, in several directions, into the brain substance, without result. Another incision was then made in the dura over the tegmen tympani, and the director passed inward at this point, but no pus was found.

The patient bore the operation well, the pulse and respiration improving under ether, and he recovered sufficiently to speak, but would not answer questions. At noon the temperature began to rise, reaching 103° at 8 p.m.; the pulse became rapid, feeble, and intermittent; the respiration returned to the Cheyne-Stokes' type, and death ensued at 11 p.m.

Pathological Diagnosis.—Suppurative mastoiditis. Abscess of the cerebellum. Pneumococcus infection. The pia was congested throughout, and the sulci infiltrated with turbid fluid; the cerebrospinal fluid was perfectly clear. On removing the brain from the skull, an abscess somewhere below the tentorium cerebelli ruptured, and a large quantity (about 30 cc.) of light yellow, odorless pus escaped. A perforation was found in the cerebellum, at a point corresponding approximately to the internal auditory meatus, which may have been produced by the unavoidable trauma in removing the brain. There was no adhesion between the cerebellum and the temporal bone. On section of the left cerebellar lobe an abscess cavity, about 4.5 cm. in diameter, was found, taking up a large part of it. This abscess cavity showed no sign of a pyogenic membrane, and was evidently comparatively recent. The perforation in the tegmen tympani corresponded with a lacerated wound of the temporal lobe, made by the exploratory operation, and was free from pus. The venous sinuses were all free, and the brain, on section, was elsewhere normal. Smears from the pus in the abscess showed a lance-shaped diplococcus, with a definite capsule staining by the Gram eosin method. Many of the cocci showed degenerative changes. The cultures taken were negative—the organism in the smear evidently being dead.

The foregoing case was admitted to the Massachusetts Charitable Eye and Ear Infirmary upon the service of Dr. Clarence John Blake, through whose courtesy it is reported.

Remarks.—The vomiting and mental dulness in the early history of the case gave rise to a suspicion of cerebral complications. This was further strengthened by the headache and by the slight paresthesia of the extremities. With the disappearance of these symptoms, however, after the first operation, nothing remained of a suspicious nature, except the slow pulse, which then developed. The recurrence of the mental symptoms, and of the headache, associated with the slow pulse, confirmed the previous suspicion of the existence of an abscess of the brain. There were, however, no localizing symptoms, the headache was variable in its location, there were no pareses, nor was there aphasia, and examination of the wound gave no indication of the site of the abscess. Had there been vertigo, if the respiration had been affected in correspondence with the pulse, or if the high limits on the Galton whistle had not been heard, indicating an involvement of the labyrinth with a possible pathway of infection through the internal auditory meatus, a diagnosis of cerebellar abscess would have been justified. In the light of the autopsy finding, it is evident that the final localizing of the headache in the occiput warranted the exploration of this region, the operation upon the temporal lobe having proved fruitless.

SPECIAL ARTICLES

AMERICAN MEDICINE.

BY

E. J. KEMPF, M.D.,
of Jasper, Ind.

Will the future medical historian speak of an "American medicine" in the same way and manner as we consider a "Grecian medicine"? Professor Nicholas Senn, of Chicago, one of the leading modern surgeons of the world, writes from Europe to *American Medicine*, concerning the future of medicine in the United States as follows:

During the period of the greatest prosperity of France, Paris was the center of the medical science of the world. The university and great hospitals were crowded with practitioners and students from the adjacent and most remote countries. It was generally conceded that medical education could not be finished without a more or less prolonged visit to the great medical institutions of Paris. Nélaton, Velpeau, Malgaigne, and Dupuytren in surgery; Louis, Broussais, Trousseau and Broca in medicine, were some of the strongest attractions whose influence molded the teachings and practice of the art and science of medicine and surgery the world over. Most of the books written by these distinguished celebrities were translated into English, German, and other living languages, and became the recognized authorities in most of the medical schools. Medical science is deeply indebted to the French investigators, who have done so much in eliminating erroneous ideas and in establishing facts by original research and careful clinical observation. Without a Pasteur, bacteriology might have remained unborn at the present time. Peon and Ollier were recognized masters in laying the foundation of modern surgery.

Since the awakening of Germany in 1871, after her victorious conquest against France, the seed of science has flourished upon her soil, and has yielded fruit which in quantity and quality has surpassed anything heretofore accomplished in the same space of time. The universities of Germany, with their model laboratories and hospitals, have become the acknowledged medical centers of the entire world. How long Germany can hold this supremacy it is impossible to predict.

It is not so difficult to predict where the next temple of medicine will be erected. In less than 25 years the United States will be the Mecca toward which the pilgrim medical students from all climes will wend their way. Science has been moving westward, and will continue to do so in the future. The United States is in its direct pathway, and will be reached in due course of time. The young, vigorous, private institutions so richly endowed by our public-spirited men of wealth will become the great centers of learning and will meet their

exalted future requirements in a way that will astonish the outside world.

Is it not a good idea to review in a brief manner the history already made by American physicians? Answering this question in the affirmative, I herewith present a brief history of American medicine, divided into colonial medicine, and the medical history of the United States.

Colonial Medicine.—With the first colonists and settlers along the Atlantic seaboard, from Massachusetts Bay to Georgia, there came medical men, incited by feelings similar to those which led to the emigration of their countrymen, and we may suppose, in many instances, by the desire to accompany their neighbors, friends, and portions of their own immediate families. They brought with them a fair share of learning and practical knowledge of the time, such as was attainable by the aid of different medical institutions of their native land. Some of them had availed themselves of the opportunities of travel and of study in celebrated medical schools of Europe. There were others again who appeared in the double capacity of divines and physicians, and made themselves acceptable in both.

The first physician of whom we have any knowledge, at this period, was Dr. Samuel Fuller, who was one of a company that came over in the first ship, and was, moreover, a deacon in the Rev. John Robinson's church. The zealous and sturdy Puritans lost no time in laying the foundation of a literary institution for the promotion of learning. Only 22 years had elapsed from the date of their landing on a bleak shore to the holding of a commencement (1642) at the nascent college of Harvard, in which Samuel Bellingham and Henry Sallousteall were graduated in the faculty of arts. Leonard Hoar was graduated at Cambridge in 1650, and repaired to England, where he studied medicine. Never, it is believed, has a single family furnished so many disciples of Hippocrates as Charles Chauncy, President of the Harvard College in 1652. This gentleman received a medical education in England, and had six sons educated at Harvard College, all of whom studied medicine; and according to the testimony of Dr. Mather, were all eminent physicians. Among those who were both preachers and physicians, mention may be made of Drs. John Fisk, Nathaniel Williams, and Thomas Thacher, who figures as the first medical historian of the United States.

Among the physicians who lived in the early period of the English settlement in New York, were Drs. Dupey, Dubois, and Nicoll. Cadwallader Colden, lieutenant-governor of the province, was a distinguished physician, and published his opinions on the best treatment of a malignant fever, which was very destructive in the city in 1741. Dr. John Bard, whose professional career extended over nearly half a century, wrote an interesting account of a malignant pleurisy which had prevailed in Long Island, in 1749, beside some other papers on medical subjects. The first example of dissection for anatomic instruction in the colonies was that of a man who had been executed for murder in 1750. The autopsy was made by Drs. John Bard and Peter Middleton.

During the colonial period of the United States history, many learned and enterprising medical men emigrated from Europe, and established themselves in Pennsylvania. Among these we may mention, Dr. Thomas Wynn, an eminent Welsh physician, who, after practising with much reputation in London, came to this country in 1682, with the original settlers. He was accompanied by his brother, who was also a medical man. Contemporary with these gentlemen was Dr. Griffith Owen, who took the lead in the practice of the profession. His death occurred in the same year in which Dr. Graeme arrived from England, in the company of the Governor, Sir William Keith. Dr. Lloyd Zachary, who died in the prime of life, deserves special notice, as one of the founders of the Philadelphia College and of the Pennsylvania Hospital, and a contributor to both. Dr. John Kearsley, known both as physician and surgeon, endowed a hospital for poor widows. One of the earliest publications on a medical subject, which had yet appeared in Philadelphia, was an essay on the "Iliac Passion," written in 1740, by Dr. Thomas Cadwallader. Dr. Redman was a graduate of the school of Leyden, at a time when the celebrated Gaubius was a professor at the school. Redman was the

first president of the College of Physicians of Philadelphia. Contemporary with Redman, were the brothers, Thomas and Phineas Bond, Evans and others. Dr. Thomas Bond was a native of Maryland; he traveled in Europe and visited medical centers to gather medical learning, as taught in the countries of the Continent. He began his professional career at Philadelphia, where he may be regarded as the first to gain distinction as a medical teacher and practitioner. Dr. Phineas Bond shares with his brother and with Thomas Hopkinson the honor of founding the college which was the precursor of the University of Pennsylvania.

Colonial Practice of Medicine.—In the interior towns and throughout the colonies the practice of medicine was, however, as could only be expected, in the hands of medical men not sufficiently educated to practise medicine in a scientific manner. They did the best they could, however. Students were forced to learn from books without the aid of practical demonstrations, and doctors gained knowledge through mistakes, killing not a few patients in the course of their experiments. People were bled for fevers and for fainting fits; .65 gm. (10 gr.) of calomel was a usual dose for an adult, and cases of salivation, with the loss of teeth, were of common occurrence. Still the country doctor, whose saddlebags were the only drug store within 20 miles, who was every one's friend, and who for a radius of 10 miles or more ushered all the babies into the world and closed the eyes of the dead, was a power in the land, who ranked next to the justice of the peace, if he was not one himself, and to the minister. He did his best for all his patients, and thought far more of their good than of his fee, often riding 10 miles for less than the city doctor asked to step next door. With tears in his eyes, he refused cold water to his fevered patients, and denied them fresh air to weak lungs from the kindest of mistaken motives.

Most of the remedies in his saddlebags are unknown to the present generation, and he had few or none of the weapons with which the medical men of today fight disease and death. Laudanum was the best sedative in his pharmacopeia, while prior to 1820 he knew quinin only in its original form as Jesuit's or cinchona bark, which, administered in powder, called for such large doses and was so costly as to be practically useless to the masses. People took huge doses of sulfur and molasses in the spring to cleanse the blood. As a rule, it was believed that the efficacy of a drug was in exact proportion to its nauseousness, and no one had faith in small doses. A college course was even later expensive and not obligatory. To have read with a doctor was all that public opinion required, and in a doctor's office there were usually one or more students whom the doctor taught what he knew, to the best of his ability; what they learned depended on their own efforts.

Medical Colleges of the Colonial Period—1765.—Dr. William Shippen, Jr., a student of John Hunter, gave a course of lectures on anatomy and obstetrics about the year 1760. This led to the formation of a Medical Department of the College of Philadelphia in 1765, which lectures were regularly delivered until the winter of 1775, when the War of the Revolution interfered. Shippen became the chief physician of the Continental Army, and was elected by the Congress of the Colonies as director-in-general of army hospitals. During the latter winters of the war Shippen returned to Philadelphia to deliver a course of lectures, shortened by the necessities of the case. These lectures were the beginning of the Medical Department of the University of Pennsylvania, which is in fact the legitimate continuation of the first medical school of America.

In 1768, a medical school was organized under the direction and government of the College of the Province of New York, then called King's College, and a board of professors appointed to teach the several branches of the medical sciences. The instructors in this early school were Samuel Classey, professor of anatomy; John Jones, professor of surgery; Peter Middleton, professor of physiology and pathology; James Smith, professor of chemistry and materia medica; John V. B. Tennent, professor of midwifery; and Samuel Bond, professor of the theory and practice of physic. On all these branches lectures were regularly delivered; and the degree of Bachelor of Medicine, and Doctor of Medicine, were conferred by the college. The first mentioned of these degrees was conferred upon

Samuel Kissam and Robert Tucker in 1770. The establishment of a hospital in New York soon followed. The first medical library in this country, created during the colonial period, is to be credited to the Pennsylvania Hospital; and the first medical society was organized in the province of New Jersey. The first insane hospital was built at Williamsburg, Va., in 1773. It may be seen from this short sketch of the colonial history of American medicine that our school is a direct offshoot from the European schools of medicine, to which the first medical men of our history had to go to acquire medical knowledge.

The Medical History of the United States.—The most conspicuous medical man of the time when our forefathers were struggling for the independence, which we are now enjoying, was Benjamin Rush, after whom is named the Rush Medical College of Chicago. Rush was one of the signers of the Declaration of Independence, and a member of the Continental Congress. He was born near Philadelphia, 1745, was educated at Princeton College, studied medicine in Philadelphia, London, Edinburgh, Paris, and in 1769 was made professor of chemistry in the Philadelphia Medical College, and became a contributor to medical knowledge. Several years afterward, he was appointed professor of the theory and practice of medicine in the Philadelphia College of Medicine; and was so successful in the treatment of yellow fever, in 1793, that it was said of him that he saved the lives of over 6,000 persons. His practice in consequence became so large that he prescribed for his patients even at his meals. He seems to have been equally successful as a politician in his day, and in 1779 he was appointed Treasurer of the United States mint, which post he held until his death in 1813.

As an accurate observer of disease, Rush was correct and exact, and his descriptions of diseases are even today considered both classic and reliable. He recognized but two kinds of remedies—stimulants and depressants, and held it to be the principal duty of the physician to decide as to which were most advisable in a given case. He called calomel the "Samson of the *Materia Medica*," and prescribed enormous quantities of the drug.

The early history of yellow fever is involved in obscurity, but it is known that the disease became epidemic in the United States in the year 1793 for the first time. Concerning the epidemic Dr. Rush says: "The report of a malignant and fatal fever being in town spread in every direction, but it did not gain universal credit. Some of those physicians who had not seen patients in it denied that any such fever existed, and asserted (though its mortality was not denied) that it was nothing but the common annual remittent fever of the city. Many of the physicians of the city were joined by the citizens in endeavoring to discredit the account I had given of this fever, and, for a while, it was treated with ridicule and contempt. Indignation in some instances was exerted against me." This description by Dr. Rush is given as a sample of what in history has often repeated itself, in this particular, in subsequent epidemics; and what is liable to happen even in this enlightened day of ours. Many citizens are too quick to resent the efforts of the health officer when directed against an epidemic, with the fear that such efforts might injure their business.

Among the most illustrious of the medical men of the United States during its formative period, were John R. Cox, who published "The American Dispensary," in 1806; Casper Wistar, who was the author of a "System of Anatomy"; Nathaniel Chapman, who wrote on *materia medica* and therapeutics; John Eberle, who wrote a "Practice of Medicine"; Franklin Bache, who was one of the editors of the "Dispensary of the United States of America"; George B. Wood, who taught and wrote on *materia medica* and therapeutics; Robley Dunglison, the man who wrote a dictionary on medicine that made his name famous; John W. Draper, who wrote a book on physiology; and Alonzo Clark, one of the best medical teachers this country has produced.

Philip S. Physick, a pupil of John Hunter, has been styled the "Father of American Surgery." Physick was born in Philadelphia, 1768. He was elected surgeon of the Pennsylvania Hospital, 1794, and continued at this post for a period of 22 years; and in 1805 he was called to the chair of surgery at the University of Pennsylvania.

What a glorious privilege was enjoyed, for nearly a decennial period, by the students attending the medical lectures at the University of Pennsylvania, to pass from the room of the great teacher of anatomy, in the person of Dr. Wistar, to that of Physick, the "Father of American Surgery," and thence to go and hear the predilections of Rush, the "Father of American Medicine," or, as he has been frequently called, the "American Hippocrates."

John Jeffries, 1744 to 1819, graduated at Harvard, and afterward attended classes at the medical colleges of London, and received the degree in medicine at the University of Aberdeen, Scotland. After the War of the Revolution, during which he acted as surgeon-major for the British forces, he practised his profession in his native town, Boston, where he proposed to deliver a course of anatomic lectures, but the popular feeling against it was so strong that a mob broke into his room, seized the subject which was to illustrate his lectures, and by its violence put a stop to the course of lectures.

Whether this ill-feeling of the populace was due to ignorance and superstition, or to prejudice against the surgeon for being a Tory, history does not say. It, however, clearly depicts the condition of anatomic teaching in the United States during the early or formative period of its medical history.

William Beaumont, 1796 to 1853, born in Connecticut, was a surgeon in the United States Army, and was noted for his writings on the processes and laws of digestion, which he made in watching the operations of the stomach in the case of Alexis St. Martin, who had a fistula of the stomach, the result of an injury. The results of Beaumont's experiments on St. Martin were published in the year 1833.

Benjamin Waterhouse, 1754 to 1846, was born in Rhode Island, and received a good preliminary education at home, after which he went to London, Edinburgh, and the University of Leyden, where he received as good a medical education as the time afforded. On his return to America, he was appointed Professor of the Theory and Practice of Medicine at Philadelphia, which position he successfully filled from 1783 to 1812. He defended Jenner's discovery of vaccination against smallpox, and with the assistance of Thomas Jefferson introduced vaccination into the United States.

Samuel Thompson, who was quite a figure in medical practice during his time, was born in New Hampshire, 1769, and was the founder of Thompsonianism. Thompson commenced "to make a business of doctoring" without any preliminary or medical education, except such as he picked up during his younger days among the neighbors, etc., some of whom gave Thompson the encouragement of being "a natural doctor, born that way." Thompson started out by devising a new system of medicine and blocking out a universal routine of treatment in all cases of sickness. His idea was to keep the stomach warm and empty, and the skin sweating. He decreed that all serious diseases were caused by "canker of the stomach." One degree of canker caused measles; another, canker-rash or scarlet fever; a third, malignant sore throat; a fourth, smallpox; a fifth, spotted, bilious, and yellow fevers; another, erysipelas; and so on. The idea of his treatment was to overcome these cankers by forcing them out of the stomach by (1) lobelia, which caused vomiting; and if the stomach was left cold it must be warmed up by (2) cayenne pepper; for cold was the cause of all diseases and death, while heat was the origin of life and health; for the same reasons the skin must be kept hot and made to sweat by steam baths. If anyone became nervous under this somewhat vigorous treatment, or was thrown into convulsions—fits—(3) nerve root, or skunk cabbage, was relied on to save the patient.

Thompson practised all over New England, traveling from town to town, staying as long as people would patronize him, and was quite successful, though he killed many of his patients by his vigorous treatment. He also had many disciples. Thompson is probably entitled to the appellation, "the boss herbalist," though herbal remedies have been used at all times. His work on medicine was a truly wonderful effort, considering the very scant education the man had received during his life, and can still be found in some of the medical libraries of the country. Of course, his system is obsolete, having given way to other absurd medical practices, which are born only to die after a short and sensational life. Some of Thompson's

disciples established offshoot theories of "herbalism," but not one of them is worthy of further consideration. Thompson is now considered the real founder of American eclecticism.

Samuel G. Morton, born at Philadelphia, is noted in science for his work, "*Crania Americana*," based on his collection of 867 classified skulls. Morton may be regarded as the first American who endeavored to place the doctrine of the original diversity of mankind on a scientific basis.

Samuel Jackson, 1787-1872, graduated in medicine at Philadelphia, is noted for his treatise on the "*Principles of Medicine*," 1832.

George Alexander Otis, born in Massachusetts, 1830, became noted as a surgeon by an article to medical literature on "Amputation of the Hip-joint," 1867, and another, "Excision of the Head of the Femur for Injury," 1869, both papers being received with great favor by the medical fraternity.

Daniel Drake, born in New Jersey, 1785-1852, graduated in medicine at the University of Pennsylvania, 1816. He was one of the founders of the Ohio Medical College, in 1818, and also a commercial hospital at Cincinnati. For a time he figured as professor of medicine at the University of Louisville, Ky., and other medical colleges. His principal medical work is "*Principal Diseases of the Interior Valley of North America*."

Benjamin Winslow Dudley, born in Virginia, 1785-1870, was the organizer of the famous Transylvania University at Lexington, which, though noted as one of the greatest medical schools of the West, is now extinct, owing to its being located in an interior town, where the clinical facilities could only be meager. Dudley was famed for his surgical specialty of removing stone from the bladder. He also successfully tied the carotid artery for aneurysm in the skull.

Valentine Mott, 1785-1865, born in New York, graduated at the Columbia College, and afterward studied in London and Edinburgh, where he graduated in medicine. Dr. Mott was celebrated as a skillful operator in all branches of operative surgery, but more particularly for the ligature of arteries, in which his experience and success were greater than any other surgeon that probably ever lived. He introduced into surgery an operation for immobility of the lower jaw, and in 1821 he performed the first operation for osteosarcoma of that member. Mott performed the operation of lithotomy 165 times and amputated more than 1,000 limbs. Sir Astley Cooper, the great English surgeon, said of Mott that he performed more of the great operations than any other man, living or dead. Among his medical writings were a translation of Velpeau's "*Operative Surgery*," four volumes; his "*Clinics*" were reported in the year 1862, and was the last of his rather scant writings.

Willard Parker, born in New Hampshire, 1800, graduated at Harvard College in medicine, 1830. Parker made many contributions to the science of surgery, among which are the performance of the operation of cystotomy for the treatment of some cases of cystitis in the chronic form, and the establishment of a system of rational treatment of cases of inflammation of the vermiform appendix. He was also the first to point out the fact that nerve branches become the subject of concussion as well as the nerve centers, a condition which had been previously confounded with inflammation or congestion. Dr. Parker was also a successful operator in many important cases of ligaturing of various arteries for aneurysm.

Martin Payne, born in Vermont, 1794-1877, was educated in the colleges of New York. In 1841, he was one of the organizers of the New York University Medical School, and in 1854, he became a prominent figure in securing the repeal of the obnoxious State law forbidding dissection of the human body, for the purpose of studying anatomy, to enable the medical student to become acquainted with the structure of the body, so as to be able to understand the principles of medicine and surgery.

Charles Thomas Jackson, born in Massachusetts, 1805, studied medicine at Harvard College from which he received his diploma in 1829. Jackson claimed to be the discoverer of anesthesia, but his claims were disputed by Dr. Morton and Dr. Horace Wells. A committee of the French Academy of Sciences after investigating the rival claims in the matter decreed a prize to both Jackson and Morton.

Earle Pliny, born in Massachusetts, 1809, was noted as a

worker in the field of insanity. He visited all the insane asylums of Europe, and became superintendent of the New York Lunatic Asylum. He wrote many articles and books on insanity, which are highly regarded by his fellow workers in his chosen field.

Asa Gray, born in New York, 1810, graduated in medicine, 1831, ranks among the leading botanists of the age. In his numerous writings he has shown equal ability in communicating elementary knowledge and elucidating recondite theories. In conjunction with Dr. Torrey he was the first to arrange the heterogeneous assemblage of species upon the natural basis of affinity. Gray has published many noteworthy books on botany.

In 1825 Wooster Beach founded a college at New York and wrote several books, in order to establish a new school of medicine, and he was not altogether unsuccessful, for the school is still in a flourishing condition to a certain extent. The most prominent features of the school are the rejection of calomel and most other minerals in medicine. The eclectics depend mostly on vegetable remedies, especially the green root tinctures. They also depend on the vital powers of the body, which they try to assist by means of hygienic rules. The eclectics treat the symptoms rather than the disease, and not without success. The system seems to be a modernized form of empiricism.

Hunter Holmes McGuire, born in Virginia, 1835, graduated at the University of Pennsylvania in 1855, is noted as a great surgeon, especially for lithotomy and for tying the abdominal aorta in a case, in which the patient lived for 12 hours after the operation.

Theodore Thomas Gaillard, born in South Carolina, 1831, took his medical degree at the South Carolina Medical College, and in 1862 was chosen Professor of Obstetrics and Gynecology at the College of Physicians and Surgeons of New York City. Gaillard is the noted author of a standard treatise on "*Diseases of Women*," on which subject he is an authority and to which specialty he has not only devoted his life, but to which he has added materially to make of it a science.

Henry Miller, born in Kentucky, was a noted teacher and writer on obstetrics. Of his book on "*Obstetrics*" a noted critic said "that it gave the results of the obstetric schools of America, Paris, London, and Edinburgh, adapting the knowledge so gained to the wants of the medical student."

John C. Dalton, born in Massachusetts, 1825, graduated at Harvard 1844, became noted as a great physiologist, on which subject he labored with great success during a great many years. He was Professor of Physiology at Buffalo, and at the Vermont Medical College, etc. Dalton's principle book was a "*Treatise on Human Physiology*," which was for many years a leading textbook in the American medical schools.

Austin Flint, born in Massachusetts, 1816, was educated at Harvard, graduating in 1833. Flint lectured in different medical colleges of the country, the Rush Medical College, of Chicago, and the University of Louisville, Ky., among the number. He became noted especially for his great skill and learning in physical diagnosis of the diseases of the chest. His "*Treatise on the Principles and Practice of Medicine*" is a medical work still in use as a reference work among practising physicians, and during the lifetime of the author it was probably the leading textbook on medicine in the world. His son, Austin Flint, Jr., is a noted medical practitioner of the city of New York, and is especially well known as a physiologist, having published a textbook on the subject, as well as a larger work in the form of a cyclopedia.

The modern scientific medical education of women had its conception at Boston as early as 1848, when the Boston Homeopathic Medical School for women was opened. The Woman's Medical College of New York, in connection with the New York Infirmary, began work in 1849, and graduated over 100 physicians during the ensuing 20 years. The Woman's Medical College of Philadelphia was opened in 1851, and has graduated about 20 physicians every year. At present there are medical colleges for the education of women in all the large cities of the country, and a greater number of the medical colleges admit students of both sexes into their medical classes, though the coeducation of the sexes is not so favorably looked upon as formerly.

The first female physician in England was Dr. Elizabeth Blackwell, who had been given the degree in medicine at the Philadelphia school in 1859. At present there are many opportunities in Europe, especially in Switzerland, for women to acquire a medical education. All the medical societies in the United States, and most of the foreign countries, admit female physicians to their congresses and discussions, and female physicians now hold positions of trust in hospitals, insane asylums, institutions, and sanatoriums, etc.

In later years more women, however, undertake the study of the art of nursing, a field that seems peculiarly well adapted to the female sex, on account of their greater patience and finer feelings than men possess. Female physicians also find positions in hospitals as anesthetists, assistants, and resident physicians.

Oliver Wendell Holmes, born in Massachusetts, 1809, gained undying fame as one of the leading prose writers of the country. His chief medical writings were written on the subject of puerperal fever. Holmes also wrote about the psychologic problems raised by the interdependence of mind and matter with great success. In an address delivered by Holmes, at the one hundredth anniversary of the Medical School of Harvard in 1883, at Boston, he described the medical teachings of a hundred years ago at Boston, and the most signal advances made in medicine since that time. Holmes said that the Harvard Medical School opened with three teachers—Drs. John Warren, Benjamin Waterhouse and Aaron Dexter. From such a small beginning great results were achieved, and the students of that early time were much impressed by the learning and industry of their teachers, who were giants in their special fields.

As the most signal advances in medicine between 1783 and 1883, that is, the first half of the just passed century, he considered among others the method of studying the human body by its constitutional elements—the general anatomy of Bichat, which is to descriptive anatomy what geology is to geography—would still hold first place if it could claim all that the microscope has discovered. It was, at any rate, a great onward movement, with far-reaching results for physiology and pathology.

Holmes judged the discoveries of Sir Charles Bell and Magendie to come next to the distinct motor and sensitive functions of certain nerves and nerve roots. The most important practical achievement was the introduction of vaccination against smallpox, a practice which is even in this day the subject of violent attacks and bitter prejudices.

According to Holmes, Laennec's invention of auscultation holds the next place to vaccination in the records of practical improvements in the art of medicine. The recognition of the affection of the kidneys, known as "Bright's disease," and the separation of diphtheria from tonsillitis, are decided improvements in the medical art, which are justly considered as worthy of mention. In depicting the improvements in the science and art of medicine and surgery between the years 1833 and 1883, the second half of the century, Holmes claims as the most important: 1. The extended knowledge of reflex function. 2. The cell doctrine of Virchow. 3. Surgical anesthesia. 4. Ovariectomy, by McDowell, of Danville, Ky. 5. The germ theory. 6. Antiseptic surgery. 7. The improvements in physiology, histology and pathology.

Edward Parrish, 1822-1872, born at Philadelphia, became prominent in medical history by means of his really great work on "Practical Pharmacy," which can still be consulted with great profit to the practising physician.

Mott, of New York, was probably the most eminent surgeon this country has produced, and next to him may be placed Samuel D. Gross, who was born in Pennsylvania, in 1805. After graduating in medicine, Gross published a work on diseases of the bones and joints. In 1833, he delivered the first systematic course of lectures on pathologic anatomy ever given in this country. These lectures were published in the form of a treatise under the title "Elements of Pathological Anatomy," in two volumes, 1839. His "System of Surgery," a valuable and comprehensive work, was considered the standard of surgery during the lifetime of Professor Gross.

M. Kempf, Professor of Surgery in the Kentucky School of Medicine, 1880, was a student at the University of Louisville,

Ky., in 1848, when Gross delivered a course of lectures on surgery, and Kempf relates the following instructive words on Professor Gross' lecture in regard to the country surgeon:

A student was asked what he would do if he was called on to see a patient suffering from stone in the bladder. The student indiscreetly gave the following answer: "I would send the patient to Professor Gross." "You would commit an act unworthy of a student of mine," was the retort of the professor, and he thus addressed the class: "Gentlemen, be sure you are right before you undertake a surgical operation. Become thoroughly acquainted with physiology and pathology, for he who is neither acquainted with the appearance of the human body in a state of health, nor with the functions and the appearance of the human body in a diseased condition, cannot hope to become a good surgical operator to remove the diseased part from the healthy body. Manual skill alone does not make the good surgeon, nor does great learning make him so, but the two combined, will enable the country doctor to perform as good surgery as his better equipped city cousin. The doctor who knows the anatomy of the human body and who is acquainted with physiology and pathology can do a great deal with but a very few instruments. In fact a great show of many instruments often convinces me that the operator is not so sure that he is right as it would be well for his patient. A student of mine, though he live in the country, sends his patients *not* to Gross, nor to any other surgeon, but knowing that he is right, he cures his patient in his own way and with the armamentarium at his command."

The first medical journal published in the United States was the *New York Repository*, which was continued from 1796 to 1822, and in that period was the recipient of a large body of valuable matter. The first medical journal begun in Philadelphia, which city may be called the birthplace of medicine of the early Republic, was the *Medical and Physical Journal*, edited by Dr. B. S. Barton, in 1804. It was continued for five years, and made three volumes. Dr. John Redman Coxe originated and edited the *Medical Museum*, in 1805. The next journal was the *Eclectic Repository and Analytical Review*, published by a medical society. Dr. Chapman, of Philadelphia, originated the *Medical and Physical Journal, The Second*, in 1820. It was continued under this title until 1827, in which year the title of the periodical was changed to that of the *American Journal of the Medical Sciences*. This journal was placed under the charge of Dr. Hays, who guided it constantly and judiciously until he placed the journal at the front of American medical literature, where it is to be found even today. In fact, it may be said without fear of contradiction, that this journal has since its birth been one of the leading medical journals of the world.

Dr. Isaac Hays was born at Philadelphia, 1796 to 1879, and is noted as being one of the founders of the American Medical Association, for which society he wrote the code of ethics, which was adopted by all the regular medical societies of the country, and which, modified somewhat to suit the times, will probably be the guiding star of the regular medical profession of America for many years to come.

In investigating the medical literature of the United States, we shall find that the most important and valuable contributions of our physicians, with very few exceptions, are to be sought for in the medical journals, which, from an early period of our national existence have constituted the library of the American physician, at least, of those engaged in practice out of our larger cities. The importance of well conducted medical journals to the profession throughout the country, cannot be too strongly insisted upon; these publications present an easy medium of communication, through which may be effected a ready interchange of the facts and observations collected, and the conclusions arrived at by the physicians of every portion of the United States and Europe, and the wide diffusion of these contributions to the general fund of medical knowledge, at short intervals and at so trifling expense as to render the labors and experience of each member of the profession, both here and abroad, promptly available for the instruction of all.

At the present day we have as valuable medical journals as are published anywhere in the world; they appear in all sorts of forms, at all intervals, and in all the large cities of the country; they cover the entire field of medicine and surgery, and are without exception reasonable in price, and independent in spirit. Every doctor should subscribe to and read as many medical journals as he can, and beside, contribute his experiences to their columns.

An extensive history of American medical literature would

make a very interesting and valuable book, and, no doubt, there is room for such a work, but the man who writes it must not only be a very learned physician, but also one who is able to consult all the American medical journals and books which were written during the past 100 years.

It must be admitted that during the earlier and middle portions of this century, that men had much to gain by studying medicine in foreign countries. At first the centers to which these men flocked were Edinburgh and London; during the middle of the century they gathered in Paris; and later, as well as at the present time, our doctors go to Berlin and Vienna, for Germany does more for the education of medical men and the furnishing of opportunities to study scientific medicine than any other nation. But thanks to the influence of the foreign schools, and to the receptivity of the American medical mind we have reached a point when it is no longer necessary for American medical students to flock to foreign shores to study either medicine in general or a specialty. My advice to all who wish to study medicine is to stay at home; after they graduate in medicine, and after they serve a term in some hospital, if they wish to broaden out their field of medical knowledge, a trip to the European schools will not be amiss.

The American doctors are at the top of the heap. They evince more care for humanity, more real interest in their patients, and more consideration for their welfare, than any other class of physicians, while in all that pertains to fertility of invention to originality of performance and accuracy of work, they excel, as a rule. In surgery the American doctor is the equal of any other physician in the world; in materia medica and therapeutics and the treatment of diseases we are ahead of all other nations, and in practical medicine, the American physician leads the world. In pathology Germany is still far above us, though we may be said to be the equal of any of the other nations.

Every State has its State medical society; a model among them is our own (Indiana) State Medical Society, which is based on its subordinate county medical societies. The American Medical Association is, of course, the leading and the authoritative medical combination of physicians in the United States. We, however, have other national medical societies, and each of the specialties has its representative society, both local and national. Every city and town of any note has its medical societies and medical libraries, and medical clubs. Schools of medicine, hospitals of all kinds, and great pharmaceutical firms dot the cities of the country, and they are constantly improving until they will before long be the models for the medical world, and then foreigners will flock to our shores to improve themselves in the science and art of the medical science.

The majority of the medical schools in America have developed as proprietary medical schools. Usually a group of medical men, centering in one strong personality, formed a combination, with two objects in view: (1) The education of young men in the medical art; (2) self-improvement and the advancement of their own standing in the profession and with the public. The course of study, brief at first, was first extended to two years, and then to three. It is now in most schools four years, and in a few five years. The course has also been lengthened until it covers nine months in the year, and in a few of the schools the course has been divided into sessions. The graded course was relatively a late feature. For many years only one course was given in the school. This course was repeated each year, so that if a student who attended all the lectures in his first year, came back for a second or a third year, he listened to the same lectures over again. The graded course was introduced by the Chicago Medical College, and was a distinct step forward.

At first there were no requirements of preliminary education from the students—or, if any, merely nominal ones. Twenty-five years ago some of the western medical schools admitted every one who had the price to their medical classes, and frequently graduated their students after one course of lectures. Today most of the medical colleges require a rigid examination as the preliminary qualifications of the applicant, or demand a college diploma as a preliminary requisite to entrance in the medical course. An article, by L. F. Barker, M.B., on "Med-

icine and the Universities," appearing in *American Medicine*, July 26, 1902, gives a description of what a good medical college consists.

Hospitals are by no means an innovation of the nineteenth century, but until within the last 50 years hospitals stood in great need of improvement. With the introduction of antiseptic methods, and with the attention to nursing which is characteristic of the age, marvels have been accomplished in the way of life saving. Improved methods of sanitation and construction are also a product of the thought and ingenuity which have been bestowed on the lodging and caring for the sick and the hurt by the leading physicians and surgeons of the day.

With the specialization of the study and the practice of the healing art has come a tendency to maintain hospitals, both private and public, for a restricted class of patients. There are lying-in hospitals, hospitals for the diseases of women, children's hospitals, eye and ear hospitals, hospitals for the insane, hospitals for the tuberculous, hospitals for contagious diseases, etc. Every hospital is intended for the accommodation of a special kind of the ailing in mind or in body. It has become the custom for the establishing of private hospitals or sanatoriums even in the smallest cities by the leading physicians and surgeons for the diseases which they profess to treat as specialists.

In the treatment of those unfortunate human beings who have the misfortune to suffer from mental diseases, the present time has made a great advance over previous ages. Lunatics, idiots, and all of the insane used to be considered possessed by devils, and therefore, were treated harshly and even brutally. Straight-jackets, irons, chains, and other instruments of torture were the usual apparatus for the treatment of the insane, not more than 100 years ago. Flogging, starving, solitary confinement in dungeon or cell, were all approved methods of dealing with the unhappy inmates of lunatic asylums or hospitals. These methods have been succeeded by reforms so great that the mere mention of the former state of affairs arouses indignation.

We have asylums without number for the treatment and education of the blind, of the deaf and dumb, and of the feeble-minded, for the training of the viciously minded of both sexes, and for the refuge of women who wish to reform from their past vicious lives; and these institutions are all supported by the State, making the cost of the taking care of such unfortunates absolutely without cost to themselves. The education of the blind, the deaf and dumb, the feeble-minded, and the viciously inclined has reached a high degree of efficiency.

We now have hospitals on the cottage plan for the treatment and education of those who are afflicted with epilepsy, either incurable or otherwise. We also have at the present time hospitals for the treatment and cure, and for the isolation, of those unfortunates who are afflicted with tuberculosis of the lungs. For years we have had at our command private institutions, hospitals, or sanatoriums for the treatment of those afflicted with the habitual and excessive use of alcohol, morphin, chloral, cocain, or any of the other drugs which are used in modern civilization as narcotics. Quackery has taken advantage of the reputation built up by men making a specialty of the treatment of these narcotisms, and instituted so-called "cure institutes." Watering-places, springs, or health resorts, without number, are now taking care of legions of overworked and nervous people, and are restoring them to health, or at least are making them more fit to undertake again the cares and duties of life, which is generally strenuous enough under the requirements of modern civilization. Some of these health resorts are rivaling the ancient springs of Europe in wealth and equipment for comfort and pleasure, and have acquired a worldwide reputation for their efficiency.

Clinical teaching for graduates in medicine is given in special colleges for the purpose in nearly all the larger cities of the United States. This clinical instruction is called postgraduate or polyclinic work, and its object is to enable the physician to come into contact with the modes of treatment of diseases found of value by the best physicians and surgeons of the larger cities, and also for the recent graduates to perfect themselves in the practical part of the medical science. Those wish-

ing to engage in special work can also find opportunities in these colleges to study their specialties by means of the clinics and instructions given by specialists.

The first distinct postgraduate course given by any medical college in the United States was in the year 1882-83, at the University of Pennsylvania. The Philadelphia Polyclinic and College for Graduates in Medicine is a continuation of the postgraduate course instituted by the University, and is still in existence. In the year 1882-83, the New York Postgraduate Medical School and Hospital was organized, being a continuation of a course given to graduates by the University Medical School of New York. But it was not until about the year 1885 that the postgraduate schools began to flourish and prove a great success. What the future has in store for these now successful and necessary institutions, it would be hard to foretell. That medical instruction in the medical colleges is undergoing a transformation the most sceptical must admit, and it would not be a foolish idea to predict that the postgraduate medical college is to be the medical college of the future, all other medical teaching to be given in the universities.

It is safe to say that no other instrument has done so much for the advancement of scientific medicine as the microscope. With its aid the students of the laboratory have been enabled to make scientific discoveries that would have forever remained mysteries—unsuspected even by the student of medicine, and we may be sure the discoveries yet to be made are legion in number.

The early history of the microscope is obscure; but, as it is quite evident the property of magnifying possessed by the lens must have been noticed as soon as it was made, we are safe in attributing its existence in its simplest form to a period considerably anterior to the time of Christ. It is generally believed that the first compound microscope was made by Zacharias Jansen, a Dutchman, in the year 1590, and was exhibited to James I, in 1619, by Cornelius Brebbel. It was then a very imperfect instrument of research, and it was only after the invention of the achromatic lens by Hall and Dollond and its application to the microscope by Lister and others, that the microscope reached the advanced position it now occupies among the scientific instruments of precision.

Today the student in every medical school in the country is expected to become proficient in the use of the microscope for the study of histology, pathology, and bacteriology. The student must become proficient in the use of the microscope before he undertakes clinical work, so that he will be able to make examinations of the urine, sputum, stomach contents, pus, tumors, water, milk, for it is a well-established fact, that the doctor, who does not use his microscope daily with the object of making proper diagnoses is behind the requirements of the times. The student need not be an expert in the use of the microscope, for there will always be those who will make microscopy a special study, and to them we must look for new discoveries, and to them we may refer any special work, such as medicolegal inquiries and other special investigations.

Railway Accidents in the United States.—The casualties on American railways for the year ending on March 3, 1904, numbered 54,937, including 3,906 persons killed and 51,031 injured.

Compulsory Vaccination in the United States of Brazil Probably a Failure.—According to *Public Health and Marine-Hospital Service Reports*, Acting Assistant Surgeon Stewart, writing from Rio de Janeiro, on November 15, says: The bill for compulsory vaccination passed both houses, and was signed by the President of the Republic, December 1. Since that date there has been much agitation against the measure, and this culminated last Sunday in open revolt. Since that date the city has been virtually under military rule. Many persons have been killed and many more or less badly wounded. It is believed that the ultimate result will, of course, be success for the government as regards putting down the mobs, etc., but as regards the final carrying out of the vaccination measure it seems at this time doubtful if it will ever be put into effect to any great degree. It is the general opinion that compulsory vaccination is already a dead issue, as far as the absolute enforcement of the law is concerned. It would seem as if it must necessarily be so, as a great majority of people live in country districts; for example, in the central and western part of States like Amazonas, where such law could be enforced only by military aid.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 31, 1904. [Vol. XLIII, No. 27.]

1. Antoine Francois Saugrain (De Vigny). "The First Scientist of the Mississippi Valley." N. P. DANDRIDGE.
2. A Plea for a More Thorough Examination of Doubtful Specimens of Ectopic Pregnancy. J. WESLEY BOVEE.
3. Extrauterine Pregnancy with Atypical Symptoms. WALTER B. DORSETT.
4. The Treatment of Lupus Erythematosus by Repeated Refrigeration with Ethyl Chlorid. M. B. HARTZELL.
5. Diseases of Children Occasioned by Affections of the Nose: The Necessity for Recognition and Treatment. LOUIS J. LAUTENBACH.
6. Treatment of Chorea by Prolonged Warm Baths. W. C. HOLLOPETER.
7. Double Radial Rupture of the Iris. S. C. AYRES.
8. Two Additional Cases of Sympathectomy for Glaucoma. WILBUR B. MARPLE.
9. Blastomycosis of the Eyelid. WILLIAM H. WILDER.
10. Subjective Refraction. JOHN A. TENNEY.
11. The Effect of Pilocarpin Hydrochlorate in Strychnin Poisoning. S. J. MELTZER and W. SALANT.
12. Idiopathic Gangrene in the Young. M. L. STEVENS.
13. The Resistance of the Peritoneum: Illustrative Case. CHESTER M. ECHOLS.

1.—See *American Medicine*, Vol. VII, No. 26, p. 1016.

2, 3.—See *American Medicine*, Vol. VII, No. 26, p. 1007.

4.—**Lupus Erythematosus and Ethyl Chlorid.**—M. B. Hartzell reports several cases successfully treated by repeated freezing of the patches. The latter should be thoroughly frozen for 5 to 8 minutes every 2 or 3 days. If inflammatory reaction follows, the intervals should be 4 or 5 days or longer. After 10 to 14 days considerable desquamation occurs and the areas grow paler, and in 6 to 8 weeks patches of recent origin may completely disappear. Large doses of quinin should be given at the same time. [H.M.]

5, 6.—See *American Medicine*, Vol. VIII, No. 1, p. 9.

7.—See *American Medicine*, Vol. VIII, No. 7, p. 271.

8.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

9, 10.—See *American Medicine*, Vol. VIII, No. 7, p. 270.

11.—**Pilocarpin Hydrochlorate in Strychnin Poisoning.**—S. J. Meltzer and W. Salant after quoting an article in which recovery was attributed to this drug report their own experiments on frogs and rabbits which demonstrate the following points: 1. Pilocarpin hydrochlorate does not act as an antidote to strychnin. 2. On the contrary, it apparently supports the poisonous effect of strychnin, as by its aid an ineffective subminimum dose may have a toxic or even fatal effect. The effect may be different in human beings, but until this is proved we are not justified in its use in cases of poisoning. [H.M.]

12.—**Idiopathic Gangrene in the Young.**—M. L. Stevens reports a case in a girl of 13, clearly the result of thrombosis of the arteries supplying the parts, apparently accompanied, and probably preceded by an endarteritis. The specific first cause of her trouble is not known. Careful search brings to light only nine other cases reported as idiopathic or spontaneous gangrene. In none of these did the disease occur in one so young. [H.M.]

13.—**Resistance of the Peritoneum.**—C. M. Echols emphasizes the role of individual resistance, reporting a case in which laparotomy was not done till more than 17 hours after the intestinal contents were spread diffusely through the abdomen by a bullet wound, the patient recovering promptly, with no symptoms of peritonitis, and a minimum amount of shock. The survival of the patient in spite of treatment has been adduced as an argument in favor of this or that procedure, and as an encouragement to slovenly methods. Bacteria flourish more easily in a weakened, moribund patient, and vital resistance is perhaps after all the chief factor in determining whether or not septic peritonitis will follow the operations. [H.M.]

Boston Medical and Surgical Journal.

December 29, 1904. [Vol. CLI, No. 26.]

1. The Ultimate Results of Cauterization of the Lower Turbinate, with Therapeutic Suggestions Based upon Histologic Findings. J. L. GOODALE.
2. Standard Records of the Leukocytes in Normal Blood for Reference in Clinical Work. HENRY F. HEWES.
3. An Improved Method of End-to-Lateral Intestinal Anastomosis. A New Mattress Stitch. ALFRED H. GOULD.

4. Bacterial Counts of Boston's Milk Supply. HIBBERT WINSLOW HILL and FRANCIS HENRY SLACK.
5. Isolation Methods and Precautions in Contagious Disease. F. P. DENNY.
6. A Case of Suspected Homicide Proved to be Suicide by Strychnin. F. J. CANEDY.

1.—Tissue Changes after Cauterization of the Lower Turbinate.—J. L. Goodale reports the results of histologic examination of tissue removed from the site of cauterization of the lower turbinates. For a time the symptoms of obstruction caused by the congested turbinate were relieved by cauterization, but many of the patients ultimately returned, and to afford permanent relief, tissue was actually removed, and this was studied microscopically. It showed the following: 1. Caustic applications to the nasal mucous membrane may cause a loss of the columnar, ciliated epithelium, with a replacement of this by cells of a squamous type. 2. Such applications may cause an obliteration of the canaliculi in the basement membrane. 3. Immediately below the cauterized mucous membrane, new connective tissue may be formed, which extends downward to a depth dependent upon the intensity of the trauma. 4. The contraction of the tissues which is observed clinically to follow caustic applications is due to the contraction of this new-formed connective tissue. 5. Repeated applications of caustics tend to the formation of connective tissue immediately beneath the epithelium, which by its contraction may constrict the lumen of the ducts of the glands, and lead to cystic dilation of the latter. This phenomenon may contribute to a subsequent return of the nasal obstruction. Such applications become progressively of less avail. Some of the changes noted are considered harmful, others beneficial. [A.B.C.]

2.—Standard Records of the Leukocytes in Normal Blood for Reference Clinical Work.—Henry F. Hewes made use of 30 presumably healthy and normal medical students in carrying out a series of experiments to determine the normal leukocytic count. The figures showed that the actual number of leukocytes per cubic millimeter in the same individuals vary from a minimum of 6,200 in the forenoon to a maximum of 14,800 in the afternoon. A standard normal rule for use in clinical work as taken from these results would read as follows: In an estimation of the leukocytes by the method of the count by fields of a stained specimen, the number of leukocytes lies, as a rule, in normal blood during the 12 day hours, between 40 and 90 per 100 fields, the higher numbers occurring regularly in the afternoon. A record exceeding 90 per 100 fields in a good specimen at any time of day is, therefore, suggestive of a leukocytosis. A record of 100 leukocytes, or one per field, is a certain indication of leukocytosis. A record of over 80 in a forenoon count is suggestive of leukocytosis, and indicates a further investigation in an afternoon count. A record of 50 leukocytes per 100 fields, or 0.5 per field, is equivalent to about 8,000 leukocytes per cm. (from 7,500 to 9,000), a record of one per field is equivalent to about 16,000 per cm. (15,000 to 17,000). Differences in the differential counts made in the forenoon and afternoon were also noted. [A.B.C.]

3.—Improved Method of End-to-side Intestinal Anastomosis.—A. H. Gould states that a series of four papers illustrating changes in surgical technic are to appear. The present article is the first. It describes a new method of effecting end-to-side anastomosis of the small intestine to the colon. It is almost impossible to briefly describe the method without the help of illustration. A longitudinal slit is made in the colon. The mesenteric border of the severed end of the small intestine is anchored at one extremity of this slit. Now a slit is carried back from the end of the small intestine on the side opposite the mesentery, thus making the opening in the end of the small intestine V-shaped when opened out. The corners of this V are trimmed away as the margins are brought over and attached to the margins of the slit in the colon, and thus anastomosis is effected at an acute angle rather than at a right angle. There is less liability to stricture. [A.B.C.]

Medical Record.

December 31, 1904. [Vol. 66, No. 27.]

1. On What Lines is the Treatment of Malignant Disease Advancing? ROBERT ABBE.
2. Problems Relating to Simple Ulcer of the Stomach. BEVERLEY ROBINSON.

3. The "Yolk Cure" in the Treatment of the Underfed. HEINRICH STERN.
4. Trachoma. ALBERT C. BARDES.
5. The Present Attitude Regarding the Treatment of Prostatic Hypertrophy. MARTIN W. WARE.

1.—On What Lines is the Treatment of Malignant Disease Advancing?—R. Abbe says that although there is still much that is discouraging in our results in the treatment of malignant disease, undoubtedly progress has been made in three notable directions, viz.: 1. In the recognition of the principle that carcinoma and sarcoma are primarily of local origin. This makes the cure almost certain when very early operation is done. 2. In recognizing the enormous value of increasingly extensive operation in advanced cases—widening the field of skin removal and lymphatic dissection. 3. In establishing the value of radiotherapy. Serumtherapy is still *sub judice*, and antitoxin treatment and oophorectomy have not gained a place among the list of surgical procedures for usual resort. Radiotherapy offers a more hopeful prospect, and furnishes an external stimulus of a type heretofore unused, which adds a measure of strength and control to the vital spark left in the decadent cells of the morbid growths. Phototherapy, as such, and even the ultraviolet rays are yet without claim of value in the true malignant growths, but there remain for consideration the röntgen rays, the ionized rays and the rays from radium. The outcome of the application of these three forms of radiant energy has been that many tumors have been dissipated, some have been unaffected, there have been occasional recurrences and a few cures. One may summarize it by saying that we have gained both knowledge and hope. The author cites several cases he has successfully treated by these means, and he concludes that the röntgen ray, radium, and the Piffard lamp emit somewhat the same influence and excite a grade of local reaction not at all like inflammation of usual type. From radium we may expect the greatest future results, for it alone may be used in deep structural disease, and with a promise of a large production of strong radium in Austria, the next year will reveal further fruits of research and treatment.

2.—Problems Relating to Simple Ulcer of the Stomach.—Beverley Robinson discusses at length the subject of gastric ulcer as it presents itself today from the standpoint of the internist and the surgeon. The cases in which surgical operation (excision and sewing up of the ulcer, or gastroenterostomy) effects a cure, are those of acute ulcer, in which the hemorrhage is sudden, profuse, repeated, and the menace to life too great to await the slower results of medicinal remedies, or hygiene and time; or those of chronic ulcer, in which the abundant, recurrent bleeding shows that the degenerated, gaping artery of the diseased surface may be obstructed for a while with a clot, but will soon, through its removal, bleed afresh. Here there is but one way to obtain a cure, and that is through an operation. In cases of perforation of the stomach from any form or of any duration of ulcer, the formal indication is to operate, and the sooner the operation is performed, the greater the chances of saving life. Instances of cure without operation are known and recorded, but they are very infrequent, and unless special conditions prevail, such as empty stomach, very small opening from ulcer in stomach, chronic adhesions to adjacent organs, etc., even these instances would not have been possible. In general, however, the author's attitude toward surgical treatment of gastric ulcer is conservative, for as yet the results following operations are inferior to those obtained by proper medical care, especially in cases occurring among patients in affluent circumstances, who seek the best medical advice in the beginning, and can carry out with intelligence the necessary dietary and remedial regimen. Such patients sooner or later get well without surgical interference, their hemorrhages are infrequent and relatively slight, and perforations very rarely occur. For the details as to etiology, diagnosis, prognosis, and treatment, both medical and surgical, reference must be made to the original.

3.—The Yolk Cure in the Treatment of the Underfed.—H. Stern says the yolk cure affords a dietary regimen exhibiting all the advantages of a nutriment of the first order, without its usual drawbacks. The author employs either a rigid yolk cure, in which the greater portion of calories is yielded by the yolk of the hen's egg, and in which the latter forms the only

fatty substance, and modified forms, in which various combinations are introduced. The yolk in the raw or half raw state is readily digested, well assimilated, is well borne and liked by most individuals, contains a diastatic ferment, stimulates gastric secretion, contains lecithin, and is very useful in diabetic cachexia or diabetes, complicated by acetoneuria. The author gives the necessary practical directions for carrying on the yolk cure, together with a specimen daily menu in which 15 yolks are incorporated in various easily digestible dishes.

4.—Trachoma.—A. C. Bardes gives an interesting account of the history of this disease, which was treated even by the ancients by means of methods in principle like those in use today. After discussing the means of contagion, the symptomatology and the sequels, the author describes his method for expressing the granules under local anesthesia. The popular prejudice against general anesthesia in these cases is so great that many parents prefer to have their children treated with the tedious and uncertain astringents, and it was to overcome this difficulty that the author was led to employ cocaine. After an experience with more than a hundred cases by this means, he says that cocaine expressions are without pain, and but few sittings are required in order to effect a cure. Complete local anesthesia is obtained by rubbing into the conjunctiva a 20% solution of cocaine and applying to the lacrimal opening some vaselin, so as to prevent the escape of the alkaloid into the nose. So soon as the lid is insensible to pain it is grasped with an expressing forceps and, with a stripping motion, repeatedly executed, the granules are crushed. The operation should be sufficiently energetic to obliterate the granules without causing an undue reaction, otherwise adhesive bands may unite various parts of the bruised conjunctiva, and the contraction of the lids that follows acts precisely like the shortening produced in the cicatricial stage of trachoma. After the squeezing a 1% solution of silver nitrate or a solution of an organic salt of silver can be rubbed into the conjunctiva, and the patient is instructed to call again as soon as the soreness has left the lids.

5.—The Treatment of Prostatic Hypertrophy.—M. W. Ware says that absolute retention that cannot be relieved by catheter, intravesical hemorrhage, coexisting calculus, and sepsis following long, badly performed catheterization, are all indications for surgical treatment of the prostate. When the patient shows only the first signs of prostatic enlargement, it is a question whether to condemn him to a long siege of catheter life and its pitfalls, or forthwith to subject him to the chances of an operation. In these cases the line must be drawn as to social conditions, and when these are of the highest order, the author advises carefully conducted catheterism by the physician, to be followed by operation on the slightest evidence of deterioration in the status of the patient. In the lower walks of life, operation is always preferable. The perineal operation deserves the lead, as it spares the seminal vesicles, and it is a matter of necessity when there is suppurative inflammation of the prostate or urethral disease. The suprapubic route is more advantageous in the presence of calculus, vesical hemorrhage, a large diverticulum, when the growth is largely vesical, or is beyond rectal reach, owing to a narrow pelvic outlet, as well as in the very obese. Bottini's operation, permanent suprapubic drainage, and the catheter *à demeure*, have their place, but vasectomy and ligation of the internal iliacs do not deserve recognition. Cystoscopy is an important preliminary, and the after-treatment often takes longer than the patient expected.

New York Medical Journal.

December 24, 1904. [Vol. LXXX, No. 26.]

1. A Contribution to the Serumtherapy of Syphilis. JUSTIN DE LISLE.
2. The Plasmeba of Dengue: A Brief Description of the Earliest Phases of Its Plasmic Characteristics. H. A. EBERLE.
3. The Removal of Internal Hemorrhoids by Excision. ERNEST LAPLACE.
4. An Attachment to Bennett's Inhaler for Pharyngeal (Crile's Method) and Tracheal Administration, and for the Ethyl Chlorid-ethyl Sequence. VICTOR C. PEDERSEN.
5. A Reply to Dr. H. H. Seabrook's Paper on What Should the General Practitioner Know of Ophthalmology? FRANK D. W. BATES.
6. Surgical Shock. J. SHELTON HORSLEY.
7. Report of Skin-grafting, using Amputated Extremities as a Supply of Skin. G. HARTMAN and C. WEIRICK.

1.—Serumtherapy in Syphilis.—Justin De Lisle reports several cases in which antisyphilitic serum was used with very encouraging results. To this date there are records of about 100 cases treated with the serum. An injection of from 10 cc. to 20 cc. is given each week. Very favorable results are frequently noticed after the first injection. Chills and fever followed the first and second injection in several cases, and in a few urticaria developed. Some of the later and graver manifestations did not yield to this treatment so easily. Two ataxies were given this treatment, but there was no change in the condition. A similar case reported by Dr. Blue yielded better results. The patient had ataxic pains, loss of reflex, and loss of coordination. Eight injections were given and perfect recovery followed. [C.A.O.]

2.—Plasmeba of Dengue.—H. A. Eberle gives a minute description of the earliest phases of the plasmic characteristics of this parasite, together with plates and drawings. The parasite of dengue properly belongs to the class sporozoa, and since it is found first in the plasma of the blood, the writer has given it the generic name plasmeba. This plasmeba, primarily found in the liquor sanguinis, impregnates the corpuscles, producing a pale, violet-tinted growth, assuming various shapes as it increases in size, and in which can be noticed, after two to four hours, faintly darker bodies, the earliest spore formations which occupy usually from two-thirds of, to the entire corpuscle. These spores mature in the course of a few hours and are characterized by a definite outline inclosing a pale protoplasm without nucleus or nucleolus. These matured spores are highly refractive and finally burst through the limiting membrane of the corpuscle and are poured out into the plasma and ready to enter on a new cycle. This parasite is smaller and much more active than the ameba in malarial blood. In the plates and drawings accompanying this report may be seen reproductions of phagocytes alive with myriads of motile dengue germs. [C.A.O.]

3.—Internal Hemorrhoids.—Ernest Laplace advocates the removal of internal hemorrhoids by excision. After dilating the sphincter the hemorrhoidal area is brought into view by clamping with forceps each hemorrhoid at its upper and lower extremity, parallel with the course of the rectum. The upper forceps being held in the left hand and drawn, the hemorrhoid is cut immediately above the upper forceps, with curved scissors, just enough to allow the cut to be closed by the immediate insertion of a continuous suture. This first cut being closed, the hemorrhoid is again cut a little, and the wound is closed by the same continuous stitch, and so the procedure is repeated until the hemorrhoid is removed. The result of the operation is a linear cut, securely sutured. Each hemorrhoid is dealt with in this way. Laplace has performed this operation 83 times without any complication. [C.A.O.]

6.—Surgical Shock.—J. S. Horsley believes that the treatment of surgical shock and collapse should be very largely of a prophylactic nature. He particularly commends nerve blocking, recommended by Crile and Cushing. He believes that suprarenal extract is the only drug of value in shock, and this should be given intravenously, in solution of 1 part to 200,000 parts of normal saline solution. This should be given slowly and at a temperature of 110° F. to 115° F. as it enters the vein. [C.A.O.]

Medical News.

December 31, 1904. [Vol. 85, No. 27.]

1. The Effect of Hysterectomy on the Sexual Function. HIRAM N. VINEBERG.
2. The Difficulties of Anesthetization and Their Correction. VICTOR C. PEDERSEN.
3. Hyperacute Melancholia: Report of a Case. ROBERT N. TODD.
4. The Finsen Method. MILTON FRANKLIN.
5. The Antiseptic Treatment of the Puerperal Woman. LOUIS KOLIPINSKI.
6. Cerebral Palsies in Children. J. M. AIKIN.

1.—Effect of Hysterectomy on the Sexual Function.—Hiram N. Vineberg holds that sterility bears no relation to the sexual desire in women. It has been his experience that some of the most fruitful women are devoid of sexual appetite, while others, often women with small, undeveloped uteri, and in whom conception is a physical impossibility, have the sexual

passion developed to a high degree. Hence Vineberg believes that removal of the uterus and adnexa has little effect on the sexual passion. He has taken the trouble to investigate this in a series of patients upon whom hysterectomy had been performed, and he invariably found that there had been no diminution in sexual desire. He has even found cases in which sexual pleasure had been decidedly increased by the operation. Mandl and Bürger, of Vienna, are quoted as having recently written an exhaustive monograph on this subject. They investigated the subject in 22 women. In 7 instances there was no change in the sexual passion after hysterectomy and removal of both ovaries; in 9 instances there was a decrease in desire; and in the remaining 6 patients there had been no sexual intercourse after the operation. [A.B.C.]

2.—Difficulties of Anesthetization and Their Correction.—Victor C. Pedersen, in a rather short article, presents the difficulties that are ordinarily experienced in the course of a series of anesthetizations, and he offers the usual suggestions for their prevention or correction. He states that the prophylaxis of bronchorrhea consists in care in giving the anesthetic, and cure of it usually follows a single large dose of atropin. Vomiting must, if possible, be guarded against, on account of the danger of inhalation pneumonia. It is especially dangerous in intestinal obstruction, during which regurgitation is apt to occur without esophageal movement. Rose's position is the safest in such cases. To determine whether blood-pressure is sufficient, pressure upon the finger-nail will give early information. The patient should not be allowed to become chilled at any time under anesthesia. [A.B.C.]

3.—Hyperacute Melancholia.—R. N. Todd reports a case with apparent complete recovery after profound stupor for 26 days. The conditions are those of cerebral fiber and cell intoxication and inanition as well. Treatment should consist in overcoming the anemia, flushing the convolutions with a better aerated and nutritive laden blood-stream, supplying more phosphorus and fats, eliminating neurin, cholin, and allied toxic debris, as well as fecal and urinous accumulations, the result of melancholic inhibition. Nutritious food, hematics, and stimulants are indicated. Narcotizing and depressing agents are generally baneful. A combination of caffeine, whisky, and quinin may be given to force the blood into the starved nerve centers. Baths, open air exercise, and when convalescence is progressing, encouragement and light pleasurable mental diversion are certainly beneficial in hastening recovery. [H.M.]

4.—The Finsen Method.—Milton Franklin discusses at length the best means of making therapeutic use of the Finsen light and concludes as follows: The Finsen method when properly practised, and this necessitates the employment of suitable apparatus free from glass and of sufficient power, is superior to all known procedures for the treatment of lupus vulgaris. This opinion is the result of a close observation of the results obtained at the only place where the method has been properly employed. The use of the röntgen rays has been too limited to warrant the positive assertion that it is a specific in lupus. The cases that have been positively cured by the Finsen method are almost without number, while those cured by the röntgen rays are few and scattered, and their authenticity uncertain. It may be that we shall finally find a valuable therapeutic agent in the high-frequency currents, but in the meantime we have the ultraviolet treatment of Finsen. [A.B.C.]

5.—Antiseptic Treatment of the Puerperal Woman.—Louis Kolipinski has used antiseptic douching in normal puerperal cases, and found it satisfactory, both in the feeling of general comfort to the patient, and in the avoidance of septic fever or its speedy destruction. He believes it better to flush with too much than with too little, so the method consists in washing out the vagina, the cervix, and the vulva, the patient being in the proper position, with a gallon of a solution of boric acid in boiled tepid water, made in the proportion of a heaping teaspoonful (1½ dr.) of the powdered acid to the pint. This is repeated three times a day for the first week, and then discontinued altogether. Septic fever has not been found to appear in any normal case. The antiseptic vulvar pad is dispensed with or its use left to the discretion or wish of the nurse or patient. Boric acid is the most suitable antiseptic, as it has none of the

objectionable side effects of other therapeutic agents of its kind. The writer would wish the much-blamed, much-mistrusted antiseptic vaginal douche in the puerperium not to be completely damned on its past record, but to be used after the manner of a prolonged irrigation and in a quantity neither scant nor limited. [A.B.C.]

6.—Cerebral Palsies in Children.—J. M. Aikin states that these are about as frequent as spinal palsies in childhood. They result from prenatal defects, birth accidents, and postnatal causes. The majority are in the first three years. Children born of progenitors deficient in vital force are subject to them. Forceps are not so much to blame as the factors which render their use necessary. Scarlet fever with nephritis, measles and pneumonia with endocarditis and embolism, and whooping-cough cause the vascular lesions preceding the palsy. An initial fever with convulsions for several days or weeks is followed by the paralysis, though in half the cases convulsions may be absent. Sometimes several weeks are required to differentiate these from spinal palsies. The spasticity of the muscles may be mistaken for tremor due to weakness. Some but not decided muscular wasting and contraction may be seen. Choreic and athetoid movements are common. The mental condition ranges from feeble-mindedness to idiocy. In the cerebral palsies the electric reactions are normal. Epilepsy develops in a quarter to a half of all, and athetosis or some purposeless movements are commonly present. The prognosis is bad as compared to spinal palsy, in which there is the same capability for mental training as in the healthy. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

The Diagnosis of Pulmonary Tuberculosis.—O. Roepke¹ has made a thorough study of 300 patients suffering with pulmonary tuberculosis coming under his observation to determine the results of the various diagnostic signs and procedures. While not reporting anything new, he summarizes them as follows: 1. Upon the epochs of the purely empiric, the purely physical, and the purely bacteriologic diagnosis of pulmonary tuberculosis has been grafted the epoch of today, "the early diagnosis." 2. It is based on the anamnesis and the clinical examination of the patient, is therefore possible to every physician. 3. The anamnesis has to take in consideration the early history of the patient and the state of health of his family, as family disposition and family infection are distinct, but of equal importance for the origination of the disease, tuberculosis. 4. He considers inspection, percussion, and auscultation useful methods of physical examination; for the recognition of the early stage the latter two are of equal importance, more especially if they point with but minimal differences to the same pulmonary area. 5. In general practice, if the physical examination is not sufficiently clear, but the history points to the disease, the same should be considered true; even an apparently normal chest in the presence of a positive history in the case of an individual in the age of insurance should justify the physician in proposing curative procedures. 6. A diagnosis can be made absolutely by bacteriologic examination of the sputum and by injection of tuberculin; the latter should be done in hospitals or sanatoriums. 7. The presence of the tubercle bacillus in the sputum is the surest proof for the existence of pulmonary tuberculosis; for the recognition of the early stage it is of no importance, and the physician in charge must never wait with its appearance to make a diagnosis. 8. Tuberculin should be employed with doses not too small; he suggests the doses of 1 mg., 5 mg., and 10 mg. 9. It is of especial importance in repeatedly negative sputum examination. 10. The results of the sputum examination and the tuberculin test must be critically studied, always keeping in mind the physical examination and history of the case. Painful impaired resonance in the interscapular space is of great importance for the early diagnosis of tuberculosis of the tracheal and bronchial glands; the pain is due to pressure on sensory vagus fibers. He found many more cases of right-

¹ Beiträge zur Klinik der Tuberculose, 1904, I, 180.

sided disease than left-sided, and believes this due to relation of dust inhalation through the shorter, wider, and higher right bronchus. [E.L.]

Cardiac and Vascular Complications and Sequels of Typhoid Fever.—W. S. Thayer¹ finds there are often symptoms suggestive of grave weakening of the heart muscle. These changes, whether due to direct poisoning of the muscle or impaired nourishment from vasomotor paralysis, result in temporary mitral insufficiency, developing at the height of the disease and disappearing with convalescence. Of old typhoid patients, a fifth have shown organic disease. Systolic pressure (Riva-Rocci) was higher in every decade than in those who never had the disease, and the radial arteries were more palpable. Endocarditis complicates typhoid more frequently than supposed. Pericarditis is unusual. Phlebitis and venous thrombosis are common, the onset occurring in the third week or later, with fever, leukocytosis, pain and frequently chills. The phlebitis is generally in the left lower extremity, and is always a serious complication. Arteritis and arterial thrombosis are commoner than is generally recognized, especially in the cerebral vessels, when it is followed by hemiplegia, or if in the extremities, by gangrene. Typhoid may be a frequent cause of focal arteriosclerotic changes. [H.M.]

The Vasomotor Factor in the Clinical Measurement of Blood-pressure.—Albert Abrams² says that blood-pressure is an expression of the action of two chief forces, ventricular force and vasoconstriction. The inhalation of amyl nitrite will dissipate the vasoconstrictor factor and bring into play the ventricular force, which is the real factor to be encouraged in a failing heart. In the individual endowed with cardiac health, the removal of the vasomotor factor causes an increase in blood-pressure, whereas the converse condition causes the latter to fall; the degree of reduction is proportional to the degree of cardiac enfeeblement. Cardiac auscultation in conjunction with the sphygmomanometer and the inhalation of amyl nitrite constitute the ideal methods for eliciting the real condition of things. The sphygmomanometer gauges the force of the left ventricle only; for the right ventricle, auscultation of the pulmonic sounds and physical examination of the lungs are necessary. In certain individuals there is high blood-pressure without cardiac weakness, and after inhalation of amyl nitrite the blood-pressure remains the same. Such cases are associated with traces of albumin in the urine, and are practically instances of incipient chronic interstitial nephritis. [A.G.E.]

Nephroptosis and Enteroptosis.—Aufrecht³ discusses the relations existing between nephroptosis and enteroptosis and the rational treatment of the two conditions. He disagrees with Glénard who considers enteroptosis of intestinal origin, and believes a sinking of the right flexure of the colon the first link in the chain of visceral prolapse; this pulls on the pylorus and small omentum, the stomach and liver; the peritoneum and the right kidney are also displaced in the course of the visceral prolapse. Having found a ptosis of the right kidney in a number of children and apparently healthy young women, and in nearly all cases without symptoms, in others with slight gastric symptoms, he believes this prolapse the first of the displacements and this finds its cause either in a congenital disturbance of the abdominal relations or in a right-sided scoliosis of the lower thoracic vertebrae, pushing the kidney from its normal position. Instances associated with resisting ligamentous bands would present gastric symptoms much earlier than others. As the supporting power of the abdominal organs lessens from any cause, the various organs are more or less displaced; for that reason women furnish the greatest contingent of such sufferers, as pregnancy is the chief cause of weakening of the abdominal walls. His treatment of these conditions is a Glénard abdominal belt associated with medicines suitable to increase the strength and general tonic of the patient; the gastric symptoms require careful attention. Aufrecht considers the Glénard belt better than all other bands. [E.L.]

The Influence of Infectious Diseases upon Leukemia.—Schupfer⁴ reported five cases of leukemia complicated by

infectious diseases. In two cases of lymphatic leukemia, tuberculosis developed without affecting the course of the disease. In another case of myelocytic leukemia complicated by erysipelas and icterus the glandular swelling was diminished. In a fourth case of myelocytic leukemia in which there developed a severe enterocolitis there was an extraordinary lowering of the leukocytes. Finally, in a case of myelocytic leukemia complicated by pleuritis and fibrinous bronchitis, the number of polynuclear neutrophils was slightly increased, and the number of leukocytes diminished. In Schupfer's opinion leukemia is a neoplastic disease, and as such, under the influence of some infection, is susceptible to temporary improvement. The bacterial product of the infection exercises a regressive influence upon the leukemic tissue. [J.H.W.R.]

A Simple and Accurate Method for Estimation of Sugar in the Urine.—H. G. Beck's¹ method requires a beaker, four centrifuge tubes graduated at 2 cc., a urine tube-holder, a pipet of 2 cc. capacity graduated into twentieths, and a centrifuge (not absolutely necessary). The beaker, half filled with water, is placed over a Bunsen flame, the tubes are filled to the graduation mark with Fehling's solution, and numbered 1, 2, 3, 4, and transferred to the beaker. When the water boils, $\frac{1}{20}$ cc. of urine is added to tube 1, and the quantity is increased by $\frac{1}{20}$ cc. for each successive tube. These must be well shaken in order to thoroughly mix urine and reagent, after which they are kept in water three minutes. If No. 4 is not completely decolorized, $\frac{1}{20}$ cc. of urine is added to each tube, increasing the amounts respectively to $\frac{2}{20}$ cc., $\frac{3}{20}$ cc., $\frac{4}{20}$ cc., and $\frac{5}{20}$ cc., again treating them as before. The first tube completely decolorized is chosen, and 20 is divided by the number of twentieths which have been added, to give the percentage of sugar present. To be more accurate, the urine may be diluted with three volumes of water, and $\frac{1}{20}$ cc. of this, representing $\frac{1}{60}$ cc. of urine, may be added to the last tube showing incomplete reduction, and the calculation made accordingly. [H.M.]

The Pathologic Role of Intestinal Poisons.—Charrin and Le Play² outline the course of investigations pursued by them on the subject of intestinal autointoxications. By the use of toxins extracted from the alimentary canal, they were able to produce in young animals an entire series of deformities, anomalies of development, and lesions of various organs. The results of these experiments bore a close analogy to the phenomena observed in clinical cases. The poisons involved are numerous and of varied composition, and the authors have demonstrated that they are normally present in the gastrointestinal tract. The diseased conditions produced by them are very frequently the result of a disorganization of the defenses of the animal body. This is shown by the fact that these toxins often include the products of normal organs; in fact, frequently consist of physiologic digestive secretions. Under certain conditions these normal substances may functionate to an excessive degree, and become pathologic in their action. [B.K.]

An Experimental Study of Icterus.—A. Lemaire³ has injected a series of dogs, some with cultures of the bacillus of diphtheria, others with its toxin, and within 48 hours to 72 hours afterward could observe in all of them the beginning of jaundice. The discoloration soon became general, and the animal died with symptoms of coma shortly after. Autopsy in all the cases showed jaundice throughout all the tissues; the liver was very much congested; the bile thickened, dark in color, and viscous, and the intestinal tract the seat of a hemorrhagic catarrh. It was filled with numerous blood clots; the spleen and kidneys were enlarged and congested; the extrahepatic biliary canals were filled with mucus; and the intrahepatic canals were the seat of an intense catarrhal inflammation. This inflammation was not of intestinal origin; in some of the animals the development of jaundice was associated with a destruction of red blood cells, in others with an increase of the same cells; the nature of the changes is discussed, but no conclusions were deduced. [E.L.]

Pneumococcus Peritonitis.—Frank S. Mathews⁴ reports

¹ Journal of the Alumni Association of the College of Physicians and Surgeons, October, 1904.

² La Semaine Médicale, November 23, 1904.

³ Bulletin de l'Académie royale de Médecine de Belgique, 1904, xviii, 436.

⁴ Annals of Surgery, November, 1904.

¹ Johns Hopkins Hospital Bulletin, October, 1904.

² American Journal of the Medical Sciences, November, 1904.

³ Therapeutische Monatshefte, 1904, xviii, 383.

⁴ Wiener klin. Woch., No. 46, 1904, p. 1200.

five cases of pneumococcus peritonitis. Among the patients were three boys and two girls, the ages were 3, 3, 2½, 5, and 3 years. Once the whole peritoneum was involved, twice chiefly the region of the stomach and liver, and twice the hypogastric region. In no case did the patient live to form a localized abscess. All the cases would appear to belong to the diffuse or spreading type of the disease. Four of the patients had empyema; in two peritonitis followed the empyema, but in the other two the process appeared to originate at about the same time in the pleura and peritoneum. At the time of death in the latter two cases there was but 1 oz. or 2 oz. of pus in the pleura. Pericarditis was present in one case. Mathews states that writers have called attention to the rather small percentage of cases of this type of peritonitis which are associated with pneumonia. This may mean that the primary infection was intestinal or otitic in origin, or that the pneumonia had resolved at the time when peritonitis was diagnosed. Two of Mathews' patients had pneumonia at the time of death. Death in four of the reported cases occurred during the first stage of the disease, that is, the stage of high temperature. In the fifth case death occurred in the second stage, after the temperature had been normal for a week. Since there was empyema in four of these cases, and pneumonia in the fifth, it would appear that all were primarily infections of the respiratory tract. The reported cases in which there was recovery have nearly all been primary infections of the peritoneum, apparently, and in which operation was not undertaken for a generalized process, but for a local abscess, and that rather late in the course of disease. [A.B.C.]

Causes of Cardiac Insufficiency.—J. H. Pratt¹ refers to experiments which show that so-called fatty degeneration is only another example of fatty infiltration. Fat is not visible in healthy muscle because as fast as it is taken up by the protoplasm it is used to supply the energy of the cell. Tissues microscopically fat-free have been found chemically to contain 20%. No relation seems to exist between fatty heart and cardiac weakness. The normal heart contains 8%. In phosphorus poisoning there is 25%; in pernicious anemia, 13%. In nephritis, malignant tumors, and tuberculosis there is some increase, but in myocarditis and chronic valvular disease the amounts found have been normal. Experimental researches fail to show that fat interferes with muscle work. Disease of the coronary arteries is a frequent cause of insufficiency but extreme sclerosis has been found with absence of symptoms. Fibrous myocarditis, although many times associated with coronary sclerosis, often occurs independently. All cases of muscle incompetence however cannot be explained on the basis of anatomic changes. In obesity increased work is thrown on the heart. Insufficiency may be due to acute overdistention from violent bodily exertion. There is no justification for attributing it to nervous disturbances or exhaustion. Circulatory disturbances in the infectious fevers are probably due to paralysis of the vasomotor center. [H.M.]

Influence of External Heat on the Respiratory Quotient in the Rabbit.—To determine the influence of various degrees of temperature on the absorption of oxygen and the elimination of carbon dioxide, a much disputed question, E. Lahousse and H. Callewaert² experimented with a number of rabbits at different temperatures. They found invariably that the higher the temperature to which the animal was exposed (the highest point reached during the experiments was 97° F.) the less oxygen was absorbed and the less carbon dioxide eliminated. [E.L.]

A Case of Exophthalmic Goiter with Unusual Symptoms.—Erwin Miesowicz³ observed in a case of Basedow's disease, occurring in a young woman of 20, beside the usual symptoms of this disease, an insufficiency of the mucous membrane of the stomach, atrophy of the pectoralis major and minor, the deltoid, supraspinatus and infraspinatus, and serratus anticus majoris. In other words the muscles of the upper extremities were generally atrophied, including the arm and hand muscles. Fibrillary twitchings in the muscles were not ob-

served. He examined the literature very carefully and found that this rare symptom was present only in a few cases. [J.H.W.R.]

Arterial Tension in Lead-poisoning.—According to M. H. Vaquez,¹ every case of acute lead colic is attended by an increase in arterial tension, which persists throughout the attack. It increases at the time of the greatest pain, but never becomes normal in the intervals. This hypertension disappears gradually after an attack of lead-poisoning, its complete disappearance being the surest sign of recovery. The increase of tension is closely associated with constriction of the abdominal vessels, and the author maintains that the latter phenomenon is responsible for the pain of lead colic. The cerebral complications, which frequently occur in saturnism, can be ascribed to a persistent hypertension, the degree of which determines the severity of the cerebral symptoms. Hepatic and renal symptoms may likewise be produced by constriction of the vessels associated with these organs. Not only acute, but also chronic lead-poisoning is associated with increased arterial tension, and this factor alone seems capable of explaining the encephalopathies, renal lesions, etc., which are the result of chronic saturnism. [B.K.]

Pasteur Department of the Baltimore City Hospital.—N. G. Keirle² states that 341 of the 500 persons treated in this department were bitten by animals absolutely proved rabid, either by subdural inoculation of rabbits or by other animals or human beings developing rabies as a result of the bite. The wounds were inflicted by dogs in 439 cases, in 23 by cats, in 1 by a calf, in 1 by a pig, in 5 by cows, in 6 by horses, and in 4 by human beings. In 16 cases the wounds were not the result of bites. Five patients, enceinte, were treated without untoward result. Of the 500 persons that completed the period requisite for immunity, one is reported to have died of hydrophobia. This patient had chronic Bright's disease before and during treatment. This mortality is 1/5 of 1%. [H.M.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Surgical Treatment of Hepatic Cirrhosis.—Judging from the number of reported cases, surgical interference in cirrhosis of the liver is not so popular in this country as it was several years ago. This can mean only that results from operative interference have not been all that could be desired. In France, if we rightly estimate the sentiment of the French Congress of Surgery held at Paris, in October last,³ the results appear to have been more satisfactory. This subject was one of the three leading questions at the Congress, the report of Dr. Monprofit being discussed by upward of a score of members. Monprofit singles from the various operative methods that of Talma, or omentopexy, which he says is the typical operation of the present day, and gives statistics of 224 cases. In this series the operative mortality was 20%, and the postoperative mortality the same; operative cures and recurrences (of ascites, we presume) were about equal, 12% and 13%, respectively, and complete cures 35%. Monprofit says the number of favorable results would doubtless have been greatly increased had all the patients been operated upon at the period of choice, which he believes is at the first appearance of ascites. He concludes that the necessity for surgical intervention in atrophic cirrhosis of the liver is a settled question and that physicians should avail themselves of this new conquest of the surgeon. Great caution is to be exercised in operating on cases of hypertrophic cirrhosis as they are so often amenable to medical treatment the surgeon should not hasten to interfere. An important point emphasized by Monprofit is the

¹ Johns Hopkins Hospital Bulletin, October, 1904.

² Bulletin de l'Académie royale de Médecine de Belgique, 1904, xviii, 609.

³ Wiener klin. Woch., No. 45, 1904, p. 1206.

¹ La Semaine Médicale, November 30, 1904.

² Journal of the Alumni Association of the College of Physicians and Surgeons, October, 1904.

³ Revue de Chirurgie, November 10, 1904.

necessity for care in feeding after these operations, especially in the beginning. It may be advisable to forbid all nitrogenous foods and allow only carbohydrates. Those taking part in the discussion were about equally divided as to the merits of the operation. They unanimously agreed that if operation was elected it should be performed before the patient becomes cachectic or the liver is in a state of absolute insufficiency, but they were not united in selecting a time. Most of them would wait longer than Monprofit, trying first the effect of medical treatment, and finally puncture, in relieving ascites, before resorting to laparotomy. Some reported a gratifying percentage of favorable results from operation in a series of cases while the experience of others was discouraging. In many instances the disease was too far advanced, in others the patient immediately returned to alcohol; in neither could the effect of the operation be fairly judged. M. Willems said the favorable statistics of Monprofit do not agree with German reports of 250 cases with only 10 satisfactory results at the end of a long period of time. He suggested that cryoscopy may in time become of positive value in determining the appearance of hepatic insufficiency. Of all the suggestions made regarding the time of operation in atrophic cirrhosis of the liver, we consider that of Monprofit as by far the most logical, even if strict adherence thereto might occasionally cause operation upon an unnecessary case. The operation, to be of service, must be done when short-circuiting the blood will relieve a liver that is overtaxed in its damaged condition but still capable of performing enough of its normal function to maintain body metabolism. To the best of our knowledge the liver is a vital organ and a patient with all, or nearly all, his hepatic cells replaced by fibrous tissue cannot live, even though a perfect collateral circulation for his portal blood be furnished him. So far as his economy is concerned, the conditions described would be essentially those of hepatectomy, and no surgeon would remove the liver and expect his patient to survive. The time may come when enlightened man will be so educated, by doing without his appendix, spleen, stomach, and a few other similar organs, that he can thrive without his liver, but as yet he foolishly clings to the superstition of his fathers that he needs a mass of functioning hepatic cells safely tucked under his costal cartilages. Omentopexy does not create a liver, hence the necessity of performing such operation in a comparatively early stage of hepatic fibrosis if the patient is to be permanently benefited thereby.

REVIEW OF LITERATURE

Bridging of Nerve Defects.—Charles A. Powers¹ reports having operated upon a youth of 18, in an attempt to establish the continuity of the external popliteal nerve, three and a quarter inches of which had been destroyed by a traumatic wound. The operation was performed six weeks after the wound was received, and the distal end of the severed nerve was found with difficulty; the proximal end with ease. Both ends were pared and the gap was bridged by a piece four inches long of the sciatic nerve of a dog, prepared fresh at the time of operation. Three sutures of fine chromicized catgut anchored each end of the animal nerve and sheath to the nerve and sheath to be repaired. The operation was performed eight years ago, and though the patient received the customary after-attention, and was soon discharged from the hospital, the final result was a failure. Powers, after studying the subject carefully, concludes that nerve transplantation, with the idea of reestablishing the continuity of a nerve, should be discarded. The author gives a summary of 22 reported cases of nerve grafting; in these 6 (22%), appear to have resulted satisfactorily, though he is quite sceptical concerning the accuracy of some of the reported cases. Powers reviews and discusses the various forms of operation for reestablishing nerve continuity, such as the flap operation, implantation or anastomosis, resec-

tion of bone to shorten limb so ends of nerve can be approximated, suture a distance (space bridged by animal suture in the hope that filaments will beled across the gap), and tubulization. It is impossible as yet to determine which of these is the best operation, and doubtless no one is suited to all cases. Further reports are needed, and additional experiments along this line are desired. Neuroplasty and implantation (anastomosis) are always available resources, and for the present it would seem that they should be preferred. [A.B.C.]

Radium and Experimental Therapeutics.—Rudolf Polland² asserts, as the result of experiments, that the action of radium upon tissue is analogous to that of the röntgen rays and concentrated sun or electric light. He was not convinced that it had no elective action upon tissue in the sense that neoplastic tissue is destroyed more readily or alone to the exclusion of the healthy surroundings. Destruction of the deep tissues with preservation of the superficial layers did not occur. Destruction of the tissue progressed long after removal of the radium, and healing of the resulting necrosis was very slow. Cavertous hemangiomas may, under the action of the radium rays, be converted into scar tissue by coagulation of the blood, and organization of the resulting thrombosis. The destruction of extensive diseased conditions is not practical unless large amounts of radium are available. In Polland's experience the effect of the metal is inconstant and fluctuating, so that it is impossible to measure the dosage. He found that intracutaneous injection of 1% solution of eosin increased the absorbing power of the skin for direct sun rays, and that by this measure superficial epithelial ulceration was rapidly produced. Even long-continued treatment by this method is no warrant of a positive or enduring destruction of lupus. Eosin did not produce local or general toxic symptoms. The effect of radium was not increased by eosin injections. [J.H.W.R.]

Comparative Dangers of Ether and Chloroform.—A. Jaquet² reviews the literature on this subject. Both ether and chloroform produce anesthesia in the same way, but they have distinct secondary actions. Chloroform markedly depresses the heart and respiration and lowers the blood-pressure, while ether has no such effects, unless the toxic limit is reached. When exposed to contact with chloroform vapor, nervous tissue is killed, while ether produces only a temporary functional paralysis. The working limits are much more extensive with ether than with chloroform; hence, accidents due to an excess of the anesthetic are less to be feared with the former. Moreover, prolonged anesthesia is better borne with ether than with chloroform. The latter may produce parenchymatous degeneration of all the organs, which may be fatal; this does not occur with ether. These facts show undoubtedly that ether has advantages over chloroform, which justify the increasing favor that it enjoys as an anesthetic. It is less dangerous than chloroform, and the inconveniences attending its use can be considerably reduced by a careful and rational administration of the anesthetic. [B.K.]

Hand Sterilization.—Winslow Anderson³ says of the three practicable methods of hand sterilization now employed, Fürbringer's, the Weir-Stimson, and the Johns Hopkins, or Welch-Kelly, he prefers the last named. The technic he has introduced into San Francisco hospitals is: 1. Use mechanical cleansing most thoroughly. Scrub the hands and arms with sterile soap, hot sterile water and a soft brush of vegetable fiber for five minutes; change the water every minute. 2. Cleanse nails with a sterile metallic nail cleaner, but avoid cutting the finger-nails too short. This interferes with the manual dexterity of working in the abdominal cavity. A nail 1 mm. ($\frac{1}{16}$ in.) in length can be cleaned. 3. Thorough scrubbing again for five minutes with a 2% solution of lysol in five changes of hot water. 4. Rinsing in sterile hot water. 5. Immerse the hands and arms in a hot saturated solution of potassium permanganate for two minutes. 6. Immerse in a hot saturated solution of oxalic acid until all the stains are removed. 7. Wash in sterile lime water or pure hydrogen peroxid. 8. Rinse in sterile normal salt solution. 9. Do not dry the hands at all but rinse frequently during the operation in hot normal

¹ Wien. klin. Woch., 1904, No. 44, p. 1187.

² La Semaine Médicale, December 7, 1904.

³ Pacific Medical Journal, December, 1904.

¹ Annals of Surgery, November, 1904.

salt solution. No one should ever enter an operating-room while wearing the shoes and clothing worn in the street. [A.G.E.]

Total Avulsion of the Scalp.—Ernest J. Mellish¹ reports that a woman of 30, while grinding grain with a belt machine was caught by the hair and the entire scalp, together with most of the left ear, a portion of the integument of the forehead and that of each eyelid, was completely avulsed. There was not much shock and but little hemorrhage. Skin-grafting was begun on the day following the injury, and continued at various intervals, a portion of the denuded surface being covered at each operation. The grafts were taken after the Thiersch method, and those removed from the patient's body (homogeneous grafts) grew without trouble, but grafts removed from the thigh of the patient's husband (heterogeneous grafts), though maintaining their vitality and growing for a time eventually broke down and sloughed. The case Bivings reported in 1902 is referred to, and also Gussenbauer's. A noteworthy feature in the reported cases is the length of time required for healing owing to continued breaking down of the newly-formed integument. In one of Gussenbauer's cases it required 20 months to effect a cure. In the case here reported by Mellish, complete healing was accomplished in 75 days, and this time, the author states, could have been reduced to about a half by avoiding the use of heterogeneous grafts. Bivings states that but 13 cases of scalp avulsion have heretofore been reported, and some of these included but part of the scalp. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Serumtherapy.—C. J. Martin,² director of the Lister Institute, says that experiments show that in some circumstances the therapeutic value of antitoxic serum is greatly enhanced by intravenous administration. He reports having carried out a series of experiments upon rabbits. In the first series the snake venom and serum were mixed together 15 minutes before injection. In the second series the venom was injected subcutaneously and immediately afterward the serum was injected into a vein. In the third series the venom and serum were injected simultaneously, but separately, under the skin. In the last instances the results were much more disastrous to the animal. Calmette has stated that antivenene is more rapidly absorbed than venom. Martin holds to the contrary view and cites his experiments as proof. He states that Behring has estimated that eight hours are saved by the injection of the diphtheria antitoxin intravenously. From the analogy of the toxin of diphtheria and this constituent of the venom as regards the order of magnitude, he has felt justified in commending the intravenous injection of antitoxin in all bad cases of diphtheria. This has been the routine practice in certain hospitals in Australia for the past six years and with the most encouraging results. With regard to the operation there is no difficulty if the veins of the arm are distended by means of a tourniquet, as in the operation of venesection. The skin over a prominent vein is cleansed and the needle passed directly into the vein. The fact that it is in the vein can be ascertained by its mobility. The serum is then introduced and afterward the tourniquet is removed. [A.B.C.]

Pharmacodynamic Study of Stovain.—Pouchet³ made some observations concerning stovain, the benzoic ether, dimethylaminopropanol chlorhydrate, with the following results: Its toxicity is much less than that of cocaine; in toxic doses it produces in some animals total analgesia without any nervous symptoms; in others it produces hyperesthesia with general convulsions. Animals presenting the former set of symptoms usually recover, the latter do not. Immediately after its injection the temperature of the animal falls from 2° to 5°. Its toxicity is directed only against the central nervous system; the heart muscle is toned up by it, and animals, even

dying as the result of the intensity of the nervous symptoms, still preserve a slow, strong heart. Immediately after injection of small doses of the drug, a fall in blood-pressure will be noted, but this recovers very quickly; cocaine is a vasoconstrictor. It has also considerable antiseptic properties, destroying *Bacillus coli* in 36 hours in a dilution of 15 parts in 1,000; the same was found true of *Staphylococcus aureus*; the diphtheria and typhoid bacillus were destroyed by weaker solutions in the same length of time. In studying its analgesic powers it was found to be superior to cocaine, inasmuch as it anesthetized quicker and more completely. [E.L.]

Veronal.—James Burnet¹ found that in his hand veronal seemed to produce none of the ill-effects of the older hypnotics, and in his opinion it is preferable to them in several ways. He cites eight cases in which this drug was used, including cases of pneumonia, senile pruritus, insomnia, the result of cellulitis, severe neuralgia, insomnia in a case of cancer of the stomach, alcoholic insomnia, severe sciatica and neurasthenia. No bad effects were observed in any of these patients, and only in the case of neuralgia did the drug fail to produce a beneficial result. [J.H.W.R.]

Treatment of Whoopingcough.—Stepp² reports 22 cases of whoopingcough, which he treated with fluoroform. The patients varied in age from one month to four years. The average duration of the condition was 35 days, the shortest being 12 days, the longest 74; the average number of days under treatment was 18 days, the shortest being 6, the longest 37 days. In each case when the patient was discharged, he was free from whoopingcough. Inasmuch as the average duration of the whooping stage of whoopingcough is four weeks, and the other stages two months, therefore the duration of the entire infection three months, while some may last as long as six months, it is seen that fluoroform produces a cure in a remarkably short time; another point of importance in the cases of his patients is that they were all very young, many were not very strong and most of them seemed to have very bad types of the disease. The cases were made up of 3 light, 7 medium, 6 grave, and 6 very grave cases; 5 of them presented complications. In every case, whether light or severe, the number of coughing spells diminished at once, at first rapidly and then more slowly, until complete recovery had taken place; this occurred with such a regularity that Stepp is inclined to believe that fluoroform possesses a specific influence over the whoopingcough poison. He employs a 2% solution in water; it is tasteless, odorless, and not poisonous. The smallest children are given a coffee-spoonful every hour, the older children as much as a tablespoonful. He is not able to explain the mode of action of the substance, but insists that it is the best agent against whoopingcough, especially in cases of very young and delicate children. [E.L.] [It very often disappoints. S.S.C.]

Medical Treatment of Gastric Ulcer.—S. W. Lambert³ says the two cardinal points in medical treatment of gastric ulcer are rest and milk diet. The rest cure does not mean absolute isolation as in neurasthenia; it is sufficient that these patients stay in bed and give up all business cares and worries during the rest. They should receive daily alcohol sponging and baths and mild forms of massage. The duration of the rest cure rarely needs to be more than six weeks. During this time a local rest for the stomach and the ulcer itself is indicated. For at least a week nothing but water and pieces of ice should be swallowed, the patient being nourished by enemata. Occasionally, in mild cases, gastric feeding may be resumed in four days. The diet can then be gradually increased; the main point to be observed is to make a single change at a time, no matter how simple, in order that if any disturbance follows, the new article of diet or the method of administration may be ascribed as its possible cause. The use of milk as an exclusive food is subject to much prejudice, but Lambert says there are methods of furnishing palatable peptonized milk and finally the modification of milk will furnish any desired composition. The two drugs of most use in gastric ulcer are bismuth subnitrate, and olive oil. Both these drugs require the use of the

¹ Annals of Surgery, November, 1904.

² British Medical Journal, October 8, 1904.

³ Bulletin de l'Académie de Médecine, 1904, III, 110.

¹ Jour. of Nervous and Mental Disease, December, 1904, p. 786.

² Therapeutische Monatshefte, 1904, xviii, 540, No. 11.

³ American Journal of the Medical Sciences, December, 1904.

stomach-tube to be applied to the best advantage. This raises the question of the advisability of introducing the stomach-tube when gastric ulcer is known to be present. Lambert says if ordinary precautions to avoid distending the stomach are taken, and if pressure is limited by keeping the funnel at the level of the head of the patient, one can ignore the possibility of perforating an ulcer by the tube. In the medical treatment of active gastric hemorrhage from ulcer, only one drug is of service, morphin, hypodermically. The statistics of more than 50 cases of ulcer are given without being generalized other than to point out that surgical procedure offers, in certain cases, the only road to recovery. [A.G.E.]

Marelin in Tuberculosis.—W. Kaupé¹ has employed marelin, which is carbamic acid-m-tolyl hydrazid, in nine cases of tuberculosis; they were cases of tuberculosis of the lung, the brain, the peritoneum, the tongue, the genitourinary apparatus, the larynx, and the skin. All of them were considerably advanced and all presented more or less fever, some very high fever. He gave from 0.2 gm. to 0.5 gm. (3 gr. to 7½ gr.) about four hours before the expected rise of temperature; in some cases the result was obtained after two hours, in others not before the four hours were past. The best result was obtained from the larger dose, the smaller dose producing in some cases a hardly appreciable influence. In many cases the temperature could be kept at a subnormal point with it. Other antipyretics were tested in the same cases for comparison's sake, but the result in none of them was as good. The action of the drug persisted from 6 to 24 hours in the different cases. Not even in large doses, 1 gm. (15 gr.) daily, were unpleasant symptoms noted. On account of its tastelessness no patient objected to it. In some of the patients the night sweats diminished. These observations were made at Schultze's clinic at Bonn. [E.L.]

The Present State of Serumtherapy.—E. W. Goodall² discusses this question at some length, and states there are two points which should be investigated. The first is the cause, and, if possible, the prevention of the rash which so frequently appears after the subcutaneous injection of the curative serums. These rashes vary greatly with the serum, and in different patients. 2. Are there contraindications to the administration of antitoxins? It was formerly believed that in the serum treatment of diphtheria there were injurious effects upon the kidneys. This, he believes, has been totally disproved. He summarizes the present status of serum treatment as follows: There can be no question that in diphtheria, serumtherapy has won a great triumph. With regard to any other disease, can we speak with such assurance? The nature of toxins and the conditions associated with inception of snake bites, forbid us to hope for striking results in the way of cure in these diseases, but as a prophylactic, serum has proved to be of value in the one disease and should be of value in the other. In hay-fever, the outlook is promising. With regard to plague, typhoid fever, dysentery and streptococcal infections, there is sufficient evidence of the benefit of serum treatment to stimulate further endeavor. The most striking success, clinically as well as experimentally, has been reached in the toxemic diseases. Recent observations lead one in doubt whether an immunizing antinarcotic serum contains all that is necessary for the destruction of the bacteria against which it is directed. There is still much to seek as regards standardization, dosage and the avoidance of complications. [A.B.C.]

Benzoylacetilperoxid in the Treatment of Typhoid Fever.—W. W. Ross³ employed acetozone in 17 cases of typhoid fever, with surprisingly uniform results; all recovered. The temperature began to fall within 48 hours, and within 72 hours it had fallen from 2° to 3°, and did not go again above this point except in one patient, and in this the patient could not take the drug continuously. The disease was uniformly shortened an average of a week, when the drug was begun early, and shortened three or four days in all the other cases. The intestinal symptoms were entirely relieved in about 72 hours. The feces were deodorized, and the diarrhea ceased. The tongue became moister and cleaner; the heart action became stronger;

stupor and delirium disappeared; only one patient had a relapse, and here the drug had been stopped before the termination of the disease; the relapse lasted only four days; no hemorrhages, and not a single complication were noted, and the patients were comfortable throughout. The drug caused a marked diuresis and an increased elimination of hippuric acid. No other treatment was employed except gentle laxatives. The salines seemed to enhance its value. [E.L.] [This and other highly-colored accounts of the superlative merits of acetozone need not blind us to the fact that the drug has a useful subsidiary place in the management of some cases of typhoid fever. S.S.C.]

Unsettled and Important Problems in the Treatment of Lobar Pneumonia.—Beverly Robinson,¹ after very careful consideration of lobar pneumonia, emphasizes as essential propositions: (1) Begin judicious rational treatment immediately and continue it during the attack; (2) the most useful single agent in treatment, as preventive and curative, is creosote, used preferably as inhalations; (3) strict avoidance of extremes of treatment in any direction, whether they betoward the use of so-called specifics or the employment of certain drugs, notably digitalis and strychnin; (4) it should be graven on our minds that pneumonia may be throttled or minimized most surely in the beginning; later when the disease is fully developed our role should consist mainly in doing least harm; (5) harm almost invariably proceeds from ignorance or undue enthusiasm. [A.G.E.]

A Plea for the Use of Tuberculin in Treatment.—Albert Grünsbaum² states that in German literature it is easy to find records of many cases illustrating the utility of tuberculin as a therapeutic agent. In Great Britain it is used but little, yet he holds that the clinical results more than justify its use even if it is impossible to give any rational explanation of the beneficial effects derived. There is reason for believing that it stimulates the production of protective bodies against the tubercle bacillus. Grünsbaum uses the new tuberculin of Koch and proceeds according to the instructions supplied with the drug, avoiding violent reactions. He has not seen any of what may be termed the nonspecific forms of treatment producing results approaching those of tuberculin in cases in the same stage of the disease. The tuberculin treatment has its failures, but they are not so many as are seen in sanatorium treatment. The author believes the best method is the combination of tuberculin and sanatorium treatment first insisted upon by Petruschky. But with many patients this combination is impossible, and yet tuberculin may be used. He goes further and believes that tuberculin may be used as a prophylactic agent, especially in cases of obvious tuberculous predisposition. [A.B.C.] [Nevertheless it is distinctly bad treatment. S.S.C.]

The Practical Application of Anthrax Serum.—G. Sobernheim³ has modified Pasteur's method of immunizing against anthrax by means of weakened anthrax cultures; also the method by means of which immunization was produced by the injection of an immune serum (Sclavo, Mendes). His method consists in a combination of the two, and employing it in Germany and South America in many thousands of cases, he found this combination of the greatest advantage. In regions where the disease existed epidemically it was checked almost at once and occurred only in sporadic instances. In places where all the cattle were treated, the disease disappeared altogether. A single injection confers immunity, this appearing as early as the tenth to the twelfth day, and lasting for upward of a year. His method has also been useful in contradistinction to Pasteur's by being applicable as a curative agent, many of the animals injected recovering from the disease. [E.L.]

Iodipin.—Schönbaum⁴ claims that iodipin is a very active iodine preparation, and surpasses in many respects potassium iodid. On the other hand, it does not upset the stomach, or irritate the kidneys, and is free from other unpleasant effects of the iodids. The unpleasant taste can be entirely disguised by chewing a peppermint lozenge. [J.H.W.R.] [Iodipin utterly disagrees with many patients. S.S.C.]

¹ Deutsche medicinische Wochenschrift, 1904, xxx, 983.

² British Medical Journal, October 8, 1904.

³ Brooklyn Medical Journal, 1904, xviii, 339.

¹ American Journal of the Medical Sciences, December, 1904.

² The Lancet, September 24, 1904.

³ Deutsche medicinische Wochenschrift, 1904, xxx, 960 and 983.

⁴ Wiener klin. Therap. Woch., November, 1904, p. 1243.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. OER

Orthopedic Surgery

H. AUGUSTUS WILSON

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Dermatology

M. B. HARTZELL

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Pathology

ALLER G. ELLIS

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 2.

JANUARY 14, 1905.

\$5.00 YEARLY.

Arts Degrees and Professional Education.—As between the idea of the "college course for the A. B. degree" and what has been styled "the university view," the following disposition might serve as a *modus vivendi*: For the university course for the A. B. degree, in which the degree itself is the objective, being regarded as an evidence of a literary education, the four-year course should be retained. To remedy the hardship, however, if any such really exists, imposed by this requirement on those for whom it is essential that they should "pass with as little delay as possible into the professional schools," grant to every student who enters himself in the professional school the right to proceed on a two-year course to the A. B. degree, on the condition, however, that after the completion of the course and the passing of the necessary satisfactory examination, the conferring of the Arts degree shall be postponed until after the candidate's graduation at the professional school.

Supplying the newspapers with information which, appearing in the reading columns, may serve as advertisements of the sly physician, is an old method of the stupidly cunning. Some years ago a persistent Philadelphia advertiser of this kind was exposed by a newspaper; he had then to take more subtle and far more difficult methods of supplying the reporters with information. It is remarkable with what certainty one may predict the regular appearance of the names of some physicians in these advertisements, either as regards public questions, social happenings, medical opinions, or, more commonly, operations. It is, of course, true that whenever such mention occurs it may not be through the will or act of the practitioner, and even against his wish, for it is indeed impolitic; but if these advertisements are too persistent and regular in their appearance, suspicion is justifiable. Even the photographer will obey a command not to sell one's picture, and when expressly ordered only the lowest class of yellow journals will refuse to heed a physician's sincere instructions. To meet the evil the New Orleans Parish Medical Society has adopted a method which must be pronounced admirable and worthy of the imitation of all. According to the resolution passed by the society "copies of all articles appearing in the daily press of this city relating to members in this society shall

be placed by the secretary in a scrapbook, which shall be kept on the president's desk for the inspection of members. The book shall be indexed. Any member whose name shall appear therein will have the privilege of attaching thereto a written explanation."

Commercialism Versus the Medical Profession.—Recent editorials in some of the representative lay journals have hinted that there is a feeling, becoming more and more manifest in medical circles, against the invasion of that field by aggressive methods of modern business. One would infer from a casual perusal of these essays that the time-honored dignity of the profession is likely to be seriously compromised, and that in the too near future rampant quackery will stalk up and down the earth, while scientific medicine humbly seeks the remote recesses of the laboratory. Charlatanry, it may be said is almost as old as original sin, and its advocates were just as rife in plying their trade on the banks of the Nile in the days of Pharaoh as they are bold today in scattering their detestable advertisements wherever they may catch a human eye. There is this difference, however, the number of such advocates is larger and their audacity great enough to lay claim to the same respectability as is enjoyed by all other men; whereas in the olden time they were despised by all save the ignorant and superstitious, and scarcely more than tolerated by them. Greed of gain is at bottom the very pulse of all quackery, and is responsible for the rather remarkable activity of this sort of humbug wherever it is found. The marvels of scientific discovery have made the general public credulous about things they cannot understand, while the offer of "trial treatment free" is an additional incentive to belief among people of slender purse. The various forms of faith cure are especially pernicious since they contain enough truth to form the basis of a pseudophilosophy, a type that is particularly attractive to pedantic minds under stimulation of syllogistic reasoning and false analogy.

The causes of a seeming decline from faith in old medical teachings may be due, in part at least, to these things, and if so, what can be prophesied as to the result? Upon first thought one may conclude that there is little reason why open competition should not hold in medicine as elsewhere, since it is the physician's

services that are bought and sold instead of merchandise. There is, however, a more humane aspect to the situation; a doctor's business is concerned with matters of life and death, which ought to admit of no thought of commercialism, and to bid for patronage in such extremities certainly would savor of the market place and the 'change. The only plausible excuse for advertising that a quack can offer is the bombastic pretense that he can cure patients given up by reputable physicians as hopeless, a pretense that will never bear investigation. A conscientious physician makes no such claim, since he realizes that some things in this world are beyond the bounds of possibility. Some of the therapeutic procedures used by quacks doubtless have a certain remedial value in the hands of the experienced, and the question may be raised whether it is wise to relegate such measures entirely to quackery, it being understood that these methods are not applicable in all conditions, but only in certain selected cases. But that is a matter which belongs strictly to the domain of professional ethics, and needs the greatest judgment and the most careful consideration before any radical steps are taken in its behalf. It may be true that commercialism is making inroads on our profession from a financial viewpoint, and is robbing it of certain rightful belongings and privileges, but such results can scarcely be permanent, for there will doubtless be a reaction from the new and untried in favor of the old and well-tried methods established through centuries of time, world-wide experience, and untiring scientific zeal. Meanwhile, it is safe to predict that the refined and educated among men will continue to tell the story of their ills to the legitimate descendants of Hippocrates.

Tactless Physicians and Suicide.—When to tell patients the exact nature of their illness and when to conceal all or a part is a puzzling question physicians are continually called upon to decide. Those who regard unduly the personal feelings of their clients do them harm by concealing facts, which, if known, would not only aid in treatment, but also inculcate physical and perhaps moral truths of inestimable value; on the contrary, instances of the evil effect of blunt statements by physicians are well known by all. Unfortunately, this question is not one to be decided by mere rule of thumb, or even by any formal pronouncement, however authoritative it may be. Action in each case must be determined by a consideration of the patient and the circumstances; these will never twice be the same. The point is one that at times requires the exercise of the highest diplomacy, and the way it is settled distinguishes clearly between the tactful, conscientious, humanitarian physician and the blunt, careless, selfish prescriber of medicines. At no time is there greater need for caution than when dealing with a suspected or known case of syphilis. Notwithstanding the attenuation due to centuries of vigorous treatment, and possibly a degree of acquired immunity, this is still a most serious and dreaded disease, and its announcement to any person must be a source, at least, of consternation if not indeed a more serious mental condition. Very pertinent in this connection is an article on the suicide of syphilitic sub-

jects by Dr. Alfred Fournier,¹ who, among other points, discusses the effect of injudiciously announcing to such patients the nature of their malady. He states that while suicide among syphilitics is not so common as might be supposed from the enormous number of cases of the disease, it is by no means a negligible quantity, as he alone has notes of 18 cases. Fournier makes four groups of the cases in which syphilis is responsible for suicide: (1) Those in which the act is caused by mental disorder due to the disease; (2) those due to despair of patients on account of real or supposed serious syphilitic manifestations; (3) those concerned with the first notification given patients of the nature of their disease; (4) those resulting from the relation of syphilis to marriage. Instances of each are cited, particular attention being given to those in the third group. Severe censure is rightly placed upon hasty hospital consultants who, without commentary or encouragement, simply announce to patients that they have syphilis and supply them with treatment. The principle may be no worse, and surely is no better, when followed in private practice. The mischief accomplished by a too blunt first announcement can hardly be corrected later by explanations and cheering words; too often they fall upon an individual rendered unheeding by the sudden knowledge of what to him is a great calamity; and certain ones see no way out of their predicament save swift relief by suicide. The careless, or, to be more charitable, the tactless physician is not legally responsible. Morally, what shall be said?

Trying to Kill the Pure Food Bill.—If the medical profession exercises its full power, and at once, upon senators, there is a good chance that the Pure Food bill now before the Senate will pass in January.² The opposition is so adroit that, knowing well the feeling of the people, it does not show itself directly, but by the indirection of delays, and subterfuges it is almost strong enough to prevent a final vote upon the measure. The bill, in fact, cannot be objected to on any rational or ethical ground, because in a general way different bills containing the essential principles of this one have passed both the House and Senate, but, of course, not the same bill. The Department of Agriculture and Dr. Wiley will have the administration of the present bill, and so have had nothing to do in devising or pushing it forward. It is estimated that over \$3,000,000 worth of fraudulent drugs and foods, misbranded and adulterated, are sold annually in the United States. Most of the individual States have enacted adequate laws in this matter, but they cannot enforce them as regards interstate commerce, and so the abuse goes on, as 95% of such goods is exported from the State of manufacture. The manufacturers of pure articles may now have to brand one kind of a package with as many as 36 labels in shipping into different States. In the language of a Senator speaking of this bill: "It injures no legitimate business; it does not determine what shall be shipped into any State. It does not determine what shall be done with it in the State. It neither prohibits nor interferes with any commerce whatever. It simply says that all goods must be unmasked before they cross the State line. No legiti-

¹ International Clinics, Vol. III, Fourteenth Series, 1904.

² New York Evening Post.

mate dealer can object to a law of this character. It does not prevent a man from buying what he desires to eat or what he desires for a drug. It simply declares that he shall be protected in buying what he does want, either for food or in the drug line. I anticipate that no person could urge any objection to a law of that kind." Both medical men and societies should use their personal influence with senators to bring the bill to a vote.

An Instance of True Philanthropy.—From Washington, D. C., comes the prospectus of a truly philanthropic enterprise, an undertaking founded on basic principles of relief, a system of beneficence which, though as yet on a small scale, easily puts to shame the pauperizing almsgiving of selfish millionaires. "Philanthropy and 4%" is its motto. Now let our misguided charity workers raise their hands in horror. Charity that demands 4% on its investment? Absurd! Not in the least. This is charity controlled by business principles, the only sound method of its ministration. Doubters of the success of such enterprise are respectfully referred to the statements of the Washington Sanitary Housing Company, which has been chartered by Congress. This company builds two-story houses, containing three or four-room flats, with bathroom and sanitary plumbing, on sites formerly occupied by unsanitary "shacks," inhabited by either whites or negroes, and rents the flats at prices within the reach of people who cannot pay the \$10 or \$16 rent of the other available houses. The effect of this upon the localities where these building operations are conducted and upon the mental, moral, and physical condition of the people concerned need not be described. The company does not care for the dissolute and idle. The people are *given* nothing, except better houses to live in. They have to pay their rent of \$7 or \$8 a month or vacate, but they are put in a better way of living in every respect. Proper care of the houses is assured by setting aside one month's rent each year for interior repairs. The difference between the cost of necessary repairs and this rent is given to the tenant as a rebate, hence the incentive for making the repair bill as small as possible. The financial possibilities of the enterprise are shown by the payment of the 4% dividend annually, and, in addition, the accumulation of a handsome surplus. The company has borrowed money to complete a row of houses and seeks to sell additional shares to liquidate its indebtedness and still further extend its operations. No trouble should be had in selling to the citizens of Washington hundreds of shares. Subscriptions mean philanthropy, improvement of the city, and financial return. The officers and directors of the company include men of such national and international reputation as Sternberg, Foster, Kober, Pinchot, and Riggs, sufficient guarantee of the integrity of its workings. The success, sociologic and financial, of this enterprise should be widely known. Such examples herald the time when charity will cease to cover a multitude of sins in the way of further degradation of the people it would aid.

National Control of Leprosy.—Dr. Webster, whose communication on this subject appeared in our issue for

last week, is quite right in holding that an act of Congress cannot confer upon the United States Public Health and Marine-Hospital Service the control of leprosy in all the States of the union. But with the consent of California, Minnesota, Florida and Louisiana, Congress may empower the United States Public Health Service to undertake the care of all lepers found within any of these four States. Possibly the consent of the State might in some instance require amendment of the State constitution, but the constitution of the United States presents no obstacle to a mutual arrangement of this sort. The State of Florida recently made over to the Public Health and Marine-Hospital Service all her quarantine plant with full authority to operate the same under the federal laws and regulations. The maritime quarantine of several States has long been operated exclusively by the Treasury Department; in some States both local and federal quarantine stations are operated independently; elsewhere local authorities retain exclusive control. Long before the United States Marine-Hospital Service became the Public Health and Marine-Hospital Service its officers were authorized to serve the States in the suppression of infectious diseases. Many emergencies have engaged at the same time the services of both State and federal officials; sometimes local officers have yielded all, or the greater part, of responsibility to federal officers, and always the federal officials have the right to be present on the scene and to report their observations. Congress can empower, if indeed it has not already empowered, the United States Public Health and Marine-Hospital Service to relieve any State of part of the burden of any infectious disease. The establishment of tuberculosis sanatoriums under federal control for the care of patients committed by State authorities would be quite consistent with the constitution of the United States. Medical education and licensure might, in our opinion, become a subject of national legislation without amendment to the federal constitution, but to no useful purpose without coincident legislation by one or a number of States.

Public School Gardens.—The title page of a joint report on Philadelphia school gardens, by the Civic Club and the Civic Betterment, Public Education, and City Parks Associations, bears this war cry: "Wanted: A school garden in each ward. A well-furnished public playground next to each garden. Open school-yards from sunrise to twilight every weekday, including Saturdays. Give the children, at the hours they can use them, these grounds secured for their use." After reading the description of the work accomplished by the two city gardens, and several others conducted by various associations, we are quite prepared to second this demand. Unqualified success has marked the administration of all of them, and the city surely would be justified in vigorous efforts to add to their number. Vacant lots are cleaned and laid out in plots varying from 4½ ft. x 5½ ft. up to 8 ft. x 12 ft. in size. These are numbered and assigned to children who become sole owners of the crop raised thereon. Opportunity is thus afforded for instruction along many lines other than the direct caring for the plants themselves, as becoming familiar with varieties of soils, the insects encountered, mode of growth of

plants, ordering of seeds, sketching plants, making instruments, geographic study of articles raised, and many others. The accompanying chart of the work as laid out in a Massachusetts school, makes provision for a vast amount of practical teaching. Add to this the incentive coming from actual ownership and the system must be of great good in the training of future citizens. Children are kept off the street for a certain time, and better order in the neighborhood is maintained. Applications by children for the coming summer are already far in advance of the facilities at command. In the report, opportunity is seized to exult over New York because good, old, slow Philadelphia was the first officially to institute such gardens; New York already had them, but only under private generosity and control. As the Philadelphia Board of Education took the initiative in this commendable enterprise, it should maintain its prestige by increasing greatly the number. By all means let us have more gardens; they are a splendid adjunct to our modern educational system, and the normal schools should institute courses of instruction properly to train teachers for this work.

Proportion of the Sexes in the United States.

—Bulletin 14, of the United States Census Bureau, prepared by Professor W. F. Willcox, of Cornell University, is an elaborate analysis of statistics regarding sex as obtained by the census of 1900. The deductions reached confirm certain generally accepted views, while others, just as effectually, are refuted. There are in the United States 1,638,321 more males than females, the relative excess of males being greater than the average for all countries in that half of the world whose population has been counted with distinction of sex. With one exception, at each census since 1830 the absolute excess of males has been greater than at the preceding enumeration; the exception was that of 1870, and was doubtless due to the Civil war. The District of Columbia possesses the smallest proportion of males, 47.4%; Wyoming the largest, 62.9%. Notwithstanding the general excess of males, cities of the United States, as a rule, contain more females than males. In 1861 cities with a population of more than 2,500 each, there were 201,959 more females than males, this feature becoming conspicuous since 1890, when there were in like cities 6,929 more males than females. This difference in sexes in the city and country has been noted in Western Europe and is best explained by the fact that women more easily than elsewhere find employment in cities. In two periods of life census returns show larger numbers of women, from 83 upward and from 16 to 25. The former leads to the practical inference that women live longer than men; the latter is explained by the ingenious assumption that many older women wrongly place themselves in this group. Since 1890 there has been a relative increase in the number of females attending school, this being most marked at the age period of 15; nearly all this change took place in country districts. The deathrates of the two sexes show a conspicuous difference. In the registration area the rate in 1900 for males was 19 per 1,000; for females, 16.6 per 1,000, the former being a seventh higher. In cities the figures were 20 and 17.2, in the remainder of

the area 15.8 and 15, respectively. The difference is least between the ages of 5 and 14. Male children under the age of three have a uniformly higher deathrate than females. The Bulletin contains a maze of tabulated statistics, from which these points have been selected. Statistics often are notoriously misleading, but those collected with the care characterizing the census enumeration may be accepted as substantially correct; conclusions drawn therefrom are doubtless, as a whole, very accurate.

Expert Testimony in Food Adulteration Cases in Great Britain.

—The report for 1903 of the British Board of Agriculture¹ contains tables giving the number of samples of milk, butter, and cheese submitted for analysis in England and Wales during 1901, 1902, and 1903, and in Scotland during 1902 and 1903. The first named countries show a fairly steady increase in the number of examinations of all the products mentioned; in Scotland the samples of milk and butter were less in 1903 than in 1902. The increase specified is considered very satisfactory, in view of a tendency in some localities to collect fewer samples, because of certain difficulties which have arisen. One of these is a matter of jurisdiction in collecting samples and remunerating the analyst, which should, and doubtless will be readily adjusted. A second difficulty is more grave, as it relates to the prosecution of those handling adulterated milk, and raises a question that is becoming of serious import in this country; we refer to so-called expert testimony. The report states that when every public analyst set his standard and condemned samples accordingly, his act was final and no undue attention was attracted. Now "the information made public through the medium of the report and the minutes of evidence of the Committee on Milk and Cream Regulations offers a strong temptation to make a prosecution for alleged milk adulteration a field for an aggregation of expert and scientific evidence on both sides. This has been attended with unfortunate results. At the present time many courts are unwilling to convict in any case of alleged milk adulteration, no matter how unsatisfactory the evidence for the defense may be, so great is the uncertainty created in the mind of the magistrate by the evidence recently put forward in milk cases. The consequence has been, that in districts within the jurisdiction of these courts the seller of genuine milk finds the risk of being unjustly convicted, reduced to a minimum. But he has to face the risk of being undersold and driven out of the market by the seller of adulterated milk, who is allowed to carry on his trade with impunity." The same state of uncertainty in the minds of judge and jury is often engendered in this country by the bickerings of two sets of expert witnesses, each being employed by opposing interests. And what is the effect on dealers and officers of the law? The former, if not convicted, as too often is the case, continue their nefarious practice more boldly than before, and, as shown in England, officials become lax in searching for offenders. Expert medical testimony is of value in certain cases where special information is desired by

¹ Public Health, November, 1904.

the court and by both parties concerned; in the majority of instances as now supplied it mystifies judge and jury regarding the cause at issue and reflects no credit upon the medical profession. The quality is apt to be regulated by the size of the fee at the command of the interested party. In our present methods there is a growing danger to the administration of justice that should be recognized alike by courts and by physicians. An instance in proof of this assertion is the English case herein cited; it should be given wide publicity.

Railroad Hospitals and Railroad Surgeons.—Originating in the sparsely settled western parts of our country, where facilities for caring for sick employes, particularly emergency surgical cases, made them a necessity, hospitals have there become an important feature in railroad management. Many interesting facts regarding their working are given in a recent issue of the *Railroad Gazette*. To the old Central Pacific belongs the credit of inaugurating the movement, the first hospital devoted exclusively to the care of railroad employes, being founded in 1869. Now, the large western roads have each from one to three hospitals and some of the smaller lines are imitating their example. In most instances the hospitals are under the control of associations, independent or not of the railroad management proper, funds being secured by regular assessments upon the employes. The extent of this hospital service is well shown in a paper by Chief Surgeon Ainsworth of the Southern Pacific Railroad. During 1903, the hospital patients of the Southern Pacific numbered 58,220, of the Missouri Pacific 42,084, of the Atchison, Topeka & Santa Fe, 39,171. For the first named, the cost was \$129,000 and the receipts \$121,000. The railroad companies usually make up the deficit, in addition to contributing liberally to the fund. Thus far the picture is a bright one, and calls only for commendation of a system that doubtless saves the life of many an injured employe. Another phase of the question is not so commendatory. For the Southern Pacific, the salaries of surgeons for 1903 totaled \$20,210, and fees for emergency surgeons, \$4,344. For the latter, 1,276 visits were made, an average of \$3.40 a visit; this does not sound badly, until it is remembered that some or most of these may have consisted in performing, or assisting to perform, operations. This is princely, however, when compared to the pay of the regular salaried surgeon, who realized the munificent sum of 20.7 cents for each visit; it is stated that in San Francisco the average is much lower even than this. Operations that in private practice command hundreds or thousands of dollars, are performed by these surgeons for a sum approximating ten cents. The emoluments of the surgeon, of course, include transportation, but this is an insignificant consideration. These figures, if accurate and representative, as we have no reason to doubt they are, will be a revelation to many physicians who regard as highly desirable the position of railroad surgeon. It appears that the whole medical service in question reduces to a phase of contract practice in which, as usual, the remuneration of the surgeon is far less than the value of the services rendered. Why are such positions in active demand?

AMERICAN NEWS AND NOTES

GENERAL.

Miscellaneous.—Beginning with January, 1905, the *Eclectic Medical Gleaner*, a monthly medical publication, appears in a new and more attractive form.

Do the N-rays Exist?—M. Perrin, professor of chemistry at Sorbonne, France, is quoted with the following statement with reference to n-rays: "I think and repeat on all occasions, not only do the n-rays not exist, but there does not exist so much as one objective phenomenon which could justify the singular error of the physicists who have seen these rays."

The National Health Association for the Study and Prevention of Tuberculosis will hold the first annual meeting in Washington, D. C., at the new Willard Hotel, on Thursday and Friday, May 18 and 19, 1905. There will be general sessions and divisions of work into the following three sections: 1. Sociologic. 2. Pathologic and bacteriologic. 3. Clinical and climatologic. Full particulars may be had by addressing the Secretary, Dr. Henry Barton Jacobs, 11 Mt. Vernon Place, West Baltimore, Md.

Would Secure the Brains of Eminent Men.—A society having for its object the education of the public to the advantages which may be secured from the scientific study of the brains of illustrious personages has been organized. A committee, consisting of Prof. B. G. Wilder, Dr. E. A. Spitzka, and Dr. Alexander Herdlicker has been formed, whose object is to formulate plans. A bequest will be devised which will conform to legal requirements, whereby persons, during life, may will their brains to the society.

Want Drugs Grown in America.—One of the results of the recent announcement of a growing shortage in the supply of domestic medicinal plants is an agitation among drug manufacturers and dealers in favor of a campaign of education among the farmers to teach them that there is profit in raising for sale many of the plants which they now persistently destroy as noxious weeds. It is said that the supply of domestic vegetable drugs has become so small that we are now importing every year fully \$16,000,000 worth of drugs which were formerly produced from plants gathered in this country. Among these are drugs which are produced from plants which are still found growing wild in large quantities in this country, but the value of which the farmers fail to realize. Some of them are the common dandelion, burdock, couch grass, and curly dock, common golden seal, one of the most valuable of medicinal plants, which today is bringing 75 cents a pound, but is being exterminated as a pest by farmers all over the country; senega, or snake root; common sage, belladonna, henbane, and stramonium.

Cuba and Sanitary Progress.—The session of the American Public Health Association in Havana, during the past week, emphasizes the rapid strides which have been made in sanitary progress in the island of Cuba during the past few years. There assembled in the island sanitary experts from all the important countries of both North and South America, and the influence such a meeting will have upon the inhabitants of Cuba must emphasize the necessity for further progress in the matter of sanitation. While there have been some complaints that Cuba has been dilatory in enacting certain reforms, it must be admitted when a broad view is taken, that Cuba has achieved all that could be reasonably expected in so short a time. The Platt amendment, which was made part of the constitution of the Republic, reads as follows: "The Government of Cuba will execute and, so far as necessary, extend the plans already devised, or other plans to be mutually agreed upon, for the sanitation of the cities of the island, to the end that recurrence of epidemic or infectious diseases may be prevented, thereby assuring protection to the people and commerce of Cuba, as well as to the commerce of the southern ports of the United States and the people residing therein." The Cubans appear to be living up to the spirit of this amendment.

EASTERN STATES.

Maine without a Murder.—There was not a single murder trial in Maine in 1904, and but few crimes of violence were committed.

Leper Committee Appointed.—Citizens of various towns on Cape Cod, in mass meeting recently sent delegates to confer with the State Board of Charity, of Massachusetts, and protest against the proposed establishment of a leper colony at Brewster.

The Harvard Medical Commission and Cancer.—It is reported that the Harvard Medical Commission, which for the last two years has been making a study of cancer, will, in its report to be made in a few days, declare the malady to be non-contagious. The commission will find: 1. That cancer is not infectious. 2. That it is a hereditary affliction. 3. That its cause is as mysterious as that of human life. 4. That the remedies are either a knife or a serum.

Increase in Cancer.—According to an authority on the subject, figures which have been kept of the progress of cancers in the great American cities give alarming results. The computation is made on the basis of 100,000 of the population. Boston shows the second largest total of these cities, having 85 deaths per 100,000 population in 1903 as against 28 forty years ago, a gain of threefold. Boston is surpassed in the figures only by San Francisco, which has a total of 103.6 on the same ratio, compared with 16.5 forty years ago, an increase of 600%. The figures for the other cities are: 32 for New York in 1864 and 66 in 1903; Philadelphia, 34 in 1864 and 70 at present; Baltimore, 18 in 1864 and 63 in 1903; New Orleans, 15 in 1864 and 82 in 1903.

Antivaccinationists Win.—According to the Boston *Transcript*, a formal verdict in favor of the plaintiffs in order that the case might go to the Supreme Court, was ordered by Judge Hitchcock, in the Superior Civil Court at Dedham recently in the cases of Mary D. Hammond and J. Forrest Hammond against the town of Hyde Park, to recover damages for having been refused admission to the public schools. The verdict was for \$150 in the case of the girl and \$50 in the boy's case. They sued to recover \$10,000 each. The case grows out of the refusal of the town authorities to permit the children to remain in the schools unless they submitted to vaccination, as required by the school rules. The parents of the boy and girl would not permit them to be vaccinated.

NEW YORK.

School for Instruction in Tuberculosis.—It is stated that the Franklin County (N. Y.) Medical Society recently passed a resolution requesting that the State Commissioner of Education urgently consider the advisability of public school instruction in the necessary hygiene for the prevention of tuberculosis. It also voted to submit a copy of the resolutions to the New York State Medical Society, the State Department of Health, and the National Association for the Study and Prevention of Tuberculosis.

Deathrate Higher.—According to a New York exchange, the November deaths for the 15 years preceding 1903 in the State averaged 280 a day. November, 1904, had an average of 339. This increase is in excess of the birthrate, the deathrate being 16.0 against 15.2 for the last 5 years. Acute respiratory diseases, 72% of which was from pneumonia, caused 250 more deaths than the average of the month; diseases of the circulatory system 200 more; those of the urinary system are 15% above the average, 8% of the deaths of the month have been from Bright's disease. There is also a large increase this month in the cancer mortality. The chief cause of increase in the mortality of the month is pneumonia, which caused 1,220 deaths, against 800 in October; 12% of the total mortality was from this cause, against 9.4% last November, and 8% in October of this year. The deaths from Bright's disease nearly equalled the entire epidemic mortality, and from pneumonia were 50% greater. The increase in both is universal.

PHILADELPHIA, PENNSYLVANIA, ETC.

To Keep Record of Tuberculous Patients.—To safeguard further the public against the spread of tuberculosis, the Bureau of Health recently sent to physicians a letter asking them to report cases of tuberculosis in their practice. Suitable blanks for the purpose were inclosed.

To Guard the Public Health Better.—It is stated that at the meeting of the next Legislature of Pennsylvania, in anticipation of more thorough sanitation and the appointment of 1,500 health officers in this State, a bill will be introduced providing for a complete reorganization of the scheme for conserving the public health. The State Board of Health has indorsed the bill, and it will come before the Legislature with the indorsement of all the medical societies in the State, numbering more than 100. The bill is entitled, "An act to provide for the better protection of life and health in the several counties and townships of this Commonwealth, by establishment of county Boards of Health and county and township health officers and to provide compensation for the same and to provide for the notification of the existence of contagious diseases by practising physicians throughout the Commonwealth, and providing penalties for the neglect or violation of any of the provisions of the same."

SOUTHERN STATES.

Hospital for Tuberculous Patients in Baltimore.—The first public hospital for the treatment of tuberculosis patients in the State was opened December 20. It was built by the city. The building is constructed of brick and is three stories high. There were no formal exercises attending the opening of the institution. About 50 patients from the hospital wards at the Bayview asylum were conveyed to the new hospital. The hospital is so constructed as to give a maximum of sunlight and air. In the basement are the kitchen and dining-rooms. The other two floors are devoted to the patients, and they will accommodate about 100. There are no separate rooms. The hospital is located on an eminence which commands a view in

all directions. It is the highest point in the vicinity, thus assuring the patients plenty of fresh and pure air.

WESTERN STATES.

Chicago's Water-supply.—The Bulletin of Chicago's Health Department says: Chicago's water-supply is at last among the best on earth—thanks largely to the substantial completion of the South Side Intercepting Sewer System by the city. Since the latter part of September the water from all tunnels has been found, by the rigid tests of the Department Laboratory, to be as good as the samples taken 12 miles from shore, which is the Department standard of purity or "safety." The result is seen in the lowest typhoid fever deathrate in the history of Chicago—1.92 per 10,000 of population, as compared with an average of 3.24 during the previous decennium.

Chicago's Deathrate during 1904.—The Bulletin of Chicago's Health Department says: During the first 11 months of the year there had been a total of 23,959 deaths from all causes reported, with an annual deathrate of 12.54 per thousand—as compared with a total of 25,999, and a rate of 15.15 per thousand during the corresponding period of 1903. Since then there has been a great increase of mortality, and the total is swelled to 26,300 for the year 1904, with an annual rate of 13.61 per thousand. Still this is the lowest on record for the city and the lowest by a wide margin for any city of magnitude, either in this country or abroad. The lowest previous for Chicago was 13.88 for the year 1901—a year of remarkable healthfulness throughout the world.

Epidemic Diseases in Chicago during 1904.—The Bulletin of Chicago's Health Department says: Smallpox, which more than once threatened an epidemic spread from repeated importations into the city, has been combated with such vigilance and efficiency that its mortality is only 30, as compared with 47 in 1903. So, too, with diphtheria. The Department supply of the antitoxin was cut off early in the year and the gravest results were apprehended. A personal visit and appeal of the commissioner to the New York Health Commissioner secured a renewal of former relations, and an abundant supply of the specific has been had uninterruptedly since last February. The total deaths from this dreaded disease were only 396, or 218 fewer than last year and the fewest since 1878, when the population was less than a fourth that at present.

Medical Society of the Missouri Valley.—In response to a cordial invitation from the Jackson County Medical Society, the semiannual meeting of the association will be held in Kansas City, Thursday, March 23, 1905. Those desirous of presenting papers should send their titles to the secretary not later than February 1. Papers will appear upon the program in the order in which they are received. An invitation has been extended to the presidents of the State associations within the territory embraced by the Missouri Valley, and the profession in general, and an interesting and profitable meeting is expected. If you are not a member of this association, send in your application to the secretary at once. Initiation, \$1.00; annual dues, \$1.00. Application for membership should be sent to Dr. S. Grover Burnett, president, Kansas City, Mo., or to Chas. Wood Fassett, M.D., secretary, St. Joseph, Mo.

CANADA.

Ontario Medical Library Association Building.—On December 28, 1904, the newly acquired building of the Ontario Medical Library Association was formally opened. Dr. William Osler, of Baltimore, delivered the address and was the guest of honor on the occasion. Many medical men were present at the opening exercises, and Dr. Osler was given a hearty reception.

FOREIGN NEWS AND NOTES

GENERAL.

A Million Dollars for a Hospital.—Lord Mountstephen, formerly president of the Canadian Pacific Railroad, has presented to the King's Hospital fund as a New Year gift \$500,000 in Argentine funding bonds and \$500,000 in Buenos Ayres water works bonds, yielding an annual income of \$55,000. His lordship received a personal letter of thanks from King Edward.

Dalny a City of Hospitals.—A correspondent writing to the *New York Evening Post*, previous to the fall of Port Arthur, describes the situation at Dalny and in the country adjacent. He says: About 60,000 wounded have been carried home from Port Arthur. Thus, with those still at Dalny, and those that went by parcels' post, it is plain that an entire army corps already has been destroyed before the fortress. Dalny, the splendid thriving port of a short while ago, is now a city of hospitals. Reserves, members of new armies, camp overnight, and then—to the trenches circling Port Arthur. Twenty thousand wounded are in town—a number nearly as large as that of the total British loss in the Crimea.

OBITUARIES.

Archibald Elliott McNeill, aged 77, December 13, 1904, at his home in Quincy, Ill. He was a graduate of Starling Medical College, Columbus, Ohio, in 1850, and did postgraduate work at the College of Physicians and Surgeons, Keokuk, Iowa. He was surgeon to the Ninety-ninth Illinois Volunteer Infantry in the Civil war, and at the time of his death was engaged in private practice. He was also pension examiner on the Quincy board.

Martin P. Scott, aged 81, December 30, at his home in Hagerstown, Md.; a graduate of the medical department of the University of Pennsylvania, in 1846; surgeon in the Confederate service during the Civil War, and professor of diseases of women and children in the Washington University School of Medicine, Baltimore, from 1867 to 1876.

James M. Eagleton, aged 70, December 4, at Osceola, Fla. Dr. Eagleton had lived for many years in Philadelphia, being a graduate of the University of Pennsylvania medical department. He had charge of certain army hospitals in the city of Philadelphia during the Civil war.

Abraham McMahon, aged 72, December 24, at his home in San Jose, Cal.; a graduate of the Medical College of Ohio, in 1857; one time coroner of Santa Clara County, Cal., and Medical Director of the Yountville Soldiers' Home; surgeon in the Federal service during the Civil war.

Alphonso A. White, aged 73, December 18, of apoplexy, at his home in Baltimore; a graduate of the University of Maryland School of Medicine, Baltimore, in 1853; surgeon to the Third and Eighth Maryland Volunteer Infantry, and later division surgeon, during the Civil war.

Gillespie S. West, aged 81, December 27, at his home in Palestine, Texas; a graduate of the New York University medical department, in 1854; surgeon in the Confederate service during the Civil war, and member of the American Medical Association.

Albert Herbert Lilliston, aged 28, December 20, from pneumonia, at his home in Accomac Court House, Va.; a graduate of the University of Virginia medical department, Charlottesville, in 1898; member of the American Medical Association.

Joseph L. Richard, aged 56, December 31, at his home in Donaldsonville, La., after a very brief illness. He was a graduate of Tulane University medical department, in 1870, and was a surgeon in the Confederate service during the Civil war.

Marion Meredith, aged 73, December 23, at his home in Vinton, Ia. He was a graduate of the Medical College of Ohio, Cincinnati, in 1860; surgeon in the Federal service during the Civil war, and member of the American Medical Association.

Stephen Fish Selby, aged 90, December 24, at his home in Ashtabula, O.; a graduate of the College of Physicians and Surgeons of the Western District of New York, Fairfield, in 1839; a surgeon in the Federal service during the Civil war.

Edith Barker, of Rochester, N. H., formerly pathologist at the State Hospital, Norristown, Pa., November 21, 1904, of organic heart disease. She was a graduate of the Woman's Medical College, Philadelphia, in 1895.

Henry Clay Clark, aged 82, December 26, at his home in Woodbury, N. J.; a graduate of the department of medicine, University of Pennsylvania, in 1853; surgeon in the Federal service during the Civil war.

Merlin Caldwell, of Ford City, Pa., aged 80, December 23, from typhoid fever, at the Mercy Hospital, Pittsburg, Pa.; a graduate of the Western Pennsylvania Medical College, Pittsburg, Pa., in 1904.

Enos Penwell, aged 85, December 24, at his home in Shelbyville, Ill., where he had practised medicine for more than half a century; a graduate of the Indiana Medical College, Laporte, Ind., in 1848.

John S. Prettyman, aged 79, December 24, at his home in Milford, Del.; a graduate from a New York college, in 1867, and was Consul to Glasgow, Scotland, during Lincoln's administration.

Elmore H. Wells, December 13, at his home in Meshoppen, Pa.; a graduate of the Bellevue Medical College, New York City, in 1867; surgeon in the Federal service during the Civil war.

Earl Devore, aged 26, December 28, of tuberculous peritonitis, while en route from Florida to his home in Ripley, Ohio; a graduate of the Medical College of Cincinnati, in 1900.

Thomas A. Curtis, aged 43, December 23, from pneumonia, at his home in Redbank, N. J.; a graduate of the College of Physicians and Surgeons, New York City, in 1886.

William Pike Phelon, December 20, from heart disease, at his home in San Francisco; a graduate of the medical department, University of Iowa, Keokuk, in 1865.

Robert Jones Owen, aged 62, December 22, from tuberculous peritonitis, at his home in Cedar Grove, Ind.; a graduate of Miami Medical College, Cincinnati, in 1869.

Edward Hooker Dewey, aged 67, December 21, from paralysis, at his home in Meadville, Pa.; a graduate of the University of Michigan, Ann Arbor, in 1862.

James W. Cairncross, aged 52, December 21, at his home in Wau-

autosa, Wis.; a graduate of Bellevue Hospital Medical College, New York City, in 1875.

Louis A. Foote, aged 56, December 24, at his home in Grand Rapids, Mich.; a graduate of the University of Michigan, Ann Arbor, in 1873.

Joseph Anton Moke, aged 64, January 1, at his home in Crosswicks, N. J.; a graduate of Hahnemann Medical College, in 1870.

Joseph A. Ringe, aged 65, December 14, at his home in St. Louis; a graduate of the University of Würzburg, Germany, in 1868.

James Orr, aged 57, December 25, at his home in Terrell, Tex.; a graduate of Tulane University, New Orleans, in 1871.

W. P. Hough, of Columbia, La., January 8, at the residence of his sister, in Monroe, La.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 6, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Colorado:	Larimer Co.....	Nov. 1-30.....	7	
District of Columbia:	Washington.....	Dec. 24-31.....	1	
Illinois:	Chicago.....	Dec. 24-31.....	11	3
	Danville.....	Dec. 17-31.....	2	1
Michigan:	At 52 localities.....	Dec. 17-24.....	Present	
Missouri:	St. Louis.....	Dec. 17-24.....	18	1
South Carolina:	Georgetown.....	Nov. 16-Dec. 31.....	8	
Tennessee:	Memphis.....	Dec. 24-31.....	3	
			2 cases imported	
	Nashville.....	Dec. 24-31.....	8	
SMALLPOX—FOREIGN.			Cases	Deaths
Austria:	Prague.....	Dec. 3-10.....	15	
Ecuador:	Guayaquil.....	Dec. 7-14.....		1
France:	Lyon.....	Dec. 3-10.....	1	
	Paris.....	Dec. 10-17.....	4	1
Great Britain:	London.....	Dec. 10-17.....	2	
	Newcastle-on-Tyne.....	Dec. 10-17.....	19	
	South Shields.....	Dec. 10-17.....	5	2
India:	Bombay.....	Nov. 31-Dec. 6.....	14	
Italy:	Catania.....	Dec. 8-15.....	1	
	Milan.....	Oct. 1-31.....	1	
Mexico:	City of Mexico.....	Nov. 19-Dec. 10.....	8	1
Norway:	Christiania.....	Dec. 10-17.....	1	1
Russia:	Moscow.....	Nov. 17-Dec. 8.....	5	2
	Odessa.....	Dec. 3-10.....	1	
	St. Petersburg.....	Dec. 3-10.....	5	
	Warsaw.....	Nov. 5-12.....		5
Turkey:	Constantinople.....	Dec. 4-11.....		20
YELLOW FEVER.			Cases	Deaths
Ecuador:	Guayaquil.....	Dec. 7-14.....		8
Mexico:	Juchitan.....	Dec. 18-24.....	2	1
	Texistepec.....	Dec. 18-24.....	2	1
CHOLERA.			Cases	Deaths
India:	Bombay.....	Nov. 30-Dec. 6.....		2
	Calcutta.....	Nov. 26-Dec. 8.....		69
PLAGUE.			Cases	Deaths
Arabia:	Aden.....	Nov. 25-Dec. 2.....	18	14
India:	Bombay.....	Nov. 3-Dec. 6.....		76
	Calcutta.....	Nov. 26-Dec. 8.....		8
Straits Settlements:	Singapore.....	Nov. 6-19.....	3	3

Changes in the Medical Corps of the U. S. Army for the week ended January 7, 1905:

SILER, First Lieutenant JOSEPH H., assistant surgeon, is relieved from duty at Fort Logan, and will proceed to Fort Meade for duty, relieving First Lieutenant John R. Devereux, assistant surgeon, who will proceed to Fort Logan for duty.

CONNELLAN, JOHN J., sergeant first class, Fort Jay, will be sent to the depot for recruits and casuals, Angel Island, Cal., and be sent to Manila, P. I., on the transport sailing from San Francisco about February 1.

REILLY, First Lieutenant JOHN J., assistant surgeon, will proceed to Fort Bayard and report at the U. S. Army General Hospital for treatment.

WOODALL, First Lieutenant WILLIAM P., assistant surgeon, is relieved from duty in the department of Mindanao, and will proceed to Iloilo, Panay, for assignment to duty.

ROBBINS, ARCHIBALD, and **LOEBENSTEIN**, CHARLES T., sergeants first class, first reserve hospital, Manila, will report to the commanding general, department of Luzon, for assignment to duty.

HUNTINGTON, First Lieutenant PHILIP W., assistant surgeon, is relieved from duty at Camp Eldredge, Laguna, and will proceed to Malahi Island, Laguna de Bay, for duty.

NELSON, First Lieutenant KENT, assistant surgeon, is granted two months' leave, with permission to visit China and Japan, to take effect about December 5.

FIFE, First Lieutenant JAMES D., assistant surgeon, is granted leave for one month, effective about December 27, with permission to visit China.

SNYDER, First Lieutenant CRAIG R., assistant surgeon, is relieved from duty at Tanay, Rizal, and will report to the commanding general, department of Mindanao, for assignment to duty.

BROWN, HENRY D., contract surgeon, will, upon expiration of his present leave, proceed to Fort Flagler for temporary duty.

COFFIN, First Lieutenant JACOB M., assistant surgeon, is relieved from duty at Camp Overton, Mindanao, and will report on the transport *Liscum* for duty as transport surgeon, relieving Contract Surgeon George Newlove.

NEWLOVE, GEORGE, contract surgeon, upon being relieved by First Lieutenant Jacob M. Coffin, assistant surgeon, will report to the commanding general, department of the Visayas, for assignment to duty.

HALL, WILLIAM E., contract surgeon, is relieved from duty in the department of Mindanao, and will report to the commanding general, department of Luzon, for assignment to duty.

MEARNS, Major EDGAR A., surgeon, is granted leave for one month, to take effect upon the expiration of his present sick leave.

OWENS, Major WILLIAM O., surgeon, is directed to report to Brigadier-General James F. Bell, president of an army retiring board, at Fort Leavenworth, for examination by the board.

GEER, First Lieutenant CHARLES C., assistant surgeon, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, his retirement from active service, December 31, 1904, under the provisions of Section 1251, R. S., is announced. He will proceed to his home.

YOST, First Lieutenant JOHN D., assistant surgeon, is relieved from duty at San Francisco, Cal., and will proceed on the transport to sail from that place about February 1, to Honolulu, H. T., to relieve Major William B. Davis, surgeon. Major Davis will proceed to Manila, P. I., and report to the commanding general, Philippines Division, for assignment to duty.

WOODSON, Captain ROBERT S., assistant surgeon, is relieved from duty at Fort Clark, and upon being discharged from treatment at the Army and Navy General Hospital, Hot Springs, Ark., will proceed to Fort McDowell for duty.

FARR, First Lieutenant CHARLES W., assistant surgeon, in addition to his present duties, will perform the duty of attending surgeon at San Francisco, Cal.

HAYS, MELVILLE A., contract surgeon, upon the expiration of his present leave, will proceed to Vancouver Barracks for duty.

WILKINS, A. M., contract surgeon, is relieved from duty at Fort McDowell, and will proceed to his home, Delta, Ohio, for annulment of contract.

Changes in the Medical Corps of the U. S. Navy for the week ended January 7, 1905:

PAYNE, J. M., passed assistant surgeon, detached from the *Marletta* and ordered home to wait orders—December 30.

ROSS, JOHN W., medical director, to be placed on the retired list January 11, 1905, under provisions of Section 1444, Revised Statutes, upon which date he will reach the age of 62 years—January 3. Ordered to continue duty with the Isthmian Canal Commission after retirement, January 11—January 4.

STEELE, JOHN H., surgeon, detached from the Naval Recruiting Station, Baltimore, Md., and ordered to the Colorado, January 10—January 4.

ELMER, M. K., assistant surgeon, detached from the Hancock and ordered to the Naval Hospital, New York, N. Y., for treatment—January 4.

McMURDO, P. F., acting assistant surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Naval Recruiting Station, Baltimore, Md.—January 5.

FEREBEE, H. M., medical director, having been examined by a retiring board and found incapacitated for active duty, on account of physical disability incident to the service, retired from active service December 31, 1904, under Section 1455, Revised Statutes—January 5.

Changes in the Public Health and Marine-Hospital Service for the week ended January 4, 1905:

BROOKS, S. D., surgeon, to report on January 10, 1905, to chairman of board of examiners at Fort Stanton, N. M., for the purpose of determining his physical condition—December 30, 1904.

NYDEGGER, J. A., passed assistant surgeon, granted leave of absence for seven days from December 25, 1904, under paragraph 191 of the regulations.

GREENE, J. B., passed assistant surgeon, granted extension of leave of absence for seven days from January 3, 1905—December 30, 1904.

LUMSDEN, L. L., passed assistant surgeon, relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Philadelphia, Pa., and report to the medical officer in command for duty—December 29, 1904.

SALMON, T. W., assistant surgeon, relieved from duty at Philadelphia, Pa., and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty—December 29, 1904.

GREGORY, G. A., acting assistant surgeon, granted leave of absence for seven days from December 30—December 29, 1904.

LINLEY, W. J., acting assistant surgeon, granted leave of absence for thirty days from January 16, 1905—January 3, 1905.

WAKEFIELD, H. C., acting assistant surgeon, granted leave of absence for three days, under paragraph 210 of the regulations.

BROWN, F. L., pharmacist, granted leave of absence for thirteen days from December 19—December 28, 1904. Granted extension of leave of absence for two days from January 1, 1905—January 3, 1905.

Boards Convened.

Board convened to meet at Washington, D. C., January 5, 1905, for the physical examination of candidates for the position of second assistant engineer, Revenue Cutter Service. Detail for the board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Fort Stanton, N. M., January 10, 1905, for the purpose of making a physical examination of Surgeon S. D. Brooks. Detail for the board: Surgeon P. M. Carrington, chairman; Assistant Surgeon Norman Roberts, Assistant Surgeon H. G. Ebert, recorder.

SOCIETY REPORTS

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Birmingham, Alabama, December 13, 14 and 15, 1904.

[Specially reported for *American Medicine*.]

[Continued from page 10.]

Typhoid Fever and Appendicitis.—JOHN C. OLIVER (Cincinnati, Ohio) called attention to the possibility of these diseases being so irregular in their manifestations as to be mistaken the one for the other. He cited illustrative cases in which these mistakes had been made. A case was also reported in which an attack of appendicitis was followed within a month by an attack of typhoid fever. The possibility of mistaking a perforation of a typhoid ulcer for an acute attack of appendicitis, was exemplified by the report of a case of walking typhoid, in which perforation of the ileum occurred. The author's conclusions were: 1. That typhoid ulcers may appear in the glandular structures of the appendix, and give rise to a typhoid appendicitis. 2. That the infiltration of the ileum and cecum in typhoid fever may be so great as to give rise to a distinct tumor mass in the right iliac fossa. 3. That the Widal test is of but little, if any, value in the early diagnosis of the disease present. 4. That the leukocyte count proved in his series of cases to be of value in distinguishing between the two diseases. 5. That an exploratory laparotomy in typhoid fever is not devoid of danger. 6. That abdominal incision is imperative when it becomes necessary to establish the differential diagnosis between a typhoid perforation and fulminant appendicitis. 7. That in the absence of perforation, patients with typhoid appendicitis should not be operated upon.

The Problems Presented to the Gynecologist Twenty-five Years Ago and Today.—P. F. CHAMBERS (New York City) said that the problems presented to the gynecologist of that date were entirely different from those of today, and as different, he had no doubt, as would be those of 25 years hence. To illustrate the class of diseases that patients had 25 years ago and were admitted to hospitals and the methods of treating them in vogue then, he gave the diagnoses of all the patients who were admitted to the Woman's Hospital of New York at that time, and the operations which were there performed for the relief of these conditions. The peritonum was the surgeon's *bête noir*. Abdominal surgery, then in its infancy, constituted but a little part of the work of the gynecologist. This was before the days of asepsis. Antiseptic surgery was then in vogue; consequently the mortality of all abdominal work was still so great the abdomen was never opened except in desperate cases, such as for the removal of ovarian cysts, or the ovaries in cases of intensely severe dysmenorrhea, or very large fibroids, as then advocated by Battey, Tait, or Hegar. For other causes, for which now the abdomen was readily opened, it was then a sealed book. Except when retroversion of the uterus was due simply to an elongation of the ligaments, and when the uterus was small, was easily replaced, and the force from above was slight, the author preferred the ventrosuspension operation in all cases. Then he would perform the operation for shortening of the round ligaments either by exsecting a portion of the ligament and bringing the ends together, or by looping the tube upon itself. He never did a ventrofixation. An example of conservative surgery upon the uterus was given in the case of fibroids. The Trendelenburg posture had had more to do with the solving of gynecologic intraabdominal problems than any other aid in the technic of the operating-room.

The Management of Acute General Peritonitis.—J. GARLAND SHERRILL (Louisville), considered two forms of infection. First, acute septic peritonitis, in which the poison was so intense that the patient died from a profound toxemia before the local changes had progressed to the point of pus formation. The second type was general suppurative peritonitis, in which pus was found free in the peritoneal cavity without any localization of the process. The two forms resulted from infection following perforations of the alimentary canal, rupture of the urinary or gallbladder, ileus, abdominal operations, puerperal infection, and disease of the ovaries and tubes. Many cases, especially of the septic type, resulted fatally regardless of the time they were seen or the treatment employed, while some responded to medical and more to promptly applied surgical measures. The various methods of medical treatment were considered, and the position taken that these cases were surgical, except where operation was refused and the patient's condition would not permit surgical interference. Under such circumstances the medical treatment should be planned with reference to the causative condition, if this could be determined, and a distinction should be made between perforations of the stomach and those of the intestine, and also those cases in which there was reason to believe the intestinal wall was intact. In the first, emphasis was laid upon absolute rest of the stomach to limit leakage; rectal lavage and nutrient enemata were advised. In the second class (intestinal perforations) gastric lavage, small rectal enemata to unload the lower

bowel could be employed, and opium used freely while the patient was nourished per rectum. In the third class with an intact intestine, gastric and rectal lavage, purgation and nutrient enemas were recommended. Heat and cold were considered the best topic applications, and the patient's position should be suited to the location of the causative lesion. In considering the surgical treatment of this disease much stress was placed upon early operation as a measure for the prevention of general peritonitis while the process was yet localized. The outcome of a given case would depend upon the following factors: (1) The virulence of the infection; (2) the quantity of the infecting medium; (3) the resistance of the patient; (4) the activity of the organs of elimination; (5) the time at which the patient came to operation; (6) the rapidity and thoroughness of the surgical procedure. It seemed to the writer that the special technic of the operation was of less importance than the dexterity of the surgeon and the care with which he did his work. The author found that by flushing he could best free the peritoneum of infectious material and usually drained. The patient should have the usual treatment given all abdominal cases.

Some Further Advances in Renal Surgery.—JOHN B. MURPHY (Chicago), made a plea for more conservative surgical work on the kidney and ureters in the future, saying that surgeons must consider the importance of preservation of any portion of a kidney that was still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past following the removal of a kidney that was secreting practically the normal amount of urine varied from 29% to 35%. He reported six cases of conservative operations on the kidney. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than the kidney itself. In cases of great dilation of the pelvis of the kidney, formerly it was his custom to remove the kidney until he realized that it was practically a normally secreting organ, and that the dilation of the pelvis was due to ureteral obstruction, and that there was no good reason for taking out the kidney when the sac was removed, regardless of the position of attachment of the ureter to the sac, as this varied in every case. He believed in connection with surgery of the kidney, that surgeons were coming to a time when they would examine the kidney carefully, cautiously, and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining portion husbanded.

Four Cases of Vesical Diverticula Requiring Operation.—HUGH H. YOUNG (Baltimore, Md.), said that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticula, and hydronephrosis and hydropelvis had resulted. The patient died of uremia. Since then the operator has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two patients the diverticula were larger than an orange, in the others smaller. In one case the ureter was compressed by the diverticulum and intermittent attacks of renal colic resulted. In one case the diverticulum lay in the urachus and became constricted at its orifice several times a week, producing severe tenesmus in the region of the umbilicus. In three of the cases the disease developed early in life, and in only one was an enlarged prostate the cause of the diverticulum. Careful study of the literature showed that only three cases had been operated radically, namely, one by Czerny—excision by transverse abdominal incision, transplantation of the ureter, development of pyonephrosis, nephrectomy, and final cure. One by Riedel, suprapubic incision, death from collapse. One by Pagenstecher, parasacral extirpation, resection of ureter, kidney involvement, result improvement, with fistula. Young's four patients were all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided and no fistulas resulted. Study of autopsy specimens showed that diverticula might be congenital or acquired, the latter due to obstruction, stricture or enlarged prostate. They developed most commonly near the ureteral orifices, and by pressure caused dilation of the ureters and kidneys, and death followed from uremia. In many cases removal of an enlarged prostate or stricture was all that was necessary, but if the diverticula were large or pressed upon the ureters, or were congenital, and independent of obstruction, excision should be performed; suprapubic extraperitoneal, extravescical enucleation of the sacculi, with suture of the bladder at the site of the diverticular orifice being the best method.

The Ultimate Results Obtained by Conservative Perineal Prostatectomy in 75 Cases.—Young also read a paper with this title. In this series there were five cases over 80 years, one 87 years of age, with one death five weeks after the operation in a man aged 84 years. Two other deaths, neither attributable to the operation, occurred, each in the third week, one in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man 77 years of age, who had been uremic for several weeks, and autopsy showed double pyohydronephrosis. The innocuousness of the operation was thus shown. The use of the author's double-bladed metal tractor was of great help in steadying the prostate for the

incisions, drawing it down for a complete enucleation, enabling the operator to deliver and remove even large middle lobes without tearing away the mucous membrane of the bladder or urethra, or the ejaculatory ducts. The advisability of preserving the floor of the urethra, the verumontanum, and the ejaculatory ducts in men whose sexual powers were well preserved (and these represented over 50% of the cases), was shown by the impotence which followed in nearly all cases those operations like Albarran's and Murphy's, in which the floor of the urethra and duct was deliberately destroyed, and the results obtained in these 75 cases in which in a large proportion of them the sexual power and ejaculation were preserved, and even spermatozoa present in the semen afterward. The preservation of the prostatic urethra intact did away with the necessity of post-operative passage of sounds, greatly hastened the closure of the perineourinary fistula (all urine passing through the penis after the sixth or eighth day in many cases), and was possibly responsible for the absence of incontinence, and the early establishment of normal urination. The frequent presence of epididymitis in Albarran's cases led to routine ligation of the vasa deferentia in the groins after he had finished perineal prostatectomy by his method. The great rarity of testicle infection after the author's technic showed the advisability of not tearing away the terminal valve-like portions of the ejaculatory duct. The absence of mortality from the operation showed that the advantage gained by a nice exposure of the prostate by blunt dissection, through an inverted V cutaneous incision, and proper traction of the prostate by an intraurethral tractor, with the consequent ability to enucleate the lobes without morcellement, and spare useful and nonobstructive structures—prostatic urethra, and ejaculatory duct—was well worth the slight addition to the length of the operation as performed by a blind, tear-out-what-will-come-out technic.

When Shall We Resect in Tuberculous Disease of Joints?—C. H. CALDWELL (Cincinnati, Ohio) said his judgment as to the advisability of resort to resection in a given case of tuberculous joint disease would be influenced by many considerations, and among them the following: 1. The joint itself, its anatomy and general characteristics. 2. The part it bore as a weight-bearer. 3. The degree of disability incurred by its involvement. 4. The relation of the joint to surrounding soft parts, its accessibility, and the readiness with which it admitted of drainage. 5. The degree of severity and progress of the disease as influenced by the function of the joint. 6. The results to be expected from conservative treatment. 7. The results to be expected from excision. 8. General considerations. As to the joint under consideration, somewhat would depend on whether it was a single large isolated joint, such as the knee for instance, or whether it be a smaller joint, such as the carpal or tarsal, in immediate continuity with other joints. A single tuberculous focus in the epiphysis of a long bone which was susceptible of complete immobilization stood a much better chance to undergo reparative change than would such a focus in the spongy bones of the wrist in the close proximity of synovial and ligamentous structures which favored dissemination and persistence of the disease. To this close approximation of the surfaces primarily affected in these joints he was inclined to attribute the frequent resistance of disease in the elbow-joint, even when completely immobilized, and in the hip, where traction was not carried to the point of distraction of the diseased surfaces. Only when direct traction in the latter instance was supplemented by lateral traction was it at all likely that distraction of these surfaces occurred. In the case of the elbow, he knew of no method by which distraction of the surfaces of the sigmoid cavity of the ulna and the inner condyle of the humerus could be effected. Taking it for granted that the vast majority of cases of joint tuberculosis had primary epiphyseal bone lesions, there was but little doubt that could we but see these cases before the stage of fibrillation of cartilage, a condition which preceded erosion for some time, conservative treatment might be sufficient to effect a cure. The part which a joint played as a weight-bearer, or the degree of pressure to which it might be subjected in manual occupations undoubtedly influence greatly the development of the disease. The absence of both factors, weightbearing and pressure, accounted for the comparative immunity of the shoulder-joint. In disease of joints at the upper extremity, immobility and protection might be effected with but little difficulty, and the disability was such only as was incurred by the disease of the limb. The results to be expected from conservative treatment might be divided into three classes—ideal, satisfactory, and unsatisfactory. An ideal result was where, after a reasonably long period of treatment, a cure was obtained with no limitation, or but slight limitation of movement, and no deformity. Under satisfactory results might be classed those, which after a reasonable period of treatment, were cured with a stiff joint, or one in which a slight range of motion was possible without shortening or malposition, and in which, if there had been abscess or sinus formation, the sinuses had healed. Under unsatisfactory results might be classed those, which after a reasonable period of treatment, either showed no tendency to get well or might be said to have recovered with sinuses still weeping, with a tendency to fatigue on exertion, with more than an average amount of shortening, and with deformity to a greater or less degree. The absence of any active symptoms of disease, pain, increased temperature or muscular rigidity, placed these in the category of cured cases, but cured with

unsatisfactory results. The results from the resection of the hip were of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur one left no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. It was questionable whether resection of the hip should be undertaken except in cases of rapidly destructive epiphysitis of the femur, with possible or present involvement of the acetabulum; cases of abscess of an acute and painful nature associated with high temperature, and cases of chronic abscess, which failed to get well after repeated aseptically conducted aspirations when there were obstacles to the proper drainage of the joint, such as acetabular complications, the presence of a detached head, or gelatinous tuberculous debris. The great objection to the operation in any case was the difficulty of removing all affected structures and the unsatisfactory prosthetic results. In tuberculosis of the knee one was confronted with an entirely different problem. There was but little use of wasting time with a knee-joint in which marked osseous changes were already present, and which, in spite of the conservative treatment over a period of six months, had shown no improvement. Resection of the knee in patients who had passed the period of adolescence had much to recommend it, but little could be said against it. In those cases too prolonged delay often meant amputation. As to resection in elbow cases, one was again confronted by the fact that results were at the best far from what one might desire. In the smaller joints, such as the wrist and carpal joints, excision must depend on individual judgment. Ankle-joint and tarsal excisions were, as a rule, very unsatisfactory. The deficiency in weight-bearing capacity rendered the results far more gratifying, and amputation was, as far as his observations went, too frequent a sequel to these operations. Several skiagrams were exhibited, illustrating the tuberculous joints and the results of resections.

Obliteration of the Stomach by Caustic.—SAMUEL J. MIXTER (Boston) stated that doubtless other surgeons had seen cases of constriction of the esophagus after the ingestion of acid or strong alkalies, and also some cases of constriction of the pylorus from the same cause. It was very rare, however, to find practically the whole stomach destroyed, and this was the reason for putting the cases he had seen on record. He reported three cases in which the stomach was almost entirely obliterated by caustics.

J. A. GOGGANS (Alexander City, Alabama) reported two cases of tumor of the pancreas.

[To be continued.]

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, Held in Milwaukee, Wis.,
December 28 and 29, 1904.

[Specially reported for *American Medicine*.]

Officers.—The following officers were elected for the ensuing year: President, H. D. Niles, Salt Lake City, Utah; first vice-president, E. Wyllis Andrews, Chicago; second vice-president, W. W. Grant, Denver; secretary-treasurer, B. B. Davis, Omaha, Neb.

Kansas City, Mo., was selected as the place for the next meeting, with H. C. Crowell as chairman of the Committee of Arrangements.

Kidney Stone.—A. L. WRIGHT (Carroll, Iowa) presented the following conclusions: 1. Kidney stone may occur at any time of life, from the earliest to ripe old age. 2. These stones are the most frequent, and give rise to the greatest amount of suffering of any form of surgical disease of the kidney. The clinical manifestations of kidney stone do not depend upon its size. A small stone, just large enough to prevent its escape, and composed of oxalate of lime, will cause more suffering and damage to the kidney parenchyma than a very much larger deposit of softer formation, as well as completely disable the patient while the destructive changes are taking place, although the clinical symptoms are not intensely active. 3. While generally unilateral, stone occasionally occurs in both kidneys, or the reflex symptoms may point most prominently to the sound kidney, the stone being found not infrequently on the side free from pain. 4. Diagnosis is not difficult in the typical cases, but the stone remaining quiescent in some for an indefinite period makes recognition almost impossible. 5. Owing to the fact that kidney stone may put on the livery of infectious diseases, the diagnosis is difficult, if not impossible, in those cases where the classic symptoms are absent. 6. There are few diseases of the kidney more certainly fatal when left to themselves, yet more successfully treated when encountered by proper surgical interference, arresting the destructive changes taking place in the kidney, and restoring the viscous to its physiologic functions.

Newer Aids to Diagnosis in Diseases of the Urinary Tract.—M. L. HARRIS (Chicago) arranged the newer aids to diagnosis in diseases of the urinary tract in the following order, according to their value: 1. The cystoscope. 2. Ureteral catheterization or segregation, with comparative analyses of the separate urines. 3. The röntgen ray. 4. The phloridzin

test. 5. Comparative cryoscopy of the separate urines. 6. Cryoscopy of the blood, with the necessary corrections made.

Methods of Exploring the Abdomen, and a New One.—ALEXANDER HUGH FERGUSON (Chicago) stated that in the daily round of work the surgeon met cases requiring colpotomy, anterior or posterior, to remove myomas, or cysts, and these cases often gave a history of stomach, gallbladder, kidney or bowel disturbances. An examination of the abdominal organs was highly satisfactory, although oftentimes one felt hardly justified in opening through the abdominal wall for that purpose. The problem was solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose, it was imperative to cut through the mucous membrane of the vagina, its whole length on each side postlaterally. The mucous membrane being severed, the other structures would stretch at once. The bare arm being smeared over with sterile vaselin, glided in with ease. He had within the last three years, both in private practice and at his clinics, passed his hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, after detecting gallstones, he cut down upon the gallbladder and pushed it, full of biliary calculi, through a buttonhole incision in the abdominal wall. In another case a cancer of the rectum was present, and before removing it, it was indicated to learn the condition of the internal organs. He passed his hand and detected cancer of the liver and gallbladder. Still a third case, a maiden lady of mature years, had a vaginal outlet so small that a digital examination could not be made without an anesthetic. He then found cancer of the posterior lip of the cervix. Through an anterior colpotomy he passed his hand, after having slit the vagina on each side, and found the anterior surface of the stomach involved with a firm hard tumor, evidently cancerous, and the lymphatics were also extensively enlarged with the same dreadful disease.

Peritoneal Adhesions, Their Cause and Prevention.—ARTHUR E. HERTZLER (Kansas City, Mo.) stated that he had studied peritoneal adhesions by means of a small glass window sewed into the lateral abdominal wall of an animal. Peritoneal surfaces might agglutinate without a destruction of the endothelial layer. In true adhesions the endothelial layers were always destroyed. If the basement membrane was not destroyed, the adhesions might separate after a time. If the basement membrane was destroyed, the union was formed by a true growth of fibrous tissue, and was permanent. Ordinary adhesions were formed by fibrin formation, with a loosening of the cement substance of the basement membrane, and an interlacing of the fibers forming the basement layer. This formed in 12 to 18 hours. The formation of peritoneal adhesions depended on the same factors as blood coagulation. The irritation of the surface destroyed the endothelium, permitting the escape of fibrinogen-forming fluid. The CaCl is abundant below, and immediately below the endothelial cells, as may be demonstrated by silver nitrate. The escape of the leukocytes from the vessels which attended every irritative process activated the proferment, and made it active. The precipitate of fibrin thus formed was identical with that form in blood coagulation, as might be demonstrated by microchemic tests. The identity was further demonstrated by the fact that those factors which prevented coagulation also prevented peritoneal adhesions. The methods most employed were phosphorus and peptone. The former prevented it by destroying the fibrinogen, the latter by acting on an antiferment. The presence of a digestive ferment in the upper intestinal tract explains why adhesions formed less rapidly in spontaneous perforations in this region.

Operation for Undescended Testicle.—EMERSON M. SUTTON (Peoria, Ill.) reported the case of a boy, 11 years of age, a cryptorchid, who suffered from strabismus and nervousness, but otherwise was well. In making an incision in the inguinal canal the testicle was found above the internal ring, free; the cord was retained by a band extending posteriorly toward the median line, and upward opposite the second lumbar vertebra. Blunt dissection was resorted to until the cord was freed and the testicle deposited easily in the bottom of the scrotum without tension. The retaining step of the operation consisted in a buttonhole incision through the bottom of the scrotal sac posterior to its middle, where the skin was less elastic, caught stitches inserted through the edges of the skin, and albuginea or testicle, in a way which held the end of the testicle attached to the skin, necessitating healing by granulation. The convalescence was uncomplicated, and the testicle was permanently fixed in the bottom of the scrotum, and was of natural size. He stated that many operations for this affection had been planned, as Kocher's circular stitch, sewing the cord in the canal without strangulating it; also Watson-Cheyne's retaining stitch through the bottom of the scrotal sac and then the testicle, tied to the under wire of a retaining frame, to be moved after three weeks, when the organ had become fixed in place by adhesions. Objections to attaching the testicle to the bottom of a movable sac were valid, since experience demonstrated the futility of such a method. The Katzenstein operation of making a flap from the inner side of the thigh was a step in the right direction. However, with the modifications employed in the author's case, considering the satisfactory results, the surgeon could fix the testicle absolutely.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

NOTES ON DUST INFECTION.

BY

HAROLD D. CORBUSIER, B.S., M.D.,

of Fort Mansfield, R. I.

Contract Surgeon, United States Army.

Having noted the interesting article on "Dust Infection," by Dr. Robert Hessler, in *American Medicine* of October 1, 1904, I should like to mention some aspects of this subject which came to my notice in China.

There are many things in China which are of interest to the medical man, but most apparent among these is the lack of sanitation. Beside those conditions which one naturally expects to meet in any country where laws of sanitation are so little heeded, two important causes contribute to the impure atmosphere of Chinese cities. These are the method of burying the dead and the method of disposing of filth from the streets. A few words of explanation concerning these customs may be necessary to impress those whose noses have not been insulted by oriental odors. The graves of centuries of ancestors all standing above the surface of the earth, are a striking feature in the Chinese landscape, for, while the bodies of the departed are right royally escorted to their place of rest, accompanied by a chorus of cymbals and other manifestations of pomp, the coffins are only superficially buried, being placed ordinarily on top of the ground or sunken only slightly if at all. A small cone-shaped mound of earth is then heaped over the coffin, offering insufficient protection from the ravages of the thousands of hungry dogs which are only less numerous than the graves. In consequence, the contents of graves have been scattered and the air is filled with pulverized ancestor which finds its way everywhere, even into the houses, carrying infection with it.

The custom of using the streets and public highways as privies is one of the most offensive and unsanitary of all Chinese customs, there being no "sanitary plumbing" in the ordinary native house and no sewers. Even under the best conditions their place is taken by a shallow uncovered pit, in the corner of the yard.

There being no regular system for the removal of human excretions, much remains where deposited, exposed to the air. There are, however, certain individuals who make a business of collecting such matter, for the purpose of using it as fertilizer. It is collected in open buckets and carried to any convenient place, sometimes outside of the city though usually no farther removed than the outskirts. There it is spread upon the ground and allowed to dry and fill the air with infectious material.

It is evident then that this source of infection with that from the multitude of exposed, disintegrated bodies as previously described, renders peculiarly dangerous the air of those cities where these customs prevail, and I am of the opinion that this is true all over China, since I have observed these conditions in the following places: Peking, Tien-tsin, Shanghai, Soo-chow, Canton, Shanhai-kwan, and a number of less important towns.

The danger from this infected dust is especially great in that part of China which is subject to frequent and severe wind storms. During service in Peking in 1900, I had occasion to observe the effect of this impure dust upon the health of the troops stationed in the city. After having experienced several dust storms and been attacked with a severe bronchitis caused by inhaling dust-ridden air for several hours, I took particular pains to question all patients coming under my observation, who were afflicted with coryza, bronchitis, "colds," or atypical symptoms of any nature. The history in the majority of cases showed that these men had been on duty which required them to be in the dusty streets for a considerable time both night and day. The disability was not always such that the patients

required hospital treatment, but pneumonia developed in a number of cases, and tonsillitis was frequent.

The winter in Peking, aside from the severe dust storms, was not more rigorous than in the same latitude in the United States; in fact, the snowfall was rather below what might be expected, and as the troops were well clothed and fed, and quite comfortably housed, one could readily exclude certain factors which commonly cause respiratory affections in our own country, and reach the conclusion that the majority of such diseases in Peking was caused by inhalation of the foul dust-laden atmosphere of the thickly populated city. This conclusion was borne out by the fact that during the time when the ground was well covered with snow, cases of respiratory affections decreased in number. It was also noticed that the men who had been on sentry duty in the streets were more subject to these troubles than the troops who remained most of the time in the grounds of the Temple of Agriculture, where, although the dust of ages lay undisturbed inches deep, in every temple, the particular conditions of which I am speaking were not present, owing to the fact that the common herd of Chinese were not admitted to these grounds, which were reserved for an occasional visit of the Imperial family and officials of high rank.

Here, at home, vegetables and fruits may be a source of disseminating disease, but in China these articles are "warranted" to carry diseases of a dangerous character, because of the custom of the natives to use human manure for enriching the soil, and this when dried and blown about, renders the product of Chinese gardens and orchards unsafe. The danger is, of course, especially great in the use of such fruits and vegetables as are eaten without being prepared by cooking.

It is quite certain that the majority of intestinal diseases among the allied forces in China, in 1900, were contracted by the eating of fruits and vegetables which, if not infected in the fields, were certain to be contaminated by the dust in the streets, where they were exposed for sale, arranged in a manner pleasing to the artistic eye, but repulsive to the appetite.

The troops of one country in particular were not well drilled in field hygiene, and among these the percentage of preventable diseases was much larger than among our own troops and those of Great Britain and Japan. This high percentage could be attributed to the eating of dust-infected, uncooked or half-cooked food of all kinds, and the drinking of water contaminated from the same source.

Dust infection was not, of course, the only etiologic factor in the causation of disease among the troops in China, but its importance can hardly be overestimated.

SUTURE OF THE FEMORAL ARTERY.

BY

WM. T. HENDERSON, M.D.,

of Mobile, Ala.

The following case of suture of the femoral artery is much like the case reported in *American Medicine*, December 17, 1904, by Dr. Gaston Torrance, of Birmingham, Ala. Both were septic and both are good illustrations of what can be done in the way of conservative surgery of the arteries.

J. T., aged 25, a cotton mill employe, weighs 128 pounds. On September 9, 1904, while cutting a piece of lace leather, the patient accidentally allowed the knife to plunge into the left thigh, cutting the femoral artery half way across, about its middle. He was immediately visited by a physician, who applied a compress and bandage and so controlled the hemorrhage or rather the appearance of hemorrhage. Gradually a tumor began to form in the middle of the thigh which pulsated like an aneurysm. On October 6, 1904, when the patient was sent to the Providence Infirmary the tumor was about four inches in diameter, very sensitive to touch and contained some pus with an enormous clot. The cavity was cleaned out and the parts dissected down to the artery. The opening in the vessel was closed by means of four No. 0 interrupted catgut sutures, and a small amount of muscular tissue sutured over the wound in the artery. Drainage was inserted and the wound closed, an elastic bandage being applied over the dressing. Pulsation in the posterior tibial artery was perceptible a few hours after the operation. The patient made a good recovery and has returned to work.

A NEW AND SAFE FLUOROSCOPE.

BY

GEORGE COFFIN JOHNSTON, M.D.,
of Pittsburg, Pa.

An appreciation of the evil effects surely following continued fluoroscopy has led me to devise a method by which an operator may indulge in this fascinating study for any length of

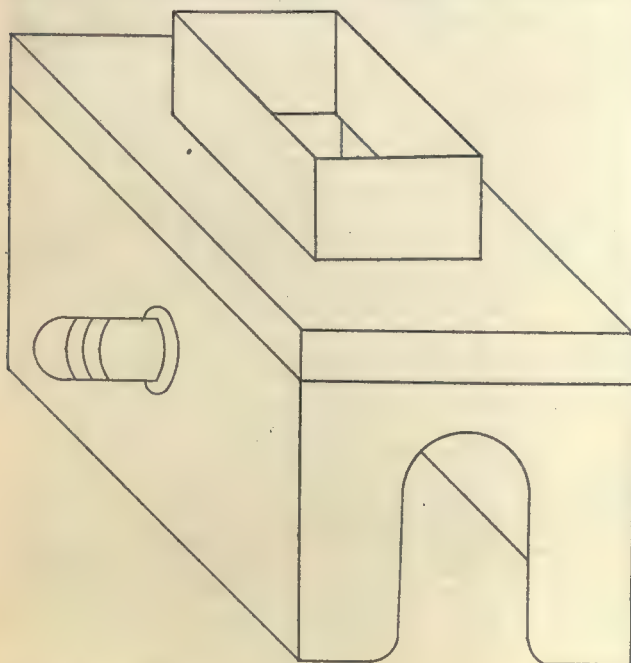


Fig. 1.

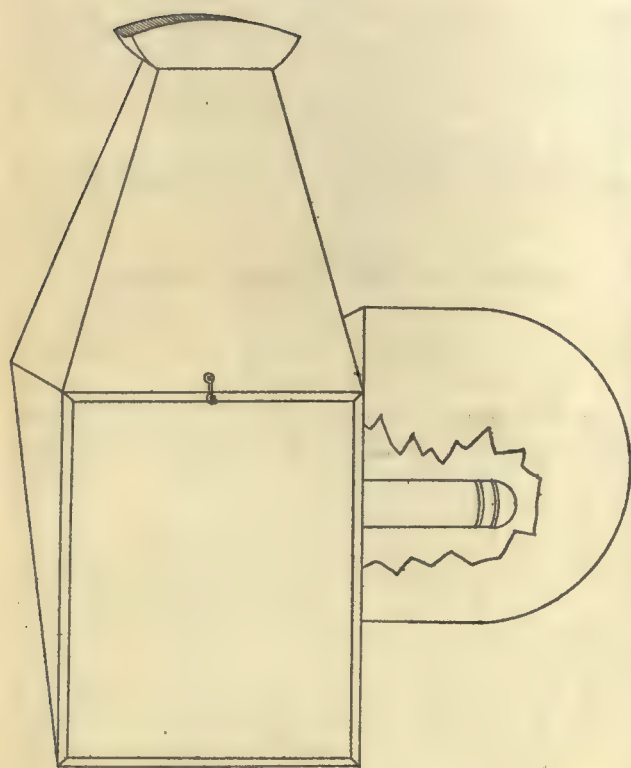
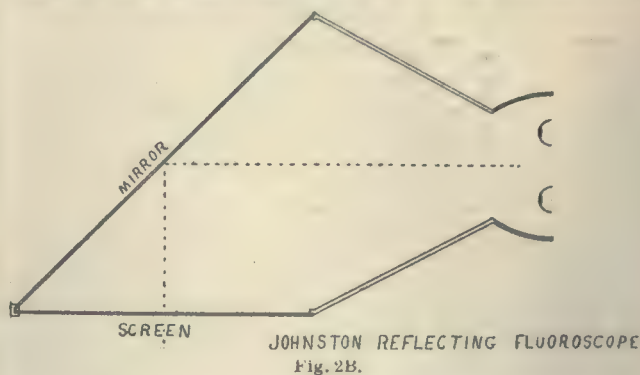


Fig. 2A.

time, with no risk to the examiner. The patient's danger, of course, remains as of old.

In Plate I is shown a box, which I have devised in order that a pyramid of röntgen ray alone may emerge from the tube.

The size of the opening may be varied, but the size designed is best for all work. No röntgen ray is allowed to emerge from the tube save at this opening. The tube box idea is old, but the rectangular opening of exact size is necessary and new. In Fig. II is shown the fluoroscope, which consists of an ordinary fluorescent screen set parallel with the line of vision and opposed by a mirror reflector of 45°. The instrument is so designed that the best distance from the screen for observation



is obtained without unduly lengthening the box. The scope is provided with a suitable protection for the hand and the operator.

In using the instrument the observer stands at one side of the tube, and the tube being enclosed, he is entirely out of the röntgen-ray field, and thus is safe. The only active röntgen-ray field is that emerging from the fenestrum in the tube box, and this is just sufficient to illuminate the screen to the full extent. This is shown in the sketch Plate III. By supporting the tube

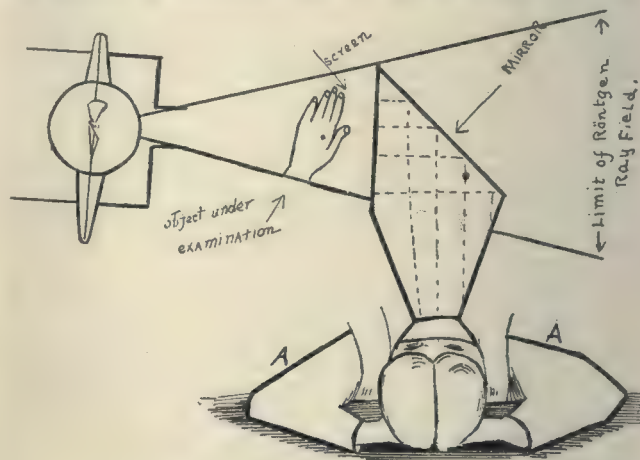


Fig. 3.—AA, examiner entirely without the limit of the röntgen ray field, which is just.

box beneath a canvas cot and placing upon the patient a reflecting screen box, such as is made by disconnecting the bellows of the fluoroscope, the chest, etc., may be studied at ease and with perfect safety.

I claim with this instrument: (1) Absolute safety to the operator; (2) more accurate and comfortable fluoroscopy. The instrument is manufactured by Queen & Co., Philadelphia, from designs which I have furnished them.

Longevity of Typhoid Bacilli.—Recent experiments by scientists of Wisconsin and Illinois upon the "longevity of the typhoid bacillus in water" tend to show that the typhoid germ lives longer in pure water than in water contaminated with sewage and longer in winter than in summer. Soil bacteria quickly destroy the typhoid bacteria, but the bacteria in uncontaminated water seems to have no such effect. At the temperature of the ice chest the typhoid germ grows in the by-products of other bacteria, which at higher temperatures are fatal to it. In sterilized Lake Michigan water the typhoid bacillus lives from 15 to 25 days, while in unsterilized water they live but 5 or 8 days. In polluted water they live from 10 minutes to 3 days.

ORIGINAL ARTICLES

THE FOUNDATIONS AND AIMS OF MODERN PEDIATRICS.¹

BY

DR. THEODORE VON ESCHERICH,
of Vienna, Austria.

Professor of Pediatrics, University of Vienna.

Pediatrics, as far as it is connected with directions as to the care of the newborn and nurslings, belongs with midwifery to the oldest branches of medicine; but, in its scientific development, it is among the youngest. Not until the end of the eighteenth century did it separate itself sufficiently from the trammels of obstetrics to allow the first independent book on the diseases of the newborn and children, the wellknown work of Rosenstein, to appear. This contains, as do similar works which appeared in the next few years, an unsystematic account of the diseased conditions occurring in or peculiar to children, and among these only those with evident symptoms and concrete changes found especial or detailed consideration. It was not until the French Revolution that the new school of medicine came into existence, and it we must thank for the creation of scientific pediatrics as well as for the birth of modern medicine.

We will seek to sketch in a few words the origin and changes of the leading ideas up to the present time, as this best gives the trend which further development will take in the near future.

Liberation from the ban of natural philosophy and humoral pathology was brought about by the sobering influence of pathologic anatomy, which pointed in no uncertain way to visible changes in individual organs as the origin and seat of diseases. Billard is the most brilliant example of this school, which erected a clinical structure as a commentary to the anatomic changes determined by extremely numerous and carefully performed autopsies.

The lesions themselves he considered in Broussais' sense only as different grades of inflammation, and although to this day his work is still a mine of important and useful facts, it is clear that this clever conception could not by itself fulfil our practical needs, at least not in childhood, where the short duration of diseases generally prevents the occurrence of extreme anatomic changes, and where even today, with the help of microscopic and bacteriologic methods, we are often at a loss to bring the autopsy findings into agreement with the clinical course. This lack of agreement is most marked in the domain of the diseases of the gastrointestinal tract in infancy, and it was on them that the opposition, keenly led by Barrier, established the "Diacrisis doctrine," with which they steered back again into the sea of humoral pathology.

Uninfluenced by these theoretic discussions, however, both parties labored to develop the new science with the newly-discovered methods of exact investigation of diseases and the untrod realm of statistics, and thus they created the basis of a special pathology and therapy of childhood, of which the work of Rilliet and Barthez forms a model presentation of the whole subject. With these men the French school of pediatry ceased to occupy the leading position which it had held. The Vienna school became its heir just as in the realm of internal medicine, where under the powerful influence of Rokitansky and Skoda the same favorable conditions for development existed. Here also the clinical study was mostly founded on the basis of pathologic anatomy, as may be learned from the excellent work of Bednar, "Ueber die Krankheiten des Neugeborenen und Säug-

lings (On the Diseases of Newborn and Infants)," and the important studies of Ritter of Prague. At the same time clinical symptomatology and casuistry were developed in the newly-erected clinic of the St. Anna Kinderhospital in Vienna under Mayr and his disciple and successor, Widerhofer, and the clinical types of disease were determined conclusively from the ample material. In a similar manner worked Hensch in Berlin, West in London, and Filatow in Moscow, so that at the end of this period the clinical knowledge and symptomatology of pediatrics were developed as far as it was possible with the simpler methods of investigation.

However important this brilliant clinical development and the sharp definition of its separateness was for the recognition of pediatrics as a distinct science, still following this direction a dead point was soon reached, from which a new route had to be opened up if dulness and routine were not to take the place of scientific investigation. With this, German pediatrics in the narrower sense of the word came into the foreground. At first it had to struggle with great difficulties on account of the lack of separate children's hospitals and of government aid, and in the first half of the century it was almost entirely under French influence. Later the peculiar organization of university policlinics, which were charged with the instruction in pediatrics, brought it about that the care of pediatrics fell to the representatives of internal medicine. I will mention here only the name of Gerhardt, the founder of German pediatrics.

It lay in the nature of this relation that in Germany, in a certain contrast to the French and Austrian schools, the common points of contact with internal medicine and the diseases of later childhood closely related to the same, were preferably studied.

Even though the creation of independent chairs of pediatrics in the German Universities was improperly delayed by this relation, it had the advantage that the establishment of the rapidly growing natural sciences which was taking place at this period under the influence of German internists came immediately and quickly to the service of the clinic of children's diseases. The clearer knowledge of the disease processes made possible thereby emphasized more and more the identity of most of the diseases occurring in children and in adults, and led them to seek the explanation of their differences in the peculiar characteristics of the youthful organism. Of special importance from this standpoint is the study of artificial feeding carried on with such great energy by German authors (Biedert); this demonstrated in the most convincing manner the unfinished condition of the infantile digestive organs and the consequences arising therefrom. On this basis the modern German school developed, which by means of the methods developed especially in internal medicine, saw the aim of modern pediatrics in the investigation of those physiologic peculiarities of the childish organism, which cause the differences between its reaction under physiologic and pathologic conditions, and that observed in adults. Recently the term pathologic physiology of childhood has been used for this science. A similar road is being traversed by the rising school of American pediatry; under the leadership of Jacobi it has attached itself closely to the doctrines of the German school.

Thus we see the problems of pediatrics extended from an investigation of diseased processes peculiar to childhood, as conceived by the older pediatricists, to a general consideration of all pathologic conditions occurring during this period of life. If I characterize this as the current ruling at present and consider it the problem of the immediate future for pediatrics, it must also be stated that the solution of the part of this task belonging to physiology or general pathology is not a problem for the pediatricist alone, but can only be taken up successfully if assistance is had from workers in other lines. It is recognized that pediatrics has at all times taken an active and useful part in the building up of general med-

¹ A paper read before the Pediatric Section of the International Congress of Arts and Science, at the World's Exposition, at St. Louis, September 21, 1904.

icine and in the working out of questions of special clinical interest, which has been made possible to a great degree by the peculiarity of its material.

Of the greatest importance for the development of modern pediatrics has been the introduction of exact methods of clinical diagnosis, which developed in the middle of last century with the great renaissance of the exact sciences. If this revolution was of great aid in the study of diseases of adults, how much more for those of early infancy, in which subjective statements and so many other diagnostic helps are lacking, and the physician is almost entirely dependent on the information derived from objective phenomena. The introduction into pediatrics of percussion and auscultation, so necessary to the knowledge of lung and heart diseases, took place relatively late and slowly. Not until in the forties were they used systematically, especially by German physicians, to whom we must also be thankful for the only book (Sahli) devoted exclusively to percussion of the organs in childhood.

Of scarcely less importance in diagnosis was the adoption of the thermometer which, especially in the forms of rectal measurements, can be used so easily in children, even by the laity. This last fact has made it a specially important and reliable instrument. Even though the first thermometric researches were made by Roger, the development of the technic and the working out of type fever curves is a merit of the German school, especially that of the University of Leipsic. Together with inspection and palpation, methods which were always used, percussion, auscultation, and thermometry form the trio which is indispensable in the examination of every child, and makes possible the certain diagnosis of many previously unrecognized diseases. The endoscopic methods are used wherever the technical accomplishment is possible. By far the most important is the inspection of the throat and mouth, as well as the examination of the ear, all of which are comparatively easy to practise, while the laryngoscopic and ophthalmoscopic methods are more rarely used. Electric examination also belongs to the physical methods of examination which are only used under exceptional circumstances, but the importance of which has been increased by the discovery of the frequent increase of electric excitability in early childhood, and radiosopic investigation, which permits a previously unsuspected insight into the conditions of the bony development as well as the changes in the more deeply situated heart and lungs.

Aspiration of pathologic fluids introduced by Dieulafoy, is an especially useful and valuable method in childhood, and to it lumbar puncture introduced by Quincke has been added. We may say that the manifold varieties of the processes occurring in the meninges have only been made manifest by the latter. Other methods, especially the graphic, are for evident reasons less used in children, although certain authors (Rauchfuss) have succeeded in overcoming the difficulties. On the other hand the histologic methods of investigation are made of great importance by the number and variety of the anemic states, although our knowledge of the pathogenesis of these diseases has not been very much advanced thereby.

In contrast to the physical methods whose technic is generally simple, permitting a relatively rapid development of the realms of knowledge opened up by them, are the chemic methods, which are still undeveloped in spite of the high development of organic chemistry. The subjects of chemic investigation are especially the excreta of the body, the urine and the feces. The study of urine has for a long time, at least in early infancy, been improperly neglected on account of the difficulty in collecting it. Thanks to Kjelberg's suggestion the catheter is now more frequently used for the collection of urine, especially in girls, while in boys we use the Raudnitz urinal. As a result unexpected frequency and

variety of albuminuria have been shown, in the study of which Heubner has done especial service. Also the presence of other substances useful in diagnosis; the substances shown by Ehrlich's diazo reaction, acetone, diacetic acid, etc., were found in children of all ages. As regards the morphologic elements, not considering the very great frequency of blood and tube casts, we will only mention the presence of bladder and kidney epithelium as well as of bacteria (generally colon bacilli) as an expression of infection of the urinary tract occurring especially often in girls. The use of the centrifuge in all these examinations is very advantageous. Another very promising method is the freezing-point determination, introduced into clinical medicine by Koranyi; it has been used repeatedly in pediatrics, in the study of the milk as well as the urine.

The collection of the stools is much easier than of the urine, at least in nurslings; they also offer much more favorable opportunities for diagnosis and analysis than do the stools of adults. While in the latter it is a mass of stinking putrefaction, composed of a third of bacteria, in the nursling, the stool on account of the much shorter intestinal tract is comparable to that obtained from a fistula of the small intestine and shows like the contents of the small intestine, acid reaction, no putrefaction and comparatively few bacteria; food constituents if found in it at all are found in relatively slightly altered condition. Another factor which considerably increases the diagnostic importance of the nursling's stool is the similarity or at least very limited variation in the character of the food, whereby the determination of a normal stool in respect to color, amount and chemic composition is rendered possible. For this reason the chemic analysis of the stools of infants, especially those partaking of breast milk, was undertaken comparatively early (Wegscheider). The composition of the bacterial flora was studied by me, by Booker, and more lately by Tissier, who points with right to the importance of the anaerobes. Thanks to these conditions we are able to determine the pathologic changes in the digestive process of nurslings by chemic and bacteriologic examination of their stools much earlier and more exactly, and even to make the clinical diagnosis in a not inconsiderable number of cases.

The investigation of these excreta gains much in importance because their analysis enables us to gain an insight into the metabolic processes, those mysterious processes, which even though they are not life itself are at least the source of its strength and the most immediate expression of its activity. Although this matter is so very important, for the study of growth and of the dyscrasias occurring so frequently in childhood, it has only been in recent years that we have busied ourselves with the systematic investigation of this subject, urged on by the Breslau school (Czerny). In spite of the careful investigations performed by Camerer and Heubner in the realm of energia only the first steps have been taken toward the clearing up of these questions, their study is made very hard by the unusual technical difficulties and the vulnerability of the infantile organism.

The science, however, which has had the greatest influence upon the development of pediatrics is that which hardly 25 years ago proceeded from the modest workshops of Pasteur and Koch, and has won in this short time so overwhelming an influence on medical thought and research. The reason why bacteriology is of such great importance to pediatrics is that in no other period of life do the infectious diseases take so great a part. Most striking from this standpoint is the earliest infancy, the pathology of which is dominated by the septic diseases produced by the widespread bacteria of suppuration. The nature of these diseases was in most cases first recognized by the demonstration of these easily cultivated disease breeders; in this field Hutinel and Fischl have rendered the best services. Investigation in the realm of the true epidemic diseases, the acute exanthemas and

the infections of mucous membranes has been less successful, but the example of the diphtheria bacillus discovered by Löffler, shows how great a furthering of clinical and therapeutic knowledge is to be expected from the discovery of the disease producers. Also the discovery that not a few infections which were formerly observed only in adults, *e. g.*, tetanus, typhoid, cerebrospinal meningitis, dysentery, etc., occur also in early childhood, was first made possible by the bacteriologic demonstration of the microorganisms concerned.

Bacteriologic diagnosis received an important enrichment by the use of the reaction products of the organism called forth by the disease process, *e. g.*, the agglutinins of typhoid (Gruber, Widal). This method may serve not only for diagnostic purposes, but also for the discovery of unknown disease producers, *e. g.*, colon infection and dysentery. Jehle has demonstrated in my clinic the agglutination of pneumococci by the serum of pneumonia patients already in the first days of the disease, and lately it has been made possible to isolate the streptococcus of scarlatinal angina, which is agglutinated by scarlatina immune serum in very high dilution.

Apart from this, we receive through it an unsuspected look into the healing processes and protective mechanisms of nature, which are already present in childhood, and whose further study promises important revelations concerning the peculiarity of these diseases of childhood.

These facts, discovered in the course of the last decades by the use of scientific methods, have considerably extended and clarified the study of pediatrics. In place of the comparatively small number of diseases recognizable by evident characteristics, which form the contents of the older textbooks, *modern pediatrics exhibits a scientific structure, including all disturbances of the life processes, arranged according to scientific principles, and in its completeness not reached by any other specialty in medicine.* The causes of diseases as far as they are based on exogenous agencies are the same in children as in adults. It is especially bacteriologic examination, which, being in a position to show disease producers as such, has aided considerably in showing the identity of diseases which are often so different clinically. Unfortunately, our knowledge is not sufficiently advanced to make an etiologic grouping the sole basis of our classification.

Only a small number of diseases can be considered peculiar to childhood, because they are caused by events which cannot occur in the life of adults. These are the disturbances dependent upon birth and on the change from intrauterine to extrauterine life, as well as those concerning growth and development. In a certain way somewhat analogous to the occupation diseases of adults are here to be reckoned the injurious effects of school attendance, as well as the acute infectious diseases which confer lasting immunity. If, in spite of this, as daily experience and medical statistics teach, the diseases of childhood show such great differences in their number and form of manifestation, as well as in their course and termination, this can only be due to the fact that *between the growing organism of the child and that of the completely developed adult great differences exist in the reaction called forth by the disease process variations, which change constantly in the course of childhood.* The following reflection will show what close relations exist between the stage of development on the one hand and the type and course of disease on the other hand. If we take a bird's-eye view of the whole field we are struck especially by the following peculiarities occurring in the course of diseases in childhood:

1. The overwhelming frequency of fatalities and diseases, especially from functional disturbances, which explains the unsatisfactory autopsy findings in so many cases.

2. The insignificant causes producing the diseases; they are much slighter than those necessary to produce

the same diseases in adults. They easily escape detection, and this explains why all sorts of fantastic representations (influence of milk secretion, eruption of teeth, occurrence of worms), have been taken as explanations.

3. The more rapid course of the disease, terminating sometimes with a fatal ending, sometimes with recovery, but mostly with a typical and uncomplicated course, because occurring in a healthy organism. (The diseases which occur in earliest infancy, in which a rapid distribution of the disease process to other organs is observed as a result of early cessation of their function, form an exception.) Especially to be mentioned, is an ability to repair anatomic lesions which are not present to the same degree in later life. (Absorption of corneal scars, Fuchs.)

4. Apart from these general differences, the course of every single disease shows special peculiarities and variations when compared to the course observed in adults; these variations are according to the degree of development and functional activity of the organs concerned, and are the greater the younger the child is.

This last fact already shows that we have to do with processes which are connected with the development of the organism, and so we are again led to the conclusion that *the key to the understanding of the special pathology of the infantile organism is to be found in the study of developmental processes.* In spite of the large number of facts which are known to us, no attempt has been made, barring a but slightly known study by Barrier, to formulate general rules and points of view for the development of the infantile organism, and to make clear its relation to the pathogenesis of the diseases of childhood, as will be attempted in the following pages.

Growth, so far as we understand by this, the utilization of foodstuffs for the purposes of new formation and growth of cells (Camerer), demonstrates itself as a function of vegetative life, or more accurately expressed the inherent specific living power of the body cells, the *vital potentiality*. If we, following the idea of R. Hertwig and Exner, see in the conjunction of the male and female egg cells respectively in sexual fecundation, the exciting cause for a new and limited series of asexual cell divisions, we must suppose that the power of growth is a function peculiar to the younger and youngest cell generations. We see, then, in the germinal cell, the bearer of the entire potential energy of life, which expresses itself in at first very rapid, but gradually slowing down, growth in the size of the embryo. Unfortunately, we have no useful measure for the intensity of these life or growth processes. We may soonest consider the increase in length or bulk, as such as has already been done by the physiologist, Haller. The first is the more suitable, as, it being the greatest of all body measures, progress in its growth is recognized before all others, and negative variations are excluded.

The weight and length curves taken from the work of Quetelet show insofar a corresponding course as their greatest rise occurs in the intrauterine period. From the fourth to the fifth year a gradual flattening is noted in the curve which, at least, in the case of the length curve, passes into the horizontal about the twentieth year. Properly speaking, then, if we would represent the intensity of the vital processes, there should occur a gradual sinking of the curve, so that it would return to the base line at about 100 years (as the greatest length of life), supposing that its course remains unaffected by external harmful influences. This curve, reminding one of the parabolic course of a shot hurled aloft, together with the fact that the period of ripeness and bloom of the individual is not reached until the fourth decade, has led many authors (Burdach) to the view that the greatest vital energy, together with the highest functional development and greatest power of execution occurs in the middle of life, at the highest point of this imaginary curve. This idea is certainly wrong, as not only simple consideration, but also accurate physiologic study show

unequivocally that *the intensity of the metabolic processes calculated for the body measurements present is greater the smaller or younger the organism, and that it continually diminishes from the ovum on through the entire course of life.* I have represented this in a second curve. The straight red, in part dotted line, shows schematically the continually sinking life energy. The first section of this has added to it a line obtained by the application of the actual increase in length per year corresponding to the expenditure of energy for growth; it rises rapidly to the point corresponding to the beginning of fetal life. Its course corresponds to the change of the potentiality of the embryonic cell into kinetic energy, and shows that at no other time are the energy and power of life as great as in childhood.

In absolute contradiction of this idea, however, is the wellknown fact, that no other period of life shows so large a number of sicknesses and deaths as the first years of life; during these years, about a quarter of those born perish. This phenomenon is observed to the same extent in the plant and animal kingdoms, as Lichtenstaedt has already shown in answer to a prize question presented before the Independent Economic Society in St. Petersburg. We have the opportunity every day to see how only a minimal part of the seeds sown broadcast develop, only a few of the fertilized ova reach full development. The cause of this unnatural fatality, in spite of the excess in vital energy is *that the organs necessary for the support and protection of the life processes are at this time so undeveloped that the slightest injury already suffices to produce an irreparable disturbance of their functions and thus destruction of life.* To the extent in which these organs in the course of development grow and become stronger, the mortality falls, diminishing considerably as early as the second and third years, and reaching its lowest point in the period between the sixth and tenth years of life. The occupation of the male, the sexual activity of the female cause a rise in the mortality from the twentieth year on. In the later age periods the physiologic sinking and extinction of the life energy finds expression. Haller has expressed this relation in these characteristic words: "Infantes mori possunt, senes vivere non possunt." Infants may die, old people cannot live,

On Table 2 the mortality rate of a certain group of people based on the official German statistics is expressed, along with the curve of the sinking energy of life.

This survey brings me to what I may call the second law of growth. The functional development of each individual organ, measured by the absolute degree of ability for work, takes during childhood a rising course, which, however, is different for each organ, and which as a rule shows a much steeper course than that of the growth curve. Unfortunately we lack the scientific data which would enable us to display graphically the gradual growth of the development and the functional ability of the most important organs of the circulatory, respiratory, digestive tract, etc. In general, however, we may conclude on the basis of anatomic and physiologic data that this occurs comparatively quickly, while other functions, like muscular power, reach their maximum at a much later date. We may consider the overcoming of influences injurious to the organism, in other words, the degree of the power of resistance, as the common result of all these powers, which finds an expression in the statistics of the frequency of diseases and deaths. That the measure so obtained is only relatively useful and even then only under certain definite suppositions, is seen by the consideration of the first section of intrauterine life. Although here the organs have the least power of resistance, diseases rarely occur on account of the protected condition of the fetus. But the transition into extrauterine life already necessitates a wonderful precision of preformed mechanisms. The least failure of these, causes the greatest danger to the life of the child, and thus is explained the high mortality peculiar to the act of birth and the period immediately following. This

is aided by the conditions of extrauterine life being felt for a time by the newborn as a direct irritant, whose harmful influence can only be lessened by the most constant and proper care. The more backward the development of the child (premature birth), the less favorable the environment (poverty, illegitimacy, unsuitable nourishment), so much the smaller is the expectation of preserving the life of the child. Under unfavorable social conditions, the mortality rises to 70% of the births, while in well-to-do families it may sink to 10%, or even lower. Much more important than these external influences, is the rapid development of the organs occurring at this time, especially that of the digestive tract, which, according to Bloch's investigations, reaches its full histologic development from the third to the fourth year of life. This rapid improvement in resisting power, associated with high vital energy, together with the care and protection which guards the child in the parents' house, brings about the period of greatest health, which continues to the end of childhood, and in which disease and death sink to a minimum. The functional development, however, is by no means completed yet with this stage. Rather now begins, after the preservation and protection of life under normal conditions has been assured, the growth of that power and reserve strength which enables the adult to take up the struggle for existence and to care for the continuance of the species under the best possible conditions; the development of strength and activity in the musculature, becoming accustomed to fatigue, to different kinds of nourishment, to climatic influences, and especially the development and training of the mental powers. Into this period falls also the strengthening of the protective influences necessary for the overcoming of infectious disease, the acquiring of immune substances, etc.

The occurrence of this long so-called puerile period, which is given over mostly to the functional development by relatively slight increase in length and weight, belongs, like the long duration of childhood, among the most eminent peculiarities of development in the human species. There is no doubt that man owes to this slow development and maturing not only the high state of his mental and physical abilities, but also his enormous power of accommodation and functional adaptation which enables him, in contrast to lower forms of life, to exist under the widest extremes of climate, foods, and habits of life, and thereby to make himself really the lord of the world. It would, however, be a fundamental error to believe that this progressive development of functions and organs, which characterizes childhood, occurs to an equal extent in all parts, like the growth of a crystal, which increases in size by addition of equal amounts over the whole surface of the nucleus. The study of embryology, which shows such remarkable changes in the form of the embryo, protects us from this unfortunately widespread opinion which regards the child as the exact image in small size of the adult. The table devised by Langer shows the great differences which on closer observation are seen to exist between the form of the child and that of the adult. But that not only the outward form, but also the internal organs experience during the course of growth a continual change in their relative size, is shown in the table prepared at my suggestion by Oppenheimer; it displays the weight of the organs at the different years of life (compared with the weight of the organs in the newborn). The consideration of these relationships, together with the observations already mentioned, shows that *the growth of the individual organs does not occur simultaneously, but with varying intensity, so to speak by jerks and that the order is caused by the greater or lesser importance of the developing organs for the preservation or protection of the infantile life.* This I call the third rule of growth.

The life of the child in utero and at the beginning of its extrauterine existence is so purely vegetative, as to

make Plato consider seriously the question whether the newborn is actually to be considered as a human being. But just as the intellectual life is bound up with the function and development of the brain, so is the vegetative life with the function and development of the organs serving metabolic ends. The most important of these are the circulatory system, the liver, kidneys and lymph-glands, which experience an especially early development in intrauterine life. Beside these, only those organs are well developed in the newborn which are to serve the purposes of assimilation, the lungs and the great digestive tract, while the poorly developed skeleton and the muscles only form a thin and tender covering to these essential organs. After the great increase in the size of the body during the first year of life comes the period of skeletal development which in the fifth or sixth year is joined by that of the building up of the muscular and mental powers. *Childhood* divides itself thus, as this short sketch shows, into a series of *phases or periods characterized physiologically by the development of definite organ systems*. Their separation is not only justifiable from a scientific, but in a higher degree, even from a practical standpoint, for the conditions and necessities of life are so different for each of these periods, that the kind of care and treatment is almost exclusively determined by this, that is, by the age of the individual. With the backwardness of development and the slighter variability of life conditions due to this is connected the fact that the guiding of the life must be the more regular and careful the younger the individual is. Only in later years can individual differences and the influence of social conditions be more marked.

The most useful division of childhood not only for scientific but also for practical purposes has been found in the three-fold division accepted by Vierordt.

I. Childhood. Infancia.

1. Newborn period (first week of life). Characterized by the change from intra to extrauterine life and the atrophy of fetal organs; hyperemia and desquamation of the external coverings.

2. Nursing period (first year of life). Characterized by the necessity for exclusive milk diet on account of the functional weakness of the digestive tract, also a great consumption of nourishment and considerable increase in bodily size (trebling of birth weight), marked growth of the brain; all other functions remain backward.

3. Milk teeth period (second to fifth years of life). Characterized by rapid growth and formation of the skeleton, eruption of milk teeth, learning to walk and to talk.

II. Childhood. Pueritia. (Sixth year to puberty.) Characterized by special development and exercise of the musculature, by increase of all functional activities, and by slowly progressing growth of the body. Passage of the child from the family life into social life (school). Beginning differentiation of the sexes.

III. Age of puberty (in boys from the sixteenth year, in girls of the Germanic race, from the thirteenth year on). In the latter, beginning menstruation. Awakening of sexual impulses and development of secondary sexual characteristics.

I have limited myself to giving the physiologic characteristics of these periods very briefly. On the contrary, I will try to picture more extensively their close and important relations to pathology. If we conceive of disease as the physiologic reaction and defense of the organism against the disease producing agency, it is apparent that the physiologic condition present at the time determines the kind and course of the process. As this is true for childhood in general as compared with maturity, so it is also for the different periods of growth, which depending on the degree of development, show such great physiologic differences. In the first period of life, especially, these are so great that under the influence of local conditions there has developed a further

specialization within the limits of pediatrics of such physicians, hospitals and clinics as are especially concerned with the care and diseases of the nursing period. Even if I do not consider this tendency to separate as justified, still it will serve to demonstrate the great compass and variation of the study of children's diseases.

The relation of the periods of growth to pathology are based, as already stated above, on the fact that the special physiologic peculiarities of each period bring with them a similarity in the course of life, and therefore opportunities for certain diseases such as do not occur at any other time. The undeveloped condition of the organs in general helps along by causing a lessened power of resistance against all disturbances, and further, the organs while growing rapidly are disposed to diseases to an especially high degree. Finally there exists an age disposition for a small number of diseases depending partly on external causes, partly on the condition of the tissues themselves. All these causes unite in individuals of one and the same period of growth, and give rise to the fact that in them a certain group of diseases is observed with especial frequency, which occur much more rarely or not at all in other periods. Thus each of these periods of growth has not only a physiologic, but also a no less marked pathologic physiognomy.

I.—Infancia.

1. Newborn period. Malformations, congenital and inherited diseases (lues), tumors, birth injuries (fractures, avulsions, hematomas, brain injury), disturbances in the atrophy of fetal organs (diseases of the navel), icterus neonatorum, irritation and lesions of the tender skin and mucous membranes and favored by this bacterial invasion of the body, which still lacks protective powers, local and general sepsis, gonorrheal infection.

2. Nursing period. Disturbances due to incorrect quantity or intervals of feeding, relative or absolute insufficiency of digestion of food taken, especially in artificial feeding, irritation of the intestinal mucous membrane by bacterial decomposition products, or invasion of the intestinal wall leading to chronic intoxication and atrophy of the mucosa. The rapid growth of the brain is not infrequently accompanied by over-irritability of the nervous system (tetany), eclampsia and hydrocephalus. There is also a susceptibility of the skin and mucous membrane (bronchial diseases, pneumonia) as well as a marked tendency to pyogenic diseases of all sorts; specific infections, however, occur comparatively rarely.

3. Milk teeth period. Disturbance of ossification processes (beginning already during the first year) with its results (deformities of the thorax and limbs), bronchopneumonia, etc., from rachitis. At the same time occur other dyscrasias (status lymphaticus, scrofula, anemic states). The creeping of the child on dirty floors and the tendency to put everything into its mouth in conjunction with the lack of instinct for cleanliness produces the so-called dirt infections: Numerous mouth and throat diseases, diphtheria, contagious skin diseases, helminthiasis, pertussis, even tuberculous infection of the upper respiratory or digestive tract and the consequent lymph-gland tuberculosis especially of the bronchial glands. From the latter the form of hilum phthisis peculiar to this age arises. Frequent occurrence of local and miliary tuberculosis. Defects of the intellect show their existence by delay or failure to learn to speak and grave lesions of the brain by appearing idiocy and epilepsy. Especial frequency of acute poliomyelitis.

II. Pueritia. Entrance into school brings with it the harmful influences connected with it—scoliosis, myopia, nervous disturbances of all sorts, and manifold contact infections, among which the acute exanthemas with their sequels, nephritis, myocarditis, are by far the most important. The desire for violent exercise explains traumatic diseases, and perhaps also the greater

frequency of appendicitis. Tuberculosis, especially of the glands is rarer and approaches the adult type. On the other hand a new and dangerous infectious disease appears in acute articular rheumatism with endocarditis and chorea.

III. Puberty furnishes, especially in the female sex characteristic troubles, chlorosis, hysteria, psychoses, heart diseases. Otherwise the pathologic conditions pass over into those of adult life. (Demonstration of tables).

This classification of the most common diseases of childhood is familiar to every experienced pediatricist, and by the fact that the number of diseases coming into consideration at each age is relatively limited adds considerably to the facility of diagnosis and exact appreciation. It must also be the basis of every therapeutic consideration as the medical means as well as the care of the healthy child are different for each period of growth. At introduction, however, I wish to say a few words about the treatment of diseases of childhood in general.

Even though the general principles of medical treatment in children must be the same as in adults, still the practical application of the same differs considerably according to the age of the child. For example, it is not sufficient to reduce the dose of the medicament prescribed in a given case for an adult simply according to the body-weight of the child. Rather the physiologic peculiarities of the childish organism, its intolerance for some and tolerance for other drugs, as well as the consideration of the method of dispensing suitable to childhood necessitates in almost all cases that the choice and method of dispensing in children differ in most all instances from what is usual in adults for the same indications. The physician active in children's practice must therefore make himself familiar by special study with the therapy suitable to each period of growth.

It is similar with the physical methods of treatment. These methods also, which of late are being more and more employed, require careful adaptation to the slighter resisting power, the lack of response, of resistance, which the small patients oppose to their use. On the other hand, the smallness and transportability of the childish body, the comparatively easily overcome resistance, and the lack of anxiety from preconception, afford in many cases a desirable ease of application.

I cannot go into details in the subject of therapy. Only in general I may say that of the flood of medicaments which has in the last few years been thrown on the market by chemie industry, only a few have found a lasting place in pediatrics. The use of medicines is becoming justly more and more limited, and replaced wherever possible by physical and dietetic methods of treatment, which by long and consistent use have given brilliant results.

We may expect a really curative effect only from those measures which stimulate further, or replace the naturally powerful healing processes of the childish organism, as is strikingly done by the diphtheria antitoxin prepared by Behring. Here the pediatricists who generally are forced to travel in the beaten tracks of internal medicine, were in a position to take the leading role in the testing and recommending of this precious agent. A second method of treatment also used in diphtheria may here be mentioned, for the introduction of which the pediatricists exclusively are to be thanked. I refer to intubation, recommended by your genial and modest countryman, O'Dwyer, which has made the bloody operation of tracheotomy superfluous in the largest number of cases.

The greatest difference between the therapeutic problems of the pediatricist and those of the internist lies in the overwhelming importance and development of prophylaxis. The word prophylaxis in this sense is to some extent synonymous with care, inasmuch as in the education of the child because of its lacking self-determination, experience, and regulating methods, care must not only satisfy its bodily needs, but also guard it

from all threatening dangers. To bring this about, the experience of adults and the general rules of hygiene, however, do not suffice. It requires special individual instruction, which can only be given by a pediatricist cognizant of the laws of child development, and carried out by persons trained in them. Clinical experience and medical statistics show that nothing influences the mortality and liability to disease in childhood as much as a carefully conducted management by experts, and in this way most, if not all sicknesses may be kept away, at least in young children. Pediatricists have always known the great importance of protecting care, prophylaxis, even if only the magnificent acquisitions of the last few decades have shown them the proper way. We will attempt to sketch in a few words the most important axioms of prophylaxis for the different periods, and at the same time to touch on some of the questions which are still unsettled.

The prophylaxis in regard to birth injuries belongs to obstetrics. Here I only wish to mention the original idea of Professor Gaertner to overcome the grave asphyxia of the newborn by the introduction of oxygen into the umbilical vein. Apart from this, the task of the pediatricist is to make the surroundings of the newborn as much like the conditions existing in utero as possible, for which purpose an incubator may occasionally be useful. The delicacy of the skin and mucous membranes requires especial care in the cleansing and clothing of the child. It is well known that most of the diseases of the mouth which occur in the first few years are caused, or at least favored by mechanical injuries. Of course, another factor, infection, must assist. The slightest lesion of the coverings, however, and the ordinary pus bacteria which are ubiquitous in man's surroundings suffice already for their occurrence. To their frequency and danger the old foundling asylum statistics and hospital reports, in which 80% to 100% of the infants admitted died, bear witness. Through the introduction of asepsis and antisepsis into the care of nurslings, a revolution of these relations and a decrease in the septic diseases which is comparable to the precaution of puerperal fever by Semmelweis has taken place.

The largest and most difficult task in this period of life, however is the nourishment. The intestinal canal of the nursing child must, in spite of the backwardness of its development, assimilate a sufficient quantity of food for the body-weight to treble itself.

This task is comparatively easily accomplished if the natural nourishment which suits the nursling's needs so wonderfully, mother's milk, is to be had. The difficulty is immeasurably increased, however, if the mother, from lack of milk or for social reasons is unable to nurse her child, a state of affairs which is more and more often met with. As the knowledge of metabolic processes, in spite of the great amount of work spent on it, is not sufficiently advanced to permit the setting up of experimentally determined values, we are today, as in former times, required to keep to the model of mother's milk, and to make the cow's milk which is used in artificial feeding as much like it as possible.

The differences of percentage composition, which at first were considered to be of the greatest importance, we have learned to overcome completely by sufficient dilution and addition of proper amounts of fat and carbohydrates. On the other hand, in course of investigation, the cleft which existed in reference to the quality of the different foodstuffs, has widened. At least, this is true of the most important one of them, the albumin. This shows irremediable differences from the albumin of mother's milk, not only in its elementary composition and chemie reactions, but as it comes from a different sort of animal, also in its biologic behavior. Wassermann and Hamburger have pointed out the importance of this question in infant feeding.

The thermolabile ferment-like bodies, which are contained in mother's milk, and to the presence of which I

have myself drawn attention, also belong to the group of components which differ qualitatively. These substances give the breastfed child, as they come from the blood of the mother, a part of the antitoxins and metabolic ferments contained therein, while the analogous bodies contained in raw cow's milk are of little or no value to the nursing. Therefore, it does not appear to me justified to give up for this reason the sterilization of cow's milk by heat, an acquisition which I consider one of the greatest advantages in this line, although a general tendency exists to limit the temperature and duration of the heat as much as possible, on account of the chemie changes which it causes. This is the more possible, the more cleanly the method of obtaining the milk has been, and the more carefully it has been handled before sterilization. It appears very questionable, however, whether the recently advocated addition of formalin (Behring), or the passage of electricity (Seifert), will be able to replace sterilization by heat.

An important difference between natural and artificial nourishment exists also in the method of feeding. The child at the breast receives the milk by active suckling, and (presuming feeding by its own mother) in a quantity and composition suited to its needs. The artificially-fed child has at its disposition food in unlimited quantity, and as a rule, this is poured into its digestive tract in excessive amount, considering its digestive powers. Another practically important step in artificial feeding lies in strict limitation of the size and number of the feedings, in the determination of the amount of nourishment calculated either by the volumetric method or reckoned in calories, in a word in the avoidance of the habitual over-feeding of the bottle baby. In spite of the large amount of work done in this direction in the last decades, we must confess that we are still far from the aim of our efforts, the discovery of a substitute for mother's milk, and that nothing can replace it, especially in children backward in development or weakened by disease. On the other hand, we can say truthfully that we have succeeded in robbing the feeding with cow's milk of a large part of the danger which previously accompanied it, so that if the power to assimilate cow's milk is present at all, artificial feeding can be carried on with confidence as to the result. Of course, its proper carrying out requires a much greater cost of time, care and pecuniary means than does breast feeding; so that the improvement in artificial feeding is of slight or no benefit to the poor people, where it is most needed. The same difficulty also exists with regard to care, cleanliness, light and air in their dwellings.

These last factors are of special importance in the period of skeletal development. Unhygienic conditions of the surroundings, insufficient ventilation, crowding together of persons, as occurs especially among poor people and in cold weather, have, as Kassowitz has shown, an undoubted influence on the origin and severity of rachitis. Considering the great frequency and insidious beginning of this disease, it is not unnecessary to mention that the severe forms and deformities of this disease may at the proper time be prevented. In a carefully regulated diet and the use of baths, air and exercise cures, and secondarily in the administration of food preparations and medicines (phosphorus, iron, arsenic), we possess powerful aids against the development of this dyscrasia, which is so frequent at this period. In view of the change of the skeleton from the infantile to the adult type, which occurs at this time, one should also try to influence this process favorably and to prevent for example the development of the dreaded paralytic thorax by suitable means. The dangers of dirt infections are to be avoided by careful avoidance of opportunity for infection, and cleanliness; eventually, also by the use of an enclosed, protective pen (Feer.) I have reached the opinion that not a few of the cases of tuberculous meningitis, which is so frequent at this age, are to be traced to infection from dust in the dwelling.

In the second period of childhood, which is devoted to functional development, the task of the physician is on the one hand to bring the powers and abilities of the child to harmonious perfection, on the other hand, by an appropriate selection and direction of bodily exercises and by the proper arrangement of hours of work to prevent exhaustion and harm. From which side the influence of the physician must act depends on the peculiarities of the child and of its guardians, and also on the customs and usages of the country. In the Germanic and Latin countries the general striving toward a better physical development does not begin until this period, while among people under English influence this has started long before.

A new factor comes into the life of the child with the school. The modern method of teaching classes, in closed rooms and with a comparatively large number of hours of instruction is, from the hygienic standpoint, to be looked upon as a necessary evil. So much the more we must endeavor to compensate for the unavoidable harm by improving the school arrangements on the one hand, and by sufficient time for rest on the other. From many sides the principal task of the physician in this period is thought to be by rigorous isolation measures to guard the children against the acute exanthemas, which threaten them at school. I cannot agree with this point of view under all circumstances and for all the diseases of this group. Even though every appropriate measure, even prophylactic immunization should be recommended for certain diseases like diphtheria and scarlatina, this should only be done as regards the much milder measles and varicella which attack almost every one, insofar as one tries to guard the individual as far as possible from getting the disease at a time or age in which a lessened power of resistance or a tendency to complication exists. After the sixth or seventh year this is as a rule not the case, while on the contrary in adult life, measles not infrequently takes a severe course (Biedert).

The immunity acquired by passing through certain infectious diseases is an integral part of that power of resistance which man should acquire in the course of childhood. With this item is also to be classed obligatory vaccination.

Thus every period of childhood brings new and important necessities for the carrying out of individual prophylaxis, and these might be multiplied without difficulty. The main point is the constant and careful watching over the course of the child's life during the whole, but especially during the first period of growth, the care and furthering of normal development according to the sentence "*medicus non sit magister sed minister naturae*;" therefore in detail, the taking care of those backward in development, improvement of the already developed functions, special protection of the rapidly growing organs, prevention of the tendencies to acquired or inherited diseases, protection from injurious agencies, especially infections. Disease with which the medical care generally begins, is here to a certain extent a failure of preventive care, an interruption disturbing the normal process of development. In this sense the physician to whom the child is trusted becomes the friend and indispensable adviser of the family in all matters affecting the bringing up of the child, provided they know how to appreciate the unselfish character of his work. I admit that nowadays this function of the pediatricist is employed only exceptionally and under particularly favorable conditions, and that even in the future only a limited number of families will have it accessible. But why, at the close of a century which has shown such unexpected results, should we hesitate to place individual prophylaxis, based on raising the power of resistance and avoidance of diseases, as the ideal aim of our efforts?

The picture of modern pediatrics would be incomplete if I were not to mention the efforts and results which have been seen in the realm of the protection of chil-

dren. This was the more needed, as in many countries, especially the Anglo-Germanic, the care of poor, sick, and deserted children, has always been left to private benevolence, while in the Latin countries the orphan asylums cared for the neediest group of these children. Thus were founded the children's hospitals and dispensaries, based on private donations, which today are to be found in every large community. These institutions are particularly important, as they form the natural centers for the practical education and scientific work from which the clinical institutes develop.

The assistance of pediatry in the reform of orphan and reformatory asylums, in the question of school physician, in the numberless societies whose purpose is the strengthening and making healthy of growing children (school gardens, vacation camps, seashore homes, etc.), goes without saying. It was the pediatricist who first pointed out the necessity for such institutions, and the means of redress.

The latest movement makes the care of nursing infants its aim, the shocking mortality among whom has already been mentioned. In this direction, as in the care of children in general, at least as far as governmental aid is considered, France occupies unopposed the first rank, whom Hungary now follows with praiseworthy zeal. In most other countries there are only private undertakings; homes for cripples, milk dispensaries (so-called *grottoes de lait*), maternity hospitals, homes for infants. The latter serve also mostly the purposes of educating medically trained nurses. In this respect the institutions existing in the United States, among which I have become best acquainted with St. Margaret's House, in Albany, directed by Dr. Shaw, are especially worthy types.

All these institutions have been started by pediatricists, in part carried on by them, and sustained by their voluntary and gratuitous assistance. Thus it comes about that every year hundreds of thousands of persons whose financial position would otherwise not permit it enjoy the benefit of specialistic medical advice and treatment, and that the knowledge of a rational care of children which is so necessary, becomes more and more widespread among the people. The warm interest and the aid which these efforts find among all classes of people show that the usefulness and humanity of these aims are fully appreciated. The great importance of these efforts for the sustaining and strengthening of coming generations is also being more and more recognized by the public authorities.

Thus our young science may, with full justification, claim to have been successful in the great task which has fallen to it in the share of public work.

COMPARISON OF RÖNTGEN-RAY AND SURGICAL TREATMENT OF TUBERCULOSIS.¹

BY

JAMES B. BULLITT, M.D.,

of Louisville, Ky.

It is not my purpose to attempt to give you an ultra-scientific exposition of the nature of the röntgen rays, nor yet to dwell upon the technicalities upon which depend the most efficient production and utilization of the rays, emphasizing the gains in these respects of the past year, and pointing the finger of prophecy to the achievements of the years which are to come. There are many among you much better fitted for these tasks, and to them I leave such problems untouched, in full confidence that they will receive merited attention. The substance of my address will be in answer to two questions: (1) Is the present surgical treatment of the surgical forms of tuberculosis eminently and entirely suc-

cessful and satisfactory? and (2) what is the probability that the röntgen-ray method of treatment is capable of rendering the treatment of such diseases more rapid and more successful?

While the treatment of lupus by the röntgen ray may be safely said to constitute an accepted and established method of treatment, the same cannot be said to apply to other forms of tuberculosis which are ordinarily considered surgical. This is noteworthy in the two books of the current year dealing with the röntgen ray and from the pens of American authors, Beck and Pusey.

Pusey refers in brief to the treatment of tuberculous glands, tuberculosis of joints, tuberculosis of genito-urinary tract, and abdominal tuberculosis, and states that while there is good reason to believe that treatment of these various forms of tuberculosis is being very generally attempted, that as yet there is very little literature on the subject. Beck dismisses the subject with a short half page. My own examination of the literature up to September 1 of the current year confirms the statement of the paucity of the literature bearing on these particular forms of tuberculosis, although the literature of the röntgen ray in general is enormous. I have therefore thought that it would prove interesting to collect by personal application all available cases, and ascertain, insofar as possible, what efficacy this method of treatment has been shown to have up to the present time in the forms of tuberculosis ordinarily denominated surgical. The tuberculous lesions coming under this head are as follows:

1. Tuberculosis of long and flat bones.
2. Tuberculosis of joint structures.
3. Tuberculosis of tendon sheaths.
4. Tuberculosis of peritoneum.
5. Tuberculosis of testicle.
6. Tuberculosis of lymphatic glands.

Incidentally, an inquiry was also made into the results of treatment of tuberculosis of the skin. This will be spoken of separately and is not to be considered under the general title of this paper. Tuberculosis of the pleura might have been properly considered, but on account of its being associated so frequently with tuberculous conditions of the lungs themselves, it was deemed best to leave it out of consideration.

This inquiry has omitted also ulcers and sinuses of tuberculous nature. These omissions are for the reasons that the sinuses are necessarily included in the various lesions, especially of the bones and glands, which have been considered, while the tuberculous ulcer as a disease *per se* is comparatively rare and uncertain of diagnosis, and, in many instances at least, is included under the classification of tuberculosis of the skin.

After ascertaining the results of treatment by the röntgen ray of the various manifestations of tuberculosis enumerated, I have thought it might be interesting to compare this method of treatment with the ordinary surgical methods which have come into general use, and have been found most efficacious in the treatment of tuberculous conditions.

I have collected in all 518 cases of surgical forms of tuberculosis; most of these have come through personal communication, a few have been collected from the literature. The 518 cases which I have collected are reported by 48 observers, and are divided as follows:

Tuberculosis of long and flat bones	71 cases
Tuberculosis of joint structures	141 cases
Tuberculosis of tendon sheaths	27 cases
Tuberculosis of peritoneum	32 cases
Tuberculosis of testicle	21 cases
Tuberculosis of lymphatic glands	226 cases

In making inquiries I have asked for reports as to whether patients were cured, were improved, or remained unimproved. Certain serious difficulties are encountered in this kind of classification, for the reason that, to be considered cured, not only should signs and symptoms of the disease have disappeared, but a certain amount of

¹ President's address, Fifth Annual Meeting, American Röntgen Ray Society, St. Louis, Mo., September 9 to 13, 1904.

time should elapse before it would be fair to pronounce a case of this kind cured. Exactly what that length of time is has never been agreed upon, and it is, therefore, quite probable that many of the cases reported in my list as cured will eventually show recurrence of the disease. It is also probable that many cases reported as improved will continue such improvement up to the point of admission to the cured list. In fact, uncertainty is bound to cling about both the cured and the improved lists, and it is only the unimproved cases which can be considered as being definitely classified insofar as the effect of the röntgen ray upon them is concerned. The following is the tabulated list showing the number of cases of each kind and the number and percentage of cases in each of the three divisions of the classification:

	No. patients treated.	Cured.	Im-proved.	Unim-proved.
Tuberculosis of long and flat bones.....	71	26 (36%)	25 (35%)	21 (29%)
Tuberculosis of joints.....	141	54 (38%)	53 (37%)	34 (25%)
Tuberculosis of tendon sheaths.....	27	19 (70%)	6 (22%)	2 (7%)
Tuberculosis of peritoneum..	32	13 (40%)	8 (25%)	11 (35%)
Tuberculosis of testicle.....	21	7 (33%)	10 (48%)	4 (19%)
Tuberculosis of lymphatic glands.....	226	79 (35%)	92 (40%)	55 (25%)
	518			
Tuberculosis of skin (lupus)..	616	420 (68%)	148 (24%)	48 (8%)

In these reports, no statements have been made in regard to the length of time elapsed since the beginning or end of treatment, number of exposures made, and the technical conditions of the exposures. These details were practically impossible for inquiry undertaken as this one was. Especially would it have been fruitless to attempt to establish the technical details of treatment, as, up to the present time, no satisfactory standards have been adopted which would give any certainty as to the exact conditions present in any given tube at any given exposure. Further than this, individual operators, up to the present time, have differed extremely in their views as to the best methods of making these exposures, and at this very meeting we are promised some facts in regard to the technic, which may do much to improve results on the one hand, and on the other to render more certain the use of this elusive agent which we are attempting to harness to our work.

There is still one other point which the inquiry has failed to deal with, and that is this: Are some cases made worse rather than better by röntgen-ray treatment? Unquestionably, some cases of malignant disease have occasionally reacted in this unfortunate way, but I believe that no cases of the surgical forms of tuberculosis have so reacted, at least none appear to have been so reported. Reports have appeared from time to time of deaths which have occurred after vigorous treatment of malignant diseases with the röntgen ray, these deaths, seemingly, being the result directly of the treatment. The peculiarities of the surgical forms of tuberculosis are such that the question of the possible mortality from röntgen-ray treatment is practically out of question.

In considering the above table, we find that there is a fair uniformity of results reported for the various forms of surgical tuberculosis, leaving out of consideration tuberculosis of tendon sheaths, which, as would be expected, shows a larger percentage of cures than any other form. The remaining five forms show an average of reported cures of 36%; of patients improved, of 37%; and of patients not improved, of 27%. Tuberculosis of the peritoneum shows 40% of cures, while tuberculosis of the testicle shows 33% of cures, both of these certainly much higher than would have been expected.

In tuberculosis of lymphatic glands the term "cured" can hardly be understood to mean the entire

disappearance of the affected and enlarged glands. It rather means a diminution of the size of the glands and a disappearance of all symptoms which indicate any activity of the disease process. In the comparatively few detailed reports which have been made of cases of this kind the statement has been made in all that while the condition had improved and the glands had diminished much in size, they still were present as palpable enlargements.

Of the 13 cases of tuberculosis of the peritoneum, at least two cases were of the caseating type, with masses of considerable size present in the abdominal cavity. These masses are reported to have disappeared under the influence of the röntgen ray. Presumably the majority of these cases here collected were of the general miliary type with ascites, though specific statements in regard to this are lacking.

It is also to be presumed that in the cases of tuberculosis of joint structures protection was afforded the joints during the course of the röntgen-ray treatment. Certainly common sense would dictate the necessity of such protection.

In order to institute as intelligent a comparison as possible between the results obtained in the treatment of tuberculous disease by means of the röntgen ray on the one hand and by the accepted surgical procedures on the other, it will be necessary to consider briefly what these surgical procedures are and what they promise in the way of saving life, restoring function and bringing the disease to a termination. In other words: What is the prognosis of tuberculous disease treated by surgical methods? This is a most difficult question to answer briefly, as so many factors are involved and the prognosis varies greatly, both with the age of the patient and the particular structure involved in the disease. Thus, in disease of the spine the prognosis is less favorable than in disease of the hip-joint, because the situation of the focus is such that it may involve the spinal cord or extend to neighboring organs of importance. Abscess occasionally endangers life merely by its size and situation and when infected is far more dangerous, because of the difficulty in providing efficient drainage. The danger to life from disease of the joints is in proportion to their importance. It is to be borne in mind that tuberculous disease of the bones and joints in a large majority of cases primarily begins in the neighborhood of the epiphyses and involves the joint structures secondarily by extension through them, or more rarely causes an extensive myelitis by extension in the direction of the shaft of the bone. In such cases the most direct and constant danger is from prolonged suppuration following septic infection.

The indirect danger of tuberculous disease is its dissemination to more important organs, but it by no means follows that the disease of the joint is the source of the general infection, for it may be inferred that nearly every patient with joint disease has also disease of the lymphatic glands, and in a small proportion of the cases there may be active disease of other important organs as well. The presence of tuberculous foci, especially of tuberculosis of the lungs in adults, is responsible for the fact that the prognosis of joint disease becomes progressively worse with the age of the patient. Whitman, from whose excellent work these facts are liberally quoted, gives König's statistics for disease of the knee-joint, illustrating this influence of age upon the death-rate, as follows:

Less than 15 years of age	20%
From 16 to 30 years of age	24%
From 30 to 40 years of age	44%
More than 40 years of age	60%

Vital resistance is the mainspring upon which depends cure of any form of tuberculosis, and this, of course, is impaired by confinement and the exhausting suppuration incidental to septic infection. The death-

rate is consequently much higher in cases with abscess than with those that terminate without abscess formation. Thus, the same author states, the death-rate from disease of the hip-joint with abscess is 52%, and without abscess is 23%.

While it has been largely held that one danger of operation upon tuberculous joints was dissemination of the disease, yet Gibney's observations would tend to disprove this. He contrasted two periods, each of 13 years' service at the Hospital for Ruptured and Crippled, and found that the deaths in the first period, when no operations were performed, were proportionately no less from general dissemination than during the second period of active surgical intervention. Others have made similar observations. This is mentioned for the purpose of showing that when surgical operation seems indicated in tuberculous disease the danger of dissemination is not sufficient to contraindicate such intervention; but when we come to consider the treatment of tuberculous disease we find that the election of operative means is the exception rather than the rule. So long as tuberculous joints can be protected by mechanical means without abscess formation, the indication is certainly for the continuance of such protection, the vital resistance and regenerative processes of the patient himself being relied upon to eventually effect a cure. Only in those cases in which protection has been furnished too late, or in which it has been insufficient and, as a consequence, abscess formation or acute extension of the disease has taken place, is the surgeon justified in operative intervention.

Unquestionably cases of bone and joint tuberculosis which recover without operative intervention, present the best statistics, both as to mortality and eventual function, but at the best, treatment of such conditions is apt to drag itself over years rather than months of time. One great reason for the failure of treatment of disease of this kind is the fact that the patience both of the surgeon and the patient is much taxed, and oftentimes treatment is discontinued entirely before the result has been obtained; or treatment is carried along in a half-hearted way by both parties with consequent disappointment and often a disastrous sequel.

Without considering at greater length the surgical treatment of tuberculosis of the bones and joints, it suffices to say that while in the best hands and under the best conditions, such treatment is fairly successful, especially in children, in general such treatment is very burdensome and uncertain, and in cases of adults especially, very unsatisfactory.

When we turn now to the other varieties of tuberculosis, we find that the conditions are scarcely better. In a certain variety of tuberculosis of the peritoneum, namely, the general miliary tuberculosis with ascites, laparotomy offers a good prospect for cure. While estimates of improvement and cure of this condition vary greatly, generally it may be said that about 70% of these cases are greatly improved by operation, and 25% to 30% are permanently cured. In the caseating form with greatly thickened peritoneum and caseating masses often as large as a goose's egg, operation offers little hope of improvement, although in a small number of cases improvement, or even recovery, may occur.

In tuberculosis of the testicle a most unfortunate variety of the disease is encountered. While total ablation of the organ, together with a change of life conditions, offers a good prospect of cure, many patients prefer to take any forlorn chance rather than submit to the treatment; consequently the resection of the tuberculous nodules which are usually situated in the epididymis, or resection of the whole epididymis, has come much in vogue in the last few years since it has been championed by John B. Murphy, of Chicago. Murphy and some others have reported a fair percentage of cures after this partial operation, but certainly it could not be expected to be so effective as total ablation.

Tuberculosis of the tendon sheaths is fortunately quite amenable to surgical intervention, the cureting away of the tuberculous masses followed by protection resulting in cure in a large majority of cases.

As to whether or not tuberculous glands in the neck should be radically removed by excision has been something of a battle ground for some years. Many surgeons have been content to curet out broken-down glands, and to do nothing but palliate until breaking down occurs, always in the hope that general treatment, having for its object improved nutrition, will bring about spontaneous arrest or even cure before breaking down occurs. More radical surgeons, and these are the great majority, favor radical removal by clean dissection of tuberculous glands which progressively enlarge or evince a tendency to break down. In the great majority of these cases the glands involved are the cervical groups, superficial and deep, whose total extirpation involves a difficult and dangerous dissection among tissues of great importance. No matter how far such a dissection may be carried, it is almost invariable that still further and deeper are other lymphatic glands which elude the most careful search, and these in time become enlarged and have to be removed; sometimes three or four operations have to be undertaken. Persisting sinuses not infrequently follow these operations and especially is this apt to be the case when operation is undertaken in the face of broken-down glands or periglandular abscesses.

The possibility of general dissemination of the disease, following operation, is also not to be overlooked, as it is to be more feared perhaps in this than in other forms of tuberculosis.

It has seemed necessary to review at this length the treatment of these several affections, in order to point out that surgery cannot make brilliant promises in the treatment of tuberculous affections. If successful, it is practically always dangerous, or tedious, one or both; and in the great majority of cases the patient fails of obtaining a cure because of the exhaustion of his own or the surgeon's patience and interested attendance. In fact, there is no class of cases, in the writer's opinion, except that of malignant disease, which is less welcome in the surgeon's consulting-room. If it can be shown that there is reasonable ground for believing that the röntgen ray, or any form of light, is capable of exercising a beneficial influence in these tuberculous diseases, there is no doubt that the surgeon would be as willing to pass such patients on to the röntgen-ray worker as he has shown himself glad to refer malignant disease, either after operation or without operation in the surgically hopeless cases.

Reports of cases which have been made at length, seem to indicate that in some cases, at least, the tuberculous process can be cut short by exposure to the röntgen ray, and a cure effected in a much shorter time, and, in the case of disease of joints and bones, with much better functional results than is to be expected from usual surgical methods. In this connection I recall to the society a statement made by Dr. J. B. Murphy in his address before this society, at Chicago, in which he reported a case of tuberculosis of the spine with paraplegia. Under the influence of the röntgen ray a rapid improvement and ultimate recovery had taken place. Dr. Murphy has recently informed me that he has up to the present time, had three cases of tuberculous paraplegia, all of which recovered completely without operation.¹ He adds that he has had very striking results in the treatment of tuberculosis of the bone, particularly in Potts' disease of the spine.

It therefore remains for the röntgen-ray men to show that the treatment is capable of causing arrest of the tuberculous process, and restoration to the normal condition. This must be done by careful observation and record of cases, and he who would achieve the most certain success with the method will not disdain nor

neglect protective or even operative procedures, nor yet general nutritive, hygienic, or climatic measures, which, in part or altogether, may serve to bring about the end desired.

Have we reason at the present time to state conclusively from reported cases, or from the table of cases I am able to report in this paper, that the röntgen ray can be regarded as a proved method of treatment in tuberculous disease? I think not. While the reports are encouraging, and while the probability seems to be that this method of treatment will be shown to be of great value, the statistics obtainable are too uncertain and not sufficiently explicit to warrant such an assumption. It will remain with the members of this society, largely, to illuminate the subject further and to prove through careful labor and patient industry whether the treatment is really of value or not. And let us not forget that our effort and duty must not be to prove that the röntgen method is of value in the treatment of tuberculous disease, but that it is to ascertain the truth as to whether or not the method is of value.

Just here, and in conclusion, I feel impelled to say that the mission of this society and the reason for its existence at all is not alone to determine to what useful purposes the röntgen ray can be directed, but it is also to assist in putting a quietus on the indiscriminate employment of this means of treatment by conscienceless quacks whose single effort is to exploit the method and the public for purely selfish and venal purposes. The röntgen ray is more or less an agent of mystery and to some extent will always remain so, and lends itself naturally to the use of the charlatan and the fakir. We can disregard both of these insofar as they exist outside of the profession, but at the same time we must bear in mind that such men exist in the ranks of the profession and are more dangerous because of the fact that they are of the profession. It has been, and will be, our especial duty to draw the teeth and claws of all such and to attempt to determine for the profession of the United States, at least, the true value which the röntgen method has already come to possess, or which it may attain in the future.

Reference to the table will show that I have collected 616 cases of tuberculosis of the skin, nearly all of these cases of the form known as lupus vulgaris; 420, or 60%, of these patients are reported as cured; 148, or 24%, are reported as improved, while 48, or 8%, remain unimproved.

THE EARLY RECOGNITION OF HYPERTENSION.¹

BY

HENRY WIREMAN COOK, M.D.,
of Richmond, Va.

Visiting Physician, Senior Staff, Memorial Hospital, Richmond, Va.

Last autumn at the annual meeting of this society, in Roanoke, a paper of mine was read on the "Value of an Accurate Estimation of Pulse Tension." Such a general treatment of the question then seemed permissible, in view of the fact that an approximately accurate determination of pulse tension in the human subject was a development of comparatively recent date and had received but slight general recognition or appreciation. The instrument shown at that time was one of the first mechanical devices made in this country for accurate clinical observation of blood-pressure, and the only one of sufficient simplicity, compactness and accuracy to make possible a routine estimation of pulse tension by the general practitioner in the office or in daily rounds. Since then, at least eight manufacturers have put instruments on the market, some of the same model as the one shown last year, and others with various changes, but all aiming to supply the demand for a sphygmomanometer that shall at once be both accurate

and of sufficient simplicity and portability to permit its routine use in general practice.

In the past two years medical journals have been publishing in increasing number clinical notes and articles on methods of estimating pulse tension and results derived from an application of these methods, and gradually sphygmomanometers are becoming more and more instruments of routine use among practitioners.

No longer is it necessary to urge such generalities as the comparative value of accurate estimations of pulse tension by an instrument of precision versus the indefinite results of tactile impression, for the approval of authoritative voices has been heard and the steady increase in the practical application of the newer methods by the general practitioner gives the final and requisite endorsement which any scientific advance must acquire before it may be considered established. Too often a pseudoscientific theory or laboratory development has fallen short when tested by a general practical application and its interest at once becomes historic rather than present or vital and its use obsolete.

Though conceived, born and nurtured through a protracted infancy in the physiologic laboratory, the sphygmomanometer has at last fully entered upon the broader field of clinical usage and has already won for itself a worthy position among the recent advances in scientific medicine. Therefore, in this paper it is unnecessary to detail at length the advantage of exact methods for determining the symptom or to describe in detail the principles of the various instruments used. I shall likewise omit more than passing reference to the use of the sphygmomanometer in the more acute conditions of abnormal tension, such as hypotension from toxemia, as in typhoid and other infectious diseases, or from traumatic or surgical shock or hemorrhage, or the hypertension of parenchymatous nephritis, cerebral compression, etc., and shall proceed at once to the special group of cases to which I would call your attention and of which I cannot emphasize too strongly the value of an early recognition, with a view to correcting their pernicious tendencies.

Generally speaking, death comes to the majority of mankind in one of two forms, either through trauma or the equally accidental form of the infectious diseases, or by the destructive action of the wear and tear of life. In the individual case of any infectious disease, excepting quin in malaria, mercury in syphilis, and antitoxin in diphtheria, medicine can avail little, and finally the ultimate struggle with these diseases must be by legislation, by Boards of Health, and popular enlightenment as to methods of prevention. Broadly considered, the termination of any individual of these cases is of relatively slight importance to the race by comparison with the perfection of methods of prevention. The treatment of any individual case of cholera 50 years ago, is of little concern to the race today. It is the system of quarantine that is saving us thousands of lives from the disease yearly. These infectious diseases are for the most part preventable, and are not the necessary or natural consequences of life. They should be regarded as equally accidental to trauma, and similar means adopted for their prevention. A man who contracts pulmonary tuberculosis by being put into a sleeping berth which had been occupied the night before by a tuberculous patient, is as much the victim of a preventable accident as though the wheels were unsound or the rails had spread.

When we turn to the second group in the causation of mortality, we find an entirely different aspect. The deaths are not due so much to an external or casual agent, but directly to the individual, his forebears, and his mode of life. It is in this group that a larger and larger proportion of maladies belong, and finally when our methods of sanitation and prophylaxis are perfected, it is the way practically all will die. Fifteen years ago 4,000 more people were dying yearly in New York City

¹ Read at the annual meeting of the Medical Society of Virginia, held in Richmond, Va., October, 1904.

of tuberculosis than at present. A certain proportion of these are spared to die later on of natural causes. Few physicians would today make a correct diagnosis if a case of typhus fever came under their observation, and we must hope for the day when a clean water-supply will permit a similar ignorance of the clinical manifestations of typhoid.

About half of the population now escapes the infectious diseases and live to develop the manifestations of natural decay, but the practitioner will see a larger and larger proportion of these cases as sanitation and legislation gradually deprive him of his infected patients. It is in the early recognition of one of the most important manifestations of this natural progress toward dissolution with a view to its postponement, that I would ask your attention. As Dr. Osler has said, "Longevity is a cardiovascular question. To a majority of men death comes primarily or secondarily through this portal." Other things being equal, the individual who best conserves the powers of his cardiovascular system will be the survivor over the one whose overtaxed heart prematurely falters in its rhythm, or whose bloodvessels demonstrate their tension by transuding albumin into the kidney or rupturing into the brain. The heart and bloodvessels that continuously bear an abnormal strain cannot be expected to endure with those that do the least work consistent with maintaining a healthy condition. The maximum tension which the heart and vessels sustain, 60 times to 80 times a minute, is known as the maximum or systole blood-pressure. So that a measure of this intravascular tension is an exact guide to the amount of strain to which the cardiovascular system is subjected.

Collaborated observations show that the bloodvessels can endure normally a continued minimum strain of about 80 mm. Hg. to 90 mm. Hg., and that with each pulse-beat this may be raised to 130 mm. Hg. or 140 mm. Hg. without unduly taxing them. Overexertion, either physical or mental, anxiety, overeating, especially of meats, and certain toxins—autobacterial, alkaloidal and metallic—produce a rise in blood-pressure, and therefore added strain on the cardiovascular system, upon the integrity of which health and life so directly depend. This rise in blood-pressure, in part physiological, becomes, when protracted over extended periods, a most pernicious and potent factor in inducing the train of cardiovascular diseases which develop in clinical manifestation, as cerebral apoplexy, myocarditis, aneurysm, arteriosclerosis, angina pectoris, or "nephritis."

After the terminal affections have fully developed into clinical entities, it is too late to establish corrective treatment. This is the special point that I would emphasize, the vital importance of early recognition of the presence of hypertension, so that the otherwise inevitable results may be avoided, and not waiting until these results have developed and themselves demand attention. Any layman can detect the presence of some abnormal process underlying an attack of apoplexy, or at sight of the dyspneic victim of acute cardiac dilatation. The physician should try to forestall such an event. Small credit is now given the practitioner who summons surgical aid in appendicitis after the development of general peritonitis. If he had made a careful abdominal examination in the supposedly simple case of cramp colic, the result might have been different. Similarly, I believe that the routine use of accurate methods for estimating pulse tension in apparently trivial affections, will often be the means of detecting the existence of abnormal cardiovascular strain and of forestalling its later developments.

We, as a profession, have more than the average of hard work, with numberless cares and anxieties, though of overeating, I presume the majority are unfortunately innocent. Five years from now a certain proportion of these present today will have passed away of apoplexy, heart disease, or "nephritis," and still others may have

a residual hemiplegia, dyspnea on exertion, or severe headaches and a little puffiness of the ankles. A large proportion of these men would now show a definite increase in their tension, which increase, in direct proportion to its amount and indirectly to the resistance of the individual, will, in many cases, determine the onset of the terminal symptoms. This increase for a long time, during which it is perceptible by the sphygmomanometric reading and possible of graphic representation by an ascending line, is quite unrecognizable to the palpating finger, either as to its mere presence or the gradations of its constantly upward tendency.

Unfortunately the physician is compelled to bide the chance of some intercurrent affection developing to bring these cases under his observation. If people only went to their doctor as they do to their dentist, to have disease prevented before it gave evident symptoms many disastrous results could be avoided. But unfortunately it is not the laity alone who are guilty of carelessness in this respect. Physicians too often treat the slighter symptoms of which some of their more careful patients come complaining without a thorough cardiovascular and urinary examination. These should certainly never be neglected in a man over 40.

Frequently the urine may be negative and heart sounds clear in a man between 40 and 50 whose blood-pressure will perhaps average 180 mm. Hg. or 190 mm. Hg. Such a patent under casual observation for some slight intercurrent affection or trivial symptom will miss treatment for the serious condition present until dyspnea, paralysis, vertigo, or pulmonary or general edema have developed and at this stage the prognosis is of the worst.

With our present knowledge of normal blood-pressure limits and the means of accurately following variations in blood-pressure in any individual case we may frequently discover a chronic hypertension threatening the safety of the cardiovascular system, before any of the serious results have developed, and with this knowledge as a basis and guide may institute a prophylactic line of treatment. Primarily a searching history of the case should be undertaken: 1. Of the family, to find the possible hereditary tendency to early cardiovascular disease that is well recognized. 2. Of the individual, his habits and routine line, to discover an etiologic factor in overeating, gout, gastrointestinal disease, and toxemia, overwork, worry and anxiety. A careful physical examination may detect nothing except the hypertension or a slight cardiac hypertrophy or accentuated aortic click, or in later cases an intermittent or very occasional albuminuria.

Initial treatment should be confined strictly to hygienic measures without specific medication. This may prove all that is necessary, and a removal from business cares, correction in diet, more important in quantity than quality, free bowel evacuation, regulated exercise and hydrotherapy will often restore a normal vascular tone.

When such means fail we have specifics for this affection in sodium or potassium nitrite, nitroglycerin and erythrol tetranitrate. Of these sodium nitrite seems by far the most valuable and apparently should soon almost entirely supplant nitroglycerin. The action of nitroglycerin, though reaching a maximum in perhaps 10 or 15 minutes before the nitrite, usually lasts only about an hour while the nitrite may endure three or four hours. The latter is not apparently followed by the headache which nitroglycerin occasionally produces, and does not so often produce the flushing and throbbing which the more rapid action of the nitroglycerin exaggerates.

Two to five drops of a saturated solution of sodium nitrite may cause a drop in arterial tension of 30 mm. in 10 or 20 minutes, which may last several hours. Following the case with frequent sphygmomanometric observations the blood-pressure should be kept at the

level which is most suitable for the individual, that is, no attempt should be made to bring every case to a certain figure of the average normal blood-pressure, but the decrease in the tension should be gradually induced until such a point is reached that the strain has been lessened and yet the fall has not been so great as to produce the lassitude, weakness or discomfort that an individual accustomed to a high tension will experience after a sudden or extreme depression of his vascular tone. The general features of each case combined with the blood-pressure curve should form the criterion of the degree of depression required rather than any absolute numeric standard of average normal values.

To summarize: 1. A large and increasing proportion of deaths is due to cardiovascular disease. 2. Cardiovascular affections in a majority of cases are accompanied and in many cases antedated by a rise in arterial tension, which bears an important causal relation to the terminal organic lesions. 3. An early recognition and continued observation of this rise in tension is a most valuable element in the recognition, prophylaxis and corrective treatment of such conditions.

INTUSSUSCEPTION OF THE APPENDIX VERMIFORMIS.

BY

GEORGE EMERSON BREWER, M.D.,
of New York City.

The following case, which recently came under my observation at the Roosevelt Hospital, is of sufficient interest and rarity to justify its report:

Y. S., female, aged 22, single, was admitted to the hospital in the spring of 1904, suffering from an acute attack of pain in the abdomen—fever, nausea, vomiting, and prostration. On examination there was found marked tenderness and muscular rigidity in the right iliac fossa, with a rather indefinite feeling of an indurated mass on deep pressure. As the case was



Fig. 1.

regarded as one of acute appendicitis, an operation was advised, and the patient's consent obtained.

On opening the abdomen, a dense mass of adhesion was encountered, consisting of the cecum, omentum, and several loops of small intestine. These were with difficulty separated, but after prolonged search, no sign of an appendix could be found. The cecal wall seemed somewhat thickened, and in the course of the search for the appendix, was wounded, but immediately repaired. The search for the appendix was a very thorough one, and was continued until the condition of the patient necessitated the closure of the wound. She made a prompt recovery from the operation, and was discharged in about three weeks. From time to time, during the next five months, she returned to the hospital, complaining of pain in the right inguinal region, which was so severe on exertion as to prevent her attending to her household duties. It was at this time that she first came under my care.

On examination the patient was found to be anemic, badly

nourished, excessively nervous and hysteric. On attempting to palpate the abdomen she screamed, cried, and moved about to such an extent that successful palpation was impossible. This led us to believe that the condition was largely hysteric, and no operative interference was advised for several weeks. Her persistent complaints, however, and a constant tenderness over McBurney's point finally lead us to propose an exploratory operation in the hope of finding something to account for the symptoms.

Early in June, therefore, under ether anesthesia, the abdomen was reopened by the Kammerer incision along the outer border of the right rectus muscle. On reaching the peritoneal cavity, a dense mass of adhesions was encountered, necessitating considerable dissection before the structures could be identified. The cecum was finally isolated and the three longitudinal bands followed downward to their junction on the inferior

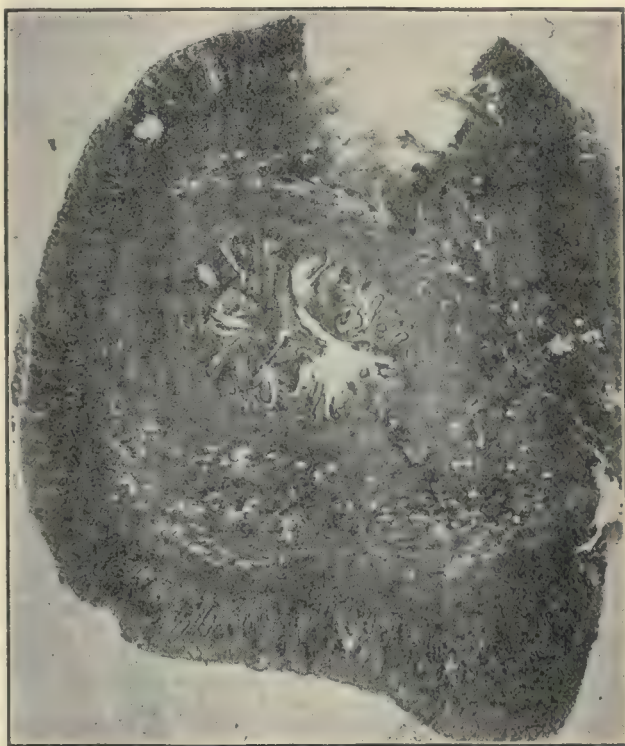


Fig. 2.

extremity of the gut, but no trace of an appendix could be found. The cecum was then dissected free from the abdominal wall, and with the ileum raised so that every part could be thoroughly inspected. By this means we were able to convince ourselves that no trace of an appendix existed. At the usual site of appendix implantation, however, a small oblong tumor was felt within the cecum. There was also a distinct transverse thickening of the colon just above the ileocecal valve, which apparently formed a decided narrowing of its lumen. The bowel was incised longitudinally through the cicatricial band, and the cavity freely explored. It was found that this band formed a stricture which barely admitted the tip of the forefinger. The cavity of the cecum itself seemed normal in size, but from its inferior extremity there projected inward a rounded mass about 3 cm. in length and 1 cm. in diameter. This mass seemed covered with a thickened mucous membrane of a deep red color. It was suggested at the time that the mass had the appearance of an inverted appendix which had been chronically inflamed. The mass was divided at its attachment with scissors, and the mucous membrane stitched over the stump. The specimen was preserved in a weak solution of formalin and sent to the Pathologic Laboratory of the College of Physicians and Surgeons for examination.

The opening in the cecal wall was closed by a row of sutures, converting the longitudinal into a transverse wound. This resulted in a very considerable enlargement at the point of stricture. She made a satisfactory convalescence, the wound healed primarily. Since her operation she has been entirely relieved of her symptoms, and has gained considerably in weight and strength.

The following is the report of Dr. Norman E. Ditman, Assistant Pathologist at the Roosevelt Hospital:

"The specimen shows a section of an inverted appendix, epithelium of the mucous membrane being present upon both

the inner and outer surfaces of the mass. The peritoneal surfaces have become fused and throughout the greater part of their extent there is no sharp line of demarcation between the two layers. The appendix is the seat of a mild chronic inflammation. In addition to this there is a recent exudation of pus cells with great congestion of the peripheral capillaries pointing toward a strangulation at some point nearer the base." Fig. 1 represents the appearance of the cecum opened, the partly inverted appendix projecting into its lumen. Fig. 2 is an exact reproduction of a microphotograph of a transverse section of the specimen made by Dr. Ditman.

While there can be no doubt in this case that we have to do with an inverted appendix, lying wholly within the cavity of the cecum, it is not at all clear what developmental or pathologic process gave rise to this peculiar and unusual condition. Only two theories suggest themselves to me: (1) That the condition was a congenital one and that the acute attack was due primarily to the inflammation of the cecum which resulted in the stricture, with secondary involvement of the structures of the appendix; (2) that as a result of a catarrhal appendicitis with or without the presence of a foreign body, the muscular efforts of the appendix to rid itself of its contents became so violent as to produce an intussusception in the same manner as the lesion is, more frequently, produced in other portions of the intestine.

In a fairly careful review of the literature, I have been unable to find a report of a similar case.

LITHEMIA: ITS DIAGNOSIS AND LOCAL TREATMENT.

BY

F. M. JOHNSON, M.D.,
of Boston, Mass.

Lithemia is a term used to designate a symptom-complex of which the chemic basis has not been satisfactorily determined. Whatever may be its genesis, the condition is essentially that of excess of uric acid in the blood. Two points regarding the disease have not received the attention they deserve: 1. The microscopic picture yielded by the urine. 2. The value of local treatment directed toward the accompanying irritative and inflammatory lesions in the kidneys.

In the urine of the lithemic person may be found uric acid in all its various forms including the common or combined type, gravel from the pelvis of the kidney, and the multiform crystals seen in hyperacid urine. Associated with the uric acid is some form of calcium oxalate. It is true that in certain cases the urinary sediment may not furnish a typical picture but the rule is a marked association of the substances named. In one specimen, calcium oxalate crystals may predominate, while in another uric acid crystals are most numerous. So constant and important is the urinary picture that the diagnosis of lithemia can hardly be possible from the clinical history alone; it should be confirmed by the microscope. From this arises the necessity of becoming familiar with the many distinct forms of uric acid and the various characteristic shapes of crystals of calcium oxalate. All must be readily recognized in order to classify and draw therefrom the proper deductions. It is possible that the lack of recognition by the observer may at times be the cause of faulty diagnosis. Personally, I employ the microscope in every case and support its evidence by the clinical history. The reproduction of actual microscopic findings will serve to render clear these statements. Figs. 1 to 5 show the different varieties and combinations of uric acid and calcium oxalate crystals and concretions occurring in the urine in lithemia.

The persons who suffer from lithemia are those who love the pleasures of the table, who eat an excess of meat, pastry, and highly seasoned foods; those who are indolent, or follow sedentary occupations; and those who indulge too freely in alcoholic stimulants of any

kind. In short, the combination of living too well and taking too little exercise, with consequent lack of fresh air, creates the condition we designate lithemia. More cases occur early in the spring, after the comparative idleness of winter, than during any other season. The condition occurs, however, in those who have no opportunities to indulge in the luxuries of life, as, for instance, in both men and women who work indoors, who use tea and coffee to excess, and who dread cold and fear the air. Again, the nervous system is an etiologic factor, some of the most marked cases furnishing a history only of prolonged nervous strain or worry. Lithemia, then, is found in both sexes, and among people of every social condition.

The symptoms of lithemia are numerous and varied, including those due to derangements of the digestive organs, the liver, and the circulatory, and nervous systems. The tongue is coated, and there is a bitter or acid taste in the mouth; constipation or diarrhea, or

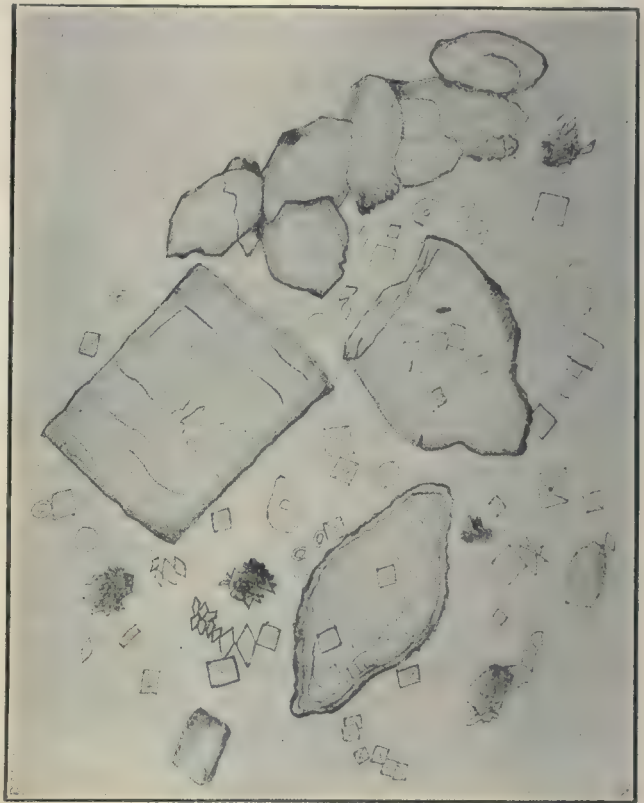


Fig. 1.

alternation of the two, may be present; there is headache, or even vertigo; the heart is weak, and the pulse slow; curious tingling sensations, or numbness, may be felt in various parts of the body, or, on the other hand, the patient may complain of sharp, shooting or aching pains, which may occur in any part of the body, but are frequently confined to the back, from which at times they radiate downward. A sense of lassitude, or of being utterly tired out on awaking in the morning, is by far the most common symptom. Of frequent occurrence, also, is depression of spirits; the patient feels "blue," and has the sensation of some terrible calamity impending. He may have suffered no financial loss, and there may be found no special cause of grief or worry to explain this feeling, which comes suddenly and with crushing force. Some patients complain principally of weakness and trembling, and inability to move about; others magnify existing symptoms, and

fear the onset of organic troubles. From this brief review may be seen the multiplicity of symptoms this disease may manifest; almost no other condition finds expression in so many ways.

The urine in lithemia is, as a rule, scanty, highly col-

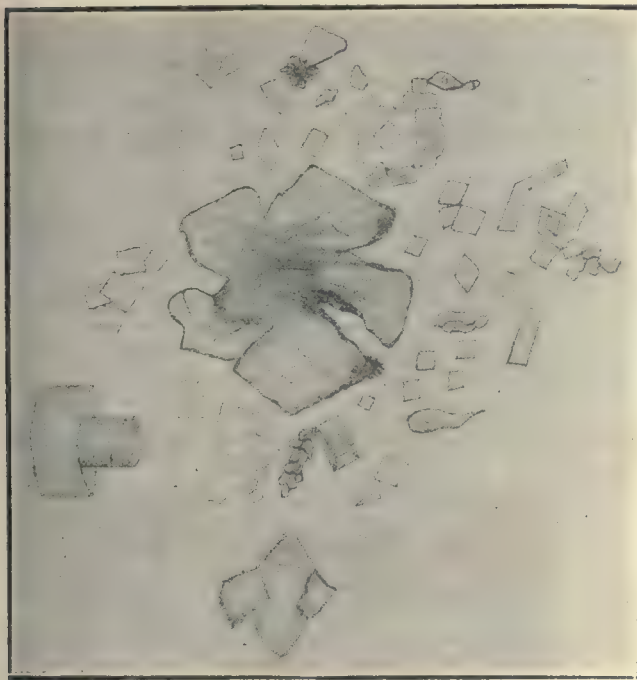


Fig. 2.

ored, and of increased specific gravity. Upon standing, it deposits a moderate or excessive amount of sediment, which may be flocculent in character. In a typical clay-colored sediment of abundant urates, crystals of uric acid and calcium oxalate may be discovered. Albumin may



Fig. 3.

or may not be present, depending upon the degree of irritation produced by the concretions. The first or mildest grade is that of simple irritation with hyperemia of the kidneys or their pelvis; in such cases the urine contains an occasional pus cell, a few epithelial cells

from the convoluted tubules and the pelvis of the kidney, and a few red blood cells. There are no true casts, although an increase of mucus, which is almost constant, may result in the formation of mucous casts or cylindroids, that closely resemble hyaline casts. 2. Instead of only a simple irritation of the kidney there may be an accompanying pyelitis, this being especially liable when crystals of uric acid are numerous. In catarrhal pyelitis, epithelial cells from the pelvis of the kidney predominate in the urine, pus corpuscles and red blood cells being present in moderate numbers. 3. Pyelonephritis may result, and here the microscopic features are pus corpuscles, cuboidal epithelial cells from the convoluted tubules of the kidney in moderate or large numbers, with, in the more severe cases, a few epithelial cells from the straight collecting tubules. Ureteral epithelium is also present. When the condition becomes chronic, the red blood cells are diminished and fatty epithelial and pus cells appear; free fat globules, singly or in variously sized groups, are also

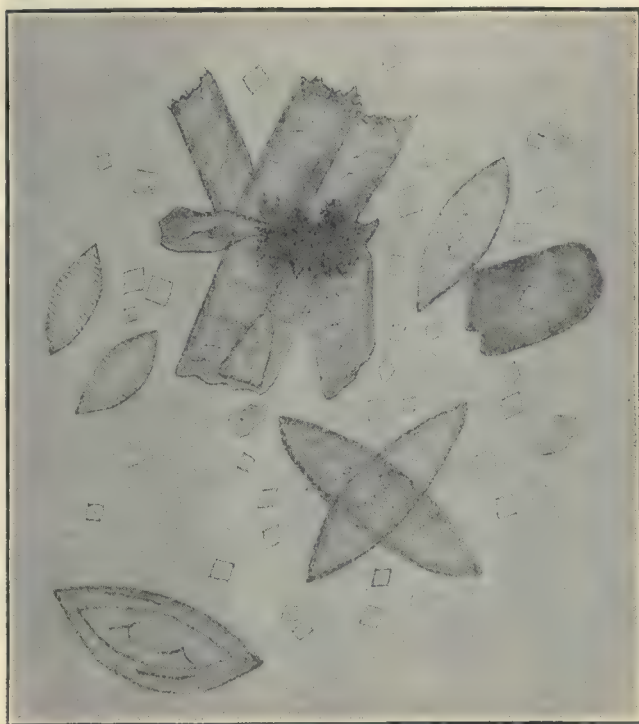


Fig. 4.

observed. Irregular or round epithelial cells from the pelvis of the kidney and bladder epithelium, giving evidence of cystitis, are now noted. In subacute catarrhal inflammation, features common to both the acute and chronic forms are readily recognized. The formation of large concretions may be followed by more or less severe hemorrhage from the kidney or its pelvis. Numerous red blood cells are then found in the urine and scanty shreds of connective tissue appear. Symptoms of bladder disturbance may be slight; this may be determined not so much by the number of crystals present as by the fact that certain individuals do not exhibit marked symptoms when the internal organs are affected. 4. Lithemia may be superadded to previously existing catarrhal inflammation of the kidneys, bladder, prostate, or other parts of the genitourinary tract as well as being the cause of such lesions. These various phases of lithemia lead to the inference that it is a condition having its basis in a disproportionate excretion of uric acid and urea and that its presence always can be proved by careful microscopic study of the urine.

Given a condition that manifests itself in so many

phases, and by such varied symptoms, what treatment will most quickly bring alleviation? If the patient be sent away from home, the change of scenery, air, and food, particularly if an improved water-supply be obtained, seems to bring about the desired result. In most cases, however, such improvement is only temporary; when the patient returns and resumes his former habits, the old symptoms gradually reappear, as the condition that previously existed is again established. Appropriate remedial measures aid greatly in the treatment of lithemia, and in mild cases may bring about a cure. Such treatment should be supplemented by regulation of the diet and the habits of the patient. Active outdoor exercise is to be enforced. Overeating and overdrinking must be avoided. Fresh, green vegetables should be eaten; meats, particularly the red varieties, had best be taken sparingly, but all sea foods are excellent; sugars are apt to produce fermentation, and it is wiser to avoid them, at least in anything like excess. Beyond these points it is not wise to lay down a markedly restricted diet list. Alcoholic stimulants are to be nearly or quite interdicted. Good water, best the

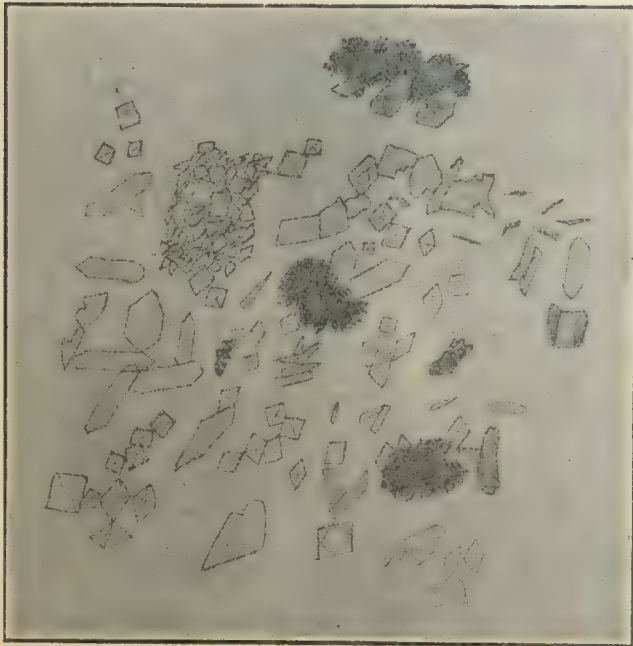


Fig. 5.

alkaline mineral waters, are to be taken freely; sodium bicarbonate may be added just before drinking. Sodium phosphate is beneficial, as are also certain Saratoga waters and mild doses of the natural purgatives. When calcium oxalate crystals are numerous, dilute nitromuriatic acid, in some pleasant vehicle, is indicated. For diminishing the uric acid I have obtained good results from the administration of calcium or lithium salts. As adjuvants, bitter tonics and digestants may be advisable. All these remedies possess a certain value, but under their use a return to normal conditions may be, and often is, discouragingly slow.

If catarrhal inflammation of the kidney is present and the bladder is likewise involved, to the measures already suggested should be added thorough washing out of the bladder and lavage of the kidneys. Cases in my care have responded much more quickly when this local treatment was used in conjunction with internal medication. When carefully done, the procedure is harmless and nothing but good can result. The kidneys and bladder are soon soothed and healed. The invasion of an ascending inflammatory process is completely

stopped and accumulating concretions are washed away. For injections into the kidney, warm mild solutions give the best results; for this purpose may be used protargol, nargol, boracic acid, or very weak solutions of silver nitrate. For washing out the bladder, mild formalin or silver nitrate, 1 to 5,000 in a half saturated solution of boracic acid, appear to give the best results. Cystoscopy finds its highest indication in rebellious cases; milder ones are speedily cured. Chronic cases and those in which the condition has been most serious are influenced for the better from the very first and in a comparatively short time respond very satisfactorily to this local medication.

In conclusion, I would emphasize the two points to which particular attention has been directed in this brief paper: 1. The great value in lithemia of the microscopic findings in the urinary sediment. These are not of diagnostic importance only; they serve accurately to indicate certain essential lines of treatment. 2. The very satisfactory results to be obtained from local treatment in the shape of lavage of the kidneys and irrigation of the bladder.

THREE INTERESTING CASES: GASTROPTOSIS AND DILATION; CHRONIC TENOSYNOVITIS; THORACIC ABDOMINAL ANEURYSM.

BY

G. CHILDS MACDONALD, M.D., F.R.C.S.,

of San Francisco, Cal.

Surgeon St. Mary's Hospital, San Francisco.

CASE OF GASTROPTOSIS AND DILATION. STOMACH REEFED IN ITS LONG AXIS. RECOVERY.

G. T., aged 45, single, a native of Scotland, occupation, sail-maker, was admitted under Dr. G. C. Macdonald to St. Mary's Hospital on February 3, 1904. The patient complained of gastric pain and vomiting, occurring several hours after eating.

Present Illness.—Symptoms began about four months ago, when he had periodic attacks of vomiting and pain; at times nothing but water could be retained; often the idea of food was loathsome. He had lost 25 pounds in weight in four months.

Previous Health.—He had good health up to four months ago, when the present trouble began; he had had the usual diseases of childhood. He uses alcohol (beer and wine) in moderation, but consumes a considerable amount of tobacco.

Family History.—Father and mother are alive and in good health; eight brothers and sisters are alive and well.

Physical Examination.—Patient is a well-developed male, but somewhat emaciated; height, 5 feet, 8½ inches; weight, 120 pounds; general musculature, poor. His face has a drawn and haggard look; eyes are sunken and dull. Face, lips and conjunctivas are pale. He is not confined to bed. Pulse, 88; temperature, 98.4° F. Old fracture of left elbow.

Lymphatic and Skin Systems.—Skin soft and moist, no eruptions. Lymphatic glands not enlarged.

Digestive System.—He has desire for drink, more especially tea and coffee. After eating, has a sensation as if food were lodged in region of epigastric notch, but has no difficulty in deglutition. The sensation just after eating, he explains, is more of a sensation of fullness; about six to eight hours later the severe pain begins, often lasting all night. Vomiting would commence about this time; the material ejected consists of a large amount of mucus and some undigested particles of food, but later on the vomited matter would contain very little mucus, and his efforts would degenerate into a persistent retching. The pain would now be very severe and he would become exhausted. At no time has blood been noticed. Bowels are irregular, no diarrhea, no jaundice. His teeth are poor and tongue is coated.

Examination of Stomach.—On palpation, there is a marked succussion splash. On percussion, the stomach note reaches to the umbilicus (without any artificial inflation). Examination of the stomach contents, after a test-breakfast, gives the following result: Contents acid, but no lactic acid, free hydrochloric acid present, no blood cells, no bacteria.

Genitourinary System.—Urine is a light amber color; reaction alkaline; specific gravity, 1.008; no albumin, no sugar, no deposits, microscopic examination negative. The patient does not arise at night to urinate. Normal amount of urine is voided.

Circulatory System.—The pulse is 88, regular and full. Arterial walls feel normal. No enlargement or pulsation of any of the superficial veins. Apex beat of the heart is in the fifth interspace, in normal position. Superficial and deep cardiac dullness normal. Sounds are normal. He complains of rapid heart action on the least exertion.

He sleeps fairly well when the stomach has been washed out. A diagnosis was made of acute gastric catarrh, due to some injecta, followed by acute dilation and gastropstosis.

The patient was first treated by washing the stomach out every night with a solution of potassium permanganate, after which a half pint of hot milk was given, with a restricted diet and a limited amount of fluid during the day. No improvement was noticed. On February 13, 1904, after the usual preparation, he was chloroformed and operated upon. An incision was made, extending from the ninth costocartilage on the left obliquely to the linea alba and hence downward to the umbilicus. After the peritoneum was opened, the dilated stomach came into view, extending $1\frac{1}{2}$ inches above the navel; it could be readily brought into the wound. The lesser omentum and the gastrophrenic ligament were long and lax. The stomach was resected in its long axis from the fundus to the pylorus. This was done by invaginating the anterior surface by two rows of No. 1 catgut sutures (chromic), the great omentum was sutured to the anterior abdominal wall so that the weight of the loaded colon could no longer pull on the stomach. The abdominal wound was closed in three layers. The patient was returned to bed and rallied well.

Nothing was allowed by mouth for 48 hours, excepting a few teaspoonsful of hot water; a little cold was passed into the rectum to allay thirst. After the first 48 hours, some peptonized milk was given by mouth; this was gradually increased until February 29 he was taking a light spoon diet. Bowels were constipated up to March 6; daily enemas had to be given. On March 7, he was given pills of aloin, nux vomica and belladonna, after which there was no more trouble. Wound healed by first intention. Patient left hospital on March 20, taking full diet. He had gained 20 pounds in weight, and felt well; none of the old symptoms were present.

A CASE OF CHRONIC TENOSYNOVITIS OF THE FLEXOR TENDONS OF THE WRIST AND FINGERS EXTENDING BENEATH THE ANNULAR LIGAMENT TO THE PALM AND UPWARD INTO THE FOREARM. (COMPOUND GANGLION.) OPERATION, RECOVERY.

Carl S., a native of Norway, single, occupation sailor, was admitted to St. Mary's Hospital, under Dr. G. C. Macdonald, on March 9, 1904, complaining of swelling of the palm of the hand and lower part of forearm, and inability to use his hand. He first noticed the enlargement about four years ago in the upper part of wrist; it gradually increased in size, but only lately appeared in the palm. He cannot remember ever having received any injury or strain beyond that which is usual in one of his occupation.

Physical Examination.—Patient exhibits on the flexor surface of the right forearm and palm of the hand a long somewhat sausage-shaped swelling, contracted at the annular ligament. Its length is $4\frac{1}{2}$ inches, and its hardest part is $1\frac{1}{2}$ inches. On palpation it gives a semifluctuating and doughy sensation; the fluid can be squeezed from the forearm into the palm, and vice versa, giving a sensation of crepito friction.

On March 12 the patient was taken to the operating-room and put under chloroform, having had the part properly prepared the day before. An Esmarch bandage was applied. An incision six inches long over the most prominent portion of the tumor, in the longitudinal axis of the limb, the middle of the wrist being the center of the incision. The palmaris longus was divided and turned aside; the median nerve was drawn well out of the way to the ulnar side, the annular ligaments were laid open, and the whole of the tumor dissected out above and below. In appearance it looked like a mass of boiled white of egg. At its lower edge it was rounded and dome shaped, reaching as far as the heads of the metacarpal bones. Its upper extremity was rounded in a similar manner, but narrower, and commenced to bury itself in the muscular structure. The dissection had to be conducted most carefully, but was bloodless, owing to the Esmarch bandage. The tumor represented what was originally the tendons of the sublimis and profundus digitorum, they being a portion of the tumor. It was now opened and found to contain a large number of melon-seed bodies, and some clear viscid synovial fluid; the thickness of the sac was about 2 mm. No trace of tendon could be discovered. Its anterior and lateral walls were removed and its floor divided to make tendons for the four fingers; this portion left had its secreting surface carefully dissected off. The new tendon to the ring finger was divided, this portion of the sac being weak and thin, and was sutured to the new tendon of the middle finger. Iodin liniment was applied to the anterior surface of the tendons, and well rubbed in. The annular ligament was brought together with chromiform catgut, No. 3, a long silkwormgut drain being passed beneath the annular ligament and brought out both in the forearm and palm. The skin and fascia were sutured with silkwormgut, wound was dressed with iodoform gauze and back splint applied. March 13: Patient had much pain during night. March 15: Wound was dressed, drain removed, small strip of iodoform gauze placed in lower opening. March 19: Wound was dressed, washed with H_2O_2 , 40%, dressed as before. March 20: Wound again dressed; healing well, no infection. Fingers are well bandaged to back splint, as there is a tendency for middle and ring fingers to flex.

Wound was dressed daily until it completely healed, before

and after this, passive motion was applied. On the date of discharge, April 25, the hand and forearm appeared natural, except for the scar; there was no sweating or puffiness, and the patient could flex the fingers well into the palm and extend them quite straight. It was, of course, weak, the grasping power being about an eighth that of the other hand.

The case is interesting, because heretofore nearly all these patients have had to submit to amputation on account of the tuberculous condition and the involvement of the bones.

THORACIC ABDOMINAL ANEURYSM, EXPLORATORY INCISION, ULTIMATE RUPTURE; DEATH.

A. McC., aged 43, single, native of Scotland; occupation, seaman; was admitted to St. Mary's Hospital complaining of pain in the back and epigastrium, vomiting, difficulty of swallowing, and emaciation.

Present Illness.—About four months prior to admission, patient began to have pain in the back of a steady, aching character. The pain did not radiate downward toward the groin or testicle, but extended from the left iliac region to the

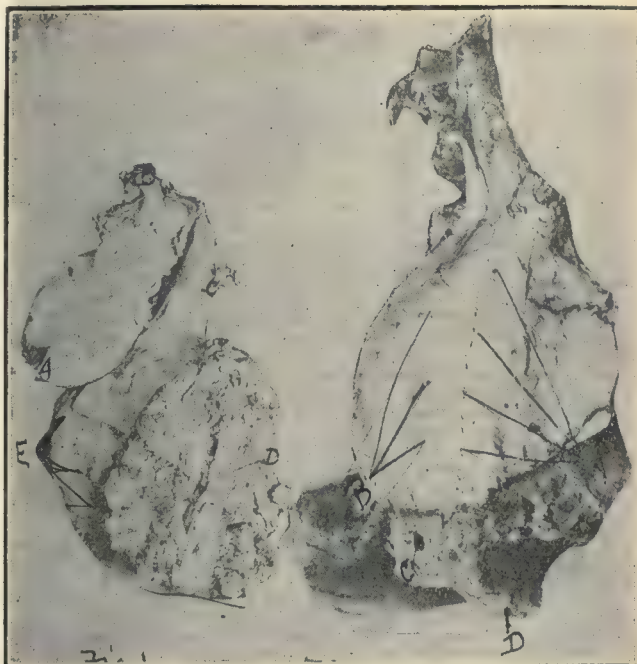


Fig. 1.—A, heart; B, innominate; C, aorta; D, position of spine, ribs attached; E, aneurysmal sac, back view.
Fig. 2.—A, aorta; B, sac; C, aneurysmal sac, front view, point of rupture; D, spinal cord.

spinal column, crossing to the right and downward to the sacrum.

Previous Health.—The patient had syphilis 16 years ago. He uses alcohol at times, but uses tobacco in moderation.

Family History.—Father died at 86 of supposed senile decay. Mother, aged 80 is alive and in good health. Brothers: Two are dead, both from accidents; one is alive and in good health. One sister is alive and well.

General Condition.—Body is well developed but emaciated, weight 115 pounds; prior to illness, 150 pounds. Height five feet five inches. His expression is anxious; sclerotics are pearly white; there are three scars on the calf of the leg, and on each arm—these are probably syphilitic. There is no anasarca. His teeth are poor and neglected. He has lost the middle finger of his left hand, has some enlarged lymphatic glands, viz., those in the axillae and groins, but these may be relatively apparent because he is so emaciated. Pulse, 64; temperature, 98.4°. Examination of the blood shows red cells, 3,800,000; white, 6,000; hemoglobin 70%.

Digestive System.—Appetite is good, and there is no excessive thirst. Bowels are regular, teeth poor, tongue clean. For the last two months deglutition has been painful, a sensation of stoppage and resistance at a spot located by the patient over the tip of the ensiform cartilage; no pain in stomach before or after taking food. He has considerable flatus independent of ingesta. For the past three months he has had attacks of vomiting and retching; no food returns—only mucus, which looks clear and watery. These attacks may come on immediately or several hours after food; they are irregular, sometimes

being present daily, and at other times absent for two or three weeks.

Physical Examination of Stomach.—Palpation gives succussion splash. Percussion shows the stomach note extends from the fifth interspace on the left to midway between ensiform cartilage and umbilicus, and to the left midaxillary line. Medium sized esophageal, oval-pointed sound cannot pass cardiac orifice of stomach, but the smallest size passed with a jump and returns in a similar manner. The obstruction measures three-quarters of an inch in length. No pain or tumor can be discovered on pressure over the pyloric orifice. Examination of stomach contents after test-breakfast, gives the following: Contents withdrawn by small stomach-tube. Reaction faintly acid, no free hydrochloric acid sarcinas, a few motile bacilli, and some rod-shaped bacilli; few leukocytes. Muscle fibers, starch granules, and squamous epithelium.

Liver.—Both palpation and percussion show that the viscus is somewhat pushed downward, the free edge being two inches below the rib margin; the vertical dullness measures four and a half inches.

Genitourinary System.—Urine a clear amber color; specific gravity, 1.010. No albumin or sugar; a few epithelial and pus cells.

Circulatory System.—Patient complains of palpitation on the least exertion, which he likens to a fluttering; at times he has a slight pain over the precordia. No history of syncope. Pulse 64, is weak, quick, intermittent, one beat in 16; both radials and femorals are equal. Arteries are generally thickened. Pre-cordial region shows a wavy impulse beat at about a quarter inch above the nipple and one and a half inches to its outer side, while there is a diffused impulse below the nipple over an area of about two inches in diameter, where the intercostal spaces appear to be drawn in during the systole and rebounds during the diastole, so that it is not a real impulse, only apparent, and cannot be felt on palpation. Palpation reveals the apex beat disclosed under inspection; the beat is full and forcible; there is no thrill. The sensation given to the hand is as though the whole heart was pushed upward and to the left. Percussion shows the upper border of cardiac dullness at the level of the second rib lower border on a level with the apex beat left side one and a half inches beyond the nipple, right side extends a half inch to the right of sternum. Auscultation shows first, sound mitral area impure, but it does not amount to a murmur, over the end of the sternum, the first sound is replaced by a sharp blowing murmur transmitted to the left and gradually becoming lost. Aortic second sound is accentuated.

Respiratory System.—Voice is weak, harsh, and brassy. Dr. Powers, the laryngoscopist to the hospital, reported that the left vocal cord was slightly inflamed. No cough, no growl, no tugging. Examination of lungs revealed nothing abnormal, excepting a few scattered mucous rales.

Nervous System.—The patient sleeps badly, owing to continual pain. Diagnosis was made of either malignant tumor or aneurysm.

Treatment.—Patient was confined to bed. He was given 1.3 gm. (20 gr.) potassium iodid three times a day and a light diet.

January 18, 1904, an exploratory incision was made, extending from the ensiform cartilage to the umbilicus. On opening the peritoneum the stomach and liver presented; both were pushed downward from their normal position. Omentum was devoid of fat; both stomach and liver were apparently healthy. Spleen was normal in consistency and size. Above and behind the stomach at the aortic orifice of the diaphragm is a large pulsating tumor about the size of a tangerin orange, extending to both right and left sides, more to the left, and pressing on the cardiac orifice of the stomach. This tumor is soft and can be indented by the finger; the pulsation is expansile; the tumor extended upward beyond the diaphragm. As nothing could be done surgically, the tumor being too high and deep and the walls too thin and evidently not a sacculated aneurysm, the abdominal wound was sutured and the patient returned to bed.

March 2: Wound has healed by first intention; patient has been able to sit up and walk a few steps; has been taking 2 gm. (30 gr.) potassium iodid three times a day and 5 minims tincture aconite. He was warned not to stand on his feet, nor to leave the recumbent position, but he will make an attempt when not watched. He has a great desire to return home. Physical examination made today. On the left side commencing at the ninth rib extending to the twelfth is an area of about three inches square in the center of this and in the midaxillary line is an area of relative dullness, but no pulsation; to this area the patient refers his extreme pain; it is intermittent and lessened by change of position; .02 gm. (½ gr.) of morphin was ordered to be given hypodermically as needed. March 5: Patient got out of bed during the absence of the nurse and remained up for ten minutes, but could not remain longer because of the extreme pain. March 9: Pulsation can be made out in the eleventh interspace just outside the erector spinae muscle. This pulsation can be seen but not felt when a shadow is cast diagonally across the left side from the nipple downward and backward to the middle of the twelfth rib, no murmur can be heard over this area. March 11: He had considerable pain last night; morphin increased; patient has become used to the drug and it has less effect. March 22: Patient is about same condition as last noted except there is a general heaving impulse

over the whole of the left side below the fourth interspace where the apex beat is now noted to be at its maximum. May 3: Patient died today, somewhat suddenly due to evident rupture of the aneurysm. He had continued in about the same condition as in the last note. The pulsation had become more diffused and the pain had extended more to the right side of the back. He was taking .2 gm. to .25 gm. (3 gr. to 4 gr.) of morphin in 24 hours with little effect.

Autopsy.—This was made four hours after death by Dr. Topham, resident house surgeon. The wound of exploratory incision was found to be soundly healed, only a white lineal scar; on opening the great cavities the right pleural cavity was found to contain about two quarts of sanguineous effusion, the left was dry. Pericardium contained four ounces of straw-colored fluid.

Abdomen.—Blood was effused between the peritoneum and fascia, extending over the whole of the right side from the diaphragm to the pelvis and across the space of Retzius. Examination of aorta showed an aneurysm of the descending thoracic and abdominal divisions of the vessel, the diaphragm crossing about its center. It extended from the eighth dorsal to the second lumbar vertebrae, and was firmly attached to the bodies and extending over these structures on each side; the bodies of the ninth and tenth dorsal and first lumbar vertebrae are eroded. The horizontal measure of the tumor is seven inches, the vertical nine inches, at the lower extremity on the right is a small opening which communicates with the subperitoneal effusion. It is here the rupture occurred, beneath the peritoneum covering the right psoas muscle. There was no attempt at repair, no layers of fibrin, no clot. The aneurysm has no neck; it was markedly sessile, the anterior wall of the abdominal aorta forming its anterior boundary.

This case is interesting on account of the position of the aneurysm, being partly in the thorax and partly in the abdomen, and because of the difficulty of diagnosis in its early stage. The absence of hydrochloric acid in the stomach and the presence of sarcinas and bacteria somewhat fogged the true condition of affairs. Again, although the patient was kept in a recumbent position, put on a dry diet, while both aconite and potassium iodid were given in full doses, no fibrin had been formed anywhere in the sac.

SPECIAL ARTICLES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,
of New York.

The ninth regular meeting of the Society for Experimental Biology and Medicine was held in Professor C. A. Herter's laboratory, at 819 Madison avenue, New York, on Wednesday evening, December 21, 1904. Dr. S. J. Meltzer presided.

MEMBERS PRESENT.—Atkinson, Auer, Burton-Opitz, Dunham, Ewing, Flexner, Gies, Herter, Jackson, Lee, Levene, Levin, Lusk, Mandel, Meltzer, Murlin, Park, Richards, Salant, Wadsworth, Wallace, Wolf.

MEMBERS ELECTED.—John Auer, F. G. Benedict, Ludwig Hektoen, G. C. Huber, H. S. Jennings, Jacques Loeb, Leo Loeb, A. B. MacCallum, J. H. Pratt, Torald Sollmann, J. C. Torrey.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.¹

"Radium and some methods for its therapeutic application:" with demonstrations. HUGO LIEBER. (By invitation.)

Mr. Lieber gave an account of the discovery of radium by Mme. and Professor Curie, and demonstrated many radioactive phenomena. Special attention was drawn to recently discovered facts bearing on radium emanation. For a time it was thought that radium discharged directly (a) the so-called "emanations," which had practically no penetrating power and which, like a gas, were readily carried from one point to another by an air current; and (b) the so-called "rays"—alpha rays of very low penetrating power, beta rays of considerably greater penetrating power, and gamma rays of enormous penetrating power. Later investigations have shown, however, that radium discharges primarily emanations and alpha rays only. However, the emanations soon disintegrate, and the dis-

¹The authors of the reports have furnished the abstracts. The secretary has made a few abbreviations.

integration products yield the beta rays and the gamma rays. Consequently the powerful beta and gamma rays are the products of a decomposition product of radium.

The proportions of the radiations given off by a certain quantity of radium and its disintegrated emanations are about 95% alpha rays and about 5% combined beta and gamma rays. Because of their nearly negative penetrative power, the alpha rays, as well as the emanations, are practically unavailable for therapeutic purposes when the radium is used in glass tubes or similar containers. Even the superficial layers of a given radium preparation are relatively impervious to both the emanations and the alpha rays proceeding from the underlying portions of the preparation. Therefore, it is essential, in order to obtain the full radioactive effects of a given quantity of radium, to have the radium in such a form (1) that the surrounding walls of the container could intercept neither the alpha rays nor the emanations, and (2) that the given quantity of radium should be spread out so thinly that, practically speaking, an upper layer would not exist.

Aschkinass, Dantzig, Caspari, Scholtz, Pfeiffer, Friedberger, and others have shown that radium radiations exert very beneficial effects upon certain diseased tissues, as in sarcoma, lupus, carcinoma, etc. Marckwald states: "The radium rays have, besides a dilating effect, an elective influence upon the cells of quickly-growing tissues, as well also as bactericidal properties, three powers which are known to be very effective therapeutic factors." Germicidal effects of the radium rays have been shown repeatedly. Thus Scholtz lately demonstrated that even typhoid bacilli can be destroyed with radium radiations. It is not surprising, from what was stated above regarding the low penetrative power, etc., of the emanations and the alpha rays, that disappointments have frequently resulted from the therapeutic application of radium. The author believes that in all probability many such disappointments have ensued solely because the practitioner has not had available in such cases just those radiations of radium which are required for therapeutic effects. Then, too, the radioactive powers of each radium preparation should be definitely ascertained in the first place, not taken for granted.

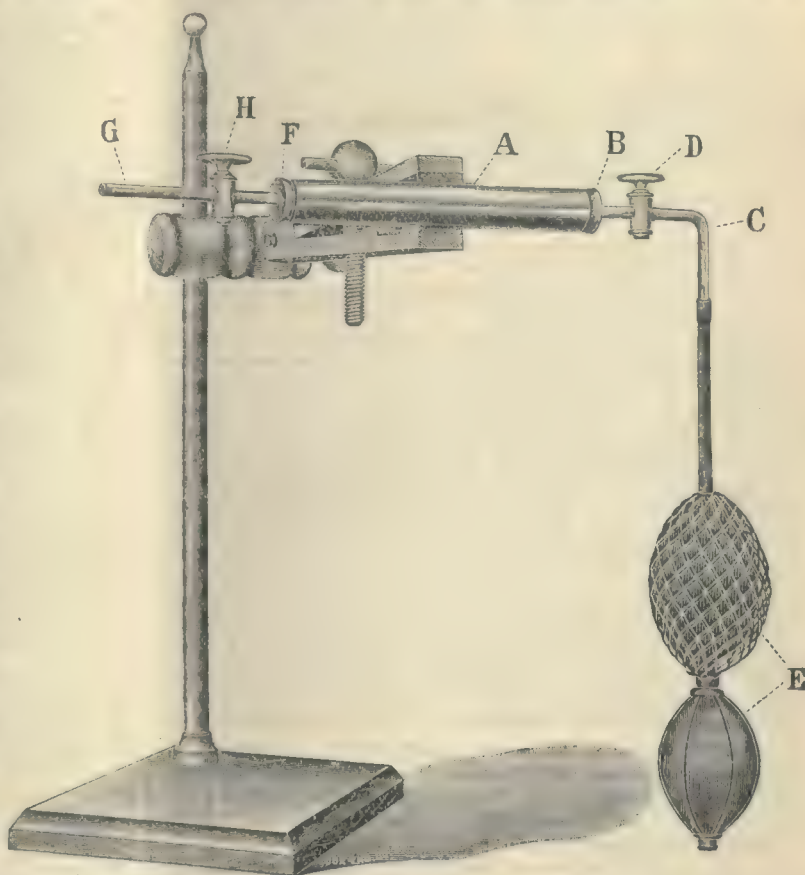
This opinion of past therapeutic failures led the author to conduct some experiments designed to discover a method of applying radium more advantageously. Such a method seemed to require (a) a disposition of the radium in very thin layers, so as to yield the maximum proportions of alpha rays and emanations, and (b) its application in a container permeable by the rays and emanations. These experiments finally led to the production of what the author terms "radium coatings."

Radium coatings are made in the following manner: Radium is dissolved in a proper solvent and into this proper solvent a proper material is dipped. This material is then withdrawn, with radium solution adhering to it. The solvent quickly evaporates, leaving the material covered with an exceedingly thin film of radium. The kind of solvent to be used is determined by the nature of the material to be coated. Such solvents are employed as have a tendency to soften and to permeate the material which is to be coated. Thus, if celluloid rods, discs, or similar instruments are to receive a radium coating in order to be used for the treatment of a certain disease, solvents such as alcohol, amyl acetate, etc., may be employed. These solvents have a tendency to soften celluloid temporarily. When the solvent evaporates, the radium has been uniformly distributed over the celluloid, and has also been incorporated on its surface. In order to prevent accidental removal of the radium in such coatings, the celluloid instruments produced in this way are dipped in a proper collodion solution and are promptly removed from the same. In this process the whole radium coating is

covered with a very thin film of collodion. In the course of a few days this film of collodion becomes so tough that it will strongly resist destruction, even when considerable force is used, thus affording ample protection for the underlying radium. This thin film, however, permits the alpha rays as well as the emanations to penetrate freely.

In the preparation of these coatings both the radium and the collodion solutions are colored with an anilin dye. This is done to show the part that has been coated. Besides, if the radium happens to be removed by accident or otherwise, as by scraping, etc., the disappearance of the color makes such removal evident.

The great difference between radium used in containers, composed even of exceedingly thin aluminium, and radium used in the form of the coatings here described, was demonstrated. Thus, in their relative influences on the electroscope, it was seen that a delicate rod coated at its tip with radium



bromid of 10,000 activity and holding, therefore, very little radium, compared very favorably in its effects with a gram of radium bromid of 10,000 activity in a glass tube, or with 10 mg. of radium bromid of 1,000,000 activity in a very thin aluminium tube.

As is well known, when we observe the effect of uncovered radium upon a zinc sulfid screen, such as is shown in the spinthariscopes of Crookes, we see a large number of brilliant scintillations. It has been proved conclusively that these scintillations are produced solely by the impact of the alpha rays upon the zinc sulfid. If what has just been said is correct, that is, that the alpha rays can penetrate the collodion coating of the author's celluloid rods, discs, etc., then the latter should yield evidence of these scintillations when placed upon a zinc sulfid screen. Such scintillations were abundantly demonstrated with various forms of the coatings.

As has already been stated, radium emanations will always follow the air current. Consequently, if some uncovered radium is placed in an air current, the current will carry with itself the emanations, which emanations will ionize the air and discharge the electroscope. The author demonstrated these

phenomena with some strips of celluloid coated with radium and covered with collodion. The same phenomena were demonstrated with a tube which had been similarly coated with radium and collodion on the inside. When air was blown through this tube toward the electroscope, the latter was discharged instantly.

The radium coatings make it possible to apply radium directly to practically any part of the body. The radium thus applied would be practically equivalent in radioactive effects to the same amount of uncovered radium in the same thin layer. Any instrument could be conveniently coated with radium at a proper place, by the method indicated, and the radiations could be brought into action wherever desired.

It has been stated that radium radiations destroy bacilli. Rutherford and Soddy and others have accordingly advised that radium emanations be blown into the lungs in tuberculosis. The author believes that the difficulties in the way of such a therapeutic application of radium are solved by the following apparatus. (See the accompanying figure.)

The apparatus consists of a celluloid tube, A, with a complete coat of radium on the inside and a collodion covering on the radium coating. By means of a tightly fitting rubber stopper, B, a small glass tube, C, is inserted, which at its end has a large perforated bulb in order to produce a uniform air current throughout all parts of the tube. This glass tube, C, has a glass stop-cock, D, and connected with the latter is a rubber bulb, E. By means of another rubber stopper, F, a glass tube, G, with a glass stop-cock, H, is inserted into the other end of the tube. With the loose end of the last glass tube, G, any desirable apparatus may be connected by means of a narrow rubber tube, etc.. If we close the two glass stop-cocks and allow them to remain closed for several hours, a considerable quantity of emanations will collect within the glass tube. If we now blow up the rubber bulb, E, and slowly open the exit stop-cock, H, and then slowly open the entrance stop-cock, D, the compressed air will enter the coated celluloid tube, A, the emanations which will have collected within the celluloid tube will follow the course of the air current, and on inhaling this air, the patient will receive the full charge of radium emanations in his lungs. A cancer of the throat or of any other part of the body may be treated by the application of a proper radium rod directly, and beside that, by blowing the emanations, if necessary, directly into the seat of a cancer through a finely pointed hollow exit rod. It is a well-established fact that these emanations are readily deposited upon surfaces with which they come in contact, especially moist surfaces. If, therefore, we permit these emanations to slowly pass into or upon a diseased tissue, they will doubtless adhere to a considerable extent to the tissues treated in this way, especially if the applications are made under proper plasters, coverings, coatings, etc., to prevent the ready escape of the gaseous emanations. During their retention in this way, the emanations disintegrate, as was stated above.

A very great advantage of these radium coatings is that all instruments, etc., coated by the method described, can be readily sterilized without loss of radium, for the protective coat effectually resists even continued boiling. The author demonstrated the radioactivity of a strip of celluloid which had been coated with radium and thereafter had been covered with collodion. The strip was then placed in water in a test tube and the contents vigorously boiled. Both the radium and the collodion solutions used for the preparation of the coatings had been colored with a soluble blue anilin dye. That the collodion protected the radium in this experiment was shown by the fact that the water, after boiling, was entirely free from color. The strip also retained its original radioactivity.

The availability of the radium coatings for many kinds of biologic investigation is so obvious that nothing need be said here on that point.

"Some of the physical phenomena of muscle fatigue:" with demonstration of tracings. FREDERIC S. LEE.

The investigation of the subject has been continued by the employment of a method by which the isotonic curves of all the contractions of an excised noncurarized muscle stimulated at regular intervals, are superimposed upon a recording surface. The differences which were previously pointed out in the mode

of fatigue of the muscles of the frog, the turtle and the mammal, have been confirmed. Lohmann's work, in which a frog's gastrocnemius on being heated to a mammalian temperature, shows a course of fatigue similar to that of mammalian muscle, has been repeated and found in general correct. But the turtle's coracoradialis profundus, similarly heated, continues to give its characteristic curve of fatigue.

Kaiser's method for determining the point of the isotonic curve where the contractile stress terminates, has been employed for the frog's gastrocnemius, and it has been found that as the height of the curve diminishes in the course of fatigue, the contractile stress terminates at progressively lower and lower points. The lowering of the latter does not, however, seem to keep pace with the lowering of the summit of the curve. Hence the two points seem to approach one another.

"A new form of float for water or alcohol manometers:" with demonstration. HAVEN EMERSON. (By invitation.)

The float consists of an aluminium cylinder with very thin wall, supporting a writing arm of fine aluminium wire. For manometer tubing of $\frac{3}{8}$ in. inside diameter, $\frac{1}{8}$ in. or $\frac{1}{4}$ in. aluminium tubing $2\frac{1}{2}$ in. long is used. This is bored out until the walls are sufficiently light. In the upper end is forced a solid cap of aluminium with a small hole in the center into which the wire for the writing lever is driven. The lower end is plugged with cork. Both ends are painted over with hot paraffin to prevent possible leaking. For use in alcohol a somewhat larger tube is necessary. Three crossed hairs held in place across the open arm of the manometer tube by a strip of adhesive plaster keep the writing arm centered with sufficient accuracy.

The value of the float consists in its cheapness, the ease with which it can be made, its very slight inertia, and its convenience in estimating delicate changes in pressure for which a water or alcohol manometer is needed.

"Gelatin as a substitute for proteid in the food:" J. R. MURLIN.

In a series of experiments on dogs, the nitrogen requirement of the body was determined by fasting periods. Varying amounts of gelatin, containing from a fourth to two-thirds of the required nitrogen, were fed, the remainder of the nitrogen being supplied in meat proteid. The calorific requirement was estimated from Rubner's tables, and was fully covered in each experiment with fats and carbohydrates. Results show an equal sparing of the body proteid with a fourth, a third and a half gelatin nitrogen, the coincident sparing of fats and carbohydrates being the same. When the coincident sparing of proteid by nonnitrogenous food is increased by feeding a larger percentage of carbohydrates and less fat, two-thirds of the nitrogen requirement may be given in gelatin, and perfect nitrogenous equilibrium maintained at the starvation level.

The same result was obtained on man. The bare requirement in nitrogen was obtained by analysis of the urine and feces during a fasting period of three days, and equilibrium was established at this level on a mixed diet containing two-thirds of the nitrogen requirement in meat. Then, for two days, the meat nitrogen was replaced by gelatin nitrogen, and the potential energy supplied was increased from 40 Cal. to 48 Cal. per kg. of body-weight by giving more cane sugar, which served at the same time to make the gelatin more palatable. The nitrogen equilibrium was not disturbed during these two days, nor on subsequent days, when the diet was exactly the same as before the gelatin period.

"The reductions in the body in fever:" with demonstrations. C. A. HERTER.

Dr. Herter called attention to the influence of temperature on the activity of reduction in the living organism as indicated by intravital infusion of methylene blue. Elevation of the body temperature greatly accelerates the rate of reduction in the tissues. This was demonstrated by means of an intravital infusion of methylene blue in a rabbit, whose body temperature had been elevated to 42° C. through the external application of heat. Simultaneously with this infusion, another infusion was made in a rabbit of approximately equal weight, in which the temperature was maintained at about 39° C. In other respects, the conditions of the infusion were as nearly alike as possible in the two animals. A definite contrast was noted at the close of the infusion between the organs of the two

animals as respects their color, the normal rabbit showing more color than the one in which the temperature had been elevated. The differences in the nervous system and the muscles were particularly striking. Even during life, an inspection of the muscles indicated that the reduction was carried on with greater rapidity in the heated rabbit than in the normal one. Previous observations on the reducing action of the animal body under the influence of cold were referred to.

"The measurement of the reducing processes of cells *in vitro*:" with demonstrations. C. A. HERTER.

An apparatus was demonstrated which had been devised for the purpose of measuring the reducing processes of the different kinds of cells *in vitro*. Definite quantities of organ pulp were placed in specially constructed tubes and anaerobic conditions were established by the passage of nitrous oxid gas. Definite quantities of methylene blue of known strength were then added. The rate of reduction was indicated by the disappearance of the blue color owing to the reduction of the animal cells. It was shown that *in vitro* the influence of temperature is the same as that observed in the living organism. The influence of alkali in accelerating reduction was also shown. The action of salts and various poisons is at present the subject of investigation.

"Some medical applications of the naphthoquinon sodium monosulfonate reactions:" with demonstrations. C. A. HERTER.

Dr. Herter demonstrated a substance of singularly great powers of condensation with other organic substances, this condensation resulting in the formation of colored bodies. He demonstrated especially the reactions of naphthoquinon sodium monosulfonate with anilin and various amines, with nicotin, conin, piperidin, and finally with indol, skatol, and pyrrol. The reactions with indol, skatol and pyrrol possess unusual physiologic and chemie interest and will form the subjects of future publications.

The reaction with pyrrol occurs in the cold and is evidenced by the deepening red which on the addition of alkali changes to purple, violet, blue and finally reddish-brown. The addition of acid to the red solution obtained without alkali is followed by the development of a green and finally brown color. These color reactions (and particularly the one dependent on acids) occur with such rapidity if one uses concentrated heated solutions of pyrrol, that the characteristic color stages may be of extremely short duration. This reaction with pyrrol is a highly characteristic one, and should prove of service to chemists.

Among the biologic and medical applications of the naphthoquinon sodium monosulfonate reactions, Dr. Herter mentioned the study of various aromatic compounds in the organism, the occurrence of certain intravital syntheses, the detection in the urine of organic compounds, such as para-amidophenol, and the development of a method of staining the bile capillaries by means of intravenous infusion of the derivatives of the naphthoquinon compound. Dr. Herter also stated that these substances facilitate the study of the relation between the chemie constitution and distribution of poisons in the body.

"On the rate of absorption from intramuscular tissue:" with demonstrations. S. J. MELTZER and JOHN AUER.

In physiology no distinction is made between absorption from the subcutaneous tissue and absorption from muscles. In experimental infection and immunity, injections of virulent toxic and antitoxic material are being extensively employed, but intramuscular injection has not yet even been thought of. In therapeutics it is practised promiscuously, and for the reason, as pharmacologists and clinicians expressly state, that it gives less pain and causes less frequently the formation of abscesses.

The authors came upon the observation that absorption from the muscles is incomparably more rapid and efficient than from the subcutaneous tissue and tested the matter with several substances. With *suprarenal extract*, it was tested in three ways.

1. *By the Effect upon Blood-pressure.*—A subcutaneous dose of 0.6 cc. adrenalin or less per kilo (in rabbits) exerts no effect, and the variable effects of larger doses consist in a rise of pressure of from about 10 mm. to 20 mm. of mercury, which sets in

late and develops slowly. An intramuscular injection of 0.5 cc. or 0.4 cc. per kilo, or even less, invariably causes, on the other hand, a considerable rise of pressure, which sets in after a very short latent period and reaches its maximum in a few seconds. The curve obtained after intramuscular injection is very similar to that after an intravenous injection. The increase has been as high as 50 mm. or 60 mm. of mercury and may go even higher. The course of the curve is frequently interrupted by "vagus pulses."

2. *By the Effect upon the Pupil on the Side from Which the Superior Cervical Ganglion had been Previously Removed.*—An intramuscular dose of 0.5 cc. or 0.4 cc. of adrenalin per kilo causes dilation of the pupil in less than a minute, while such a dose given subcutaneously rarely produces any effect. The effect of a larger dose sets in only after 10 or 15 minutes.

3. *By Prostration Effects.*—A dose of 0.5 cc. per kilo will prostrate a rabbit in a minute or two, after intramuscular injection. In cases of subcutaneous introduction, prostration does not occur until after 20 or 30 minutes, and even then is induced only by much larger doses.

Further tests were made with *curare*. A dose can be found which will have no apparent effect after subcutaneous injection but which, after intramuscular introduction, will cause paralysis of the voluntary muscles in a few minutes.

The authors also established striking differences between the effects of the two modes of application for *morphin* and *fluorescin*.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 7, 1905. [Vol. XLIV, No. 1.]

1. History of the Clinical Recognition of Gastric Ulcer. JOHN C. HEMMETER.
2. Blindness and Oculomotor Palsies from Injuries not Involving the Optic or Oculomotor Nerves. ALVIN A. HUBBELL.
3. Contraction of the Visual Field: a Symptom of Anesthesia of the Retina in Children. L. WEBSTER FOX.
4. An Exact and Secure Tucking Operation for Advancing an Ocular Muscle. FRANK C. TODD.
5. The Passage of Different Foodstuffs from the Stomach. WALTER B. CANNON.
6. The Diagnosis of Enlarged Bronchial Lymph-nodes. ALFRED FRIEDLANDER.
7. The Importance of an Early Aural Examination in Acute Diseases of Children. JAMES F. MCKERNON.
8. Some Physical Signs in Infants and Children not Sufficiently Emphasized. SAMUEL MCC. HAMILL and THEODORE LE BOUTILLIER.
9. Congenital Dislocation of the Hip. An Argument Concerning the Method of Its Treatment. HARRY M. SHERMAN.
10. The Trend of Modern Prescription Writing. M. CLAYTON THRUSH.

1.—See *American Medicine*, Vol. VII, No. 26, p. 1015.
 2, 3.—See *American Medicine*, Vol. VIII, No. 4, p. 141.
 4.—See *American Medicine*, Vol. VIII, No. 7, p. 270.
 5.—See *American Medicine*, Vol. VII, No. 26, p. 1010.
 6, 7.—See *American Medicine*, Vol. VII, No. 26, p. 1008.
 8.—See *American Medicine*, Vol. VIII, No. 1, p. 8.
 9.—Congenital Dislocation of the Hip.—H. M. Sherman reported in 1899, 13 manipulative reductions, with one anatomic and functional success. Since 1898 he has made but one attempt at manipulative reduction; he has done the operation by arthrotomy in all instances. In the 28 cases thus operated on there has been but one in which the passage of the head by manipulation would have been possible. Lorenz has reported fractures of the femur, one each of the pubis and the ilium, and several paralyses. Rupture of the capsule distal to the constriction has occurred with the thrusting of the femoral head among the muscles of the thigh. Lorenz has also reported one case of gangrene of the whole lower extremity. The percentage of successes is not enough to warrant the risk. The trauma of an aseptic incision is practically nothing in contrast. Of course, in the one method, as in the other, if the parts are so malformed that stable reposition is not possible there will be a relaxation or a subluxation. Of the writer's cases, 17 hips are in stable position with the head in the acetabulum, the time since operation varying from two months to six years. In those operated on under seven years there is ample range of motion. In eight hips there is relaxation or subluxation. In three hips the final result is unknown. Some of the relaxations

are due to removing the plaster-of-paris too soon. No patient had any infection of the deeper tissues. One child has a paralysis which will probably disappear. The author gives the technic of his operation, after which the leg is left undisturbed for three months, when it is adducted somewhat and another plaster spica put on. After eight or nine months the dressings are removed entirely. [H.M.]

10.—Trend of Modern Prescription Writing.—M. C. Thrush finds the trend in favor of proprietary preparations. Polypharmacy is diminishing, and is confined chiefly to the older practitioners. The number of incompatibilities is greater than should be. The metric system is employed deplorably little. Over a third of prescriptions are incorrectly written, especially by the younger practitioners. Certain nonofficial preparations are quite popular and some deserve admission to the pharmacopeia. The more educated the physician the greater the use of the pharmacopeial preparations. [H.M.]

Boston Medical and Surgical Journal.

January 5, 1905. [Vol. CLII, No. 1.]

1. A Consideration of Autointoxication and Autoinfection as Cause of Various Mental Disorders. L. VERNON BRIGGS.
2. The Geographic Distribution of Tuberculosis in Boston in 1901-3 as Compared with the Distribution in 1885-90. ARTHUR K. STONE and ALEXANDER M. WILSON.
3. Improved Technic for Finney's Gastroduodenostomy. ALFRED H. GOULD.
4. Cardiac Collapse during Examination of a Postpharyngeal Abscess; Incision; Circulation Reestablished and Maintained for Four Hours by Massage of the Heart: Death. DAVID CHEEVER.

2.—Tuberculosis in Boston.—A. K. Stone states that the deathrate in 1901-3 was 21.71 per 10,000, as against 36.12 in 1885-90. The following is the birthplace of the parents: Ireland, 16.20%; Sweden, 13.70%; British America, 13.30%; Scotland, 11.73%; England, 10.85%; Germany, 10.73%; United States (including colored), 6.87%; Italy, 5.81%; Russia, 5.35%. Were the colored population deducted from those of American parentage, this group would show the smallest percentage. The Russian Jew has always been specially exempt and he and the Italian immigrant have been subject to the eliminative process, but this exemption will not be held in the second generation. Changes in the distribution of the disease throughout the city may be accounted for by a susceptible race like the Irish being supplanted by a less susceptible one, or vice versa. The city, in her efforts to control infectious diseases, in practice discriminates against the tuberculous, providing 450 beds for diseases causing 3.20% of the total mortality, while for tuberculosis causing 11.33% it provides only 40 beds. A hospital for chronic cases should be a city rather than a State institution. [H.M.]

3.—Improved Method for Doing Gastroduodenostomy.—Alfred H. Gould's suggested improvement over the method of Finney consists of the following: (1) Placing of clamps; (2) opening of stomach and duodenum, trimming mucous membrane; (3) omission of guide stitches. The method, in brief, is as follows: A fold 3 in. or 4 in. long of the anterior wall of the stomach is picked up, parallel to and about a half inch from the greater curvature, the inner jaw of the forceps resting against the pyloric sphincter. The duodenal clamp encloses a similar fold, as it goes obliquely across the bowel from the free edge to the pylorus and is pushed up until its inner jaw touches that of the stomach clamp, where it is fastened. The handles of the clamps are next brought together, and the pyloric angle thus put on the stretch, incision can now be made into any part of the area held by clamps or into the pyloric angle without hemorrhage. When the clamps are placed carefully according to this method, the duodenum and the stomach folds lie neatly side by side, thus obviating the necessity of guides. Anastomosis is now effected, as is usual when the forceps are employed. The clamps are now removed altogether, and the suture buried with a seromuscular stitch. The closing in of the inaccessible pyloric angle is made easy by the introduction of the writer's mattress stitch. The rest of the seromuscular stitch may be continuous. [A.B.C.]

4.—Cardiac Collapse during Examination of a Postpharyngeal Abscess; Incision; Circulation Reestablished by Massage of the Heart: Death.—David Cheever reports

that a child of three years suffered from marked symptoms of postpharyngeal abscess. No anesthetic was employed, owing to the critical condition, and in an effort to incise the abscess there was a cessation of both respiration and heart's action. Artificial respiration was at once instituted, but the heart's action did not return. The picture was that of death. With the patient in the Rose-Trendelenburg position, the abscess was opened and evacuated. A large catheter was instantly passed down the trachea and insufflation reinforced artificial respiration. Cyanosis was followed by extreme pallor and there was no action of the heart. At once massage was begun at the rate of 60 per minute over the costal cartilages anterior to the heart. Artificial heat and friction were applied and continued. For four and a half hours the artificial respiration, cardiac massage and other efforts at resuscitation were continued, but further attempts appearing futile the efforts were discontinued, it being apparent that the child was dead. In the meantime adrenalin chlorid had been injected; salt solution had been given intravenously, and tracheotomy had been performed. Until toward the last it was apparent that capillary circulation was in progress, and a feeble radial pulse could be felt after each rhythmic act of cardiac massage, but no pulse nor heart's action could be made out when massage was stopped for a brief interval; that is, there was no voluntary circulation. Strong hopes were entertained, for a time, that the child would be resuscitated. Keen's recent paper is referred to, in which 27 cases were collected from literature, in which cardiac massage was employed, in the human subject, to restore life; there were 3 successful cases and 24 failures. [A.B.C.]

Medical Record.

January 7, 1905. [Vol. 67, No. 1.]

1. On the Healing of Tuberculosis (Clinical Features). HERBERT MAXON KING.
2. The Art of Eating Properly (Euphagia) and the Harm of Eating too Rapidly and too Slowly (Tachyphagia and Bradypagia). MAX EINHORN.
3. A Recent Epidemic of Typhoid Fever. JOHN BRADFORD BRIGGS.
4. Three Cases of Excessive Fetal Development. JULIUS ROSENBERG.
5. Spleenless Men. J. H. CARSTENS.
6. An Experimental Study of the Movements Produced in the Stomach and Bowels by Electricity. G. G. MARSHALL.
7. Definition and Classification of Gastric Hemorrhage. F. GREGORY CONNELL.
8. A Case of Sclerotic Neuritis with Paralysis Following Malaria. WILLIAM GEORGE RUSSELL.

1.—On the Healing of Tuberculosis.—H. M. King says that the first onset of tuberculous infection, in many cases, if not usually, antedates the appearance of clinical symptoms by months or even years. Careful search into the previous history of such patients reveals slight illnesses of various sorts, such, for example, as malaria or grip, which the results of autopsy work make it appear are probably evidences of systemic reaction to tuberculous infection. Two cases of this type are described and the author states the following: 1. It is probable that the initial lesion following a tuberculous infection is often obscure in its clinical manifestations and frequently escapes identification. 2. There is nearly always a prompt and very often successful tendency on the part of the organism to a more or less complete repair followed by an interval of apparent health. 3. Following this interval, which may extend into a period of years, there is a strong tendency to relapse. 4. What is in reality a recrudescence of an arrested lesion is very frequently mistaken for an initial onset. 5. Whatever may be the facts in an individual case, the safest and most practical policy lies in regarding every apparent recovery from tuberculosis as merely an arrest of the disease, brought about by an acquired immunity which suitable conditions are very prone to destroy.

4.—Three Cases of Excessive Fetal Development.—J. Rosenberg reports three cases which illustrate the difficulty of diagnosing oversize of the fetus. If the pelvic diameters are normal, the condition is usually not discovered till labor has been prolonged, and attempts to deliver have proved futile. The time for cesarean section has then passed, and the mothers are best served by perforating the dead or moribund child. The only safe and reliable guides are the external and internal pelvic measurements, and if these measurements are normal

or approximately so (with hardly any exception) cesarean section is not indicated. Patients with a prior history of abnormal fetal development should not be permitted to go to full term. If not seen until labor has begun, the case should be conducted with extreme care and conservatism. Membranes are preserved until interference has been decided upon, as nothing can be gained by rupturing the waters, but there is increased liability to infection, and version may be made impossible. Symphysiotomy is never indicated, as the slight increase in pelvic diameters is not in proportion to the dangers of the operation. Cesarean section is hardly more dangerous, requires less complicated after-treatment, and abdomen and uterus once opened, there is no doubt about our ability to deliver the fetus. In one of the author's cases, the fetus, which weighed nearly 13 pounds, was delivered by version and lived. One other fetus which was unusually difficult to extract, and even after perforation and decapitation, required evisceration, weighed, minus blood and brains, 14 pounds. The other fetus, delivered by version and perforation of the after-coming head, weighed 12½ pounds.

5.—Spleenless Men.—J. H. Carstens believes that the operation of splenectomy is very often performed when it can do no good, and, on the other hand, that there are wellmarked indications when removal of the organ is justifiable. Malaria, leukemia, and floating spleen do not often indicate splenectomy, and tumors and cysts can frequently be treated without excision of the spleen. Splenic anemia is cured by splenectomy, and the mortality of the operation in these cases is only 20%. In injuries of the spleen, removal often affords the only chance for recovery, and in cases of malignant growths the spleen must be extirpated, provided the tumor is not too adherent to other organs. The author describes a case of sarcoma and one of splenic anemia, in which he excised the spleen, and both patients have enjoyed normal health ever since. Especial stress is to be laid on blood-examinations in the diagnosis of splenic disease, and the author concludes that spleenless men can live in perfect health, and without any derangement of the blood-forming organs.

6.—Study of the Movements Produced in the Stomach and Bowels by Electricity.—G. G. Marshall conducted a series of experiments on animals in order to determine the degree of reaction caused by the application of the electric current to the stomach and intestines. The faradic, galvanic, and faradogalvanic currents were used in different degrees of intensity, and the methods of applying the electrodes was also varied in many ways. While the pyloric end of the stomach feebly contracted, and the intestine contracted uniformly under the immediate application of a small metal electrode, no reaction followed when a thin layer of wet cotton was placed over the metal. The contraction produced in the intestine had no semblance to peristaltic movements, only the circular fibers being constricted. Hence the conclusion is drawn that electricity as generally administered, either percutaneously or directly, never causes contractions or increased peristalsis of these viscera, and the author shows how contractions of the thoracic muscles may simulate a gastric reaction, and so deceive physician and patient. Experiments are also described which demonstrate that the gastric mucosa offers no unusual resistance to the passage of electric currents, and that the failure to produce contractions in the organ is in no way due to a nonconductive character of its mucous membrane.

7.—Definition and Classification of Gastric Hemorrhage.—F. G. Connell says that, although gastric hemorrhage may occur without hematemesis, still this is the only reliable and practical sign of its occurrence, and, therefore, a study of gastric hemorrhage must necessarily be one of hematemesis. He divides hematemesis into two main types, chronic and acute. Acute hematemesis may be either symptomatic or non-symptomatic, and each of these may be divided into multiple and single. The whole question, especially if the possible previous and after-history be considered, is a complex one that apparently is in need of further study.

8.—A Case of Sciatic Neuritis with Paralysis Following Malaria.—W. G. Russell describes the case of a man of 38 who, after an attack of intermittent malarial fever, apparently

cured by quinin and calomel, developed intense pain in the thighs and down the legs. At this time the pupillary and patellar reflexes were normal, but the pain continued with unabated severity, and after 10 or 12 days both patellar reflexes disappeared, and there was loss of power of the left leg and some disability of the right one. Under massage and sanatorium treatment the condition gradually improved, so that he now, about three months after the malaria, has no pain, is able to use the right leg, and to drag or push the left one along if he is helped on either side.

New York Medical Journal.

December 31, 1904. [Vol. LXXX, No. 27.]

1. The Value of Stereoscopic Skiagraphy, with Practical Demonstration. MIHRAN K. KASSABIAN.
2. A Note on the Role of the Thyroid Gland in Exophthalmic Goiter Associated with Paralysis Agitans. ALFRED GORDON.
3. Cysts of the Mesentery: A Clinical Note. LEWIS S. MCMURTRY.
4. Surgical Diseases of the Sigmoid. H. D. NILES.
5. Enuresis and Its Treatment. JULIUS ULLMANN.
6. Friedreich's Ataxia: Report of an Unusual Case. ROY M. VAN WART.

1.—See *American Medicine*, Vol. VIII, p. 627.

2.—Thyroid Gland and Paralysis Agitans.—Alfred Gordon discusses this subject, and reports a case of Graves' disease, associated with Parkinson's disease, in a woman of 39. He believes that this is more than a mere coincidence, as similar facts have been reported by others. The tremor was not very distinct, but the attitude and carriage of the patient, the stiffness and fixation, the expressionless facies and the propulsion, were sufficient signs to make the diagnosis. [C.A.O.]

3.—Cysts of the Mesentery.—L. S. McMurtry reports a case of serosanguineous cyst of the mesentery in a woman of 67. The tumor occupied the entire left upper quadrant of the abdomen, and extended through the middle thereof to the border of the liver, occupying the entire upper abdomen. It was removed through an incision in the left semilunar line. The displacement of the colon by the tumor was such that the bowel seemed to enter and emerge from the tumor. The cyst wall was quite thin from distention, and the contents consisted of bloody serum and tissue debris. The sac was enucleated without excessive hemorrhage, and the patient made a perfect recovery. [C.A.O.]

4.—Surgical Diseases of the Sigmoid.—H. D. Niles says that advanced malignant disease of the sigmoid is always preceded by pathologic processes which we should strive to recognize early and correct by timely operative procedures. Acute obstruction due to volvulus (unless relieved promptly by inflation of the rectum with water or gas) is always an indication for operative interference. Torsions of the bowel with partial or complete stricture usually demand operative interference. All inflammatory or necrotic processes that include the peritoneal coat of the gut with or without angulation or stricture of the bowel, should be regarded as surgical conditions. [C.A.O.]

5.—Enuresis.—Julius Ullmann has used massage in this condition as advocated by Krauss, of Vienna, with good results. The movements are as follows: 1. The rectum is freed of feces, and massage is applied by means of the index finger to the sphincter vesicæ. The idea of this procedure is based on an assumption of a relaxed condition of the sphincter vesicæ. The child lies in the lithotomy position, and with the index finger in the rectum, the sphincter vesicæ is gently tapped by the operator for a half to a minute. 2. A deep circular massage is applied over the hypogastric region for two to three minutes. 3. The patient, lying in the dorsal position, with the knees tightly drawn together, is told to resist while the knees are drawn apart; and with the knees widely separated, he is asked to resist while they are drawn together. The same resistant adduction and abduction movements are also employed with the legs. These movements occupy about two minutes. 4. The patient, standing against a wall or door, crosses and recrosses one thigh over the other for a period of five minutes. 5. The patient is next taken across the knee, and with the side of the hand, the lumbar and sacral regions are sharply tapped very frequently by the operator, thus giving a vibratory sensation. In addition, as an excellent adjuvant, especially for its mental effect, electricity may be used. These movements,

together with a solution of atropin, 1 gr. to 2 oz. of water, 5 drops at 4 p.m., 7 p.m., and 10 p.m., have given excellent results in the hands of the writer. [C.A.O.]

Medical News.

January 7, 1905. [Vol. 86, No. 1.]

1. Disturbances of Digestion in Infants Resulting from the Use of Too High Fat Percentages. L. EMMETT HOLT.
2. Medical Quacks, Their Methods and Dangers. CHAMPE S. ANDREWS.
3. Anal Fissure. WILLIAM M. BEACH.
4. The Physics and Chemistry of Drug Action. EDWARD C. HILL.
5. Some Recent Developments in Clinical Pathology. FREDERIC E. SONDERN.

1.—Disturbances of Digestion in Infants from Fat.—L. E. Holt reports several cases at length and could multiply almost indefinitely examples of acute and chronic indigestion from too much fat. Often a rapid gain in weight goes on until the acute upset comes. In other cases there is gradual loss of appetite and weight. That gastric disturbances—vomiting, regurgitation, fermentation, and finally catarrh—may follow the overuse of fat has often been emphasized, but it is not so generally appreciated that intestinal indigestion and chronic constipation may be aggravated by it. The hard, dry, gray stools may be almost entirely of undigested fat. Severe nervous symptoms (convulsions), such as occurred in several of the cases have not been frequently seen from this cause, and in these cases may not have been entirely due to the fats. Although those who have specially studied the subject agree that milk containing 4% to 4.5% of fat is better, a great majority of the profession and the public will turn from such milk as being thin and blue to the rich yellow product of the Jersey or Alderney herd. Mistakes will be avoided if the physician knows approximately the fat content of the milk he is using. Children in health differ much in their capacity to digest fats; 4% is about the limit for the average child. When there is gastric or intestinal indigestion the fat should be reduced much below the normal 3% or 4%. [H.M.]

3.—Anal Fissure.—William M. Beach states that anal fissure is always located in one of three planes: It will be opposite the internal sphincter; between the sphincters; or over the external sphincter, extending into the skin. The etiology of anal fissure is discussed, and the author confines his dissertation to the traumatic variety. The part of the article in which Beach differs somewhat from the accepted views is in reference to treatment. He says in part: The problem of treatment and cure will depend upon the stage of the disease. In the first stage, a laxative and topical use of ichthyol will generally suffice, but if the sphincteralgic stage has been inaugurated, nothing short of surgical procedure will avail. Local anesthesia is preferred. The operation may be done in the office. To overcome paroxysmal contractions is the secret. It is unnecessary to "stretch the sphincter" in order to put the muscle at rest. No matter how much we divulge, short of tearing, retraction will occur in 24 hours. The most rational procedure is to cut a few fibers directly back of and beneath the ulcer, then cut through the base of the lesion; the second incision should extend above and below the margin of the sore, then the indurated margins should be trimmed and all the granulations cured. By the use of a .1% solution of beta-eucain, about 100 drops injected beneath the ulcer, or by sterile water anesthesia. This operation is painless, and results are speedy and certain. [A.B.C.]

4.—Physics and Chemistry of Drug Action.—E. C. Hill divides drugs into protectives, modifiers of osmosis; those which combine with compounds in the blood (acids, bases, antitoxins); those acting by combination with, or catalytic action on protoplasm; those acting reflexly. Most drugs have an affinity for a certain type of cells. Each cell is supposed to have receptors. Foreign haptophores, as of drugs, are more or less isomerically identical with some normal nutrient haptophores. Gowers believes in a dynamic therapy, the latent energy of the molecule in catalytic contrast blending with that which is being set free in the tissues. The tendency of modern therapeutics is toward smaller and more frequently repeated doses. When a drug affects functions progressively, those first

affected are the highest in development. The action of drugs is greatly modified by disease. Drugs closely allied chemically have a similar effect on the organism. The function of ions is to preserve the labile equilibrium of the colloid material of the protoplasm on which its activities depend. Unless both ions of a salt can enter a cell, neither does so. Many nonelectrolytes permeate cells readily. Oils increase exosmosis. The gums, sugars, starches, waxes, and proteins of plant juices delay absorption of the active constituent. The writer takes up in order the action of acids, bases, salts, antiseptics, anthelmintics, parasiticides, counterirritants, stimulants, caustics, astringents, styptics, eliminants, digestants, restoratives, hypnotics, antipyretics, anodynes, analgesics, and anesthetics. [H.M.]

5.—Some Recent Developments in Clinical Pathology.—Frederic E. Sondern gives a brief review of the more recent developments in laboratory work, calculated to aid clinical diagnosis. He says in part: The aids given by careful blood-examination in the differential diagnosis of chlorosis, secondary anemia, and pernicious anemia are well understood; but the present methods of determining the amount of coloring matter in blood are crude and need replacement by more scientific determinations of the actual amounts of hemoglobin and iron. Detailed examination of leukocytes and the differential count in cases of acute and chronic leukemia are unsatisfactory, and the classification is as much in need of revision as was that of Bright's disease 20 years ago. In recent literature one finds careful records which indicate an acute myeloid leukemia, a hitherto undescribed disease. Extensive experience has determined that a positive Widal reaction is rare in typhoid fever before the fifth day in bed. This makes the test of less value early in the disease than was formerly thought. The administration of urotropin has been known to give the Widal reaction in the usual dilutions. Blood changes as an indication of inflammatory lesions promise a valuable aid in diagnosis. The presence and degree of leukocytosis is the feature on which most conclusions are based. Leukocytosis is largely dependent on body resistance toward infection. The differential count of leukocytes offers a far better guide as to the status of the inflammatory process, and one which is not influenced to a perceptible degree by body resistance. The leukocytosis with a given differential count may be an indicator of this body resistance. Cytodiagnosis in cerebrospinal, pleuritic and peritoneal transudates and exudates has been the subject of extended research. More careful research in urinary analysis promises much, particularly with reference to the amount of urea daily excreted, character of renal casts, etc. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Lipomatose Douleureuse, Adiposis Dolorosa.—The pathologic entity which owes its discovery to Dr. Dercum has just been made the subject of a clinical lecture at l' Hospital Beaujon, by Professor Debove. This discourse on "Lipomatose Douleureuse" was published in the *Gazette des Hôpitaux* of September 27, 1904. It contains a semipopular account of the clinical and pathologic features of this morbid condition. Dr. Debove suggests that the occurrence of adiposis dolorosa is probably much more frequent than has yet been supposed. He points out the fact that when a disease has been described for the first it always seems rare; and recalls how at the commencement of his own medical studies the disease locomotor ataxia, which had just been described by Duchenne (of Boulogne), was regarded as of exceptional occurrence. He inclines to the belief that a similar expansion of our acquaintance with adiposis dolorosa awaits us in the near future. The case which formed the text for Dr. Debove's discourse was the third which had presented itself in his clinic during the past 18 months. It also presented a feature of variation; the other two had been specimens in which the adiposis was diffuse, while in this last case the nodular form of the

malady was present. The patient was a woman, aged 69, whose adipose troubles had existed for about a dozen years, but who was not able to fix an exact date for their commencement. This fact was referred by Dr. Debove to the accompanying mental debility, which is one of the characteristics of the condition, and of which amnesia is always the earliest symptom. This amnesia necessarily has the effect of throwing an extreme degree of difficulty in the way of clearing up the early clinical history of cases of this malady. On account of its presence he was unable to say, with regard to the present case, whether the tumors or the pains had first presented themselves. He inclined, however, to the belief that the tumors were the earlier to appear; for they were not continuously painful, but tender on pressure—so that the pain was, so to speak, not spontaneous, but always artificially induced. On examining the individual tumors—beginning with the forearm—some were found to project so as to produce an obvious elevation of the skin, while others were detected only on palpation. Many were of the size of a pigeon's egg. They were elastic on pressure; less resistant to the touch than fibrous tumors, but more so than an ordinary lipoma. They were fewer and larger on the arm than on the forearm, and more of them were on the posterior aspect; on the forearm they were more numerous in the upper two-thirds, and in front. There were none on the hands; but the finger-joints presented "Heberden's nodes." Some were found along the lower border of the great pectoral muscle; some were placed in the abdominal wall, especially in the hypochondriac regions; and a single tumor could be detected in the lower limbs—on the lower and inner aspect of the right thigh. The arrangement of the subcutaneous tissue of the dorsal region was suggestive of a condition intermediate between generalized and nodular adiposis. The diagnosis in Dr. Debove's case of "lipomatose douloureuse," had not been unanimously arrived at. One of the most distinguished of his confreres had announced the opinion that it was an example of generalized neurofibromatosis, or Recklinghausen's disease. But Dr. Debove points out that in the latter condition the tumors are smaller and harder than in lipomatose douloureuse; they are widely diffused—respecting neither face, hands, etc., and they are rarely painful. Psychic troubles occur in both conditions, but they are more pronounced in Recklinghausen's disease. Then the pigmentation of the integument, which is a feature of the latter malady, was also present in Dr. Debove's patient; she displayed "taches de rousseur" on the exposed parts of the cutaneous surface, and there were patches of xanthelasma at the inner canthus of each eye. But their presence was explicable by the age of the patient, the fact that she was of intemperate habits, and that she had been exposed to all vicissitudes of the atmosphere in the pursuit of her occupation, which was that of "marshande des quatre-saisons." Another fact in the career of this patient which may have had a large share in the genesis of the mental debility which existed, was her repeated misfortunes in life. In the war of 1870 she lost a great part of her property; her house was wrecked, and her brother-in-law killed. The residue of her fortune, which she had managed to save in that cataclysm, was all lost "dans l'affaire du Panama." Since that date the unhappy woman had sought imperfect consolation in the imbibition of alcohol and ether. Dr. Debove believes that the influence of the nervous system in the genesis of this disease is very great; the psychic derangements, the asthenia, the symmetry of the lesions, and the sensitiveness of the nodules to pressure—all point in this direction. He also called attention to the fact of the greater frequency of its occurrence in women, and its usual date of origin after the menopause. The prognosis of the affection is not exactly grave—*quoad vitam*; but having regard to the fact that no therapeutic agents appear to effect any improvement, and to the physical

and psychic debility which accompany it, it must be regarded very serious indeed.

REVIEW OF LITERATURE

Clinical Observations on Diphtheric Paralysis.—J. D. Rolleston¹ furnishes an extremely valuable communication on this topic. In a series of 500 cases of diphtheria observed personally, 23% exhibited paralysis. The more severe cases gave the greater number of paralyses. Of the 115 cases, 58 were males and 57 females. As to age, the condition is uncommon before 3; more than half the cases occur between 3 and 6, and it is fairly frequent up to the age of 16. The early administration of antitoxin makes paralysis less likely to occur. The majority of diphtheric palsies are abortive in character. With the exception of early cardiac paralysis, the tendency in all forms is to recover. In the first-named cases, M. Marfan has pointed out two signs of grave prognosis—progressive enlargement of the liver and scarlatiniform eruption on the knees, sometimes also on the back of the elbows. Special treatment of diphtheric paralyses is, in most cases, entirely unnecessary. In the treatment of cardiac paralysis, Rolleston has found but one drug of any avail—adrenalin chlorid. The secret of its successful employment lies in its prophylactic administration and progressive increase of dosage. Hypodermic injection of strychnin is quite unavailing. Extended notes of 17 illustrative cases are appended. [A.G.E.]

Nuclein in Bright's Disease at a High Altitude.—A. S. Ashmead² records the results in a case treated in the Pocono Mountains, in Pennsylvania, at an altitude of 2,000 ft. Ozonized air here fills the arteries and veins to overflowing with highly colored blood. Nuclein therefore is necessary for its effect on the leukocytes. In a climate like this in which albuminous food is not craved, a disease like Bright's must necessarily cure itself if only helped by a drug which will equalize the composition of the blood. Urea, the poison of this disease, comes naturally from the disintegration of tissues and following much exercise; broken-down muscular tissues form a great quantity of it. In this altitude there is an indisposition to much exercise, a condition antagonistic to the formation of urea and the disabled kidney is not required to excrete an excess. There is reconstitution of the albumin-forming process by ozone (red corpuscular element) and nuclein (white corpuscular element). There is no excess of urea, the danger of uremia is averted, the albuminuria disappears and the urine increases and washes clean and heals the diseased organ. [H.M.]

Syphilis and Other Skin Diseases.—Hutchinson³ maintains that he has had no reasons to regret the adoption of the rule by which he allows his patients to marry two years after the appearance of the chancre, but never earlier. With regard to the transmission of syphilis to the third generation, he says that while his attention was called to several cases in which at first the facts seemed conclusive of this possibility, but further examination broke them down. So for the present he does not believe it possible. Like other exanthematous fevers, syphilis protects its subject from the second infection, yet the protection is not permanent; he has seen many instances of second attacks, even within one or two years of the primary infection. Hutchinson is convinced that frambesia tropica is syphilis, he says, confusion arose because the chancre does not always appear on the genitals. He now maintains that enamel defects are usually the result of stomatitis in infancy, and the stomatitis due to the administration of mercury. The first molar is most likely to be affected, the two bicuspids escape, while the incisors may suffer. The disease which to Hutchinson comes nearest to leprosy is known as lupus erythematosus. Multiple patches, for the most part bilateral symmetric, develop in both and in both they spread by peripheral infection. In both the local conditions after a prolonged duration undergo spontaneous devolution and disappear; if the patient survives 12 or 15 years, the disease has practically come to an end. He is of the belief that if the majority of lepers are placed under favor-

¹ The Practitioner, November and December, 1904.

² Medical Press and Circular, October 12, 1904.

³ Berliner klin. Woch., 1904, No. 37.

able circumstances they will recover. These conditions are good food, absolutely no fish diet, and the internal administration and external application of chaulmoogra oil. He attributes the incurability of leprosy in Norway to the fish eaten by these people. Hutchinson is inclined to believe that *Bacillus tuberculosis* and *Bacillus lepræ* are differentiated forms of the same organisms. [J.F.]

Methods of Percussion in the Delimitation of Areas.

—W. T. Gairdner¹ states that most persons err by percussing too hard in order to get a recognizable quantity of sound, but by increasing quantity we reduce the value of our results. Percussion does not operate directly downward or in the direction of the impact only, but in proportion to the strength of the stroke, laterally, diagonally, and in every possible direction in educing sound. Therefore deep percussion is necessarily inexact; what is gained in volume is lost in definition. By no sort of management is it physically possible to determine accurately the definite form of an object even a half inch below the wall of the thorax or abdomen under ordinary circumstances. By minimizing the stroke we may outline the great omentum when thickened, while to a slightly stronger stroke it gives a tympanitic percussion quite like the areas beyond. The percussion of the heart and of the lower edge of the liver has been the most perverted or rendered indeterminate by wrong methods. [H.M.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Operative Treatment of Perforating Gastric Ulcer.—

A. B. Atherton,² New Brunswick, Canada, reports a third consecutive successful operation for this malady. Atherton did in 1894 the first successful operation on the American continent for perforated gastric ulcer 15 hours after perforation. In 1899 he did a second, 10 hours after perforation, and the present paper has to do with a third operated upon in 1903. The first case occurred in a young anemic female servant; the second in a man of 60, who had for many years suffered from dyspepsia, and the third in a man of 30, who also had suffered for several years from symptoms of faulty digestion. In this instance, operation was performed within four hours from the time perforation was believed to have occurred. On opening the abdomen a perforation 4 mm. ($\frac{1}{4}$ in.) in diameter was found on the anterior wall at the narrowest part of the pylorus. The perforation was closed with two rows of silk sutures, the outer row being Lembert sutures. The abdominal wound was closed after the usual manner and the patient made a good recovery. Atherton asserts that main factors in securing favorable results in perforated gastric ulcer are early diagnosis and prompt surgical interference. The chief reliance in diagnosis is the location and severity of the pain, together with the board-like rigidity of the abdominal muscles. A previous history of faulty digestion is of value; but little dependence can be placed in the obliteration of liver dulness, for should it occur it is late, often after the patient is moribund. Not much dependence can be placed in the presence or absence of shock. It is usually present at the outset, but exceptions are so frequent that no general rule can be formulated. Some vomiting commonly occurs, and at times a little blood is found in the vomitus. [A.B.C.]

Form of the Cavity of the Knee-joint.—J. M. Flint³ in demonstrating this space to students, injects the cavity with molten Wood's metal. After the joint is freed from muscles and ligaments it is immersed in water at 65°C until warmed through. A small hole is made in the capsule and the metal poured in. The joint is then placed in any desired position and plunged into cold water. It is better to make casts from above and below by an opening at the extremity of the subpatellar bursa and through the popliteal space. The former shows the extension of the cavity beneath the patella and tendon of the quadriceps femoris and the former the space between the

femur and tibia. By superimposing these casts there is a perfect representation of the cavity. The chief difficulty is the expense of Wood's metal. The writer described the usual form which varies considerably in different joints. The complicated infoldings indicate the difficulty in getting an adequate conception of the form from ordinary dissection, or even by injecting with gelatin or other substance. These casts explain the forms of exudates and indicate the areas where an opening would give access to the greater part of the cavity, and suggest the regions which should be observed in aspirating or washing out the joint. [H.M.]

Penetrating Wounds of the Chest Perforating the Diaphragm and Involving the Abdominal Viscera.—

Daniel H. Williams¹ reports three illustrative cases. In one a gunshot wound was received; the ball struck the eighth rib, perforated the diaphragm, bisected the left kidney from pole to pole, cut the ureter and trunk of the renal artery. In this case the author did a subperiosteal resection of three inches of the seventh and eighth ribs, closed the perforation in the diaphragm with pursestring and Lembert sutures, irrigated the pleural cavity with salt solution, and aspirated the air with a Davidson syringe after wound closure. Suspecting injury to the abdominal viscera he opened by separate incision the abdominal cavity and found no injury except to the left kidney. The abdominal wound was closed and then by a lumbar incision the badly damaged kidney was removed and the wounded renal artery was ligated. The patient recovered. The second case was that of a stab wound of the chest through the eighth interspace, perforating the diaphragm and wounding the spleen. In this case the wound in the diaphragm was closed and the wound in the spleen was successfully sutured with catgut; the patient recovered. The third case was that of a man of 30, stabbed through the sixth interspace an inch anterior to the nipple-line. Operation was performed as in the other cases and there was found two perforating wounds of the diaphragm, and an open wound of the pericardial sac without injury to the heart. The wounds were all closed and the patient recovered. Williams insists that wounds of the thorax are not regarded with sufficient seriousness; those below the sixth rib should always require operation to determine whether other structures have been wounded. [A.B.C.]

Tactile Sensation.—Victor Horsley² discusses the question as to whether the sensory channels terminate in the centers of the optic thalamus or go through to the cortex. In doing so he takes up the subject of the transmission of tactile sensation through the optic thalamus; he concludes that fibers of the fillet terminate in the thalamus and a separate set goes to the cortex. Concluding also that the motor areas of the brain receive sensory impulses it follows that tactile impressions are located in the Rolandic area. These tactile impressions consist not only of slight tactile sensation in the skin, but of the more important ability to localize the point touched. Clinical examples are adduced to establish the point that destruction of portions of the cortex will produce anesthesia in proportion to the amount of cortex destroyed. [A.G.E.]

A New Operation for Intestinal Stenosis.—Theodore McGraw¹ quotes Wölfler's statement, made in 1896, that 54% of all resections of portions of the large and of the small intestines result fatally. Resection of a portion of the large intestine is less hopeful than the same operation on the small intestine. McGraw having recently attempted unsuccessfully to relieve the suffering incident to cancer of the colon, has now formulated a plan of operation which he believes would be of value in such cases. Briefly it is as follows: Given a tumor or stenosis of the colon, every effort should be made to locate exactly the seat of the disease, the abdomen should be opened directly over it, and the coil, including the tumor, should be drawn out of the abdomen. The two limbs of the intestine leading to and from the tumor should be united by the McGraw elastic ligature as far as convenient from the tumor, the point of junction being replaced within the abdomen, and the abdominal wound closed snugly about the loop of gut, the tumor protruding. A firm silk ligature is then tied about the efferent limb of the

¹Edinburgh Medical Journal, November, 1904.

²Annals of Surgery, November, 1904.

³Johns Hopkins Hospital Bulletin, October, 1904.

¹Annals of Surgery, November, 1904.

²The Practitioner, November, 1904.

loop and the gut severed distal to the ligature. The severed end is now completely closed and pushed back through the abdominal wound. This completely disposes of the efferent limb. A large trocar can now be thrust through the intestinal wall into the lumen of the efferent limb, above the tumor, and the intestinal contents at once evacuated. After evacuation the tumor is completely removed, a glass tube inserted into the afferent limb, and the intestine closed around it with pursestring suture. A large rubber tube connected to the glass tube enables the fecal contents to be disposed of more cleanly and conveniently. After four or five days, when an opening has occurred at the point of anastomosis and the fecal current is now going in the natural route, the glass tube is removed, the afferent limb closed, and it, too, is now passed into the wound underneath the skin and the abdominal wound is completely closed. The most complete aseptic care is necessary. [A.B.C.]

Bacillus Pyocyaneus Septicemia, Associated with Blastomycetic Growth in a Primary Wound.—J. R. Eastman and T. V. Keene¹ report that a girl of 17 was operated upon by an incision several inches long in the left arm, to relieve pressure upon the musculospiral nerve. At the sight of operation several small chronic ulcers developed, from which green pus was discharged, and there were the symptoms of septicemia. Microscopic examination of the discharge showed the presence of *Bacillus pyocyaneus* and also the blastomycetic fungus. Their conclusions are about as follows: 1. The diagnosis in this case rested on the bacteriologic finding, the temperature was subnormal for most part, and the pulse-rate was high. 2. The most marked feature, and one of diagnostic value, was the marked nervous involvement; in this, the reported case was similar to that reported by Jackewitsch. 3. The finding of blastomycetes in the local ulcer was diagnostic, and explained the failure of the wound to heal; the authors have been unable to find in literature a reported case in which there was infection from both *Bacillus pyocyaneus* and the blastomycetes. 4. There was in this case a clean incised wound, which healed by first intention, but became infected with blastomycetes primarily, with *Bacillus pyocyaneus*, secondarily. Many cases of wound infection have been observed, due to *Bacillus pyocyaneus*; but the ability of blastomycetes to infect clean wounds and produce delay of union, with destruction of tissue, is not generally recognized. While the complication is rare, owing to the limited distribution of pathogenic yeasts, still it should be given more consideration than is now accorded it. [A.B.C.]

Venereal Warts.—C. W. G. Rohrer² says that in 18 cases of this kind, seven patients showed no evidence of venereal disease; the remainder were traceable directly to this cause. They are hypertrophies rather than true tumors, being inflammatory growths due to irritation. They occur in from 1% to 2% of all cases of genitourinary disease; 60% are venereal, due to acrid discharges; 40% are nonvenereal, due to uncleanness and maceration. Dogs and horses are subject to them, but ruminants are exempt. When small, the best treatment is palliative; when large they are best removed surgically. Even then recurrences are frequent. The term papillofibroma most correctly defines these growths. The question as to whether they are infectious or contagious is as yet a purely speculative one. [A.G.E.]

Treatment of the Stump in Appendicectomy.—M. G. Seelig¹ groups the methods of treating the stump as follows: (a) Ligation at the base, ablation of the organ distal to the ligature and inversion of the stump. In these cases the stump is inverted into the wall of the cecum; (b) ablation of the organ without previous ligation at the base and inversion of the stump into the lumen of the cecum; and (c) simple ligation, ablation of the organ distal to the ligature and cauterization of the stump, dropping the disinfected stump back into the peritoneal cavity. Of all these methods Seelig prefers the last, asserting with considerable logic that the other two are dangerous. There must of necessity be infected material in the lumen of the appendix at the point of severance; and to cover this with a cuff of peritoneum or to invaginate it into the wall of the

cecum is to invite the formation of a localized abscess. To invaginate the unligated stump into the lumen of the cecum is to place a raw and freshly cut surface in direct contact with the fecal current, and there is in addition the danger of secondary hemorrhage. Seelig, therefore, asserts that the method of simple ligation, and cauterization of the stump, dropping the same back into the peritoneal cavity, is the only safe procedure. It is also a shorter operation. [A.B.C.]

Double Traumatic Dislocation of the Hip.—James Lewis¹ reports that a youth of 18, driver in a coal mine, was riding on the bumper of a loaded coal car, when he suddenly fell upon his hands and knees in front of the car, the latter striking him in the sacral region. On being brought to the hospital, an examination revealed the typical signs of double dislocation of the hip. The great trochanter on each side was three inches above Nélaton's line, with the head of the femur plainly palpable on the dorsum of the ilium. Under ether anesthesia, both sides were easily reduced by Biglow's method. The knees were bandaged together and no other retentive dressing was applied. The patient was confined to bed four and a half weeks, and at the end of this time he could walk without pain or disability in the hips, but there was temporary foot drop on the right side, due presumably to pressure of knee bandage on the external popliteal nerve. [A.B.C.]

Operation Wounds of the Thoracic Duct in the Cervical Region.—P. Lécène² gives the notes of 22 cases of wound of the thoracic duct, one being a personal observation. Of this number, 16 were recognized at the time, and six some days after the injury. This makes two classes of the injuries as regards treatment. Crossing the neck abnormally high is a predisposing cause of injury to the duct. As to life, the prognosis of these wounds is good, only one of the 22 patients dying; death in that instance was due to sepsis. Injury of the duct is recognized by the outpouring of a watery or milky fluid which usually comes in waves by respiratory movements. The symptoms of wounds not recognized at the time of operation are those of dehydration of the organism as the fluid continues to escape, marked thirst, emaciation, general asthenia, and sometimes oliguria. Treatment varies according to the time the injury is discovered. If it is at the time of operation, the peripheral end of the duct should be ligated, the valve rendering ligation of the central end unnecessary. Suture of the duct has been accomplished only once, by Cushing; it is hardly possible except in case the duct is not entirely severed. When the injury is discovered only some days after operation, packing of the wound usually is sufficient to bring about closure of the duct; reopening the site of operation and searching for the duct to ligate is a very difficult procedure and is unnecessary. [A.G.E.]

Treatment of Thrombosis of the Superficial Veins of the Leg.—Mansell Moullin³ says the usual treatment for these veins, when thrombosed below the knee, is prolonged rest in bed with the leg elevated, and covered either with lead lotion or a mixture of extract of belladonna and glycerin. For several years Moullin has abandoned the old form of treatment and has excised the thrombosed portion at the earliest opportunity. The results are said to be excellent; the wound is sound within a week and the patient can get up cured and freed from all risks of embolism, deep thrombosis or recurrence. At first he excised only when there was a loop of the vessel involved, but encouraged by the results, he now employs the method more extensively. A moderate degree of inflammation makes no special difference in the result. In an instance the author excised the entire saphenous vein with good results. [A.B.C.]

Traumatic Abscess of the Cerebrum.—Ernest F. Robinson¹ reports that a woman of 28 attempted suicide by shooting herself with a 32-caliber revolver in the right ear. She was unconscious for a time; operation was performed, the bullet had shattered the petrous portion of the temporal bone behind the ear, but had not entered the cranial cavity. The facial nerve had been severed and there was facial paralysis. The wound was cleansed and closed with drainage, healing being prompt, and eventual recovery without complication was promised. Suddenly six weeks after the original injury, the symptoms of

¹ Annals of Surgery, November, 1904.

² American Journal of the Medical Sciences, November, 1904.

¹ Annals of Surgery, November, 1904.

² Revue de Chirurgie, December 10, 1904.

³ British Medical Journal, December 23, 1904.

brain abscess developed. There was no paralysis except that involving the seventh nerve. Cerebral abscess being diagnosed, operation was performed, the trephine opening being made one inch above and anterior to the external auditory meatus, the meninges were opened, but no pus was found subdural. An aspirating needle being thrust into the brain substance, at the depth of an inch pus was found. A rubber drainage-tube was inserted, and the wound closed. The patient regained consciousness. Mental stupor, however, supervened on the third day, but on removing the dressings and drainage-tube, and dressing without drainage, consciousness was again restored. Robinson believes the last period of stupor was caused by pressure from the drainage-tube. The patient finally made a good recovery. [A.B.C.]

Ligation of Both Common Carotid Arteries.—T. Turner Thomas¹ reports the case. A man of 32 had a malignant tumor involving the right pterygomaxillary region. There being no hope of eradication, the right common carotid was ligated. The patient's condition improved perceptibly. Two months after the operation it was noted that the old symptoms were returning, and ligation of the left external carotid was decided upon. On exposing the common carotid at the usual site of bifurcation, it was found that the bifurcation in this case was unusually high, in fact, even after going above the angle of the jaw no external branch was found, so, the patient's condition being desperate, the common trunk was ligated. The patient died a few hours later. Other points of interest are: Both operations for ligation of the common carotids were performed under local anesthesia (in one Schleich's fluid, and in the other cocain was used); there was temporary but decided improvement after the first operation. The writer states that Pilz, of Breslau, collected 600 cases in which the common carotid had been tied; in 27 both arteries had been ligated. He found the most common cause of death was cerebral disease. In 386 cases of single ligation, 96 showed cerebral symptoms; over half of the 96 died. Of the 27 double ligations, 5 patients died. In only one case were the two carotids tied simultaneously; coma and death resulted. When the two sides were ligated with some days or weeks intervening the operation was not more frequently followed by cerebral disturbances than when only one was tied. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Prognosis and Treatment of Puerperal Pyemia.—E. Opitz² is not in favor of operative treatment in puerperal pyemia; he says that ligation or resection of the diseased veins, as recommended by Trendelenburg, associated with or without total extirpation of the uterus can produce a cure in only exceptional cases. The recognition of the affected side in itself is already a difficult problem, and often impossible. He lays more stress on the suitable stimulation and nourishment of the body so as to be able to continue the combat and withstand further infection; the most important is, of course, a proper prophylaxis. The most suitable method of nourishment is plenty of milk and eggs. He gives large quantities of artificial albumins, such as plasmon, somatose, puro. Sugar is also very nutritious, and in addition produces thirst, to allay which the patient will drink large quantities of water; the more fluid in the form of water, the more active the kidneys will be and the more of the bacterial poisons will be washed away. On this account he also advises enemas and infusions. Absolute rest is indicated. The patient must be instructed not to move her body at all, as this is liable to break down some of the lymph which nature is building up to wall off pus foci. Of drugs, he approves of nerve sedatives, antipyretics, digitalis, and in emergency camphor. He encourages rather than discourages diarrhea, and to prevent hypostatic pneumonia he orders his patients to take long breaths at certain times during the day. Alcohol he forbids, excepting probably to flavor milk with, or in hopeless cases. Turpentine oil and unguentum Credé have not given him any success, but he considers nuclein,

collargol intravenously and systematic antipyrin a routine treatment of much promise; he has not had much experience with them thus far. The most important of all, however, is constant and painstaking care and nursing. [E.L.]

Bilateral Mastitis during Pregnancy in Consequence of Eczema Impetiginosum.—Calman³ says this condition is rare, and he notes that mastitis during pregnancy occurred in 6 of the 4,000 cases confined in Winckel's clinic, and in 5 of the 3,600 confined in the Marburger clinic. In regard to the etiology, he says: The clothing, especially the corset, may be instrumental in producing a portal for infection; Calman, also notes that syphilis may be mentioned as an etiologic factor, and refers to the work of Clavet and Maillozel. In his case the cause is apparent. The disease began in the sixth month of pregnancy, when one day the patient noted pain in the right and an itching in the left breast. When Calman saw the case, both nipples and both areolas were intensely reddened; in the right areola and upon the skin over the lower portion of the gland were several pustules, while upon the left side were a few vesicles such as are usually seen in eczema. Later a hard mass infiltrated the nipple and areola on the right side; it became fluctuating, and upon incision considerable pus was obtained. About a month after the onset of the condition another abscess developed in the upper quadrant of the right breast, and about the same time one developed in the upper and inner quadrant of the left breast. The condition soon subsided after free incision; the eczema also cleared up. [J.F.]

The Diagnostic Value of Blood Counts in Gynecologic Diseases.—Friedrich Neumann² concludes that the leukocytes are increased in the majority of cases of inflammatory diseases of the annexa and parametrium in which there is a purulent exudate. When the process becomes localized the leukocytosis disappears in a relatively short time, so that often this symptom is absent when the patients first come under observation. In the stage of acute suppuration in which there is no tendency to extension, leukocytosis may be absent, and also in cases in which there is an imperfect reaction of the organism in reduced individuals. A leukocytosis due to an abscess diminishes after the removal of the exudate. A leukocytic count of 15,000 indicates almost certainly the presence of pus. When it is between 11,000 and 15,000 it is significant without being a proof of its existence. Immediately after delivery in ectopic pregnancy or rupture there is a moderate leukocytosis in the sense of a post-hemorrhagic leukocytosis. Acute twisting of the pedicle of a cyst is associated with a considerable degree of leukocytosis. Benign tumors, such as cysts, myomas, dermoids, do not cause any quantitative change in the number of the white blood cells. On the contrary, a moderate increase in the leukocytes is sometimes found in malignant conditions such as carcinoma, sarcoma, and cystomas, especially when ulceration exists, when it is the expression of a cachexia. Finally, he concludes that the absence of a leukocytosis does not exclude the presence of pus [J.H.W.R.]

Some Advances in the Field of Gynecology.—S. W. Bandler³ directs attention to four points which represent phases of advance: 1. A more exact knowledge of the etiology of abnormal conditions. 2. The application of general medical measures, especially in the treatment of some affections formerly considered amenable to surgical correction only. 3. Keener judgment in the choice and selection of surgical procedures for the cure or removal of pathologic lesions. 4. The more general adoption of the principles of conservative surgery and an extension of the indications for the practice of the same. Gynecology has evolved numerous operative procedures for the correction of uterine displacements. It has also opened the eyes of the medical man to the fact that correction and complete restoration to the normal is an essential in postpartum treatment, and that such cure covers a period of 10 weeks rather than 10 days. In the treatment of this condition, an important point is the restoration of a normal general circulation. For this purpose, hydrotherapy is our best means. On the surgical side there is a large number of new and modified operations, and rational advance is represented in the tendency to limit the

¹ Annals of Surgery, November, 1901.

² Deutsche medizinische Wochenschrift, 1904, xxx, 940 and 986.

³ Centraltbl. f. Gynäkol., 1904, No. 47.

² Wien. klin. Woch., No. 42, 1904, p. 1113.

³ Postgraduate, December, 1904.

use of the curet. Another, is the increase in use of the vaginal route in the performance of intraperitoneal operations. No picture of modern gynecology, however small, is complete if it does not call to mind the importance we now attach to disease of the urinary system. [A.G.E.]

New Technic in the Treatment of Cervical Catarrh.—In Saniter's¹ experience, inflammation of the uterine mucous membrane is often restricted to the cervical portion of the uterus, and often this is produced or its spread is caused by the treatment of acute gonorrhea with Playfair's sounds wrapped with nonsterile cotton soaked in some medicinal fluid. Many cases of adnexitis can be traced to such treatment. Saniter has been able to produce absolute asepsis by substituting for the ordinary cotton, asbestos, which is sterilizable in the open flame. It can be wound about the sound as easily as cotton, and takes up fluids just as readily. It is not influenced by any of the variety of liquids employed in such treatment. It is but little dearer than cotton, and can be easily procured. To facilitate the removal of the asbestos from the sound he has his instruments made with a groove along the convex side, catching hold of the material with a microscope forceps so as not to have to touch it with his hands. The groove takes up considerable additional fluid. He points out that such sounds are useful in almost all fields of medicine. [E.L.]

Menstruatio Praecox and Sarcoma of the Ovary.—Hermann Riedl² reported a case in a girl who began to menstruate at the age of 4. The patient complained of pain in the left side of the abdomen, and on palpation a painful tumor was discovered. Laparotomy was done, and a tumor weighing 2½ kg. (5 lb.) was removed, which proved upon examination to be a round-celled sarcoma with areas of softening. This constitutes the typical form of juvenile sarcoma of the ovary. He cites Hofacker, who collected 62 cases of menstruation praecox from the literature; and Ploss, who found in three cases of this condition newgrowths in the ovary. [J.H.W.R.]

Severe Hemorrhage from the Bladder during Pregnancy.—Kubinyi³ maintains he has to deal in this instance with a condition that is analogous to the bleeding of hemorrhoids. The patient when brought to him was found to have a greatly distended bladder; he at once proceeded to relieve this condition, but catheterization failed, so he was forced to dilate the urethra that a finger could be introduced, and then he found the internal meatus was occluded by a mass of blood clot. When the finger was removed a large quantity of blood and urine gushed out. After the bladder was empty closer examination revealed varicose veins of the legs, and upon cystoscopic examination the same condition of the mucosa of the bladder was found; anterior and above the neck of the bladder was a large horizontally directed vessel which was surrounded by clouded mucosa. Kubinyi believes this was the source of the hemorrhage. He holds Schroetter responsible for the statement that the varicosity is due to an increased blood-pressure in the vein and to an insufficiency of their valves. Kubinyi attributes the increase in the blood-pressure in his case as being due to the lifting done by the patient, and which apparently brought on the bleeding. In closing his article, he says the hemorrhage may be of such a character as to necessitate cystotomy and packing. [J.F.]

Styptol (Cotarnin Phthalate).—R. Katz⁴ has employed styptol in Abel's clinic at Berlin for the last 18 months and gives a brief summary of the indications which cause him to employ it: 1. In cases of light irregular flow outside of the menstrual period and after slight operative interference. 2. In menorrhagia of nulliparas and virgins without pathologic basis. 3. In hemorrhages during the menopause not due to lesions requiring other treatment; he has used it to advantage in several cases of inoperable carcinoma. 4. In menorrhagia and metrorrhagia of myomas before the operation is indicated or as long as it is refused by the patient. The patient must be told that it is only of temporary benefit in such cases. 5. In menorrhagia occurring as a sequence to diseases of the adnexa, the pelvic connective tissue and malposition of the uterus. 6. In

hemorrhages during pregnancy and the puerperium; styptol has been uniformly successful in all cases coming under this heading. [E.L.]

Technic to Amputate an Inverted Uterus.—In order to accomplish this, Falk¹ makes a transverse incision in the anterior wall of the uterus, just above the internal os, replaces the organ, then produces an anterior luxation through the transverse incision in the anterior wall, the luxation is aided by a small longitudinal incision in the posterior wall, and by the application of a little pressure upon the posterior wall of the uterus. Now the lateral ligaments are ligated, and then by continuing the transverse incision of the anterior wall the uterus is removed. Now the anterior and posterior cervical walls are united by sutures. [J.F.]

Should the Normal Appendix be Removed when the Abdomen is Opened for Other Reasons?—O. A. Gordon² says that the removal of the normal appendix carries with it a deathrate, and he does not consider the operator justified in subjecting his patient to the additional risk, however small. If the appendix is involved secondary to inflammatory disease of the uterine appendages it will be readily found by reason of the contact adhesions, and if not found readily, strong evidence exists that it is free from the inflammatory process and an extended search is not justified as such search may spread infection. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

The Active Components of the Extract of Filix Mas and Their Therapeutic Application.—A. Jacquet³ accepts Kraft's analysis of the extract of filix mas; he was able to isolate the following bodies from a good extract in the average percentages as mentioned: Filicic acid, 3.5%; flavaspidic acid, 2.5%; albaspidin, 0.05; aspidinol, 0.1%; flavaspidinin, 0.1%; filmaron, an amorphous acid, 5.0%; filixnigrin, 6.0%. Flavaspidinin and filmaron are recent discoveries, and it is especially with the latter of these that Jacquet experimented. In a dried state filmaron is fairly constant, a 2-year old preparation having been found as effective as a fresh one. Animals who were injected with poisonous doses of filmaron intraspinally and intravenously soon developed convulsions, and shortly after paralysis. Death took place with the heart in diastole. Animals who were given the drug by the mouth developed hemorrhagic gastroenteritis and died without convulsions. To note the anthelmintic action of filmaron, 38 patients with tenia saginata were treated after the following plan: A laxative was given on the day before; on the night before a simple meal only was allowed; the next morning, on an empty stomach, the filmaron was given, 1 gm. to 2 gm. (15 gr. to 30 gr.) dissolved in chloroform, and castor-oil 20 gm. to 30 gm. (6 dr. to 8 dr.); this mixture was diluted in beer foam, and followed an hour later with more castor-oil in beer foam; of filmaron the average dose was 0.7 gm. (10½ gr.). Of the patients, 28 had the worm removed, in 6 the result was doubtful, while in 4 the drug failed in its action; 3 of these cases were children, in whom the dose given was probably too small. The patients all agreed that filmaron was easier to take than filix mas; in no case were unpleasant concomitant symptoms noted. Of the other active ingredients, filicic acid was found to be the least reliable as an anthelmintic, and albaspidin the best. He recommends the use of filmaron in every case where filix mas is indicated. [E.L.]

Treatment of Pulmonary or Cardiac Dyspnea by Rhythmic Mechanical Compression of the Thorax.—D. Bogheau⁴ states that there are no drugs in our pharmacopoeia which are specific remedies for dyspnea. One must either resort to drugs of the digitalis group or to one of the newer synthetic morphin preparations. These only serve to mask the

¹ Münchener medizinische Wochenschrift, 1904, II, 1251.

² Wiener klin. Woch., No. 35, 1904, p. 942.

³ Centralblt. f. Gynäkol., 1904, No. 45.

⁴ Therapeutische Monatshefte, 1904, xviii, 597, No. 11.

¹ Centralblt. f. Gynäkol., 1904, No. 47.

² Brooklyn Medical Journal, 1904, xviii, 399.

³ Therapeutische Monatshefte, 1904, xviii, 391.

⁴ Berliner klinische Wochenschrift, October 17, 1904.

dyspnea; they cause a decrease of the respiratory rate, but fail to increase the volume of inspired air, and hence there is deficient aeration. A number of experimenters have repeatedly determined that mechanical assistance is of greater value in the treatment of dyspnea than drugs. The author describes an apparatus which compresses the thorax and forces the lungs to long, deep inspirations. This instrument can be regulated to any rate of frequency and to any desired amount of pressure. It is run by a little electric motor, which saves the energy of the patient and that of an assistant. The machine maintains the normal relationship between expiration and inspiration. The pressure plates compress the chest wall deeper than the patient is capable of doing himself; the lungs are thus forced into a smaller volume than without mechanical aid, and the residual air is considerably decreased. A photograph and a detailed description of the apparatus are given. Bogheau next discusses whether dyspnea is caused by a loss in the amount of oxygen or by an increase in the amount of the carbonic acid gas. He reviews the literature on this subject, reports some experiments on the lower animals, and comes to the conclusion that dyspnea is caused by both of these conditions, but that the system is more tolerant to a loss in oxygen than to an increase in the amount of carbonic acid gas. [W.E.R.]

Strychnin Injections in Diabetes Insipidus.—Stein¹ reports that a woman of 28 developed diabetes insipidus immediately after the death of her husband, which excited her very much. She drank as much as 18 liters of liquid during the day without producing the slightest discomfort. She devoured large quantities of food, her appetite being apparently insatiable; in spite of this she emaciated markedly, becoming visibly weaker. The specific gravity of her urine was 1,002; the quantity of urine voided at its greatest was 15 liters, of which more was passed at night than in the daytime. Many methods of treatment were attempted without success. Stein began strychnin injections with 0.001 gm. ($\frac{1}{2}$ gr.), repeating this dose for five days successively; he then made a pause of three days. In the second week he injected 0.003 gm. ($\frac{1}{2}$ gr.) each day. The quantity of urine diminished to 4 liters, and her thirst correspondingly; her bodily weight and general condition improved; the specific gravity of the urine increased to 1,006. [E.L.]

Iron and Arsenic in Anemia.—K. J. Bergmann² experimented on dogs, subjecting them to a certain diet, then abstracting a fourth to a third of their total blood quantity, and finally administering iron or arsenic, while keeping the animals on the same diet. Iron was given in the form of the lactate, $\frac{1}{2}$ gr. three times daily, or ferratin, 1 gm. (15 gr.) daily. Arsenic was exhibited in arsenious acid, 1 mg. to the dose. It was found after a series of control examinations that iron accelerates the regeneration of the blood, the hemoglobin increasing more rapidly than the number of red cells. Arsenic acted more slowly and the red cells multiplied in advance of hemoglobin. In both instances the blood was rich in young elements, which evidently left the blood-making organs earlier owing to the remedies. From the results of his experiments the author decides that iron has a specific action, while arsenic only acts as an irritant of the blood-making organs, especially the bone marrow. As to the comparative values of ferric lactate and ferratin, no difference could be established between the two forms. [L.J.]

Strychnin Injections in Diabetes Insipidus.—B. Leick³ reports the case of a man of 49, who developed diabetes insipidus as the result of a fall. He was never ill until the day of the accident. After the accident he voided on an average 8,000 cc. (266 oz.) urine daily; its specific gravity averaged 1,004. Medical treatment and regulation of the diet and fluid did not improve the patient in the slightest. He put the patient upon hypodermic injections of strychnin nitrate, beginning with 0.0025 gm. ($\frac{1}{2}$ gr.), and gradually increasing to 0.005 gm. ($\frac{1}{2}$ gr.); in all the patient was given 15 injections during a period of 20 days, the total of strychnin being 0.0905 gm. (1 $\frac{1}{2}$ gr.) The quantity of urine diminished from 8,000 cc. to 3,400 cc. (266 oz. to 113 oz.) during the treatment, and even after the injections

were stopped, it continued to sink; ultimately it reached 2,000 cc. (66 oz.). The treatment was stopped because of signs of strychnin poisoning. The specific gravity of the urine remained unchanged. [E.L.]

Sodium Cinnamate Injections in Pulmonary and Laryngeal Tuberculosis.—E. Tovoelgyi¹ found that incipient cases of pulmonary tuberculosis, even if associated with laryngeal disease, are cured by injections of sodium cinnamate. In more advanced cases the life of the patient is prolonged sometimes for many months, and even complete cure is not entirely excluded. In very grave cases the injections are useful, if only because of their improving the general condition of the patient. Tovoelgyi never passes beyond 15 mg. in his dosage and says that he has never observed hemoptysis, cyanosis, tachycardia, etc., when thus limiting himself. He prefers the intravenous route for his injections, saying that leukocytosis is much more extensive and prompt than by subcutaneous and intramuscular injections. [E.L.]

Treatment of Pulmonary Tuberculosis by Merechal's Tuberculin.—Mahaux² believes that in patients who apply for treatment early in this disease, in whom the symptoms are insignificant, and who consent reluctantly to traveling to a foreign climate, it is the duty of the physician to administer tuberculin. The apyretic and vigorous individual tolerates this treatment very well. He advises a terminal method of procedure in all other subjects who cannot go to a different climate. If the case is grave, the progress of the disease rapid, and the subject has neglected himself, he should change climate, the influence of which, however, may remain incomplete and unsatisfactory. Under such circumstances the patient is saved only by tuberculin. [J.H.W.R.]

Two Cases of Lead-poisoning after Therapeutic Use of Plumbic Acetate in Capsules.—Instances of poisoning after the medicinal use of lead are rarely met with. The two cases reported by D. J. M. Miller,³ however, teach the necessity of caution when ordering lead salts to be taken by mouth. Both patients were ordered lead acetate in capsules for a considerable period of time on account of chronic diarrhea; in both instances the diarrhea improved, but toward the end of the treatment the patients began to complain of attacks of colic with persistent constipation and gradually increasing pallor. The diagnosis of lead-poisoning then made was confirmed by the appearance of the lead line around the gums. The first patient had been given capsules containing 0.06 gm. (1 gr.) of lead acetate and small doses of ipecac, capsicum and extract of nux vomica. At first he took four, later three, and toward the end two capsules daily. The first symptom of poisoning appeared after the drug had been employed about four weeks, but the patient took the medicine in all about eight weeks. The second patient, a woman, was given capsule containing 0.12 gm. (2 gr.) of plumbic acetate and small doses of opium; of these she took probably 23 within a week; the treatment had to be interrupted on account of violent and acute symptoms of intoxication. Recovery took place in both cases. [E.L.]

Eucain Lactate.—Beta-eucain being so slightly soluble, A. Langgaard⁴ experimented with eucain lactate, which is more readily dissolved and less irritating. It is a white powder, not hygroscopic, liquefies at 155° F., dissolving to the extent of 29% in water, in alcohol to 13%, and has a slight alkaline reaction. The solutions are not irritating, even 5% solutions being harmless to the rabbit's eye. It does not produce either hyperemia or ischemia like cocain, but acts simply as an anesthetic. It is suitable for regional and infiltration anesthesia, also for mucous membrane infiltration, and is not nearly so poisonous as cocain. Should ischemia be desired it can be produced by the addition of a small quantity of adrenalin; this prolongs the anesthesia. He advises 2% to 3% solutions for use in ophthalmology and dentistry; 2% to 5% solutions for regional anesthesia; 12% solutions for infiltration anesthesia and 10% to 15% solutions for use in the nose, throat and ear. He advises the addition of sodium chlorid to the weaker solutions. [E.L.]

¹ Pester Medico-Chirurgische Presse, 1904, xviii, Nos. 30 and 31.

² Jour. Med. de Brux., No. 48, 1904, p. 653.

³ Therapeutic Gazette, 1904, No. 8.

⁴ Therapeutische Monatshefte, 1904, xviii, 418.

¹ Münchener medizinische Wochenschrift, 1904, li, 1606, No. 36.

² Dissertation, St. Petersburg, 1904.

³ Deutsche medizinische Wochenschrift, 1904, xxx, 1204, No. 38.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine
DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY
Legal Medicine
JOHN MARSHALL

General Surgery
MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR
Orthopedic Surgery
H. AUGUSTUS WILSON

Obstetrics and Gynecology
WILMER KRUSEN
FRANK C. HAMMOND
Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Treatment
SOLOMON SOLIS COHEN
L. F. APPLEMAN
Dermatology
M. B. HARTZELL

Laryngology, Etc.
D. BRADEN KYLE
Ophthalmology
WALTER L. PYLE
Pathology
ALLER G. ELLIS

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 3.

JANUARY 21, 1905.

\$5.00 YEARLY.

Scientific Street Cleaning.—An example of what can be accomplished by honest endeavor, controlled by scientific knowledge, in the administration of affairs concerning the public is furnished by the work of Street Cleaning Commissioner John M. Woodbury, of New York. Not satisfied with the old and inefficient method of cart-sprinkling and sweeping, he introduced the plan of washing the streets by means of compressed air machines, or with hose from the hydrants. Instead of laying the dust by sprinkling, he says the streets should be washed so clean there will be no dust. During the past year an average of 60 miles of street has been washed daily, between the hours of 1 and 4 in the morning. By washing, Dr. Woodbury means applying the water with sufficient force to remove the gum which clings to the surface of asphalt; this, he says, is the only sanitary way to clean such pavement. The proof of his assertion is found not only in the comparative freedom from dust as raised by the older methods, but also in a more positive way by bacteriologic tests. The latter show that bacteria are very largely removed from the streets by washing them as described. An agar plate exposed at a point on Fifth avenue just after the passage of a sprinkling wagon developed 460 colonies of bacteria. A second plate, exposed at the same place for an equal time after approved flushing of the street, showed only 10 colonies. Another proof of the efficacy of the plan adopted is the low deathrate in the part of the city which has been so cleaned for a considerable period of time. Extended comment upon these facts would be superfluous. They are made possible by putting the right man in the right place, a consummation devoutly to be desired in many of our graft-cursed cities.

The History of the Mentally Defective.—The word idiot is itself of interesting history. Its primary Greek significance was that of a private as distinguished from a public person. Our words *idiom*, *idiosyncrasy*, etc., are from the same root. The *ἰδιώτης* was simply one not engaged in public affairs. The beginnings of the degradation of the word are shown in its application soon to the common people, as distinguished from the upper classes. It was then applied to unprofessional and lay people, and soon became the slurring title of the unskilful and awkward. By slow degrees it became applicable to the stupid, and at last to the imbecile and

idiot. As late as the sixteenth and seventeenth centuries the word was still used in its earlier senses. This long sad history speaks indirectly of the pathetic history of the imbecile. If he was not killed or starved to death by neglect, etc., he was usually reduced to the condition of a beast either about the house or fields, or was actually driven into the woods and forced to live in caves, among wild animals, etc. In 1799 Itard took a "wild boy" found in the forests of Aveyron, and tried to teach him. The ability of the wild boys and wolf children to live, and the number that did so, shows that idiocy, as we have later learned, is of all degrees, and that a mind may be variously defective in some ways, even idiotic, but in others with capabilities well preserved. Blind Tom, the pianist, and the large number of mathematic idiots, are examples that show how far we are from understanding the real nature of idiocy, and they more than suggest the partial retention of sound mentality of the defective, the possibility of seizing upon the one or few normal or even highly developed faculties, and perhaps bringing others into coordination with them and to normality. The court fools and jesters of the olden times were often such partial idiots and defectives, and they truly lived upon their "wits," which were often better than those of their masters.

History of the Treatment of Idiocy.—According to an epitome made by Dr. Barr, in *Charities*, the first serious attempt at scientific rescue and treatment was made in the seventeenth century by St. Vincent de Paul, who gathered imbeciles at the Bicêtre, in Paris. His efforts were not very successful, and that of Itard, in 1799, was also a comparative failure. One of Itard's assistants was Dr. Edouard Seguin, who took up the work, and in 1838 established a school for idiots in the Hospital for Incurables at Paris. His theory was that idiocy was a prolonged infancy and his treatment was founded upon it, resulting in a system of physiologic training. Dr. Seguin finally moved to New York City and established a successful medicopedagogic school on the same lines as the Paris school. The first experimental school in the United States was established by Dr. Samuel G. Howe, director of the Perkins' Institute for the Blind, Boston, in 1842, and his first teacher, James B. Richards, had been a student of Seguin in Paris. With Seguin he afterward established the Penn-

sylvania Training School in Philadelphia. There are at present 29 large institutions, and many private training schools, in 21 States, and caring for about 10,000 feeble minded. The Massachusetts Training School has now been carrying on its work for 50 years, and Barre, also near Boston, nearly as old, is the largest private institution in our country. The special contribution of Dr. Kerlin was a recognition of the irresponsible criminal in the higher grades of the moral imbecile, and the necessity of his permanent sequestration as a means of prevention from, instead of punishment for, crime. Dr. Barr's classification follows:

EDUCATIONAL CLASSIFICATION OF THE FEEBLE MINDED.

		IDIOT.
<i>Asylum Care.</i>	Profound	{ Apathetic } Unimprovable. { Excitable }
	Superficial	{ Apathetic } Improvable in { Excitable } self-help only.
		IDIOIMBECILE.
		Improvable in self-help and helpfulness. Trainable in very limited degree to assist others.
		MORAL IMBECILE.
<i>Custodial Life and Perpetual Guardianship.</i>		Mentally and morally deficient.
		Low Grade: Trainable in industrial occupations; temperament bestial.
		Middle Grade: Trainable in industrial and manual occupations; a plotter of mischief.
		High Grade: Trainable in manual and intellectual arts; with genius for evil.
		IMBECILE.
<i>Long Apprenticeship and Colony Life under Protection.</i>		Mentally deficient.
		Low Grade: Trainable in industrial and simplest manual occupations.
		Middle Grade: Trainable in manual arts and simplest mental acquirements.
		High Grade: Trainable in manual and intellectual arts.
		BACKWARD OR MENTALLY FEEBLE.
<i>Trained for a Place in the World.</i>		Mental processes normal, but slow and requiring special training and environment to prevent deterioration; defect imminent under slightest provocation, such as excitement, overstimulation or illness.

The treatment of idiocy, as epitomized by Dr. Barr, from the experiences at Elwyn, consists chiefly in the recognition of feeble bodies and the contending forces of heredity. As conditions of malnutrition, or the presence of actual physical defects—often unsuspected—are found at the root of many ills, the one must be supplied and the other corrected, before the work of building up begins. For this the requirements are a regular life in healthful environment with suitable hygienic provision and the direction of experienced physicians and teachers. Thus, and only thus, may the infusion and constant renewal of strength and vigor into feeble minds and bodies be carried forward until capacity is attained, and there maintained by means adapted to individual needs. Free play and a life in the open as a means of establishing and maintaining nervous equilibrium, has place in every stage of this department; and the value of phys-

ical exercises, training for mental and moral as well as muscular coordination, is recognized in the successive classes of kindergarten, gymnastic, and military drills. In a general way there must be separation of normal from abnormal in the schools; asexualization in early youth of those who, by competent authority, have been adjudged actually mentally defective; permanent sequestration, with separation of the sexes in colonies providing asylums for the care and protection of the unimprovable; close custodial life for the moral imbecile, where strenuous work alternating with active amusements will give constant vent to superfluous energy; home life and congenial employment to those trained to aid in self-support and in the care of others.

Copper as a Preventive of Typhoid Fever.—The value of copper sulfate in destroying typhoid bacilli has recently been extensively exploited by the daily papers of Philadelphia. The basis of their reports is certain statements made by Dr. Edward Martin, director of public health and charities, under whose direction laboratory experiments have for some time been in progress, and also additional assertions by Dr. Moore, of the Agricultural Department at Washington, whose announcement on this subject earlier in the year created much discussion. As so often the case, many of the newspaper claims are somewhat roseate, and are apt to arouse unjustified expectation on the part of people whose long-suffering endurance of polluted drinking water makes them intensely anxious for developments of this sort. The statements of Dr. Martin regarding his laboratory experiments in destroying typhoid bacilli with copper sulfate are certainly most encouraging, but the results are only laboratory results; they need elaboration and confirmation, as he himself admits. Even the irrepressible reporter had his enthusiasm dampened by the concluding statements of Dr. Martin: "Though the powers of copper seem marvelous, we must not move hastily in the practical application of laboratory discoveries. For weeks we will not be in a position to advise that a polluted water-supply be treated with copper. Every step we take must be only after we are absolutely sure of our ground, and after the theoretic work in the laboratory has been tested and retested on a larger scale." The tenor of this quotation indicates the proper position at present to be assumed by the profession and the public. That this successful method of destroying typhoid bacilli in the laboratory may be extended and made possible of application to large bodies of water is a consummation devoutly to be desired, but that is a question of the future. In the meantime, the discussion on this subject bids fair to shatter an idol cherished from time immemorial by both physicians and laymen. We refer to the danger of copper poisoning from the use of cooking utensils made of that metal. Eminent physicians and chemists now announce this fear to be unfounded. Director Martin asserts positively that no harm will come from drinking water which has stood in copper vessels for four hours at living-room temperature or three or four times that long in refrigerators, though this will destroy all typhoid bacilli which may have been therein contained. In this assertion he

has authoritative support. There can be little doubt that danger from copper utensils has at least been over-rated. Who has not enjoyed the privilege of eating "home-made" apple butter with the resultant feeling at peace with himself and all the world? Yet it would be sacrilege to even suggest to the good housewife the making of this staple concoction in aught but a copper kettle. Practically, until this entire question is thoroughly settled, the only safe advice to the people of Philadelphia, and the users of contaminated water everywhere, is to boil all water that is to be taken into the alimentary canal.

The Forbes Anatomy Act.—From the records of the Anatomical Board of Pennsylvania, we have obtained through Dr. Forbes the following results of the administration of the Anatomy Act during the last 20 years. Dr. Forbes is a member of the Anatomical Board by virtue of the statute establishing the board. He is likewise the originator of the Anatomy Act. It was his Anatomy Act that the Legislature first passed in 1867. Soon after the trial of Dr. Forbes in a Court of Quarter Sessions, in 1883, the Act was amended, and its chief binding quality was then given by Dr. Forbes by his inserting the words "shall deliver," thus making the Act mandatory as it now stands. During the four years previous to the amended Act of 1883, there were distributed to the medical schools in Philadelphia 1,011 subjects, yearly average, 252 $\frac{3}{4}$. After the amended Act of 1883 and up to 1889, and during the secretaryship of Dr. Mears, 16 years, there were distributed 9,235 subjects, yearly average, 577 $\frac{3}{16}$. From 1899 to the present time, and during the active secretaryship of Dr. Hewson, there have been distributed to the various medical schools in these five years 4,904 unclaimed bodies, yearly average, 980 $\frac{1}{2}$. There has not been the slightest friction in the working of the Act during this score of years. The good the Act has accomplished in distributing these unclaimed dead bodies cannot be stated by any unit of measurement. It embraces the very root of everything that is accurate and useful and learned in medicine.

Innocent Cases Reported as Diphtheria.—When public health laboratories first offered the aid of cultural methods in the diagnosis of diphtheria—but 10 years ago—it was supposed that the chief value of the new utility would be found in the recognition of cases which did not present the clinical features of diphtheria. It was said, on the highest authority, that clinicians who pronounced the diagnosis of diphtheria in cases presenting the usual features were correct in 95% of instances. The bacteriologists expected to set the physician right very often when the diagnosis of diphtheria was excluded or doubtful, but they did not expect to find more than 5% of error in the positive clinical diagnosis. The experience of the Boston Board of Health appears to show, however, that the clinical diagnosis of diphtheria is subject to a minus correction of over 37% by cultural methods. In a short and interesting paper,¹ Dr. Hibbert

W. Hill, Director of the Laboratory, says that of 1,251 cases in which the specimens sent were accompanied by the physician's positive diagnosis of diphtheria, 785 were confirmed by the culture. The apparent error was 37.25%. When undoubted cases (clinical diagnosis confirmed by culture) come to later examination for disinfection and release it is found that about 46.4% of them (469 out of 1,010) still give positive cultures. In 1901 and 1902, the reports of diphtheria, not accompanied by specimens for bacteriologic diagnosis, numbered 1,020. When these were later reported as convalescent and were examined for disinfection and release, the diphtheria bacillus was found in 298 cases. If the diagnosis had been correct in all the 1,020 instances, the release culture should have been positive in 473. According to experience in undoubted cases of diphtheria, release cultures numbering 298 would indicate that the original diagnosis was correct in 642 cases out of 1,020, an apparent error of 37.1%. The conclusion that 37% of the cases diagnosed as diphtheria are in fact other and less serious affections may be approximately true for Boston at the present time, but the older dictum, that the error in positive clinical diagnosis of diphtheria is not greater than 5%, was in all probability as true in its day for Boston as for the country at large. The influence of the municipal laboratory has probably eliminated the dangerous diagnosis of "not diphtheria," and has carried physicians past that safety point into a contrary error of larger dimensions but smaller hazard. Dr. Hill's data for the present study are derived from recent experience. The experience of the Boston laboratory in its first four or five years might tell a different story and one fairly illustrating the status of diphtheria in this country at this moment. The general diphtheria mortality of the country was cut in half between 1894 and 1900, but the thrice blessed profit was most unequally distributed. It was paid to the people who received and exercised the gospel according to von Behring in 1894. With the further extension of public laboratory facilities and more general distribution of free antitoxin, the diphtheria mortality of the country may be cut in half again, and yet again, and, incidentally, medical diagnosis may acquire a 37% error in respect to diphtheria.

The systems of employment of prisoners, according to Henry Wolfer, warden of the Minnesota Penitentiary, are as follows:

1. The Auburn, or Congregate plan, providing for cellular separation at night and congregated workshops by day, with strict silence.
2. The Pennsylvania plan, in which the prisoner is confined to his cell, where he eats, sleeps, and works, except for a little exercise, during which his face is covered with a mask. This iniquitous, degraded, and infamous system is fortunately limited to the eastern half of the State of Pennsylvania. It is expensive, weakens the prisoner's mind and morals, and when he is discharged it turns him loose without skill or ability to earn his living, or the desire to do so.
3. The State Lease plan, the convict being leased to contractors at so much a day. This is a left-over of barbarism, but is perhaps better than the Pennsylvania

¹ Boston Medical and Surgical Journal, December 15, 1904.

plan. The deathrate is high, sanitation bad, and morals worse.

4. The State Use plan, providing that no article shall be manufactured except such as may be used in other State institutions. It is the offspring of sin sired by stupidity and dammed by malignity, a curse to the foolish taxpayer and mechanic as well as to the convict.

5. The Piece-price plan, the contractor furnishing material, machinery, etc., paying the State so much per piece for it.

6. The State Account plan, the State providing all, and selling the manufactured products just as a private company would do.

7. The Reformatory plan, providing for mechanical trade schools and educational advantages.

In Minnesota the piece-price and State account plans are carried out, and with results satisfying to all concerned—taxpayers and prisoners alike. The institution is self-supporting.

"Backache."—We are glad to see in the *Monthly Bulletin of the Indiana State Board of Health*, an article on backache, because this and many similar subjects greatly need ventilation. Dr. Hessler thinks backache especially needs pure air, because he contends that nine-tenths of the cases in which the symptom occurs are due to infected dust. To this theory of the etiology one, of course, must disagree. The osteopath is reaping a harvest because the regular has been culpably neglectful of the need of examination of the backs of his patients. Thousands of patients, if not millions, are today suffering from malformed, ill-shaped backs, and curved spines, and are being treated for every ailment to be thought of, while neither practitioner nor patient has the least idea of the true cause of the symptoms, and the back is never examined. These backs often present the astonishing picture and record of suffering extending over years or lifetimes. One shoulder-blade may be higher than the other, certain muscles are knotted and hard and bulging, certain others soft or atrophic, the spines of certain vertebrae may protrude in a noteworthy prominence, others may seem to be wholly absorbed, and the vertebral column may show all sorts of curves and abnormalities. A certain proportion of the lateral curvatures is due to a peculiar axis of astigmatism which compelled life-long head-tilting with compensatory spinal curvature. It is when these troubles are beginning and still functional that the wise physician's interference is needed. But what medical college teaches the art and science of examination of the back? Who thinks of it?

Psychiatry with relation to sociology has probably its greatest significance, and certainly the economic side of some of its problems are of general importance. Elsewhere in this issue, Charles L. Dana refers to the objective cost of caring for the insane, and places the figures for the United States at about \$85,000,000, with an annual increase of .04%. A judicious treatment of the problem of taking care of the insane and feeble-minded would save the government many thousands of dollars, and prevention would save thousands more. The minor psychoses, such as neurasthenia, hysteria, and

the mild melancholias should be more carefully looked for, not only by the internist, but by the neurologist with a view to their early recognition and treatment. Dana believes that these psychoses are often caused by some metabolic process, and is hopeful for encouraging results, from further study in this direction. We would suggest, as an amplification of this idea, investigation into the causes of disorders of metabolism, particularly such as relate to the autotoxemias, arising from the lower bowel and from the denutritional effects of migraine, etc. It may be that sometimes these causes are too simple and near at hand to be recognized by those who depend too much on the pathologic anatomy and chemic reactions for their conclusions. We agree with Dr. Dana that in searching for the nutritional exciting causes of states of mania and derangement "the burden of work now should be away from morphology and more in physiologic lines," such as the physiologic tides in the struggles of nature to overcome some defect reacting constantly on the nervous system with consequent degeneration of nervous tissue.

The Centenary of Perkinsism.—Quackery in the last hundred years has assumed so many protean disguises, and flourishes so vigorously today that we have forgotten to celebrate the Centenary of Perkinsism. It was 100 years ago that the great Perkinsian Institution or Metallic-Tractors Hospital, for the benefit of the poor was established in London. Dr. Elisha Perkins, of Plainfield, Conn., had died a few years previously, but his son carried the new gospel to poor and rich alike, especially to those "rich in dollars but poor in sense." England received the miraculous tractors with enthusiasm. "Eight professors in four different universities, 21 regular physicians, 19 surgeons, and 30 clergymen were among those who testified publicly to the efficacy of the treatment. Twelve physicians connected with the Royal Hospital at Copenhagen embodied their observations on cases treated with tractors in a bulky octavo volume, and naught disparaging to Perkinsism did that work contain. Poetry was written, even, about the boon conferred on mankind by the invention of the tractors." And Fessenden, of Vermont, wrote:

Behold! A rising Institution,
To spread Perkinian delusion;
Supported by a set of sturdymen,
Dukes, quakers, doctors, lords, and clergymen!

Unblushing at the knavish trick,
I fear these fellows soon will kick
(A thing of all things most uncivil)
One-half our physic to the devil!

The Perkins tractors in time vanished, but others drew the money of the gullible as successfully. At the present time a great literary journal conducted by a very pious man advertises and piously guarantees the miraculous powers of a bit of metal placed about the ankle, and connected with some liquid by a wire. "A dupable animal," indeed, is man—so long as the law will permit the duping.

The Corset.—The much abused but still universally used corset has just been made the subject of a "plaque" by M. & Mme. F. Lacroix. It is richly illus-

trated, and a sketch of the contents—pictorial and textual—has been given in the *Gazette Medicale de Paris* (October 8, 1904). From the remotest dates recorded in the annals of the earliest civilizations, the coquettish instincts of woman have led her to try to increase her natural attractiveness by special modification of the outlines of her waist and adjacent parts, as well as of her face and hair. Even the voice of Galen was raised in warning against the physical dangers attendant on the use of the compressing bands and girdles with which the belles of his day were in the habit of strangling the equatorial zones of their bodies. Through the middle ages the "cotte hardie" fulfilled the office of the corset among the dames of France. In the fourteenth century appeared the "corset exterieur," which was strongly laced in front. In the sixteenth century the "corset à busc" was introduced at court by Catherine de Médicis, which has been described as a metallic cuirass, which constituted a veritable engine of torture. The great founder of modern surgery, Ambroise Paré, endeavored to preach a crusade against it; but fashion was, as might be expected, far too strong for the physiology and the common sense of that age—as it has been for those of all the others. There are specimens of this terrible coat of mail in some of the Parisian museums, and in the private collections of M. Le Locq d'Estournelles and of Dr. Hamonic. The name of the Duchesse de Mercoeur is mentioned as that of a martyr to its use. The Venetian form of the metallic corset was known as the "busto," and presented a more majestic appearance. Under the patronage of Marie de Médicis the ferric corset had its functions emphasized by the employment of the immense hip pads imported from Spain, which were known by the name of "vertugadins." In the reign of Louis XIII the corset was temporarily replaced by the "bretelles"; it was restored under "La Grande Monarque." In the reigns of Louis XV and Louis XVI it assumed the form of a truncated cone. In the periods of the Revolution, the Directory, and the Empire the antique type of dress was used; the ladies used mammary girdles only. With the restoration of the Bourbons the corset was also "restored." Under the second empire the lacing was of the most suffocating type; the corset was again of the coniform outline. Physiology and common sense have since been struggling against the corset evil; but the net result has been pretty much the same as in the days of the old monarchy. After all, governments do not modify human nature so much as politicians profess to think!

College Girls, Marriage, and Race Suicide.—News from Denver states that the President of the National Federation of Women's Clubs has arranged for a meeting of a representative body of clubwomen and the presidents of women's colleges, with the idea of bringing about a union of purpose between the clubwomen and college women on educational matters. The very first thing these educators and clubwomen will accomplish will be to gather some surprising statistics. The clubwomen intend to prove that the college girls are the girls who marry, and moreover, that the college girls make the best mothers and have the largest families. According to the president's statistics, the children of the average college woman are an eighth more numerous than those of her sister who never attended college. The college women intend to prove that they not only have larger families, but that their children have a higher average standard of intellectual development. The meeting also will discuss plans for changes in the studies at women's colleges to conform to their ideas.

BOOK REVIEWS

Weather Influences. An Empiric Study of the Mental and Physiologic Effects of Definite Meteorologic Conditions.—By EDWIN GRANT DEXTER, Ph.D. With introduction by CLEVELAND ABBE, LL.D. New York: The Macmillan Co., 1904.

This study is extremely interesting. Some of the views put forward are familiar, but others are of startling novelty. The author states that it "was undertaken originally from the standpoint of the teacher with the hope of answering some of the questions which arose within his mind as to the seeming effects of cosmic environment upon the pupil"; but it gradually reached its present scope, which includes the whole range of weather influences upon man's psychic and physical health. It is impossible to do the book justice within our space; we shall therefore simply quote the author's main conclusions, the evidence for which the reader must seek for himself in the pages of the volume. He will find some *non sequitur* reasoning and some loose statement, but also much food for thought. The conclusions referred to are:

1. Varying meteorologic conditions affect directly, though in different ways, the metabolism of life.
2. The "reserve energy" capable of being utilized for intellectual processes and activities other than those of the vital organs is affected most by meteorologic changes.
3. The quality of the emotional state is plainly influenced by the weather states.
4. Although meteorologic conditions affect the emotional states, which without doubt have weight in the determination of conduct in its broadest sense, it would seem that their effects upon that portion of the reserve energy which is available for action are of the greatest import.
5. Those meteorologic conditions which are productive of misconduct in a broad sense of the word are also productive of health, and mental alertness; as a corollary, misconduct is the result of an excess of reserve energy, not directed to some useful purpose.

The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis.—By WILLIAM ALLEN PUSEY, A.M., M.D., and EUGENE WILSON CALDWELL, B.S. Second edition, thoroughly revised and enlarged. Philadelphia, New York, London. W. B. Saunders & Co., 1904.

The revision of this book has brought it well up-to-date. The general directions are clear and thorough, and the many illustrative cases cited, practically demonstrate the scope and limitations of the methods. The illustrations and general book-making are excellent.

The Urine and Clinical Chemistry of the Gastric Contents of Common Poisons and Milk.—By J. W. HOLLAND, M.D. Seventh edition, revised and enlarged. P. Blakiston's Son & Co., 1904.

This very useful volume to the student and general practitioner has been much enlarged and revised. The chapter on the examination of the gastric contents is especially commended to the practitioner who must depend upon his own laboratory for making his chemic analyses. The chapter on milk examination presents the subject in a practical and condensed manner. There are numerous excellent illustrations.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Bacteriology and the Public Health.—By GEORGE NEWMAN, M.D., F.R.S.E., D.P.H., formerly Demonstrator of Bacteriology in King's College, London, etc. Illustrated, third edition. P. Blakiston's Son & Co., Philadelphia, 1904.

How to Study Literature. A guide to the intensive study of literary masterpieces.—By BENJAMIN A. HEYBRICK, A.B. (Harv.), Professor of English Literature, State Normal School, Millersville, Pa. Third edition, revised and enlarged. Hinds, Noble and Eldredge, New York City. Price, 75c. postpaid.

Annual Report of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States for the fiscal year 1904. Government Printing Office, Washington, D. C., 1904.

The Principles of Relief.—By EDWARD T. DEVINE, Ph.D., LL.D. General Secretary of the Charity Organization of New York City. The Macmillan Company, New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Cuban Sanitation will now be Accomplished.—The first act of the House on the resumption of the session of the Congress on January 9 was the passage of the appropriation for the immediate sanitation of Cuban cities, the amount of which was raised by the Senate to \$326,000.

Cubans Praised for Their Work in Sanitation.—The American Public Health Association, before adjourning on January 12, tendered a vote of thanks to the Superior Sanitary Board of Cuba for its intelligent, persistent, and completely successful efforts in preventing yellow fever infection and promptly controlling it whenever imported.

Miscellaneous.—**Philadelphia:** The Medical Club of Philadelphia held its annual meeting January 13 in the Hotel Walton, 300 members being present. The following officers were elected: President, Dr. Roland G. Curtin; first vice-president, Dr. Wharton Sinkler; second vice-president, Dr. Thomas G. Potter; secretary, J. Guernsey Taylor; treasurer, Dr. Lewis H. Adler, Jr.—**Dr. Horace Jayne** has resigned as director of the Wistar Institute of Anatomy and Biology, and **Dr. Milton J. Green**, formerly assistant director, has been appointed director.—**Portrait of Dr. Osler:** The graduates of the medical department of the University of Pennsylvania, who studied under Dr. Osler, have arranged to present a life-size portrait of Dr. Osler to the University.

Scientific Research by Women.—The Association for Maintaining the American Women's Table at the Zoological Station at Naples and for Promoting Scientific Research by Women announces the offer of a third prize of \$1,000 for the best thesis written by a woman on a scientific subject, embodying new observations and new conclusions based on an independent laboratory research in biologic, chemic, or physical science. The theses offered in competition are to be presented to the executive committee of the association and must be in the hands of the chairman of the committee on the prize, Mrs. Ellen H. Richards, Massachusetts Institute of Technology, Boston, Mass., before December 31, 1906. The prize will be awarded at the annual meeting in April, 1907. Each thesis must be accompanied by a sealed envelope, enclosing the author's name and address, and superscribed with a title corresponding to the one borne by the manuscript.

Praises American Fever Fighters.—One of the prominent features at the formal opening of the annual meeting of the American Public Health Association, in Havana, on January 10, was the address of the president, Dr. Carlos Finlay, who is noted as a yellow fever expert, and is chief of the Cuban Health Department. Dr. Finlay paid a beautiful tribute to the sacrifice of American experts who have done so much to banish yellow fever from Havana. Dr. Finlay said the banishment of yellow fever was largely due to two commissions from Washington, the first a quarter of a century ago, and the second 20 years later. The latter's members were prostrated by the disease and one, Dr. Jesse Lazear, died a martyr to scientific zeal, permitting himself to be infected by mosquitos. Dr. Erastus Wilson, of Havana, read a paper in which he said that while the sanitary improvements during and since the American intervention had reduced the deathrate half, Havana is now in the condition of having washed her face and left her underclothing dirty. Her greatest need is a complete sewer system. A great number of American appliances have been placed in houses, but the sewage is largely conveyed to subterranean cisterns.

NEW YORK.

A Million Dollars for Model Homes.—Henry Phipps, the former Pittsburg steel manufacturer, will give \$1,000,000 for the erection in New York City of model tenement houses for the working classes. The tenements will be erected on a business basis, and the earnings are to accumulate and to be used in building more houses.

Gift to Hospital.—William B. Cogswell, whose past generosity to the Hospital of the Good Shepherd is well known, has made the institution another gift of \$50,000. Mr. Cogswell's gift was not unexpected. He now holds a mortgage for \$100,000 on the hospital property for a loan he made of that amount, and his gift will cut the debt in two.—[*Syracuse Herald.*]

Future Water-supply of New York.—According to an exchange, in his annual message, Mayor McClellan lays stress on the prime importance of the future water-supply of New York, and expresses the opinion that it is necessary to begin now to make provision beyond the immediate future, provision for the city which within quite measurable time may number ten million inhabitants. As a practical suggestion, he proposes a special enactment creating a commission of three members to be appointed by the mayor, one on the recommendation of the Chamber of Commerce, one on that of the American Society of Civil Engineers, and one to be named by the mayor.

New Training for Boys.—Reports made recently at the annual meeting of the State Charities Aid Association, showed that one of the most interesting changes effected was in connection with the reformatories. Radical reforms are planned for the State Industrial School at Rochester, which is to be moved into the country, and it is to be known as the State Agricultural and Industrial School, a title which indicates the wide departure from old methods. An agricultural life and training will be adopted in a large degree, and the boys will be separated into some 30 groups of 25 each, each group to have its own cottage, barn, live stock and agricultural implements.

Patient Suffering from Yellow Fever Brought to New York.—On January 11, the steamship, City of Washington, arrived from Colon, bringing Mr. John Saeger, who was, at the time, suffering from yellow fever. Mr. Saeger was secretary to Chief Engineer Wallace, of the Panama Canal, and had started home, bringing with him the body of his wife who had died of yellow fever on the Isthmus of Panama on January 2. A special act of Congress was necessary before the body could be brought to this country. Mr. Saeger had previously served as private secretary to William Whitney while he was in President Cleveland's cabinet, and later served in the same capacity to Daniel Lamont. He was a brother-in-law of Dr. J. Wesley Boveé, of Washington, D. C.

Tenement House Commission.—Mayor McClellan, of New York, approves of the work done by the Tenement House Commission, and he is quoted with the following statement: The Health Department has been conducted with great vigor and success during the past year. It has shown marked results, not only in the carrying out of its routine duties, but also in the taking of the initiative in devising and furthering certain plans for the prevention as well as the cure of some of the more common diseases to which the city is subject. The administration of the Tenement House Department has effected notable progress in a more perfect, thorough and uniform enforcement of the Tenement House Law. The practical elimination of the social evil, with its deadly moral contamination, from the homes of the people, is a most important and beneficial effect of the work of this department.

PHILADELPHIA, PENNSYLVANIA, ETC.

Would Isolate Cases of Tuberculosis.—At a meeting of the Board of Health, of Paterson, N. J., recently, it was decided to hold a special meeting to take action looking to the isolation and care of persons suffering from tuberculosis.

Ship Arrives with Beriberi.—On January 8 the American bark Abby Palmer, from Honolulu, by way of Kahulia, bound for Philadelphia with a cargo of sugar, arrived at the Marcus Hook quarantine station with two cases of beriberi on board.

City's Deaths in 1904.—Of the deaths in 1904 the greatest number were due to pneumonia, with tuberculosis second, and heart disease third. In all, 25,972 deaths were registered, which was only 25 more than in 1903. According to the registrar of births and deaths, the deathrate was 18.44 per 1,000, as compared with 18.82 per 1,000 in 1903. There were 180 more deaths from pneumonia last year than in 1903, and 54 more from tuberculosis. There were 213 fewer deaths from typhoid fever than in 1903. Smallpox claimed 49 less victims than in 1903.

SOUTHERN STATES.

The Cocain Habit in Washington.—An exchange states that Major Richard Sylvester, in his annual report of the police department of Washington, recently submitted to the District Commissioners, calls attention to a bill pending in Congress to regulate the practice of pharmacy and sale of poisons, and urges its passage. The examination of the poison register of one dealer's place alone, he says, disclosed 40 sales of cocain in one day. The drug having been put in properly labeled envelopes, there was no violation of law. Such sales would be retarded very much if cocain could be furnished only on the certificate of a registered physician and the prescription filled but once, as the proposed law provides.

WESTERN STATES.

Mortality of Michigan during December, 1904.—The total number of deaths reported to the Department of State for the month of December was 2,782, corresponding to a deathrate of 13.0 per 1,000 population. This rate is higher than that for the preceding month, which was 11.6 per 1,000, but lower than the rate for December, 1903, which was 14.1 per 1,000. By ages, there were 519 deaths of infants under 1 year of age, 133 deaths of children, aged 1 to 4 years, and 922 deaths of elderly persons, aged 65 years and over. A considerable increase is shown for the rate of mortality of infants and the aged as compared with November. Important causes of death were as follows: Tuberculosis of lungs, 176; other forms of tuberculosis, 26; typhoid fever, 51; diphtheria and croup, 50; scarlet fever, 12; measles, 5; whoopingcough, 10; pneumonia, 234; diarrheal diseases of infants, 42; meningitis, 35; influenza, 34; cancer, 148; accidents and violence, 181. There were 2 deaths from smallpox, 1 in Blair township, Grand Traverse County, and 1 in Jackson City, Jackson County.

CANADA.

Fire in a Large Hospital.—On January 13 a fire occurred in the Royal Victoria Hospital, Montreal, without, however, causing any loss of life. The damage to the institution is estimated at \$150,000. The Royal Victoria Hospital is said to be the finest in Canada, and was built by the gifts of Lords Strathcona and Mount Stephen.

FOREIGN NEWS AND NOTES

GENERAL.

Yellow Fever in Panama.—The *Public Health and Marine-Hospital Service Reports* has been advised by its representative at Panama that between December 1 and December 21 there had been three cases of yellow fever in that city. None of the sick was an American, one being a Canadian, another a Scotchman, and the third a Spaniard.

Liverpool's Deathrate.—Liverpool's abnormal deathrate was discussed at a meeting of the Health Committee. The medical officer reported a birthrate of 29.9 per 1,000 and a deathrate of 37.9 per 1,000. A member of the committee said that some mothers had not the instincts of animals. The committee had heard of them giving their infants onions, carrots, beer and gin. Dr. Hope, medical officer, said that in 200 families, 792 children had been born, and only 403 survived, which was an excessive deathrate.

Personal.—Dr. Alonzo H. Sylvester, Emperor William's American dentist, committed suicide at his home in Berlin on January 10, by shooting himself through the head. The Emperor was fond of Dr. Sylvester, created him a Royal Prussian Councillor, appointed him his private dentist, and gave him many presents. Dr. Sylvester was the pioneer American dentist in Berlin, having come here 80 years ago. He had an extraordinarily large professional income, but nevertheless had financial difficulties.

American Hospital in Korea.—An exchange states that a new hospital building has been dedicated in Seoul, Korea, to be conducted under the direction of the Presbyterian Board of Foreign Missions. The first operation was performed in the new building on October 4, 1904, and was for the extraction of cataract, one of the workers characterizing it as an especially appropriate one, that the first important work of a new missionary hospital should be an operation for "letting in the light." The entire cost of the building was defrayed by L. H. Severance, of Cleveland, Ohio, and the hospital will be known as the Severance Memorial Hospital.

Infecting Field Mice.—Field mice are as great a nuisance in many parts of Europe as prairie dogs are in some parts of the West, or as rabbits are in Australia. Until recently no effective means was known for combating this mouse plague, but since resort was had to the infection method large areas have been systematically cleared of the pest. The virulent culture is that of the organism known as the mouse typhus, about which there is some contention that it is identical to the similarly named disease in man. It was feared that the adoption of this method would result in the infection of fowls and other farm animals, but these apprehensions appear to have been groundless.

A Sign of Death.—Dr. Icard has lately published a test of death, which he regards as absolutely trustworthy. After the injection of a solution of fluorescein deeply into the cellular tissue, if circulation still goes on, intense jaundice of the skin and mucous membranes follows the absorption of that substance, while the eye becomes green, "like an emerald set in the orbit," to use the author's phrase. If the circulation has completely stopped, nothing of the kind is seen. When, therefore, after some time has elapsed from the time of the injection, none of these phenomena of coloration are seen, it may safely be concluded that death has occurred. A return to life would be manifested by renewal of circulation, and this would automatically be followed by yellow staining of the skin and green coloration of the eye. In time of epidemic, Dr. Icard thinks it would be expedient, at least two hours before a body is placed in the coffin, to make a subcutaneous injection of fluorescein. If the person is dead, this causes no disfigurement; if he is alive, only a transient discoloration is produced.—[*British Medical Journal*.]

OBITUARIES.

Henry Martyn Wells, U. S. N. (retired), aged 60, January 12, at his home in New York. He was formerly medical director in the United States Navy, having entered the navy in 1857, and was commissioned surgeon in 1886. He was promoted to the position of medical inspector in 1884, and later was placed in charge of the Museum of Hygiene at Washington. Up to the time of his retirement, in 1897, Dr. Wells was medical director and member of the Medical Examining Board. He was a native of Massachusetts, having been born in Northampton.

William Churchill Carmalt, aged 39, January 8, at his home in New York. He was a graduate of the College of Physicians and Surgeons, New York; an organizer of the Hudson Street Hospital, and its first house surgeon. He was on the house staff of the New York Hospital; was demonstrator of anatomy at the College of Physicians and Surgeons; attending surgeon to the Lying-in Hospital; and assistant surgeon at the Women's Hospital.

Albert G. Carr, aged 54, committed suicide at his home in Durham, N. C., January 15; he had suffered from insomnia for several months. He was a graduate of the Bellevue Hospital Medical College, New York City, in 1870; lecturer and visiting physician to the Watts' Hospital, Durham; member of the American Medical Association; and medical examiner for many prominent life insurance companies.

Joseph Peltz, aged 62, January 13, at his home in Philadelphia, after an attack of influenza. He was graduated in medicine from the University of Pennsylvania in 1865, and has practised medicine in the city of Philadelphia continuously since that time. He was a member of various medical societies and a wellknown physician.

Arthur C. Adams, aged 50, of Washington, D. C., January 1, as the result of a self-inflicted gunshot wound, at the Providence Hospital, Washington; a graduate of the medical department of Columbian University, Washington, D. C., in 1873. Member of the American Medical Association.

Louis C. D'Homergue, aged 70, January 12, at his home in Brooklyn, N. Y. He served in the engineer corps of the Sixty-ninth New York Volunteers during the Civil war and for a number of years had been connected with the Bureau of Vital Statistics of the Health Department.

William Harper Davis, aged 35, January 8, at his home in Brooklyn. He was a graduate of Dartmouth College, and medical department of New York University; member of Kings County Medical Society, and a member and medical examiner for Magna Charta lodge.

Arthur T. O'Hara, aged 43, January 1, from heart disease, at the Buffalo Quarantine Hospital, of which institution he had been physician and superintendent for 13 years; a graduate of the University of Buffalo, medical department, in 1890.

Eber K. Watts, aged 45, January 8, at his home in Westville, Ohio; a graduate of the medical department of the University of Michigan, Ann Arbor, in 1879. One time coroner of Wayne county, Ind.; a member of various medical societies.

Joseph Bartley Patrick, aged 48, of Baldwin, Wis., December 30, from postoperative pneumonia, in St. Luke's Hospital, St. Paul, Minn. A graduate of the medical department of the Western Reserve University, Cleveland, in 1886.

Thomas H. Manley, aged 54, January 13, at his home in New York. He was surgeon to the Metropolitan and Harlem Hospitals; a graduate of the University of New York. He was a member of various medical organizations.

Hiram W. Young, aged 33, of St. Louis, was drowned December 30, by the upsetting of a gasolin launch, 35 miles below St. Louis. He was a graduate of the medical department of the Washington University in, in 1901.

Robert H. Somers, January 3, at his home in Lemars, Plymouth Co., Ia., of pneumonia; a graduate of Toronto University Medical Faculty, in 1896; a member of the American Association.

Amos C. Wood, aged 80, January 2, at his home in Owensboro, Ky.; a graduate of the University of New York, New York City, in 1855, and one of the oldest practitioners of Owensboro.

Evan F. Smith, age 53, January 3, at his home in Brooklyn, N. Y., from influenza; a graduate of the medical department of the Columbian University, Washington, D. C.

Gustavus A. Rene, aged 68, of San Bernardino, at the hospital in that city, December 23; a graduate of the Medical College of the Pacific, San Francisco, in 1872.

Shorland Harris, aged 75, December 1, from apoplexy, at his home in Mason City, Ia.; a graduate of Exeter College, England, in 1852, and a surgeon in the Crimean war.

J. A. Hamilton, January 11, at his home in Pollock, La. He was a graduate of Jefferson Medical College in 1876, and one of the most prominent practitioners of Pollock.

John G. Lee, aged 75, December 24, at his home near Lasea, Tenn., from paralysis; a graduate of the University of Louisville medical department, in 1865.

Emory F. Gresham, aged 35, December 28, from brain tumor, at his home in Sedalia, Mo.; a graduate of Hospital College of Medicine, Louisville, in 1892.

Joseph P. Richard, aged 56, December 31, at his home in Donaldsonville, La.; a graduate of Tulane University medical department, New Orleans, in 1870.

James E. Jones, aged 72, December 25, at his home in Clayville, N. Y.; a graduate of Albany (New York) Medical College, in 1855.

George V. Convery, January 8, at his home in Brooklyn; a graduate of Long Island College Hospital in 1880.

Harry Lewis Hamilton, aged 33, December 30, at his home in Chicago, Ill.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 13, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington	Jan. 1-7	2	
Illinois:	Chicago	Jan. 1-7	16	
	Peoria	Dec. 1-31	7	
Louisiana:	New Orleans	Jan. 1-7	5	
3 cases imported				
Massachusetts:	Everett	Jan. 1-7	2	
	Hyde Park	Jan. 1-7	1	
Missouri:	St. Louis	Dec. 25-Jan. 7	35	6
New Jersey:	Camden	Jan. 1-7	1	
Ohio:	Cincinnati	Jan. 1-7	7	
South Carolina:	Charleston	Jan. 1-7	3	
	Greenville	Jan. 1-7	6	1
Tennessee:	Nashville	Jan. 1-7	11	
Wisconsin:	Milwaukee	Jan. 1-7	3	

SMALLPOX—FOREIGN.			Cases	Deaths
Austria-Hungary:	Prague	Dec. 11-24	24	
Brazil:	Bahia	Nov. 29-Dec. 10	27	1
	Rio de Janeiro	Nov. 28-Dec. 4	296	108
Belgium:	Brussels	Dec. 18-24	1	
China:	Shanghai	Nov. 13-26	1	71
France:	Paris	Dec. 18-24	17	
Great Britain:	London	Dec. 18-24	9	
	Newcastle-on-Tyne	Dec. 18-24	7	
	Nottingham	Dec. 18-24	3	
	South Shields	Dec. 18-24	3	
India:	Bombay	Dec. 7-13	19	
Panama:	Colon	Dec. 23-Jan. 1	1	
	Panama	Dec. 26-Jan. 1	1	
Russia:	Moscow	Dec. 11-17	7	
	St. Petersburg	Dec. 18-24	6	5
Turkey:	Constantinople	Dec. 19-25	8	

YELLOW FEVER—UNITED STATES.			Cases	Deaths
Texas:	Galveston	Dec. 31	2	
From steamship Horatio from Para, via Barbados				

YELLOW FEVER—FOREIGN.			Cases	Deaths
Brazil:	Rio de Janeiro	Nov. 28-Dec. 11	2	1
Cuba:	Havana	Jan. 6	3	2
From Austrian vessel Dora, from La Guayra and Colon				
Mexico:	Coatzacoalcas	Dec. 25-31	1	
	Juchitan	Dec. 25-31	1	
	Vera Cruz	Dec. 25-31	1	1
Panama:	Panama	Dec. 25-31	2	

CHOLERA.			Cases	Deaths
India:	Bombay	Dec. 7-13	2	
	Calcutta	Dec. 4-10	72	
Russian Empire:	Astrachan district	Nov. 23-29	6	
	Jelisevopol	Nov. 22-26	32	
	Samara	Nov. 23-29	162	
	Saratov	Nov. 23-29	40	19
Trans-Caspian Territory and Central Asia:				
	Serachs	Nov. 23-29	27	20
Trans-Caucasia:				
	Baku	Nov. 14-23	29	10
	Batum	Dec. 1-7	3	
	Erivan	Nov. 23-29	1,933	661

PLAGUE.			Cases	Deaths
Arabia:	Crater	Dec. 1-16	47	47
	Maalla	Dec. 1-16	2	2
	Hedjuff (Hospitals)	Dec. 1-16	2	2
	Tawahi	Dec. 1-16	1	1
	Shaikh Othman	Dec. 1-16	3	4
Egypt:	Port Said	Dec. 3-10	1	1
	Tukh District	Nov. 27-Dec. 10	3	3
Great Britain:	London	Nov. 30	1	
From steamship Weybridge, from the Rio de la Platte				
India:	Bombay	Dec. 7-13	72	
	Calcutta	Dec. 4-10	12	
	Karachi	Dec. 5-11	27	22
Straits Settlements:	Singapore	Dec. 20-26	1	1

Changes in the Medical Corps of the U. S. Army for the week ended January 14, 1905:

MASON, Major CHARLES F., surgeon, will proceed to Fort Dade to investigate and report upon the outbreak of typhoid fever at that post.

STILES, Captain HENRY R., assistant surgeon, will report January 17 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for promotion.

THONEY, FRANCIS E., sergeant first class, is relieved from further duty in the Philippines Division and will be sent to the depot of recruits and casuals, Angel Island, Cal., reporting by letter to the military secretary of the Army for further orders.

STILES, Captain HENRY R., assistant surgeon, and Contract Surgeons G. PARKER DILLON and MELVILLE A. HAYS, U. S. Army, are relieved from further duty in the Philippines Division.

LAMKIN, EDWARD E., contract surgeon, leave granted August 4, is extended to include January 29.

LOVE, JOSEPH W., contract surgeon, will report at Cottabato, Mindanao, for duty.

SHOCKLEY, Major A. W., assistant surgeon, is relieved from duty at Jolo, Jolo, and will proceed to Zamboanga, Mindanao, for duty.

DAVIS, First Lieutenant WILLIAM T., assistant surgeon, is assigned to station at Camp Marahui, Mindanao.

PRENTICE, A. D., contract surgeon, is relieved from duty at Camp Marahui, Mindanao, and will proceed to Davao, Mindanao, for duty, relieving Contract Surgeon R. King Cole, now under orders to return to the United States for annulment of contract.

CASADAY, GEORGE H., contract dental surgeon, is granted leave for three months with permission to visit the United States.

HALL, WILLIAM E., contract surgeon, will proceed to Passay Garrison, Manila, P. I., for duty.

PURVANCE, Major WILLIAM E., surgeon, having arrived on the transport Sherman, will report to the commanding general, department of the Visayas, for duty.

PIPES, First Lieutenant HENRY A., assistant surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Mindanao, for duty.

BINGHAM, First Lieutenant ERNEST G., assistant surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Mindanao, for duty.

WARRINER, BENJAMIN B., contract surgeon, having arrived on the transport Sherman from leave in the United States, will report to the commanding general, department of Luzon, for duty.

BROWN, POLK D., contract surgeon, having arrived on the transport Sherman from leave in the United States, will report to the commanding general, department of Luzon, for duty.

JOHNSON, CHARLES W., contract surgeon, having arrived on the transport Sherman from leave in the United States, will report to the commanding general, department of Mindanao, for duty.

SORBER, ORD M., contract dental surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Luzon, for duty.

TIGNOR, EDWIN P., contract dental surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Luzon, for duty.

BERNHHEIM, JULIEN R., contract dental surgeon, is relieved from duty in the department of Luzon and will report to the chief surgeon of the division for instructions, with a view to his assignment to duty in charge of the dental base station No. 1, first reserve hospital, Manila.

WARRINER, BENJAMIN B., contract surgeon, will proceed to Tanay, Rizal, for duty.

COFFEY, ALBION MCD., contract surgeon, will proceed from Joplin, Mo., to Fort Worden for duty.

PORTER, E. H., contract surgeon, leave granted May 31 is extended to include January 29.

FREEMAN, CHARLES E., contract surgeon, is granted leave to include January 31.

BROWER, THOMAS E., sergeant first class, will proceed to the Army and Navy General Hospital, Hot Springs, Ark., to relieve Sergeant First Class Adam Korn.

FREEMAN, CHARLES E., contract surgeon, is relieved from temporary duty at the depot of recruits and casuals, Angel Island, Cal., and will proceed to his home, San Francisco, Cal., for annulment of contract.

RENO, First Lieutenant WILLIAM W., assistant surgeon, is relieved from further duty at the Louisiana Purchase Exposition Grounds, St. Louis, Mo., and will comply with orders, War Department, December 10.

CHIDESTER, First Lieutenant WALTER C., assistant surgeon, is granted leave for ten days, from about January 4.

Changes in the Medical Corps of the U. S. Navy for the week ended January 14, 1905:

YOUNG, R. H., assistant surgeon, resignation accepted, to take effect January 31, 1905—January 10.

TAYLOR, J. S., passed assistant surgeon, detached from the Relief and ordered to the Ohio—January 11.

Changes in the Public Health and Marine-Hospital Service for the week ended January 11, 1905:

WHITE, J. H., surgeon, granted leave of absence for six days from January 17—January 10, 1905.

WERTENBAKER, C. P., surgeon, to report at Washington, D. C., for special temporary duty—January 10, 1905.

BLUE, RUPERT, passed assistant surgeon, detailed as inspector of unseizable property at the Marine-Hospital, San Francisco, Cal.—January 7, 1905.

FRICKS, L. D., passed assistant surgeon, relieved from duty at La Guayra, Venezuela, and directed to proceed to New York, N. Y., and report arrival by wire—January 9, 1905.

KORN, W. A., passed assistant surgeon, bureau letter of December 27, 1904, granting Passed Assistant Surgeon Korn leave of absence for seven days, amended so that said leave shall be for four days only—January 5, 1905.

ATILES, PEDRO DEL VALLE, acting assistant surgeon, granted leave of absence for seven days from December 26, 1904, under paragraph 210 of the regulations.

EDWARDS, J. W., acting assistant surgeon, granted leave of absence for twelve days from December 20, 1904, and three days from January 1, 1905—January 6, 1905.

JACKSON, J. M., JR., acting assistant surgeon, department letter of December 8, 1904, amended so as to grant Acting Assistant Surgeon Jackson leave of absence for nineteen days instead of thirty days from November 26, 1904—January 7, 1905.

TUTTLE, JAY, acting assistant surgeon, granted leave of absence for thirty days from January 9—January 9, 1905.

WETMORE, W. O., acting assistant surgeon, granted leave of absence for ten days from January 4—January 9, 1905.

STEARNS, W. L., pharmacist, to proceed to Washington, D. C., for special temporary duty—January 4, 1905.

GIBSON, F. L., pharmacist, leave of absence granted Pharmacist Gibson for thirty days from January 1, 1905, amended to read ten days from January 1, 1905—January 6, 1905. Relieved from duty at Honolulu, T. H., and directed to proceed to San Francisco, Cal., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist Chas. Slough—January 4, 1905.

SLOUGH, CHAS., pharmacist, upon being relieved from duty at San Francisco, Cal., by Pharmacist F. L. Gibson, to proceed to Honolulu, T. H., and report to chief quarantine officer for assignment to duty—January 4, 1905.

Casualty.

Pharmacist F. R. Hanrath died at Cleveland, Ohio, January 7, 1905.

SOCIETY REPORTS

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Birmingham, Alabama, December 13, 14 and 15, 1904.

[Specially reported for *American Medicine*.]

[Concluded from page 52.].

Vaginal Cesarean Section.—C. JEFF MILLER (New Orleans) read a paper on this subject, in which he reported a case and summed up the advantages of the method as follows: (1) In severe eclampsia, when the woman is unconscious from the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators or manual dilation; (2) in severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of accouchement forcé, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised; (3) it may be considered in other conditions where cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation, the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operations; (4) it is not more dangerous than attempting to deliver either by version, or forceps, when the os is not fully dilated, if done under strict antiseptic precautions.

Dermoid Cysts and Fistulas of the Sacrococcygeal Region.—LEWIS C. BOSHER (Richmond, Va.) during the past few years had had occasion to operate on seven cases of dermoid cysts or fistulas of the sacrococcygeal region. The patients sought relief either on account of the presence of annoying exudation or after some traumatism had given rise to the formation of abscess, with the usual train of inflammatory symptoms. The cases operated on by the writer were all in male adults. After referring to the diagnosis and prognosis, he said that the usual methods resorted to for treating inflammatory fistulous tracts would seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It was to be noted that this was not always possible, as in a case reported by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

Hematoma of the Ovary.—MAGNUS A. TATE (Cincinnati, Ohio), in a paper on this subject, presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematoma of the ovary: 1. Before or during birth. 2. At or near the first menstrual flow. 3. Early adult or child-bearing period. In studying this variety of cases collected, he presented a few facts of importance. Klob had stated that in frequency the follicular variety was by far the commoner. Scott, in operating for ovarian disease, stated that hematomas were frequently found. In this, the author concurred, and did not believe that hematomas were so rare as the paucity of case reports in literature would lead one to believe. Hemorrhage might collect in small, dark patches, or be so diffuse as to destroy the parenchyma or even the ovary itself. In size, hematomas varied from that of a hazelnut to a good-sized orange. In no case reported was a diagnosis positively made before section, except the one reported by Edebohl, and this diagnosis was questioned by every one who took part in the discussion. The cases uncomplicated were free from fever, but pain was almost a constant symptom. Vaginal examination disclosed almost constant tenderness. Sometimes the ovary was fixed, and the pain frequently severe. Schultze and Riedel reported hematomas in newborn infants. Winckel saw the follicular variety of hematoma following petroleum burns, phosphorus poisoning, typhoid fever, cerebral hemorrhage, tuberculosis, and heart failure. Edgar reported a case where the hematoma ruptured and caused a pelvic hematocele; and Boldt, a case where the hematoma ruptured and peritonitis resulted. Two cases of hematoma were reported, in which the hematomas became cystic and had twisted pedicles. Garrigues gave the history of a case associated with vicarious menstruation; Janvrin, a case of dysmenorrhea, where on section there was salpingitis of both tubes, abscess of right, hematoma of left ovary; and Murray, a case of abscess of left ovary and hematoma of right. Kramer reported a case associated with purpura and epilepsy; and Edebohl, one where hysteroepilepsy complicated. Wylie had a case where electricity was the probable cause. Tate, a case following a long, tedious labor; Reamy, one where one ovary was removed and a portion of the other, and subsequently the patient had two children. Ricketts reported one associated with a large ovarian tumor, one with a dermoid, one with a suppurating appendix, one where the left hematoma was removed, the right being normal, and one year later the right ovary had to be removed for a hematoma. Wenning operated

upon a case of double hematoma, the patient suffering from excruciating pain when an examination was made. The age of child-bearing women who were afflicted with hematoma of the ovaries, varied from 15 to 40 years, and the left ovary seemed to be more frequently affected than the right.

Pathogenesis and Surgical Treatment of Tuberculous Peritonitis: with Report of Cases.—WILLIAM E. STOKES (Salisbury, N. C.), after dwelling on the pathogenesis, divided tuberculous peritonitis into four forms—the adhesive, suppurative, tympanitic and ascitic. He quoted extensively from the literature of the subject, referred to the modes of infection, gave synopses of cases, histologic examinations, and reported six cases. After describing the surgical technic he said that operation was contraindicated in cases of tuberculous peritonitis, whenever there was an advanced tuberculosis of the liver, lung, kidney, intestines, glands, or when the exudate within the peritoneal cavity was solid. What the actual changes in this infection of the peritoneum were, or what reaction was brought about in the local lesions and the peritoneum itself by the mere abdominal incision, remained problematic. Was it the mechanical action brought about by the air and sunlight; the increase of the peritoneal resistance, or whether after the operation a local reaction in the periphery of the tuberculous nodes took place, or an increased phagocytosis brought about absorption of the tuberculous product, with the formation of new connective tissue, as had been shown in experiments on animals, still remained unsettled. However, through this process, it was claimed that a local reaction was thereby induced, and the absorptive power of the peritoneum increased.

Treatment of Uterine Bleeding.—H. J. BOLDT (New York City) supplemented his former report on the use of stypticin, the name applied by its introducer, Martin Freund, to cotarnin hydrochlorate, in various cases of uterine hemorrhage, his opinion of the therapeutic value of this agent being based on seven years' experience with it. He first briefly described stypticin, which was a base obtained from narcotin by oxidation. It occurred as a microcrystalline yellow powder, was soluble in water, and had an intensely bitter taste. A review of its physiologic action followed. He then cited a number of cases in which he used stypticin with marked effect, and gave also those in which it was ineffective. In 35 cases of fibromyomas, 11 were more or less benefited, while 24 were not. In one case of excessive menstruation due to an interstitial fibroid, the relief was very marked. In nine cases where hemorrhage was due to cancer of the uterus, the result was negative. Complete cure followed in from two to six days in five cases of post-puerperal bleeding after removal of retained placenta particles. In conjunction with cureting, stypticin was found effective in hyperplastic endometritis, but in the glandular form results were negative. In one case out of five of retroversioflexio uteris with endometritis, the menorrhagia was relieved without resort to surgical intervention. In chronic retroendometritis, five of nine cases were more or less benefited. In various forms of nonsuppurative pelvic inflammation, only three out of 23 patients were not relieved by stypticin. In irregular bleeding during pregnancy, stypticin had been found very beneficial, and no unfavorable symptoms had been noted. In profuse menstruation in virgins, without changes being found in pelvic organs, only five of 17 patients were not benefited. In atypic bleeding during the climacteric period, if no pathologic cause was found, stypticin usually gave a satisfactory result. Boldt remarked that while stypticin was not a panacea for all cases of uterine bleeding, he had found it better than any other remedy. In some instances it had practically served as a specific. If no effect at all was produced after three large doses had been given (from two and a half to five grains), it was useless to continue the drug. Likewise, in fibroid, it was not recommended to continue its use if two hypodermic injections of five grains each at intervals of four to twelve hours did not cause a diminution of the hemorrhage. An important fact was that the author had never noted any harmful results from stypticin, even when administered in such large doses as five grains every three hours. In some instances it also relieved the patients of pain associated with the profuse bleeding. In instances of too profuse menstruation, Boldt found the best plan was to begin with one grain doses, three times daily, about one week before the expected flow, and as soon as the flow began, to let the patient take two and a half grains every three hours, to be continued during the entire period. In instances of metrorrhagia, from two and a half to five grains might be given at intervals of from two to three hours until the bleeding was lessened; then the dose might be decreased to from one to two and a half grains, at intervals of three to four hours. If a quick result was important, it was best to give three to five grains in a 10% solution subcutaneously into the buttocks, using the customary antiseptic precautions. Because of the disagreeable taste of stypticin, it was best administered in the form of capsules, the pharmacist being ordered to put the powder dry into the capsule. It might, however, also be given in tablet form.

Some Points in the Technic of Aseptic Operating.—HENRY T. BYFORD (Chicago) said he did not offer any new methods, but emphasized the necessity of more thoroughness in those already used. The method he employed consisted in (1) 20 minutes' scrubbing with green soap and water; (2) 3 minutes in dilute acetic or citric or oxalic acid; (3) 5 minutes in strong alcohol; (4) 5 minutes in a 1 to 2,000 solution of mercuric chlorid in water. He considered the use of rubber

gloves open to the objection of macerating the cuticle, with danger of their being punctured and allowing septic sweat to escape. He deprecated the mixing up of the steps of the preparation by using a combination of green soap and alcohol, or by dissolving the mercuric chlorid in alcohol, since aqueous solutions were more efficient than alcoholic. He advised disinfection of the hands one or more times during the course of long operations. Attention was called to the necessity of unusual care in the preparation of the field of operation in operations about the pubes and vulva. He recommended absorbent rather than occlusive dressings in the dressing of the wounds after the operation.

Suprapubic Prostatectomy.—W. H. DOUGHTY, JR. (Augusta, Ga.), reported a case of suprapubic prostatectomy, and described an improved method of after-treatment. He also narrated an unusual case of intraperitoneal hydatids.

Tracheotomy for Gunshot Wounds of the Trachea.—J. McFADDEN GASTON (Atlanta, Ga.), discussed the subject of gunshot wounds of the trachea, and the complications that were likely to occur from septic infection or laryngeal stenosis. He reported a case of gunshot wound of the trachea in a female child of 8. The position of the incision in the trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

Rupture of the Diaphragm.—GEO. S. BROWN (Birmingham, Ala.), reported an interesting and instructive case in a fireman of 27, six feet tall, and weight 190 pounds. The patient had hurt or strained his side slightly about two years before the rupture occurred. Although an operation was performed, the case terminated fatally.

Encephalomeningocele.—W. D. HAGGARD (Nashville), reported a unique case of encephalomeningocele in a male child of 4 months. Operation was performed July 16, 1902. The child weighed 6 pounds. The tumor weighed 5 pounds, and measured 23 inches in diameter one way and 17 inches another. He also described an easy method of instituting peritoneal gauze drainage through the culdesac.

J. B. MURFREE (Murfreesboro, Tenn.), read a paper on **strangulated hernia**, and E. DENEGRE MARTIN (New Orleans), reported two cases of **cancer of the appendix**.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, Held in Milwaukee, Wis.,
December 28 and 29, 1904.

[Specially reported for *American Medicine*.]

[Continued from page 52.]

The Practical Significance of Certain Common Symptoms in the Upper Abdomen.—J. F. PERCY (Galesburg, Ill.) said these symptoms were pain from ulcer of the stomach and cholecystitis, with or without stones, and the action of the gastric juice on an open ulcer either in the stomach or duodenum. Another source of pain was the formation of gas from inhibited peristalsis, due to ulcer or adhesions arising from it. Vomiting was also referred to as one of the symptoms of disease in this region, but in the author's experience it was not as frequent as nausea. Two methods were referred to as an aid to the location of lesions in the upper abdomen, one being light finger percussion eliciting pain over the inflammatory focus, in patients not too obese, and the resistance of the costal cartilages on the right side in inflammatory conditions of the gallbladder and in ulcer of the duodenum or pylorus, as recently pointed out anew by Elliott. He laid special stress on the effects of chronic infections of the liver and pancreas from ulcer of the stomach and persistent cholecystitis, and cited cases in point. Some of these cases were rarely diagnosed correctly. Biliousness and dyspepsia were the words most frequently used as descriptive of the diagnosis and upon which the treatment was based. A persistent infection would in an appreciable number of cases cause death regardless of the form of treatment which might be instituted, because of alteration in the functioning tissues of the liver and pancreas. Future investigation would show that the results of this infection were chemic through the intervention of bacteria at work in ulcerating areas in the stomach, duodenum and gallbladder.

Splenic Anemia.—PALMER FINDLEY (Chicago) reports a case of splenic anemia, in which he removed the spleen with good results. The patient was 45 years old, had suffered for four years from a dragging sensation in the left side and uterine hemorrhage. Blood-examination showed reds, 2,784,000 per cubic millimeter; leukocytes, 6,000, and hemoglobin, 42%. Her blood showed, 13 months after operation, reds, 4,600,000; leukocytes, 6,000, and hemoglobin, 78%. In spite of the fact that the uterine hemorrhage continued, the patient refused curement for its control. Findley offered a word of caution in the hasty diagnosis of splenic anemia without giving due consideration to other possible causes for splenic enlargement, associated with a secondary anemia, such as malaria and syphilis, and advised splenectomy for only the rapidly progressive cases, reserving medical treatment for the milder form.

High-frequency Electricity as a Factor in the Treatment of Surgical and Gynecologic Diseases.—E. M. SALA (Rock Island, Ill.) related his personal experience with the d'Arsonval high-frequency current, and reported several cases comprising a variety of affections in which the immediate results were gratifying, but what the permanent results were going to be, he could not predict. However, he was convinced that the d'Arsonval-Odin apparatus had a very promising future.

The Care of the Axilla after Excavations for Malignant or Infective Lesions.—JOHN B. MURPHY (Chicago) discussed this subject, saying that extensive dissection of the axilla was not infrequently followed by contracting painful cicatrices, limitation of motion, edema, neuralgia, etc. These can be relieved or avoided by (a) line of skin incision; (b) immediate grafting or transplantation; (c) muscular implantation, and (d) muscular conservation.

Moorhof's Bone-plug.—JAMES E. MOORE (Minneapolis, Minn.) stated that in January, 1903, von Mosetig reported a large number of successful results from the use of a new bone-plug. This material consisted of 60 parts iodoform, 40 parts spermaceti, and 40 parts of oleum sesami. These ingredients were slowly heated to 100° C., and when allowed to cool formed a soft solid, which remained solid at the temperature of the body. For use it was heated to 50° C., being constantly stirred to keep the iodoform evenly distributed. At this temperature it could be poured into the cavity, where it immediately solidified. The material did not act as a foreign body, nor did it act as a culture medium. It possessed the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. His experience with this material, although limited, was sufficient to satisfy him that better results could be obtained in treating bone cavities than by any other method, and in illustration of this he reported four recent successful cases.

Extirpation of the Gasserian Ganglion in the Treatment of Facial Neuralgia.—A. E. HALSTEAD (Chicago) stated that during the last decade the treatment of inveterate facial neuralgia had progressed mostly along surgical lines. The injection of osmic acid into the peripheral branches of the nerve, either directly through the overlying tissue or after exposing the nerve by incision, first proposed and practised by Neuber, and lately revived and extolled by Murphy, had its physiologic counterpart in neurotomy. Probably regeneration was somewhat longer delayed after its use than after simple section of the nerve, owing to its property of hardening nerve tissue, but in the end regeneration, with return of function, undoubtedly occurred. After speaking of the different methods and technic of extirpating the ganglion, Halstead reported seven cases in which he had extirpated the ganglion for the relief of facial neuralgia. From the cases the author reviewed and from his own experience, it seemed possible to have a return of the pain after the removal of the ganglion. Nevertheless, he believed with Cushing, that "the probability of nonrecurrence bore a direct relation to the degree of entirety, with which the ganglion had been removed." In his own cases he had each ganglion subjected to a careful examination by a competent microscopist. In all of the specimens submitted ganglionic elements were found and the gross anatomic characteristics of the organ were preserved.

Mortality, Disability, and Permanency of Cure in Surgery: President's Address.—CHARLES H. MAYO (Rochester, Minn.) stated that a careful selection of cases, asepsis, and the kindness of providence might give a low death-rate which would cover much poor surgery. There was no general rule for computing surgical mortality at present, and it was best to accept the layman's view that the operation had caused death where the patient went into the hospital alive and came out dead, regardless of the cause of death or time after operation. Failure to grasp the surgical opportunity at the proper moment was the cause of an increased mortality and disability, as well as a reduction in cures. The layman, as well as the professional man, understood that many diseases, such as appendicitis, ulcer of the stomach, and gallstone disease, might each have repeated medical cures, and that in the same cases early operation was successful with a low mortality, the complications of delay causing the most trouble. During this year in St. Mary's Hospital, 516 operations for appendicitis were made, with 4 deaths. Their hospital detention was reduced an average of 11 days each, amounting to 14 years' saving over the time which would have been required for the same work five years ago. In 205 hernias during the year this saving was from one to two weeks in each case. Among stomach operations, 108 gastroenterostomies gave 8 deaths (7.4%), most of these in late cancer, while 13 pylorotomies and partial gastrectomies gave no deaths, because in an early stage. There were 5 deaths in 101 hysterectomies, more than half of these being due to an increased effort to cure cancer. Altogether, up to December 1, 1904, 1,000 operations for gallstone disease gave a mortality of 5%. There were 673 cholecystostomies, with 2.4% mortality; 186 cholecystectomies gave a mortality of 4.3%. The common duct cases, 11%; cancer, 22%; showing that one case in five had passed the safe time for operation, while early operation in 416 cases gave but 2 deaths. The brain was poorly constructed for repair, hence late operations gave only occasional permanent and complete cures. The progress in the treatment of cancer was through a study of lymphatics involved in metastasis.

Surgical Disease of the Pancreas.—D. C. BROCKMAN (Ottumwa, Iowa) stated that recent studies of the pancreas showed the importance of internal secretion from the islands of Langerhans; also the influence of regurgitation of bile into the pancreatic ducts, as a cause of pancreatic inflammation. Biliary disturbance was mentioned as the chief cause of pancreatic disease, and the author stated that pancreatic cysts were believed to be mostly due to this cause. He reported three instructive cases of cyst of the pancreas, and then gave an outline of inflammatory troubles, with special reference to the diagnosis and treatment of acute and chronic pancreatitis.

Cysts of the Pancreas.—D. W. BASHAM (Wichita, Kan.) referred briefly to the physiologic anatomy of the gland, in order to elucidate the principles underlying the formation of a cyst of this organ. He recounted the symptomatology, and pointed out the difficulty attending the diagnosis. As to treatment, Gussenbauer was the first to marsupialize the sac, and since then this had been a favorite procedure with most surgeons. The only question regarding this method was whether to attach the sac to the abdomen and incise at once, or to operate *à deux temps*. If there was plenty of time and the cyst was not so large that a day or two might make any difference in the result, he thought it was better to operate in two stages, stitching the sac to the peritoneum and muscles, and opening two or three days later. Excision of the sac was not often practical, but might sometimes be attempted. Often such a course would expose the patient to the risk of contaminating the peritoneal cavity with pancreatic secretions. He reported the case of a tumor of the pancreas in a woman, 62 years of age. The tumor was removed. The patient left the hospital at the end of seven weeks, and he had not seen her since. The woman's dyspeptic manifestations were better after the operation than before, but were not entirely relieved. About December 1 the patient began to have serious trouble with her stomach, and called a physician, who was able to outline a tumor in the region of the pylorus, which he diagnosed as cancer of the stomach.

Excision of the Elbow-joint for Traumatic and Arthritic Ankylosis.—B. MERRILL RICKETTS (Cincinnati, Ohio) read a paper on this subject, in which he drew the following conclusions: 1. Excision of the elbow-joint for ankylosis, due to any cause, at any age, is a most rational procedure. 2. If possible, it should be done before or at the time ankylosis is complete. 3. A posterior median incision is the most practical. 4. With care, the operation can be done without injury to bloodvessels or nerves. 5. Drainage should always be provided for. 6. The arm should be placed upon a right angle splint. 7. Results are better when only the articulating surfaces are removed. 8. If there is complete bony union of the articulating surfaces, much more bony tissue must be sacrificed, because disarticulation cannot be accomplished. 9. All soft structures cut transversely will unite, but new insertions are formed, which destroy their function. 10. All attachments of tendons and muscles should be preserved. 11. All periosteum should be preserved. 12. If excision of the joint is complete, leaving only the ends of the shafts, flail-joint can be prevented by approximating their ends with kangaroo tendon at the time of primary operation. 13. Wire or nail may be used, but their removal sooner or later will be imperative. 14. Flail-joint rarely results from any form of excision, but is more likely to be found following excision of the entire joint. 15. If flail-joint results, a mechanical device may be employed. 16. Injections of alcohol, or one or more of the various astringents, will increase fibrous tissue both in quantity and density.

The Operative Treatment of Fractures and Sprains.—A. E. BENJAMIN (Minneapolis, Minn.) stated that frequently fractures were not recognized, and that complicated joint fractures without operative treatment gave poor results. All fractures should be examined with the röntgen ray to diagnose positively and locate the injury. The ordinary form of treatment of even simple fractures often resulted in a deformed and crippled limb. The term ununited fracture was a myth; the condition was invariably due to some preventable cause. The habit of using the röntgen ray in all fractures led to more operative measures, although without its use diagnosis was frequently impossible and treatment uncertain. There was frequently as great a subcutaneous injury from a fracture as in a compound fracture, and it was just as essential that an operation should be performed in such cases, in order to prevent a lasting injury to the nerve and muscle tissue. By an operation upon these fractures drainage was established, pain and fever lessened, exostosis and the organization of the exudate was less permanent, and necessarily there followed less permanent injury to the soft structures. Many of the past inexact operative and exact methods were employed. Associated with fractures there was frequently a sprain or a tearing away of ligaments, cartilages and dislocations. The progress of a joint that had been sprained was often slow and discouraging, resulting in a weak and insecure union of ligaments. It was advisable to operate upon a number of sprains, especially where there was a great deal of exudate and pain. By the operative method drainage was established, pain relieved, the ligaments could be stitched in their natural place of habitation, the convalescent period was shortened, and a greater proportion of cures resulted.

The Surgical Considerations of Gastric Dilation.—A. M. FOND (Webster City, Iowa), after considering the etiology of gastric dilation, stated that in the last three cases of

gastric dilation due to impairment of the stomach wall, he had modified the standard operation. Sufficient time, however, had not elapsed to warrant a description of the operation. The last case was operated June 4. In each instance a very satisfactory result was obtained. The success of the operation depended upon two very important factors, patency of the pyloric orifice, and the ability of the gastric muscle to regain its normal tone. The author believed that gastric dilation was usually a sequence rather than a primary cause of discomfort, and that it owed its presence to some disturbance of the elemental dynamics of digestion. It was, on close analysis, merely one of a symptom-complex of the upper abdomen, but a very valuable one, the importance of which should be included in the consideration for operative restoration.

Treatment of Acute Perforations of the Upper Abdominal Viscera.—VAN BUREN KNOTT (Sioux City, Ia.) pointed out the importance of the early recognition of such an accident, saying that an accurate diagnosis as to which organ was involved was neither possible nor necessary at all times. The symptoms of gastric or duodenal perforation would usually be more intense than those of perforation of the gallbladder. Previous history of the case was of importance in making a differential diagnosis. The treatment was successful in direct ratio to the promptness with which it was instituted. The resulting peritonitis was the most important result of the accident, and its treatment in the various cases was similar. He emphasized the value of posture in treatment.

Pneumatocele.—L. L. MCARTHUR (Chicago) reported a rare case of pneumatocele, saying that it was a gas-containing tumor of the cranium, very rare, there being but 32 recorded cases since 1741. It always originated in connection with either the mastoid or frontal sinuses. It was not to be confused with emphysema, which was gas in the cellular tissue. Pneumatocele was gas within the pericranium. Incident to the elevation of the periosteum, were secondary bony outgrowths, giving the tumor a peculiar feel. In the preantiseptic era the simple benign pneumatocele became a dangerous affair, because of the frequent connection with mastoid sinuses, with the potential septic meningitis. Since antiseptic surgery had become well established, all of these patients recovered.

The Value of Skiagraphy in the Treatment of Fractures.—H. A. SUTTON (Milwaukee, Wis.) exhibited in connection with a paper on this subject numerous skiagraphs. He was of the opinion that, when it was possible, the röntgen ray should be used in the treatment of every fracture. It had its deceptions, but these meant nothing to the physician who had made a study of the subject, and was familiar with the conditions under which the skiagraph was taken. Some urged its use in the obscure or complicated cases only, but the difficulty with this plan was that we could never tell whether or not a fracture was complicated until a radiograph of it was taken. It was the surgeon's duty to do his best for the patient, and to do this he should look upon every case of fracture as complicated, until it had been shown to be otherwise by a good radiograph. A good radiograph was of value for future information from a forensic standpoint, but no radiograph, in his opinion, should be admitted as evidence in any medicolegal dispute, unless both parties to the dispute knew the conditions under which the radiograph was taken.

The Manufacture and Use of Tin Splints.—ARTHUR T. MANN (Minneapolis, Minn.) made a plea for the general utility of tin splints. He pointed out the simple equipment necessary to make them; also the ease of making the splints and patterns for them. He described several tin appliances which were useful to the surgeon, and among them a device for regaining flexion and extension of the elbow-joint after fractures and dislocations. He also exhibited a device for the protection of the line of sutures in operative cases of cleft palate.

Syncytioma Malignum.—H. C. CROWELL (Kansas City, Mo.) reported a case of this comparatively rare disease, which was accompanied by a detailed pathologic report of the specimen removed. He referred briefly to other cases which he had found in the literature.

Fractures of the Tarsal Bones.—DANIEL N. EISENDRATH (Chicago) called attention to the surgical anatomy of these bones, and the mechanism of fractures. He spoke of compression fractures, fractures of the neck of the astragalus following sudden dorsal flexion of the foot, fractures of both astragalus and calcaneus following forced supination or pronation of the foot, fractures of the astragalus which resulted from forcible action of the muscles of the calf, crushing fractures, and gunshot fractures. He discussed the symptoms and diagnosis together. In considering the treatment, he reported six interesting cases, after which he drew the following conclusions: 1. The astragalus and os calcis bear the weight of the body. 2. They are most frequently broken in falls from a height directly upon the feet (compression variety), or by tearing off of a portion of one of the bones either when the heel is fixed or sudden supination or pronation, or in forcible dorsal flexion of the foot. 3. Early diagnosis, on account of the danger of sepsis from secondary skin necrosis, is of great importance. 4. If there is no displacement of fragments, treat the case by cast for six weeks, with early massage. If displacement threatens necrosis of skin, convert into open fractures and remove the fragment or suture it.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

NEW METHOD FOR IMMEDIATE REPAIR OF PERINEUM.¹

BY

CHARLES E. MCGIRK, M.D.,

of Phillipsburg, Pa.

Surgeon-in-Chief, Doctors McGirk Sanitarium.

In the *Journal of Obstetrics and Diseases of Children* for February, 1904, was published a discussion relative to the immediate repair of cervical and perineal lacerations after labor. This discussion was the result of a paper by Stricker Coles, M.D., which appeared in full in the same journal for March, 1904. The method advocated for the closure of the vaginal and perineal tears was to repair immediately, with interrupted silkwormgut sutures, not too close together, and with exact approximation of all tissues. Perusal of the paper and discussions discovered nothing really new, but there existed more of a diversity of opinion in the discussion as to the time of repairing the laceration and the suture material used. As edema has always been to me the most difficult obstacle to over-

come in repairing laceration of the perineum, I have always endeavored to find some means by which its interference with repair could be avoided. I am convinced the small number of repairs I have to report are overbalanced by the excellent results obtained.

Edema begins immediately after delivery, and oftentimes long before labor is terminated, and in proportion to the edema present, the more difficult becomes direct apposition in repair. In view of this fact I do not wait, but repair at the earliest possible moment in the following manner:

After thorough sterilization of the parts I introduce my sutures of silkwormgut from below upward, as the first suture thus introduced acts as a tractor to bring the deeper tissues into view, thus facilitating the introduction of the second suture. After the introduction of all sutures I pick up the lowest suture, threading it with from four to six perforated shot, depending on the amount of edema present or expected. I then compress the distal shot. I continue in this manner until all the sutures are threaded, always bearing in mind their exerting exact approximation of all tissues. I now cut close all unused silkwormgut beyond the compressed shot, so as to avoid irritation from protruding ends.

The parts are again thoroughly cleansed and a light dressing of sterile gauze applied, which is changed often, and at each change the wound is cleansed with 10% mercuric chlorid solution, and the nurse is instructed to watch for the increase or subsidence of the edema. Should it be found that in the course of a few hours the edema is still increasing, I remove the proximal shot with Kuechenmeister's tenaculum scissors (I have had the tenaculum point of a pair cut down a half) to facilitate cutting in a limited area. If the edema continues to increase I again remove the proximal shot; it is seldom that a third shot will have to be removed. On the other hand, if after the operation I am notified that the edema is subsiding, I shove up all and compress the most distal shot which I have left uncompressed, and as the edema subsides I continue to compress the most distal uncompressed shot.

In this manner I have been able not only to keep the subcutaneous surface but the underlying tissues as well in excellent approximation.

This method will be useless in early repair of the cervix. The cervix invariably makes a most excellent effort at repair and only when hemorrhage that is threatening is present do I introduce a suture or two. I do not attempt to repair it. If the cervical laceration causes trouble later you will soon be notified, and then a repair can be made under the most satisfactory cir-

cumstances. By preliminary digital stretching of the perineum (only, however, during labor pain) I have been able to save many perineums that would most surely have been torn.

FALSE CERTIFICATES OF VACCINATION.

BY

LOUIS T. KLINKER, M.D.,

of New York City.

To the Editor of *American Medicine*:—In your issue of November 26, page 908, appears a comment on "False Certificates of Vaccination," and as I have fallen in the same trap, I beg leave to draw Dr. Martin's attention to certain circumstances which place a physician in the position that he may appear "to lie, or be stupid and blunderful to subscribe to a lie." Ever since 1893 I have written out vaccination certificates as follows: This is to certify that I have vaccinated ——— this day ———. I give this to the child or parents, stating that this will admit the child to the public schools, but he must return in a week or ten days to see if it is a "take" or not; if not, he must be revaccinated. Some have returned, some have not. Is this the physician's fault? Here in New York City, if you are going to make the child wait a week or ten days before he enters school, by the time he is ready you will find that his place has been taken by someone else, and that he cannot enter. Now the question arises after 11 years: Shall we (Health Department of New York City) accept such a certificate or not? Physicians are not informed that such will not be accepted, but the child is simply told that it cannot attend school without again becoming vaccinated. Is this just to the physician? How can any one sign a successful vaccination certificate without knowing that it is successful before it shows a "take" or "not"?

To overcome this I have a blank printed (as the enclosed); when a child is vaccinated I fill it out and give it to him; when he returns, I see if it is a "take" or "no take." If a take I

NEW YORK.....190

TO WHOM IT MAY CONCERN:

This is to certify that I have this day vaccinated

Resulting in a { "TAKE"
 { "NO TAKE"

simply scratch out "no take" and sign it with the date. If "no take" let him keep it until it does "take," and then treat as before. I think this will overcome the painful duty of a physician to swearing years afterward whether a scar exists or not, and avoid such terms as "successful" vaccination as well as defining the results obtained.

Mortality in Germany for the Month of September, 1904.—According to *Public Health Reports*, the mortality in Germany during the month of September, 1904, shows, according to the bulletin just published by the imperial health office, at Berlin, a more favorable status than that of the month of August, statistics being published relating to 315 towns and cities in the German Empire with at least 15,000 inhabitants, but the deathrate among infants in 34 districts was very high. Calculated on the year and per thousand of the population, the number of deaths in 71 places amounted to less than 15 per mille, in 136 districts to between 15 and 20 per mille, in 76 cities to between 20.1 and 25 per mille, in 24 towns to between 25.1 and 30, in 5 places to between 30.1 and 35, and in 3 cities to more than 35 per 1,000. The lowest rate of mortality was that recorded in Ludwigsburg, in Wurttemberg, viz., 5.5; the highest that of Schwientochlowitz (Upper Silesia), namely, 38.8 per 1,000. The suburban district of Berlin, with a deathrate of 16.2, includes Deutsch-Wilmersdorf, with 11.8; Steglitz, with 12; Schöneberg, with 12.4; Pankow, 13.1; Charlottenburg, 13.8; Spandau, 14.5; Reinickendorf, 16.3; Gross-Lichterfelde, 16.9; Rixdorf, 21.4, and Boxhagen-Rummelsburg, 33.5 per 1,000. The deathrate among infants amounted in Koenigsee to 353; Reinickendorf, 385, and Weissensee to 476; that is to say, more than a third of every thousand children born.

¹ Read before the Clearfield County Medical Society, October 23, 1904.

ORIGINAL ARTICLES

PSYCHIATRY IN ITS RELATION TO OTHER SCIENCES.¹

BY

CHARLES L. DANA, A.M., M.D.,
of New York City.

Professor of Nervous and (ad interim) Mental Diseases, Cornell University Medical College; Visiting Physician to Bellevue Hospital; President of the New York Academy of Medicine.

The task of preparing an address upon the relations of psychiatry to other sciences, presents some embarrassments. Psychiatry itself, in its narrower sense, is the science that deals with the phenomena of disordered minds. But the psychiatrist has also an applied science to utilize, or in reality, a business to perform, which engages much of his energy, and is a very dominant thing in his professional life. This business is that of the administration and care of the insane, and it is hard to ignore its immense importance in discussing psychiatry from any broad standpoint.² Indeed, one may say, that the most real advance in the treatment of insanity lies in the improved methods of hospital care that have been developed in the last 30 years.

Still, the science of psychiatry, as pursued by the clinician and the pathologist, is that phase of it which must, for our present purposes, be set apart and its "problems" and "relations" studied. I do not know how one can very well entirely separate these topics from each other, and I must be excused if I sometimes slip from speaking of a relation to dealing with a problem. After all, the thing desired in such an address as this is, I assume, to find out how psychiatry stands as a science now, what dependence it has on other sciences, and what help it needs from them or can give to them.

Twenty years ago I was a member of an organization for securing reforms in the care of the insane. It fell to me to present the situation then of psychiatry in America. It may be said that at that time little science of this kind existed here. This was so much the case that the superintendents of the insane asylums had withdrawn from affiliation with the American Medical Association, and had for years kept out of formal touch with general medicine and the activities of medical science. Psychiatry had mainly one side: The business of administration and custodial care. Only four medical schools pretended to give any teaching in mental disease in the whole country. There were then only 74 State Asylums, with a population of 39,145 insane and considerably less than half of the insane of the country were in institutions designed for their care. The cost of running these institutions was about \$200 per capita yearly, which is perhaps a fifth greater than it is now. So that psychiatry represented a business conducted in some places well, in some ill, as sentiment demanded, or as money was supplied.

This situation was a natural one considering the state of public feeling and of medical science at that time; for the thing to do with the alienated when only one thing can be done, is to take good care of them; after this we can study them and build up a science and an art. And this is what has happened.

During the last 20 years there has been steadily developing a science which deals with mental disease. Largely through the influence of certain clear-sighted administrators of our hospitals, our knowledge has developed until now we are justified in classifying psychiatry

among the medical sciences, surpassing in exactness some, and in importance, interest and difficulty perhaps all of the other branches of medicine. For we are dealing in its study with the ultimate and finest and most elaborately differentiated product of organic life, and our task with it is not only to study and classify, but to prevent and save that which is most essential to human progress—the human mind.

During these past 20 years the administrative care of the insane has also steadily improved, so that now in our best semiprivate and endowed institutions there is really little more that humanity could suggest or ingenuitly devise for the comfort and care of the patient. In many of our State institutions there has been also a steady progress, which is hampered in some States by poverty and lack of intelligent interest, and in nearly all, by the allied science of politics. Indeed, while this last exists, State hospitals will always fall a little short of the ideal. The psychiatrist stands on one hand striving to bring things up to his highest views, the politician on the other, urging something cheaper, and standing for an influence that tends toward mere custodianship.

The science of psychiatry comes in touch with many branches of human knowledge. Insofar as psychiatry has a practical side, it stands in close relation with what may be called, in general, *economics*; to an extent, also, it is in relation with all those sciences which particularly tend to prevent and ward off insanity by improving social conditions through sanitation, education, and better heredity.

The science of psychiatry utilizes, at all times, the work of the psychologist, but most of all perhaps, it stands in relation with certain departments of internal medicine, such as pathology, and chemistry. Psychiatry has also certain relations with the law, with the criminal, and in general with abnormal man.

To take up all these relations in detail would make an address very long and very desultory. Yet, I do not see how in the nature of the case, my remarks will not have some of both these characters. I shall, however, while touching on a number of topics, lay special emphasis on a few that seem most important.

PSYCHIATRY AND ECONOMICS.

The relation of psychiatry to economics is one of increasing interest and importance. The loss to the State and the expense in money from disease is a subject that has received increasing attention of late years, until now in many directions public knowledge and State action are almost adequate to the problems involved. The results have been the extermination of some and the holding in check of other diseases. Thus, in the more advanced communities, with the exception of certain pulmonary troubles, and a few of the infectious and eruptive fevers, the prevalence of microbic diseases has been decidedly checked.

Nervous diseases, however, if we include also those due primarily to vascular disease, are probably more numerous than ever. Statistics are almost useless for determining this question, because there is no common nomenclature, the diseases are not notifiable, and, at best, we must go by death statistics. I believe it to be common medical opinion, however, as it is certainly my own, that both organic and functional neuroses are relatively more numerous than they were 50 years ago.

As to the psychoses, there is little doubt that they are also increasing, relatively, more than the population. This is shown in the reports of those States in which statistics have been more carefully kept, as, for example, in Massachusetts, New Hampshire, and New York, as well as by the census statistics of this country and Great Britain. We may say that in the last 25 years the ratio of sane to insane has shown an apparent gradual increase from 1 to 450 to 1 to 300, and this latter seems to be about the ratio in those communities of North America

¹ Address delivered in the Section on Psychiatry, International Congress of Arts and Science, St. Louis, September 20, 1904.

² Among 5,470 contributions to psychiatry, made during the five years, 1894 to 1899 (Jahresberichte für Psychiatrie u. Neurologie), the number devoted to different groups of subjects was as follows: General symptoms, pathology and etiology, 1,749; special psychopathology and therapy, 1,581; administrative methods and reports, 1,286; forensic medicine, 851. Thus, writings concerning administrative care make up over 20% of the total literature of psychiatry.

and Europe in which modern conditions of civilization prevail.¹ This average has varied but little in the last few years; the slight yearly increase probably will not change rapidly and probably not continue. For when the increase in the insane reaches a certain point of excess, society will have to take notice of it and correct it.

For 25 years the explanation for this increase has been that more cases were observed and more victims kept in institutions than formerly; and this is still the explanation. It is my opinion, however, that the increase is a real one, and it is one to be expected, not only from the strenuousness of modern life and increase of city population, but also because more feeble children are nursed to maturity and more invalid adolescents are kept alive to propagate weakly constitutions or to fall victims themselves to alienation; the period of life susceptible to insanity is longer.² A fourth of the cases of insanity are due to so-called moral causes: Emotional strain, shocks, and vicious indulgences. But moral causes are not sufficient to cause insanity if the individual has a sound constitution. Insanity is increasing in part, then, because we are saving too many lives by the careful regulations of our health boards. Hence, those who are working so enthusiastically, and nobly, and successfully in preventing disease achieve results which carry serious responsibilities for the State.

Let us see what the facts are regarding the economic loss of insanity:

There are in the United States now about 145,000 insane; 120,000 feeble-minded; a ratio of about 1 to 300.

The annual increment of insane in Massachusetts, according to the Massachusetts Board of Lunacy, is 400 in about 10,000, or 4%.

At this ratio, the annual increment for the United States would be, approximately, 5,600.

The cost of maintaining properly these 145,000 can be estimated fairly on the basis of the cost of the institutions of the two large States (Massachusetts and New York), where it is admitted the work is at its highest efficiency.

The plant for caring for the 22,000 insane of New York is valued at \$22,000,000 (Mabon), and the plants for caring for our insane, if we are desirous to care for them in the way creditable to a great, civilized, and wealthy nation, should be not less than \$150,000,000. To run this national plant the cost is, at a moderate estimate, \$3.50 weekly, per patient. This is about the average in New York and Massachusetts and most properly organized State hospitals elsewhere. This gives the insane no luxuries either; for the average cost of properly caring for the insane in private institutions is \$12 to \$25 per week. This with the interest on the plant makes the actual objective cost of caring for the insane of the United States every year about \$40,000,000.

This does not include the care of the feeble-minded. So far as the State is concerned they are less of an expense because a large number are cared for in families.

¹ The somewhat startling increase in suicide is corroborative of an increase in psychopathic constitutions.

² The expectation of life is now 43.59 (Newsholme). The deathrate of children under 5 has dropped from 68.6 to 64.5 in the years from 1885 to 1895, in Massachusetts. The drop in the deathrate, from 5 to 40, has been much greater, while the deathrate above 40 has increased.—S. W. Abbott, Vital Statistics, Wood's Ref. Handbook, Vol. VIII. The period of life during which insanity most frequently occurs is 30 to 40, and next, that between 20 and 30. The average age at death in England was:

	Males.	Females.
1840.....	27.15	29.38
1900.....	33.63	39.90
—Excluding 0 to 4.—		
1840.....	46.46	46.77
1900.....	53.17	55.21
—Excluding 0 to 54.—		
1840.....	72.09	73.05
1900.....	70.41	71.92

—S. G. Warner.

Expectancy of life in Massachusetts:

1880.....	44.64
1900.....	46.05

—U. S. Census Bulletin, No. 15.

The average age at death has increased from about 28 in 1840 to 34.5 in 1900, thus bringing more people into the third decade, which is the one most fruitful in insanity.

Many do not need actual responsible supervision, and many can in a degree, support themselves. Finally, the feeble-minded are short-lived, while the insane live into and beyond middle life. At the best, however, the idiot or feeble-minded are persons whose lives are a burden and a sorrow beyond what is measurable in money. An idiot cannot be supported for much less than the insane, and it is safe to put down \$20,000,000, yearly, as the sum we pay for having the idiot with us. But \$60,000,000 a year does not represent all; 70,000 of the insane are men and presumably breadwinners. The average worth to a community of a healthy worker is about \$400 a year. This sum is subtracted from industrial activity by his sickness. Assuming that the 70,000 insane men could earn this sum, we have a loss of \$28,000,000 more per year. It seems to me that it would not be far out of the way to say that the care and cost of the diseased and defective brains of the country is over \$85,000,000 annually, and is increasing absolutely at the rate of 4%. These figures, perhaps, are not so very alarming to a nation with an income of \$600,000,000. It is a sum that would not quite run the city of New York, or support an army or navy. But it is an item to be reckoned with by economists; and the side which can not be represented by figures is still more important, viz., the sorrow and suffering and indirect loss in health and happiness.

If there were a science of State medicine, the economic study of insanity which brings out some such figures as those I have just presented, would be called into demand.

State medicine in some of its branches is supposed to give us means of relief from social evils due to disease. In the case of insanity it would have to call upon various minor divisions of science for help. The study, for example, of the causes of insanity, teaches us that if we could subtract alcoholism from our social life, and nothing took its place, we would cut out about a tenth of the cases of insanity brought on directly by this poison. We would probably subtract a large number, brought on indirectly through alcoholic parents. If we could subtract syphilis from our civilization, we could cut out a tenth more of the insane. If we could do away with violent passions, shocks, mental strains of various kinds, we could cut out perhaps 25% more of the insane.

But after all, supposing even these practically impossible feats could be accomplished, there would still be left a large percentage of the alienated, and this percentage would include persons who developed disordered minds because they were born with a tendency to mental degeneration.

It follows that the most immeasurably important factor in attempting to limit and prevent insanity, is to secure well-born children; to see that those people who have weakly constitutions, or poisoned constitutions, do not propagate the kind. This is, of course, a thing which can only be accomplished by long years of careful education and training. The science of *eugenics* is hardly yet existent, and if it were a full-fledged science, the people are not educated to receive its teachings. There are, however, known to be certain fundamental principles of "eugenics" which cannot be too strongly insisted upon. One of these is, that persons who have strongly alcoholic tendencies, or who are dipsomaniacs or drug-takers, are almost sure of breeding degenerate children. And the same is true of those who are plainly syphilitic, or who are on both sides tuberculous, or on both sides psychopathic or neuropathic. One further point only I wish to make in connection with this subject, and that is the question of the results of the amalgamation of races in this country. While the ratio of insanity in the United States is fully up to that of other civilized nations, it is not especially in excess, hence, it cannot be said that the fusing of different races here has yet caused deterioration. Nevertheless, it is a practical and serious question as to what

will be the eventual result. We know that when widely different races, like the African and Aryan, mix, they do not breed good men and women. We know that, on the other hand, races such as the Jewish and the Japanese, which have kept themselves pure for centuries, have reached a very high stage of efficiency. So far as history shows, we have no clear proof that the mixing of races breeds races of a higher efficiency. But we do know very well that the mingling of very widely different races leads to a degenerate quality of hybrid. What will be the result of fusing together the typical Anglo-Saxon with the dark-haired Latin, Slavic, and Semitic races of Southern Europe, remains to be seen. Since they are all of Indo-Aryan stock, no harm may result, but I have personally observed most disastrous results among children of unions between the Scandinavian and the Spanish races.¹

PSYCHIATRY AND PSYCHOLOGY.

The science of psychology stands nearest to psychiatry of all the nonmedical sciences. It should, in fact, bear the same relation to clinical psychiatry that anatomy does to medicine. It furnishes us the normal standard of mental activity, and should give name and definite description of what takes place in the healthy mind. Therefore, it is as important that the psychiatrist should have a sound knowledge of the elements of psychology as that the neurologist should know the anatomy of the nervous system.

For after all psychiatry is now and will long be essentially a clinical science, a study of a grouping of symptoms. In neurology we make three diagnoses when the art is perfectly exhibited. We have a clinical diagnosis by which we recognize a symptom group, a local diagnosis, by which we recognize the seat of the disease and a pathologic diagnosis by which we recognize the nature of the trouble. In psychiatry only the clinical diagnosis is made as a rule, and this clinical diagnosis is really dependent mainly on the study of the psychology of the patient. Clinical psychiatry is, in fact, only morbid psychology.

All this would lead us to think that the relation of psychiatry and psychology should be an intimate one. As a matter of fact, psychologists do not write with much reference to the morbid mind. This at least is my experience in an effort to orient myself on this subject. We as alienists do not need a large vocabulary or very recondite knowledge of psychology. We do not require to hold opinions on association theories, or on parallelism or monism, or epistemology.

We do very much need definite descriptions and harmonious views of the elementary mental processes.

We deal in disorders of sensation and perception, in failures of memory, perversion of judgment, states of feeling either too intense or depressed, loss of the volitional function, and disorders of instinctive reactions, of memory and of consciousness. Yet it is not easy to find these states clearly defined among psychologic authorities.

I have a list of the psychologic terms used to describe groups or individual symptoms in psychiatry. This vocabulary of involved symptoms has only about 25 terms. But they mean different things according as the physician takes his psychology.

Psychiatry is having its great difficulty in classifying its cases. Practically every writing alienist has a special

classification of his own. This is in part because cases cannot be observed completely or recorded thoroughly without a proper language for recording the facts. The older alienists never knew the science of psychology, because there was none; the modern are only learning it. A thorough and especially a uniform understanding of psychology is necessary in order to give sharper definition to observed phenomena, to bring out new facts and to clarify the symptomatology and make us agree upon our groupings. For example melancholia used to be considered as essentially a morbid depression of the mind. Now we know that there are other elements such as retardation and difficulty of thought and action, of disturbance of attention and volition; we find, in fact, that there may even be a melancholia without any melancholy. It is in the observation of the often obvious psychic states and in the correct record of all deviations that we may expect to make real progress. And we need a uniform psychologic vocabulary for our purpose, as well as a pretty thorough psychologic training.

I have collected from the writings of Stout, Morgan, James, Baldwin, Ladd, Calkins, Titchener, Sully, the definitions or views given by them of the elementary and other mental processes:

Sensation, impression, perception, percept, conception, concept, image, idea, ideation, judgment, reason, reasoning, emotion, feeling, sentiment, conation, will, volition, consciousness, memory, association.

There is substantial agreement about the significance, perhaps the majority of them, and I quite understand that the mind is not to be divided into sharply limited mental processes, but that mental states are all complex and that one process overlaps another.

Nevertheless, there are decided differences and vaguenesses in the views of sensation, perception, of concept, memory, image, idea, will, consciousness. The establishment of a better relation between psychiatry and psychology is at any rate a thing much needed, but belongs, perhaps, to the problems of psychiatry.

Impression is the simple result of a stimulus. (Morgan.)

Sensation is the discrimination and recognition of the impressions as of such and such a quality. It is the reception and discrimination of impressions which result from certain modes of stimuli, like sight, hearing. (Morgan.)

Perception is the process by which sensations are given objective significance, being supplemented by revived sensations. (Sully, Morgan.)

Perception always involves sensation. (James)

Percept is the aggregate of the revived and actual sensations, integrated and solidified. (Morgan.)

Perception (*Wahrnehmung, Anschauung*):

1. Cognition, so far as it involves the presence of actual sensation as distinguished from mental imagery.

2. Cognition of subjective process as such; the apprehension of the actual presence of this process in distinction from the ideal representation of it. (Stout, Baldwin.)

The old writers used perception as a synonym for cognition in general. The later tend to fuse sensation and perception. Some speak of inner sense, inspection or introspection as perception.

Perception (*Wahrnehmung*) is the process of the apprehension of sense objects.

Anschauung is rather sense-intuition. (Baldwin, Dict. of Psychology.)

Memories of percepts are simple, particular or concrete ideas. (Romanes.)

Image (*Bild*).—The mental scheme in which sensations or the sensory elements of perception are revived. (Baldwin, Stout.)

Idea (*Vorstellung*).—The reproduction with a more or less adequate image of an object not actually present to the senses. (Stout, Baldwin.)

A mental image is an idea, according to Ladd.

The German *Vorstellung* is sometimes used to cover both perception and idea, and there is a tendency to give the same wide application in English. (Titchener, "Outlines of Psychology.")

In a perception the object perceived is usually supposed to be present.

Ideas which are general and abstract are concepts. (Romanes.)

Ideas which are complex, compound or mixed are receipts. (Romanes.)

Ideation is the elementary mental process involved in all

¹In a study of the subject of immigration and nervous and mental diseases, made in 1882 (Annual Report of American Social Science Association), I reached the conclusion that immigration tends slightly to increase the amount of insanity out of proportion to the native population, partly through influence on social life, and partly through the introduction of poor stock.

Only a portion of the immigrants and certain special races have these tendencies. Immigrants were found to develop an excess of organic disease, but to have fewer functional nervous diseases than natives, due probably to their social conditions and the exposure incident to poor methods of living.

Twenty years ago the foreign born made up a fifth of our population, and contributed to a third of the cases of insanity.

work of the representative faculty. The products of this are mental images or ideas. (Ladd.)

Conception is the function by which we identify a numerically distinct and permanent subject of discourse. (James.)

Concepts are the thoughts which are the vehicles of conception. (James.)

A *concept* is a general notion or general idea. (Sully, Romanes.)

A *concept* is an image or general idea into which there have entered elements which have been isolated by analysis. The term *soldier* may stand for a percept or concept according as there are associated with it qualities not identified with a particular *soldier*. (Morgan.)

A *concept* (*Begriffbildung*) is cognition of a universal as distinguished from the particulars which it unifies. The universal apprehended in this way is called a *concept*. It unifies a distinction between the universal and the particular.

In philosophy it is common to apply the word more widely, so as to cover the universal element in knowledge, e. g., the categories of Kant were called *concepts*.

In psychology, John Roe is a particular concept; a triangle is a general concept. (Stout, Baldwin.)

Reason, in English, means often reasoning or reflective thought, less often intuitive and certain knowledge. (Dict. of Psychology.)

Reason is a form of knowledge which apprehends in one immediate act the whole system, both premise and inference, and thus has complete and unconditioned validity.

This distinguishes it from understanding (*Verstand*), which is a form of knowledge that is discursive, and hence based on premises and hypotheses not themselves the basis of reflection. (J. D., Dict. of Psychology.)

Reason (*Verstand*, λόγος) is that faculty or process of mind which consists in the drawing of inferences. (G. E. M., B. Dict. of Psychology.)

There are other more restricted definitions given.

Reason is to pass from certain judgments to a new one. (Sully.)

Reason includes the formation of a judgment or concept, not inference, then passing from it to a new one. (Morgan.)

Judgment (*Urtheilskraft*, *Urtheil*).—The mental function and act of assertion and predication. The term is also applied to the resulting assertion as well as to the process or function. Judgment as a mental process is similar to belief. (Baldwin.)

Modern psychologists find it difficult to define belief and judgment without overlapping, and French psychologists class delusions or false beliefs as disorders of judgment.

Judgment is a conscious mental synthesis, a unifying act. (Ladd.)

Judgment is an inference in the form of a proposition. (Morgan.)

Conation (*Streben*).—The theoretic active element of consciousness, showing itself in tendencies, impulses, desires, and acts of volition. "Conation" in general "is unrest." The term will (*wille*) is often used in the same sense.

Streben is translated effort by Titchener.

Begehren is used for *conation* by others. (Dict. of Psychology.)

Volition is the faculty of the forked way, the possibility of action or inhibition. Man has perceptual volition, in which he is conscious of a choice, but does not reflect upon it. He has conceptual volition, in which he is conscious of choice, and can reflect upon his choice. (Morgan.)

Volition is a definite conative activity consciously directed toward the realization of some mentally represented end, preceded or accompanied by a desire, and usually accompanied or followed by the feeling of effort. (Baldwin, Stout.)

The settlement by the self of a psychic issue, the adoption of an end. (Baldwin, Stout.)

Will is that conative organization of which volition is the terminus or end-state. Will is conation in the concrete, determined in an actual terminus by volition. (Baldwin, Stout.)

Emotion (*Affect*).—A total state of consciousness considered as involving a distinctive feeling—tone, and a characteristic trend of activity aroused by a certain situation which is either perceived or ideally represented. (Stout, Baldwin.)

Feeling or feeling tone (*Gefühl*) is absolute emotion.

The same conscious state may be regarded either simply as feeling, emotion, passion or sentiment. (Ladd.)

Consciousness (*Bewusstsein*).—The distinctive character of whatever may be called mental life. It is the point of division between mind and not mind. (Baldwin.) Whatever we are when we are not unconscious, that is consciousness. (Ladd.)

Earlier psychologists called it the mind's direct cognizance of its own states and processes.

The word is not even indexed in Calkin's "Elements of Psychology," and is not defined by James.

Consciousness or *awareness* means, according to G. Spiller, that a notion does not stand by itself, but is connected to another notion; the word "connection" may better be used for it.

PSYCHIATRY AND PHYSICS.

The science of physics is in closer relation to the administrative care of the insane than to psychiatry proper. Light and electricity have as yet little to do

with our pathology, and not much with our therapeutics. We are watching, however, with interest, the various newly-discovered light rays and their influence on bodily function, as well as the new conceptions of the elements, and their possible bearing on the physiology of the mind.

So far the medical and surgical effects have been superficial and have produced results only on gross and objective evidences of disease, such as tumors, ulcerations, etc. Some claims have been made that the röntgen ray will relieve pain in neuralgia and tabes, will lessen or check convulsive attacks in epilepsy and have a real physical effect upon the lymphatic and glandular tissues, as in thyroidism. It is not impossible that some forms of radiant energy passed through the nervous centers may modify the metabolism and produce therapeutic results, but this is speculative, and it is not likely that at the best, much can be accomplished.

It seems to be well established that very rapidly alternating electric currents of enormous voltage, when passed through the body, increase metabolic changes, but here again nothing very definite has yet been achieved therapeutically.

The problem of helping the alienated by physical means is a serious one—it means that we must change a psychopathic constitution, so that a person who has a melancholia or is threatened with it, will be rid of the disorder, and of the tendency to its recurrence. Some readjustment of glandular activity of the liver or stomach or some increased activity of absorption and secretion, and elimination, must be secured, or by some subtle influence we must teach the brain cells to build up and break down in a normal and well-balanced manner, or by specially directed training structural defects in the arrangement or insulation of the neuron must be overcome.

Here is a field in which the finer physical forces may play a part, and we already know that the influence of direct sunlight is helpful in delaying degeneration. Other physical agencies may be found which will furnish more.

I can only suggest the possibility that in psychic activity there may be radioactive changes, a breaking up not only of molecules which we know occurs, but of the atoms themselves. This hypothesis is in the line of the alleged n-ray phenomena of Blondlot.

PSYCHIATRY AND PSYCHOTHERAPY.

It is a popular question whether the mind does not produce more diseases than do organic changes of the body. In fact, the supporters of the belief that the mind is more important than the microbe make a large cult in this country.

I do not know that the question really deserves very serious consideration. A little acquaintance with dispensary and hospital practice and the records of the health boards is sufficient to show that mental states rank far below the infections, poisons, inflammations, or injuries as makers of symptoms among all classes. I think it would be safe to say that the general practitioner meets a real objective disease 20 times to one in which the symptoms are due to the attitude of the mind. The mind disturbs functions and creates symptoms, but it muddles rather than makes disease. To be sure, it is indirectly a potent thing. Thus, in conditions of profound depression there is a lessened vital and circulatory resistance, and infection can creep in. It would never do for physicians to fight an epidemic with cold hands. Conditions of the mind can favor or delay digestion and peristalsis, and there is, indeed, no function more susceptible to physical control than the chylipoietic tract. One can almost stop digestion by taking thought of it, and the influence of mental treatment and sugar pellets upon constipation can be given objective proof in many instances. The mind has, in fact, quite a lively though incomplete and temporary control over the different

functions of the body, and it can, after years, do some damage to them.

It can check and change secretions, indirectly thicken arteries, cripple functional activity, and hurry on old age. But after all, the mass of people are sick with tuberculosis, rheumatism, bronchial and heart diseases, and the infections and the injuries of life.

As the mind can help on disease, so it can help on its cure; but a healthy person cannot by an act of his mind make himself crazy; and neither can he by any mental influence, if crazy, make himself well. It has been proved beyond any question that persons who have severe and profound degenerative traits cannot be cured by psychic suggestions.

Hypnotism, for example, is powerless against the insanities after they have developed, it is powerless even against the minor psychoses that are long established and of severe type, such, for example, as chronic hysteria, the long-established obsessions, vicious mental habits, and severe degeneracy. What is true of hypnotism is true of all forms of mental therapeutics, and all types of charlatany that appeal to the imagination. It may be noticed that the quack and the exploiter of marvelous cures never starts a psychopathic hospital or offers to work in an insane asylum. When the mind is a little enfeebled, oversensitive, or untrained, it is easily worked upon by emotional influences and suggestions; when it is sound, and trained by education and experience, and when it is seriously disordered, it is not affected by these agencies. Psychic measures of treatment, on the whole, find their legitimate field in internal medicine, among those who have the minor symptoms and functional disorders in which the mind is simply needing instruction to a new point of view, or the stimulus of a strong hope which fixes attentions and steadies the whole mental machine. Psychic therapeutics often cure by giving faith and purpose to the weak, wavering, and discouraged. And faith in something is always a sane and most helpful element in a person's character.

So far as psychiatry is concerned, we can expect little help from the science and art of psychic or hypnotic therapeutics. Its field is narrow and does not take hold of our serious cases.

So far as internal medicine is concerned, mental influences produce many distressing disorders of function, which may simulate various diseases. The mind is a factor always in modifying the picture of disease, and the physician can never diagnose or treat his patient without taking the individual's mental attitude into account. This fact, which psychiatrists learn, can be impressed with advantage on the followers of internal medicine.

PSYCHIATRY AND NEUROLOGY AND INTERNAL MEDICINE.

In the past the field of work of the psychiatrist has been perforce much narrowed through the necessities of psychiatric administration. It was long confined to the study of types of mental disorders, which had reached their height and shown their hopelessness. It was as though pulmonary tuberculosis had been mainly studied in its third stage, or typhoid fever mainly in its second week, or heart disease after dropsy had set in. For when a psychosis is fully developed and has bloomed into mania, or a dementia, the morbid condition has arrived, the god is no longer behind the machine, but on it. It can now be watched and its natural history studied, but in 75% of cases this is all; it cannot be cured. In only a small percentage will it be possible to learn why it came, and psychiatry can only reach a certain stage of progress when its study is limited to the middle and terminal parts of mental disorders.

The field of psychiatry needs thus to be broadened by securing the help of those branches of internal medicine in which the earliest phases of mental deterioration and

disorder show themselves. It was long ago noted that neurasthenia might be called an abortive paranoia. It is my experience that about a third of the cases of decided melancholia are preceded by attacks of what is called nervous prostration; and the same is in a measure true of the early demential psychoses and of paresis.

In fine it seems to me that a most fruitful practical field just now for clinical study is that of what I term the minor psychoses which includes a vast number of indeterminate mental conditions, classed as neurasthenias, hysterias, phrenasthenias, obsessions, impulsive manias and mild melancholic and hypochondriac states. These patients now fall into the hands of the general practitioner who is wearied and unimpressed by them, and who fails from lack of interest to study them, or into the hands of specialists who treat their reflexes, generally without avail, or into the hands of neurologists who deal with them generally as having a temporary neurosis instead of a psychosis or the thing out of which one may grow. It is to be hoped and expected that the follower of internal medicine and the neurologist will study the cases more seriously, and from the point of view of the psychiatrist especially. In this way we shall be able to learn the very earliest symptoms that suggest the oncoming of mania and dementia præcox; we will learn better the type of infancy and childhood out of which it grows; we shall learn how to check and to prevent it.

An illustration of such help of neurology and syphilology to psychiatry is already shown in the development of our knowledge of general paresis. This disease was recognized 100 years ago. Its etiology was not even distinctly suspected till 50 years ago. An established connection of its relation to lues is hardly more than 10 years old, this being worked out by the cooperation of the syphilographer, the neurologist and the psychiatrist. New features of its course, particularly the physical symptoms and early symptoms have been derived within a few years largely through the help of psychiatrists, neurologists and syphilographers working together, until now the onset of disease is recognized almost before it is present. By reason of this its course has been checked, and it is my belief that cases have been permanently arrested in their progress, so that we may now say that paresis may sometimes be aborted, if not cured. All this has been done through the cooperation of alienists, neurologists and syphilographers.

So it seems to me a like cooperation will enable us some day to cope with mania melancholia, chronic melancholia, and the precocious dementias. In this work we must have the help of the practitioner of children's diseases, of the general practitioner and of the educator, who studies the growing child.

A great deal of work has already been done in measuring children, studying their growth, their mental activity and reactions, but not much has yet been formulated which is helpful to us as psychiatrists, to foresee a coming psychosis.

This field needs further study from the anthropologist and the doctor of infancy and childhood. We do not want to know alone that a child is nervous, excitable, easily febrile, a bad sleeper and a noisy dreamer. But what are the special symptoms which may lead us to foresee a dementia præcox at 18, or a hysteria, or a mania melancholia before adolescence, or a paranoia at maturity?

PSYCHIATRY, PATHOLOGY AND PHYSIOLOGIC CHEMISTRY.

There is an increasing conviction among psychiatrists that some inherited defect, often most subtle and difficult to recognize, is present in all those who develop mental disorders. Without some original weak spot in the psyche or soma, the man who is infected will not get paresis or tabes, the man who has fevers, toxemias, shocks and emotional crises, will not get a delirium or insanity.

But the weak point in a degenerate constitution may not be especially in the nervous system. It may be in a glandular defect or insufficiency. One can imagine a person having congenitally defective adrenal glands; as a result, the bloodvessels are not kept at their proper tonicity, and widespread defects in function follow. In the same way, there may be defective or overactive thyroids, and the tonus of the nervous system is disturbed. There is no doubt that the large colon has important functions in selective absorption, and to an extent in secretion. It is an organ that seems especially attuned to cerebral states. It goes wrong at times with every one, but if it is congenitally wrong, if it is born wrong, it is then one of the stigmata of degeneracy. Thus a person may have a psychosis, because he has congenital defect in the colon or other organs than his nervous system; the brain may be a very good one, but these adrenal organs—the thyroids, the blood-making organs, the enteric membrane, the liver—may be fundamentally defective or the circulatory organs may be badly developed.

Now it will be the part of the clinical pathologist and chemist as well as of the anatomist to search out these factors, and in this way help the psychiatrist to steer his way in the future.

I do not believe that the results of this work can be very fruitful as regards the severe dementing forms of mental disease; here there is always fundamentally a fault with the brain in structure or function. But in the functional and nondementing psychoses, such as mania and melancholia, and in the minor psychoses, such as hysteria, many types of neurasthenic insanity, we may expect much help.

Insanity, on the whole, is not a very curable affection. It is probable that less than a fourth get permanently well, and its rate of cure is therefore less even than that of pulmonary tuberculosis, pneumonia or the infective fevers. Nor is it likely that the percentage of cures will ever be a very high one.

We may look to the sciences of pathology and chemistry, however, for some help in this direction. It has been already shown that in degenerative disease of the nervous tissue there is the perverted metabolism, which leads to the breaking up of the lecithin, the important fat constituent of the nervous substance into poisonous by-products, neurin and cholin. These circulate in the lymphatics and bloodvessels and irritate and further poison the nerve centers. So that when the brain actively degenerates it produces a poison. This poison reacts on the nervous centers, causing new symptoms, and thus a vicious cycle is set up. Some of the crises of paresis and the dementias may have this origin.

The function of the lower bowel seems to have some close relation with the functioning of the nervous centers, and an autotoxemia is perhaps an important element in both depressive and maniacal states.

Indeed the appearance of mania especially suggests an autointoxication. One can not observe the apparently causeless recurrence of mania and melancholia without the conviction that behind it all is a disorder of metabolism leading to a toxic state.

We may expect therefore much from the further studies of the physiologic chemist. Such studies will include the activity of the ductless glands, the adrenals and thyroid and in particular of kidney.

We can not, it is true, expect to find any objective explanation of the tendency which the alienated possesses to pass repeatedly into states of mania. But we may find the nature of the nutritional change that excited it, and by proper methods we may be able to keep off recurrence of insanity.

This it seems to me is a hopeful field of therapeutics which is now presented to alienists.

The clinical pathology of the blood has as yet been of little help in psychiatry. The examinations throw no light on the cause or type of a psychosis. Nor do clinical

pathologists promise us much here. If we could find and cultivate the germ of syphilis, a field would be opened. At present there are no biologic blood tests that help us. It seems as if the ingenuity of the investigator would some day in some way show us objectively some blood changes, in for example, acute mania or delirium—yet it has not been done.

Pathologic anatomy is a subject of more academic than practical interest to the psychiatrist. The burden of our work now should be away from morphology and more in physiologic lines.

PSYCHIATRY AND CRIMINOLOGY.

The relation of psychiatry to criminal anthropology is a close and important one. There is on the one hand the instinctive or hereditary criminal, and on the other the moral imbecile and the insane who do criminal acts perhaps casually or as an accidental product of violence and delusion. It is for the psychiatrist to help in solving the difficult problems of the border line cases. As a rule we can say that the criminal's act has a definite motive, and that his crimes are to his temporary or apparent advantage. The moral imbecile, on the other hand, is in most cases a person whose acts are done without rational motive, or are to satisfy only some morbid feeling, perhaps remotely sexual, perhaps something not easily defined, a kind of atavistic lust hunger.

But no definite laws can yet be laid down. Each case must be studied by itself in the light of our best clinical knowledge of what constitutes an insane mind. We must bear in mind in doing this that society cannot on the one hand afford to be cruel, and on the other it cannot afford to set aside easily, individual responsibility.

For the purpose of securing the ends of justice in any of these cases, such laws as have been enacted in Maine, New Hampshire, and Vermont, and especially in Massachusetts, are best calculated to help on the aims of justice. These laws authorize the prosecuting attorney or judge to place the accused in a hospital where he can be under constant surveillance of physicians, trained experts and attendants.

The Massachusetts law, for example, reads as follows:

Chapter 219, Section II. If a person under indictment for any crime is at the time appointed for trial, or at any time prior thereto, found by the court to be insane, or is found by two experts in insanity designated by the court to be in such mental condition that his commitment to an insane hospital is necessary for the proper care or for the proper observation of such person pending the determination of his insanity, the court may cause him to be committed to a State insane hospital for such time and under such limitations as the court may order.

PSYCHIATRY AND FORENSIC OR LEGAL MEDICINE.

Forensic or legal medicine as a separate branch of science seems in a way to have died out. It used to be systematically taught in a number of our medical schools, but the chairs have been abandoned. This is not because the subjects which are dealt with have ceased to be of importance (from 1894 to 1899 there were 854 contributions to the forensic medicine), but because they have been assigned to different specialties—the chemist, pathologist, psychiatrists, neurologists, and lawyers. Forensic medicine has been broken up into special branches and hardly exists any more as a particular department of human knowledge.

Psychiatry has much to do with the law, however, and some forensic medical knowledge may be considered almost a part of the requirement of a psychiatrist. Happily, the harmonious cooperation of law and medicine in the professional activity of the alienist is an object that has been fairly well attained, so far as regards the care and guardianship of the insane is concerned. Thus, the matters of commitment, detention, guardianship, discharge are problems fairly well solved in many States, and their discussion is not in the sphere of my address. I can but express the hope, however, that the

tendency of legislation will be to lessen the restrictions and simplify the legal methods connected with the care of the insane. It should be easy to get into a hospital and easy to get out. The insane should more and more be considered as sick persons, which they are, and treated as nearly as possible on such lines, both by the doctor and the lawyer.

PSYCHIATRY AND ANTHROPOLOGY.

The results of the work of anthropologists of the Lombroso school have been fruitful to penology and the saner and more rational dealing with criminals; but they have so far not been of much help to the psychiatrist. The elaborate measurements and observations which have been made show a larger number of anomalies and marks of deviation from the normal in the insane as a class, than in the healthy. But these stigmata are never sufficient of themselves to justify one in saying that an individual is defective, or degenerate, or insane.

In some very marked types of insanity they are practically absent. This is especially true of insanities that develop late and have slight dementing tendencies. Insanities with decided moral defect, such as those known as original paranoia, or moral insanities, those characterized by obsessions and compulsions, also show often few stigmata of degeneration. Those with decided intellectual defects and dulness have a large percentage of physical marks. Such, at least, has been my observation.

The science is still young and it should receive the support of psychiatrists. This is being given in some hospitals of this country. An anthropologic laboratory, even if but a modest one, should form part of the equipment of the psychopathic hospital. And observations should be made not perfunctorily and in accordance with some limited conventional plan, but with great attention to detail and with minds open and ready for advance and change. The simple accumulation of 15 or 20 measurements and notes has been done until it has nearly fulfilled its usefulness.

The foregoing remarks do not lend themselves to recapitulation. I have endeavored to show some of the relations of psychiatry to its nearest allied sciences and to indicate the lines along which work can be carried, with mutual help to all, but to the special advancement of a sounder knowledge of that capstone of all the medical sciences, the pathology of the mind.

SUBNORMAL ACCOMMODATION AND PREMATURE PRESBYOPIA.

BY

GEORGE M. GOULD, M.D.,
of Philadelphia.

At least 99 % of "migraine" is caused by eyestrain, and smaller percentages of other types of headache, dyspepsia, malnutrition, etc. Many nervous and psychic disorders have the same origin, and the majority of cases of "idiopathic" lateral spinal curvature. When due to eyestrain, the failure to cure these troubles by ocular treatment is either due to the failure in preventing them by the same treatment, to the fact that the individual case is not chargeable to eyestrain, or to the oculist's fault. We are constantly and rapidly learning that our faults as refractionists explain our failures to cure. There is a vast realm of unsolved puzzles and mysteries in ophthalmic practice, but every advance we make shows that it was to our ignorance or carelessness that we should ascribe most of our failures. It is astonishing to perceive upon what slight and seemingly negligible things success depends. A whole art and science of therapeutics is being built up upon these nothings, heretofore, and even now, generally neglected by the great body of oculists and physicians of

the world. That, of course, is the history of discovery and progress in every branch of knowledge. We pass at our peril the tiny thing, the trivial consideration, fact, or suggestion, upon which all great things depend.

A good, round three-fourths of our failures as oculists are due to our poor refraction work. In all Continental Europe it is simply a disgraceful farce, with the possible exception of that of one or two men. In England two or three men are doing work equal to that of a hundred in America. But it is simply amazing to find men in our own country who are "leading oculists" in their communities, and members of great ophthalmologic societies, utterly ignoring the conditions of accurate ametropia measurement, spurning cycloplegics, disdaining astigmatism and anisometropia, and, of course, heaping ridicule upon the "hobby-rider."

Of the remaining fourth of our failures to cure eyestrain diseases, a large proportion is due to neglect of head-tilting, with the result that we do not locate accurately the slight unsymmetric axes of astigmatism. The ordinary and common symptoms, such as headache, gastric, nutritional, and nervous disorders, are consequently not relieved, and one of the great causes of spinal curvature is not discovered or prevented.

Many of our puzzling nonsuccesses are due to failure to recognize insufficient or paretic accommodation, or premature presbyopia. The books do not know of it, and the lecturers do not speak of it. Such cases are peculiarly tormenting, because the symptoms are plainly those caused by eyestrain, which the perplexed and desperate oculist cannot lessen. There is no test by which the fact may be learned, because for the time required in the ordinary tests there is almost always the ability to hold the vision perfect, or seemingly so, by an effort which exhausts with long-continued reading, writing, and sewing. Then the cases are so rare that the hundred normal accommodations following the last example of the abnormality make the oculist careless and likely to forget. Failure and ill-success is the penalty of routine. Moreover, the paresis of accommodation may occur in the most unlikely people, and as it is so peculiar, masked, and variable, it requires great alertness and conscientiousness to keep the danger in mind. But when subnormal accommodation in the young does exist, it means so much to the patient, and to the oculist also, to become aware of it! The relief by glasses is usually great, instantaneous, almost magical. Most of the 27 patients whose clinical histories are here epitomized had been treated by many other oculists, and all had failed to find the source of the evil. This makes me feel that, like myself, most of my colleagues have not recognized this pathogenic factor in a certain number of their patients. Some of these case histories date back from 6 to 14 years, but the fact of accommodational paresis has become clear to me only during the last few years. I have no doubt that I have missed recognizing it many times even during this time.

This is because we have neglected to notice that the function of accommodation is the only important one of the male human being that gives out in middle and advanced life, a fact that demonstrates biologically the recentness and difficulty of its acquirement, the temporariness of its easy action, and consequently the variability of its quality or power in heredity and exercise. The lens is its organ, and all depends upon the endowment and preservation of its inherent elasticity or refracting power. The ciliary muscle does not lose its power, and hence the strain of effort of this muscle acting upon a paretic or subnormally elastic lens makes all the greater the reflexes of eyestrain. Without nervous connection with the brain and body, nourished only by blood-serum without blood-corpuscles, it is not surprising that the lens loses its elasticity, and thus gives the refractionist added and difficult problems. But with their solution the explanation is guaranteed of many of our most distressing failures to cure, and the opprobrium of our in-

ability to relieve many diseases and cases is removed. The critics and ignorers of "the eyestrain hobby-rider," as they care more for the preservation of their prejudices than they do for the relief of the sufferings of their patients, will not at once welcome this new power in therapeutics. This, of course, will not long postpone the recognition of the fact.

CASE 476 offers an interesting example of the ever-varying conditions of accommodation anomalies. A man at the present time 46 years old has a static error of:

$$\begin{aligned} R. - \text{Sph. } 0.25 + \text{Cyl. } 1.00 \text{ ax. } 115^\circ &= 20/20 \\ L. + \text{Cyl. } 1.00 \text{ ax. } 75^\circ &= 20/20 \end{aligned}$$

But for distance he has an accommodation so strong that —Sph. 1.00 is required to give him normal distant acuteness. Even —Sph. 0.50 added to his static correction will give him only about 20/40 vision, and this is annoying. But he also presents the contradiction of insufficient accommodation for near, and +Sph. 1.75 must be added to his distance glasses, in bifocals, to enable him to read without intense pain in the neck, a sore and swollen spot on the occipital bone, insomnia, etc. I have tried for years to reduce the accommodation power for distance, but without great success.

CASE 626 is that of a young woman who came to me soon after I entered upon practice, and who long had more faith in me than I had understanding of her disease. She had almost every symptom which has been charged to eyestrain and hysteria, but I preserve a clear conviction that few or none of her troubles were imaginary, and that if I had known what I discovered years later, I might have lessened her sufferings, if not cured them entirely. For about seven years, during which she clung to me with pathetic trust, I tried everything, ocular and systemic, to give her relief, but succeeded only for a little while or but partially. At last it entered my head that although she saw clearly at near range with her distance correction, she might need more help of a paretic accommodation, and rapid increases were made in her near lenses, until, at the age of 37, she is now wearing +Sph. 1.50 D. as presbyopic segments in bifocal glasses, and with a satisfaction and freedom from sufferings, which she has never before experienced. Her static error is:

$$\begin{aligned} R. + \text{Sph. } 2.75 + \text{Cyl. } 1.50 \text{ ax. } 45^\circ &= 20/60 \\ L. + \text{Sph. } 0.37 + \text{Cyl. } 1.25 \text{ ax. } 180^\circ &= 20/30 \end{aligned}$$

The amblyopia has improved somewhat, but a high exophoria has wholly disappeared, and there is now almost perfect muscle-balance.

CASE 1958 is that of a woman now 38, whom I had failed to give perfect relief for several years. Her static error was:

$$\begin{aligned} R. + \text{Sph. } 3.25 + \text{Cyl. } 0.50 \text{ ax. } 75^\circ &= 20/20 \\ L. + \text{Sph. } 2.50 + \text{Cyl. } 0.37 \text{ ax. } 105^\circ &= 20/20 \end{aligned}$$

After a time complaints and experiments led me to order bifocal spectacles:

$$\begin{aligned} R. + \text{Sph. } 3.37 + \text{Cyl. } 0.50 \text{ ax. } 75^\circ &\} \text{ Distance} \\ L. + \text{Sph. } 2.62 + \text{Cyl. } 0.37 \text{ ax. } 105^\circ &\} \\ R. + \text{Sph. } 4.00 \text{ and Cyl. } &\} \text{ Near} \\ L. + \text{Sph. } 3.25 \text{ and Cyl. } &\} \end{aligned}$$

The small degree of premature presbyopia or accommodation failure could not be discovered by any tests, and only the experiment brought the fact to light.

CASE 3417 is that of a young woman of 20 years of age, in 1894, who gave me at that time a history of severe sick-headaches, the crises recurring every two weeks for the last 12 years. There was a leukomatous cornea in the right eye from keratitis as a child. I found her static refraction:

$$\begin{aligned} R. + \text{Cyl. } 3.00 \text{ ax. } 180^\circ &= 20/100 + \\ L. + \text{Sph. } 0.62 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ &= 20/20? \\ &\text{with } 14^\circ \text{ of exophoria.} \end{aligned}$$

I ordered the best correction I could give, and did not see her again until 1901, when I again refracted her eyes and gave her somewhat different lenses. The sick-headaches had been, in part, replaced during these years by a severe pain in the left side of the chest, extending to the left arm, brought on by reading, writing or sewing, even for a few minutes. This compelled her to give up her position as a school teacher. In 1903 I again retested her eyes. She reported that during the last two years, reading any length of time would cause pain under the left shoulder-blade, extending to the breast, to the base of the brain and down the left arm to the middle fingers. Thinking the struggle of the maimed right eye to retain its share in binocular vision might be the cause of her eyestrain reflexes, I asked her to try the use of a blinder over the right eye when reading. She reported in six weeks that she could not do this. There was no relief from the device. The sick-headaches, however, had been better of late and more rare, although they still clung to her, as they had done more or less during the years since I first saw her. She is now entirely relieved of the peculiar, indescribable and unendurable suffering which used to accompany the attacks, and the pain in her arm and side is not so intense, and she can use the arm more in sewing. In 1904 I had learned my lesson as to subnormal accommodation,

and was not thrown off my guard so easily by the leukoma of the cornea of the right eye. I now found her refraction error to be:

$$\begin{aligned} R. + \text{Sph. } 0.62 + \text{Cyl. } 3.00 \text{ ax. } 180^\circ &= 20/50? \\ L. + \text{Sph. } 1.12 + \text{Cyl. } 0.25 \text{ ax. } 180^\circ &= 20/20 \end{aligned}$$

But there was exophoria of 15°, and hyperphoria of 15°, showing, of course, the complete loss of binocular fusion. Then came to light the reason of my failure to give her complete relief during all these years, and the reason for the partial functional exclusion of the right eye, by means of the enormous heterophoria. (But the doubling of visual acuity proved the benefit of the glass.) This was a failure of accommodation power measured, in the right, by +Sph. 1.62, and in the left by 1.00. The difference in the loss is highly suggestive. Bifocal glasses were ordered and the last report was gratifying.

CASE 3812 is that of a woman who, when she came to me in 1895, was 35 years of age; her static error was:

$$\begin{aligned} R. + \text{Sph. } 1.62 + \text{Cyl. } 0.37 \text{ ax. } 45^\circ &= 20/20 \\ L. + \text{Sph. } 1.50 + \text{Cyl. } 0.25 \text{ ax. } 45^\circ &= 20/20 \end{aligned}$$

For nine months she was relieved entirely of her headaches and other reflex symptoms, but with their recurrence, I found little or no change to account for them. I gave a stronger correction for near-work, but in two months there was still trouble. The symptoms were surely due to eyestrain, and I had failed to give her relief. There was but one recourse. She could temporarily overcome the weakness and see to read plainly, or at least she contended that she could do so. By experiments, I found that there was an accommodational weakness, measured by +Sph. 2.75 over her distance correction. With this, in bifocals, all the symptoms disappeared in a day, and have never returned. The woman had been a great sufferer all her life—was, in fact, an invalid under the care of many physicians and oculists. She now has good health.

CASE 4144.—For several years prior to 1902, I had been able to give this patient, aged 40 at that time, fairly good satisfaction by her distant correction worn all the time. Complaints now became insistent. She had but one useful eye, the left, the right having become practically blind from strabismus, unsuccessful operation, and disuse. The left required +Cyl. 0.50 ax. 90° to give her perfect acuteness of vision. Her symptoms were plainly due to eyestrain, and the solution only came when I found premature presbyopia, which was neutralized by +Sph. 1.37 added to her cylinder. In 1904, at the age of 42, this loss of accommodation power is measured by +Sph. 2.25 D.

CASE 4748.—This patient is a woman, now 39 years of age, who for many years has done an enormous amount of reading and writing. I had during several years prescribed glasses for constant use, but although she was generally physically strong and healthy, they were never satisfactory. Her static defect was the same in both eyes, +Sph. 0.75 + C. 0.25 ax. 90°, with perfect vision. She had had conjunctival hemorrhages after severe study, photophobia, pain, and burning in the eyes, asthenopia, and headache. After a term of abuse of the eyes, she had an attack of hemiplegia, the right side of the body being without power or sensation. The right pupil was contracted to a pin-point, the left widely dilated and responding but little to light. Rest in bed and cessation of all reading were followed by a return to normal, the hemiplegia disappearing entirely. This was seven years ago, and there has been no return of such symptoms. Two years later there was an attack of herpetic conjunctivitis, photophobia, and pain in the temples. The axes of astigmatism were now found to be 70° and 110°. Now began attacks of typical migraine, followed by intense dermatitis. These I did not at first dream were connected with eyestrain, because, like the rest of the profession, I had never known or had forgotten what the science of 100 years ago had clearly recognized. The old clinicians, of course, had no idea that migraine was due to eyestrain, but they saw that "herpetisms" were not seldom the sequels of migraine. Wagner's was a clear case of eyestrain, and he had repeated attacks of a "cutaneous malady," and "continuous attacks of erysipelas," which tormented him much of his life. My patient had most distressing attacks of "hives," and various other eruptions, pronounced by the best dermatologists atypic, and which were puzzling to them, and intractable. These attacks were sometimes called acute urticaria, psoriasis, generalized eczema, pityriasis rosacea, etc. In looking back over her life, this very intelligent patient now remembers that the eruptions were always connected with extreme use of the eyes, headache, and especially sick-headache. All of these symptoms in her case have since been repeatedly demonstrated to be due to eyestrain. They recur with leaving off the glasses, and are relieved at once by proper correction of the eye defect. A most carefully observed and excellently reported case of a similar nature has been called to my attention. It was in the practice of Dr. Charles A. Oliver, and published in *The Philadelphia Medical Journal*. The repeated demonstrations that the urticaria was absolutely caused by eyestrain is most convincing. Observations would doubtless prove the sequel more frequent than is supposed. Other cases which I had seen of these skin affections connected with migraine, and the growing conviction that migraine itself is entirely a product of eyestrain, finally landed me in the puzzle that here was a patient of 38 with an almost inconsider-

able error of refraction, and yet with the most glaring diseases due to eyestrain. The solution of the mystery came with the thought of premature presbyopia, and the enormous amount of reading and writing done by the woman. A moderate amount of near-work left her free from attacks; with 10 or 15 hours a day of application there was the sick-headache and the terrible eruptions all over the body, which confined her to bed or the bath tub for a week or two at a time. There was not the least sign of recession of the near-point, and reading produced no trouble if not exceeding several hours a day. At first I gave her reading glasses + Sph. 0.62 stronger than her distant correction. These gave complete relief except when they were forgotten for two days, followed by a typical attack of migraine, and urticaria, subsiding in 24 hours after the reading glasses were resumed. With a still stronger correction (1.25), and put in bifocals, and worn all the time, this woman, now 39 years old, has had no attacks unless the glasses are broken or forgotten.

CASE 5489 is that of a woman of 23 with a static error as follows:

R.+ Sph. 2.50 + Cyl. 1.00 ax. 90° = 20/20
L.+ Sph. 3.50 + Cyl. 0.75 ax. 90° = 20/20

She had suffered much from frontal headache, asthenopia, and indigestion. There was at first a high accommodation power and a low correction was followed by some relief, but a speedy return of headache, sleepiness, etc., and also by a dental reflex symptom somewhat more frequent than is suspected. Intense neuralgia came on in the jaw and teeth of one side. The teeth were demonstrated sound and healthy. One tooth finally became the seat of the toothache. This tooth was killed. The pain at once transferred itself to the corresponding tooth on the opposite side. The nerve was likewise killed in this tooth by the obliging dentist. Another tooth seemed to die spontaneously. There was now another visit to my office, and I found the accommodation reduced to normal, but with my former low correction there was, of course, much eyestrain with continuous near-work. Full correction for reading, writing and sewing brought considerable but not complete relief, and at the last visit one diopter added to the distance glasses, for near-work has brought entire satisfaction. She is now 29; if there is a return of the symptoms I shall advise bifocals.

CASE 6316 is that of a woman of 35, whose static error is:

R.— Sph. 2.50 — Cyl. 0.50 ax. 50° = 20/20
L.— Cyl. 0.25 ax. 140° = 20/20
with an exophoria of about 20°.

She had passed through the hands of able oculists, but they had failed to notice that in such a defect the right eye would be used only for near-work, and the left only for distance, and that this would necessarily destroy the accommodation of both eyes. Their glasses, ordered only for distance or constant use, would naturally increase the patient's difficulties and symptoms instead of relieve them. By prescribing:

Distance { R.— Sph. 2.50 — Cyl. 0.50 ax. 50°
L.— Cyl. 0.25 ax. 140°
Reading { R.— Cyl. 0.50 ax. 50°
L.+ Sph. 2.00 — Cyl. 0.25 ax. 140°

this patient's problem was solved, and binocular vision established.

CASE 6324 is that of a woman of 39, complaining four years ago of frontal and occipital headache, sleepiness on use of the eyes for near-work. At that time I was not aware of the fact that subnormal accommodation might be the explanation of my failure to relieve symptoms by the use of the ametropic correction alone. Here was a woman with a low degree regular compound hyperopic astigmatism (B. E. + Sph. 0.62 + Cyl. 0.50 ax. 90°), and who got little relief from evident eyestrain by the glasses ordered. For a year I tried all methods, general examination, urinalyses, with indicated hygienic and systemic therapeutics—all in vain. The woman was doing a great deal of writing and reading, and was finally compelled to give up her position, and take another with less pay and work. She returned to me recently, after an absence of two years and a half. She had a severe headache, or neuralgia, a few weeks ago, above the eyes, and was abed several days, the pain so intense that morphin was given. She has long recognized that her symptoms are caused by the use of the eyes. I had now learned my lesson, and at this visit I recognized that the symptoms indicated premature presbyopia. Her static refraction I found to be:

R.+ Sph. 1.00 + Cyl. 0.62 ax. 90° = 20/40?
L.+ Sph. 0.87 + Cyl. 0.62 ax. 90° = 20/20

When the mydriatic wore off, I found the subnormality of accommodation I had expected, and ordered:

R.+ S. 0.75 + Cyl. 0.62 ax. 90° } Distance
L.+ S. 0.62 + Cyl. 0.62 ax. 90° } Bifocals
R.+ S. 2.25 and Cyl. } Reading
L.+ S. 2.12 and Cyl. }

There has not been sufficient time since to give the results of this correction, but I have little doubt that they will be

good. The amblyopia in the right eye had not bettered in four years, a natural consequence of the noncorrection of the accommodation weakness. I am curious to see if it will not now improve somewhat, despite her age.

CASE 7005.—This patient, a woman of 32, had had temporary and partial relief of her headaches and sick-headaches for 11 years by the glasses of other oculists. Recently the appetite had grown bad. She had quite a high degree of compound hyperopic astigmatism with perfect acuity of vision. For 18 months I also was able to give her considerable comfort, but in November, 1904, there was much nausea, ill-health, and "nervousness." I again changed her glasses, finding a decided increase of astigmatism in one eye. I ordered:

R.+ Sph. 1.25 + Cyl. 1.62 ax. 90°
L.+ Sph. 1.37 + Cyl. 0.50 ax. 90°

There was again a temporary and noticeable bettering, but in reading, writing, etc., the symptoms tended to recur. I ordered for near-work:

R.+ Sph. 1.87 and Cyl.
L.+ Sph. 2.00 and Cyl.

and success was attained.

CASE 7127 is that of a man of 42, with a static correction of:

R.+ Sph. 0.87 + Cyl. 0.37 ax. 90° = 20/30
L.+ Sph. 1.00 + Cyl. 0.87 ax. 180° = 20/30
and without muscular imbalance.

I gave him weak presbyopic segments in bifocals, but he was soon dissatisfied with them, and I was puzzled to understand why, until I found he was depressing his head and reading at a great and abnormal distance through the upper or distance lenses. At the same time I discovered that my presbyopic correction was entirely too weak to allow him to read at the proper distance and for but a little while. I increased this correction first to 1.25 D., and soon was forced to carry it to 2.00 D. added to his distance lenses. During his early life the reversed astigmatism without correction could not be overcome, and the accommodation was thus highly parietic from disuse, and the odd compensation plan became habitual of reading and writing almost at arm's length.

CASE 7353 is that of a busy physician, aged 27. All the glasses that had been ordered for him before he came to me gave at best only temporary and partial relief. Thirty minutes' reading would bring on a headache and if persisted in there would be sick-headache, indescribable suffering, and depression. He was sick in bed, three years ago, for a week with "congestion of the retina." His static error was found to be:

R.+ Sph. 1.00 + Cyl. 1.00 ax. 80° = 20/20
L.+ Sph. 3.50 + Cyl. 0.62 ax. 115° = 20/20

His adduction power was only equal to the abduction; I gave him 64° of adduction power by prism gymnastics, with some relief, and added reading ability, but neither this nor my correction of his refraction error gave him ability to study or read long, and the muscle imbalance was highly variable. He persistently tilts his head to the right, but has no spinal curvature. I at last discovered subnormal accommodation, and gave him glasses for near-use, stronger by 1.00 D. than his static correction. He discovered that his symptoms were lessened, and without any decrease of distant visual acuteness, by wearing these all the time. This led me to strengthen his reading correction, the total being as follows:

R.+ Sph. 2.50 + Cyl. 1.12 ax. 80°
L.+ Sph. 5.25 + Cyl. 0.37 ax. 105°

But there still remained the inability to read as he desired without bringing on suffering, and the demands of his life are that he shall keep posted in medical literature and progress. At last I learned that during childhood a table fell and struck him on the forehead, cutting the scalp open the entire width of the forehead, and also vertically into the hair on one side. One cannot know what results may have been caused by such an extensive injury. Two things lead one to suspect that there was cerebral or meningeal traumatism and inflammation: He has always been somnambulist, walking all about the house, talking, and doing strange things in his sleep; he also has a persistent subnormal temperature, ranging from 96° to nearly normal, but never over 98.4°, generally about 97°. His case is as much a puzzle to neurologists as it is to me, and I am not at all sure how far his eyes have been the cause of his troubles, or if his subnormal accommodation is the consequence of the traumatism. It is certain that his anisometropia and intense eyestrain during youth and college days would work havoc with any nervous system, but that does not imply that the head injury has not been at least a contributing cause of the man's misfortune.

CASE 7530 is that of a woman of 38, wearing atrocious optician's glasses, with much epiphoria, some frontal and temporal headache, constipation, "nervousness," or restlessness, irritability, excitability, depression of spirits, and dizziness. Her static error is:

Both Eyes + Sph. 6.50 + C. 0.50 ax. 90° = 20/60
and some exophoria.

This huge error, of course, was not to be overcome; there had been renunciation of the attempt, with almost complete resultant lack of accommodation power. She consequently required full correction for distance, and 2.50 D. added for near in bifocals, with perfect relief of all her symptoms and a great improvement, in six months, of visual acuteness.

CASE 7554 is that of a man of 27, who has worn incorrect glasses since the age of 13. He works for 12 hours a day by artificial light at reading and writing. His eyes tire, and he has a feeling as if they were turning toward the nose, and "as if being pulled back in his head." There is temporal headache and pain in the eyes. He does not feel rested after the night's sleep. He has nausea when feeling the worst. He is very depressed and "nervous." He was wearing:

R. + Sph. 1.75 — Cyl. 3.50 ax. 15°
L. + Sph. 1.75 — Cyl. 3.50 ax. 165°

His static refraction is:

R. + Sph. 1.25 — Cyl. 5.00 ax. 5° = 20/20?
L. + Sph. 2.00 — Cyl. 4.75 ax. 160° = 20/40

Although only 27, I found that his correction for distance did not give him clear near vision, and I ordered + Sph. 1.75 as presbyopic segments in bifocal glasses. But this did not give relief, and two months later I increased the power of the segments to 2.25 D., when there was a disappearance of the symptoms mentioned. He returned in six weeks with slight complaints, when I discovered plain evidences of an increase of accommodation power, and I at once gave him comfort by a reduction of the segments to 1.25 D. In two weeks more, his accommodation power had become normal, and the distance glasses (remaining all the time as originally ordered), are now worn with satisfaction for all purposes.

It seems from this history that the accommodation paresis was probably due to a direct inhibition reflex.

CASE 7575 is that of a woman of 50 whose left eye has been practically blind from childhood. The static refraction of the right is + Sph. 1.75 + Cyl. 0.50 ax. 30°. She was wearing a cylinder axis 90°. She had been a great sufferer from sick-headache, car-sickness, etc., up to four years ago when glasses gave her relief. Her chief complaints now are pain in the temple, extending over the head, "congestive stomach trouble," eructations, and constipation. I found almost total paralysis of the accommodation, and ordered:

R. + Sph. 1.75 + Cyl. 0.50 ax. 30°	} Distance
L. Plano	
R. + Sph. 4.12 and Cyl.	} Reading
L. Plano.	

She has now none of the symptoms complained of, is healthy, and most grateful.

CASE 7703 is that of a woman of 29 who has suffered much from headache, the pain being throbbing and extending to the neck, and made worse by sewing. She frowns or scowls, is always sleepy, has chronic constipation, is "nervous," irritable, depressed, worries much, etc. There is complaint of lachrimation and photophobia. I ordered:

R. + Sph. 0.25 + Cyl. 0.50 ax. 90°
L. + Cyl. 0.50 ax. 90°

In six months all symptoms were better, and her improved health was shown in a gain in weight of 15 pounds, her former weight having been 115, and now 130. But her eyes tire with near-work and in one hour get "bloodshot." These symptoms were relieved by a second pair of glasses for near-work as follows:

R. + Sph. 1.62 and Cyl.
L. + Sph. 1.37 and Cyl.

CASE 7716 is that of a professor in a large university, who three years ago was compelled to resign because of ill-health; since then he has been wandering over the world from one physician to another in the hope of finding relief from "nervous depression," headache, intense photophobia from artificial light (not from daylight), and an awful feeling as if the head would burst. He had a nervous breakdown ten years ago after studying hard. Great neurologists and oculists have not been able to do him any good, or to understand his case. In 1901 the right pupil suddenly dilated with a reported paralysis of the accommodation of this eye. Pilocarpin ordered by a famous European oculist brought the pupil down to normal, but resulted in no permanent good. I found the right pupil wider than normal, but not reacting to stimulus either of light or accommodation. His static error is:

R. + Sph. 2.75 + Cyl. 2.25 ax. 45° = 20/20?
L. + Sph. 3.75 + Cyl. 2.25 ax. 135° = 20/50 +

The man is 34 years of age, but I found he demanded full correction for distance, and a somewhat stronger correction for near work, which was ordered in bifocals. At the time of his first visit he was sailing for Europe the same day, and I could not keep him under observation and for continuous testing. There was some relief following the use of these glasses, an ability to read from one to two hours daily, and sometimes for

quite a number of hours; but this would not be satisfying. Upon his return from Europe I found an anomalous condition of the muscular imbalance. The tests did not show any constancy of innervation, the cover tests and rod tests contradicting each other. There was sometimes an exophoria of enormous degree. There was plainly no binocular fusion. I now discovered a great weakness of the accommodation for continuous use, although by the momentary tests and those for a half-hour's reading, it was not at all detectible. And this was the secret of the man's tragedy. Moreover, there was a difference in the accommodative weakness of the two eyes, the right eye showing a greater loss of power than the left. In addition to his distance correction, I ordered in bifocals for near work:

R. + Sph. 4.75 and Cyl. as above
L. + Sph. 5.50 and Cyl. as above

That is, 2.25 were added to the right, and 1.75 to the left. In a day or two he was reading much more, and without symptoms, visual acuity had greatly improved, and at all distances under six feet there was no motion of the eyes under cover. I judge that the entire history of the man's misfortunes was caused by unrecognized accommodation weakness. The history is to be completed.

CASE 7724.—A healthy actor, now 50 years of age, who has acted almost every night for some 30 years, has during the past two years been much troubled with objective vertigo, the first attack preceded by nausea. Many great physicians and specialists have pronounced him free from all organic disease, except possibly insidious brain disease. He was engaged in severe literary labor two years ago, in addition to his eyestrain from the footlights. He sometimes read all night. He has always been strong and possessed good health, never has used stimulants, not even tea or coffee, and has never had any infectious disease. Whenever he does much reading the vertigo returns. No physician has ever suggested ocular cause of his vertigo. Great oculists told him he needed no glasses, and gave him an eye lotion. He was wearing optician's glasses, of course, and incorrect ones, it goes without saying. His static refraction was:

R. + Cyl. 0.25 ax. 45° = 20/20 +
L. + Sph. 0.25 + Cyl. 0.37, ax. 60° = 20/20 +

When the effects of the mydriatic passed off I found that he had no accommodation power whatsoever. There was the complete paralysis of a man of 65 or 70 years of age. Bifocal glasses have given him perfect relief of his symptoms, but there remains a sensitiveness to long periods of reading, and a tendency to pain in the back of the head. A few hours of reading at a time is all he can do; by resting, walking, etc., and doing his reading by daylight, he is very happy. He cannot work by artificial light. In other patients who are actors or actresses I have also found this inability to endure artificial light, and the influence of the footlights to paralyze the accommodation. It is the secret of the ill-health of many actors and actresses.

CASE 7847 is that of a single woman of 37 years of age in 1904. She has been a great sufferer from headache, starting in the forehead, extending to the vertex, occiput, and the pain thence going down the spine. She has occasional "bilious headaches" with vomiting, and violent pain in the epigastrium. These attacks last for four days in which no food is taken or retained. The vision was extremely poor preceding the last attack. She has been greatly troubled by flatulence. She has worried much about her eyes, and keeps up a constant fight against despondency. She has terrible nightmare dreams which awaken her with fright, so that she does not sleep well at night; and yet she is drowsy and dull during much of the day. She has worn glasses, incorrect ones, for 16 years. She was for many years an engraver on gold, using a magnifying glass for this purpose, and she can now read only by the aid of this glass. Deafness began coming on while working at gold engraving, between the ages of 17 and 21, and without glasses. It became much worse about 12 years ago from an adhesive or sclerotic inflammation of the middle-ears. The static refractive error was:

R. + Sph. 2.00 D. + Cyl. 0.37 ax. 45° = 20/30
L. + Sph. 2.25 + Cyl. 0.37 ax. 135° = 20/30?

Although this patient was only 37 years of age the correction gave her no ability to read at 14 inches, and the history of the use of the magnifying glass in engraving, and the need of it now to read with, at once suggested paralysis of the accommodation. Bifocal spectacles were ordered with the addition of + Sph. 2.25 as a presbyopic segment. In three weeks she returned to report her hearing better than for years. She now heard church bells she had not heard for many years, and there was less tinnitus. She feels buoyant, younger, and was profuse in her gratitude. At her last visit she stated that she reads and writes with ease and comfort. She had long been unable to work, but with the relief from her glasses she at once secured a position as dressmaker, and despite this kind of work she has no headache, does not use a magnifying or hand glass to read, sleeps better, etc. The old hopelessness and despondency have disappeared, and the improvement in hearing is permanent.

CASE 7851 is that of a woman of 35, whose chief complaints are of "nervous dyspepsia," "general weakness of the nerves,"

depression, apprehensiveness, irritability, etc. She "has always to be on the go." She has "much gas and discomfort after eating." For the last year and a half she has had "a gurgling of gas and a pressure below the heart," whenever she reads or sews too long. Her physician has been treating her for this, and "his medicine cures it if she stops reading and writing and sewing." She has never had much headache, but has often a throbbing in the temples. She feels a nervous shock in the pelvis as acutely as in the head. Some misplacement of the uterus has been corrected. She has worn glasses for eight years prescribed by good oculists, but has had no relief from them, and the last ones ordered made her symptoms worse. This will be understood by the record:

R. + Sph. 1.00 + Cyl. 0.50 ax. 75°
L. + Sph. 1.00 + Cyl. 0.62 ax. 105°

Her static correction I found to be:

R. + Sph. 2.75 + Cyl. 0.50 ax. 75° = 20/25
L. + Sph. 2.75 + Cyl. 0.62 ax. 130° = 20/25
with 6° of hyperphoria.

Plus spheric 2.25 and cylinders were ordered with a partial correction of her hyperphoria. With these she found so much relief that she at once began to disobey orders and sewed immoderately, "on black," and in six weeks she returned with a recurrence of her old symptoms, especially the digestive reflexes, which she herself traces directly to use of her eyes. I was now prepared to find that I had blundered six weeks before, which I found was true. I had failed to think of a deficient accommodative power. The clearest hints were an increase of the hyperphoria, showing the inability to preserve binocular fusion and the "breaking down" under a great strain of "sewing on black." By adding plus 1.25 spherical to her distance glasses in bifocals her problem was at once solved.

CASE 7892 is that of a woman 30 years old, who has been under treatment by general physicians for a long time for gastric symptoms, dyspepsia, etc. She has had pain and nausea after eating, with flatulence and constipation. She is intensely "nervous," cannot go out alone, "trembles" a good deal, is depressed, excitable, and "a worrier." She has had all her life daytime drowsiness and frontal headache nearly every day, culminating in sick-headaches with "awful nausea" and "rush of blood to the head." I found her static error:

R. + Sph. 0.62 + Cyl. 0.62 ax. 100° = 20/20
L. + Sph. 0.62 + Cyl. 0.62 ax. 90° = 20/20
with slight exophoria.

There was good accommodation for distance and I could only order the cylindric correction; I also gave her + Sph. 0.25 and cylinders for reading. These glasses gave her much relief and there was a betterment in all ways, although reading seven weeks later still produced considerable trouble. Then + Sph. 1.00 and cylinders was now ordered for near-work.

CASE 7951 was that of a strong, healthy, fine specimen of young womanhood of 21. Ever since the age of 10 she has had occipital headache, and especially following any reading and study since the age of 15. She has been compelled to forego all near-work, as a half hour of such strain at once causes the pain. When she gets very tired from any cause, the headache is likely to come on. At about the age of ten it was noticed by her mother that one shoulder was higher than the other, and the spine somewhat curved. She was put under the charge of a physical culture teacher, and after several years of training the spine became straight. For several months before menophania, at about the age of 14 she had severe sick-headaches with vomiting. There have been none of these attacks for several years. She is sleepy during the day. The consciousness of her headache persists more or less clearly during her sleep at night. About five years ago she had "nervous exhaustion" and was in bed most of the time for a long period. She has worn glasses most of the time during the last five years, but for reading only. I found her wearing, both eyes + Cyl. 0.50 ax. 90°, prescribed by an oculist—a correction which was adding to eyestrain instead of neutralizing it. Her static refraction is:

R. + Sph. 0.25 + Cyl. 0.25 ax. 70° = 20/20
L. + Cyl. 0.25 ax. 110° = 20/20

She has an exophoria of 1°, but an abduction power of 7°, and an adduction of 24°.

The patient had been sent to me from a long distance, and after many failures of other oculists and physicians to cure her headaches. I was therefore greatly worried to find an error of refraction almost impossible alone to cause the severe symptoms, which were most plainly chargeable to eyestrain. In such cases every possible proving of the tests must be gone over and the mistake or the mystery exposed. Retesting only reproved the correctness of the diagnosis, and I was forced to order:

R. + Cyl. 0.25 ax. 70°
L. — Sph. 0.12 + Cyl. 0.25 ax. 110°

This was done in the faint hope that, as sometimes happens, an irritated and hypersensitive system might be morbidly acted upon by as slight an ametropia as this. Possibly, one

knows, a higher degree and an unsymmetric one may have previously existed, and the habit-reflex persist with the slight eyestrain. True to my rule, I hung to the mystery and would not let the patient return home. When the mydriasis should have passed off I noticed that the pupils were still abnormally wide, although the accommodation had returned so that the finest type could be read at near range. This suggestion put me on the track of a solution, as I had several times found that subnormal power of accommodation for persistent use was indicated by physiologically wide pupils. The girl had always had these remarkably wide pupils. All became clear when I found that, although she could see to read even fine print for a little while, and for all ordinary testing, yet she took with great delight from 1.50 to 2.00 diopters plus spheric, and had "never seen printing look like that before." I ordered reading glasses + Sph. 1.50 D. added to her distant correction. If I find the accommodational paresis uniform and continuous, I shall ask this patient of 21 to wear bifocal spectacles, at least for house use. Whereas, before she read for only 15 or 30 minutes without headache, the report of her physician is as follows: "Not a headache since she began using the glasses. You have not only given her new eyes, but new life. She now says she has never seen like other people, or really ever enjoyed life. Her family are deeply grateful and jubilant over it."

CASE 7953 is that of a woman of 34, who has long been afflicted with temporal and occipital headache, culminating in nausea, but not vomiting. The attacks are frequent, and especially so when doing reading or sewing. "When her eyes are bad she has more nausea." She has worn glasses for ten years, generally with some temporary relief of headache with each change in glasses. The last change, made during the last summer, gave no relief. There are daytime drowsiness, chills with the nausea, a nervous shaking or tremulousness. She is despondent, irritable, easily excited. She was wearing:

R. + Sph. 1.50 + Cyl. 1.00 ax. 80°
L. + Sph. 1.25 + Cyl. 1.50 ax. 90°

By comparing this with her static error, and especially with that I ordered, given below, it will be understood why she got no relief from these glasses. Her mydriatic error I found to be:

R. + Sph. 1.37 + Cyl. 1.62 ax. 85° = 20/20
L. + Sph. 1.00 + Cyl. 2.25 ax. 105° = 20/20

While testing her I noticed that she persistently tilted her head about 10° to the left, and when I found that with the average of her axes of astigmatism there still remained 10° of asymmetry in the left eye which could be rectified only by tilting the head toward the left side, I said to her: "Oh, you are left-handed?" She was surprised that I should have inferred the fact. She was forced to learn to write during childhood with the right hand, is a "very poor writer now," but does all other usually dextrormanual acts with her left hand. When she told me that seven years ago her pastor had jokingly spoken to her as the member of his congregation who always looked up at him with her head to one side, I said to her: "You have curvature of the spine." She had never suspected it. Examination of the naked back showed the right shoulder much lower and longer than the other, an upper dorsal curvature of the spine, the convexity to the left, with a compensating curve to the right in the lower dorsal and lumbar regions. The muscular developments and anomalies of the back were those common in such cases. At the postmydriatic examination of the eyes I found that she took a high correction for distance, and this, with other suggestions, led me to suspect subnormal accommodation. I found that + Sph. 1.25 was needed to give her clear and satisfying vision at 14 inches, and an ability to carry on near-work without the migraine with which she had so long been tormented. There has been relief of all other symptoms complained of.

CASE 7959 is that of a physician of 39, who has consulted the most famous oculists of half a dozen cities, but up to last year, has been unable to use the glasses ordered with any relief of his symptoms. The last prescribed gave him comfort, except for reading and writing. Even as a small boy he was pronounced "neurasthenic," and had frontal headaches almost constantly and could study but little. He has always been troubled with insomnia, and of late years he cannot read without intense sleepiness. He is "nervous," depressed, easily worried. Both external recti muscles have been scissored without any relief. His most bitter complaint is of confusion or obfuscation whenever he reads, and is usually unable to understand what he is reading without the most intense effort, and by rereading it several times. He was wearing glasses that corrected his error of refraction with fair accuracy. His static error I found to be:

R. + Sph. 0.75 + Cyl. 0.37 ax. 90° = 20/20
L. + Sph. 0.75 + Cyl. 0.25 ax. 90° = 20/20
with perfect muscular balance.

In such a case there was but one solution: If he had good adduction and accommodation power, eyestrain could not be the cause of his symptoms. And yet his symptoms were beyond all question due to eyestrain. For 20 or more years his

professional work had been handicapped, and he had spent much of his life consulting oculists and trying experiments, for he never doubted that it was his eyes which were at fault. I found paresis of the accommodation measured by +Sph. 1.25 D., and ordered bifocals. He at once was able to read and write at pleasure, and with unbounded pleasure, and without a symptom of discomfort or confusion. The first day he wore his spectacles he read two and a half hours, and the second day one and a half hours on a train—a thing he had never before been able to do. Even in a few minutes, previously, reading or writing brought on the symptoms, which increased with every minute of continuance.

CASE 7961 is that of a physician and professor, aged 32, who was wearing, both eyes, +Sph. 1.00, prescribed by an oculist in Germany, after a nonmydriatic examination. His chief symptoms have been aching of the eyes, sleepiness on reading, restlessness, "bloodshot" eyes, blepharitis after reading, and lacrimation. He is completely left-handed, the attempt to force him to write with his right hand in childhood and youth having been a failure, although his left hand was tied behind him. It is fortunate for the man that the foolish attempt was not successful. I ordered for him:

R. + Sph. 0.75 + Cyl. 0.25 ax. 125° } For distance
L. + Sph. 0.75 + Cyl. 0.25 ax. 105° }
R. + Sph. 1.37 and Cyl. } For near work
L. + Sph. 1.37 and Cyl. }

This patient's troubles were henceforth ended.

CASE 7964, one of peculiar interest, is that of a young man of 21 who has always had a weak and ailing left eye. He has long been in the habit of convulsively closing and winking it, especially during reading. Great sleepiness is his chief complaint, whenever he is not in the open air. He has been troubled with "biliousness" and constipation. He is always "nervous," and had a "nervous breakdown" in July and August, 1904. He is easily worried and excited, much depressed, and imagines that he has all the diseases described by others. He never feels rested by going to bed or sleep. After his "breakdown," long rest from work and seeming recovery last year, his old symptoms returned when he went back to his office work as clerk. I found his static refraction to be:

R. + Sph. 0.37 + Cyl. 0.62 ax. 90°=20/20+
L. + Cyl. 2.75 ax 90°=20/200

There was no disease of the media or fundus of the left and his amblyopia was therefore from disuse. But something told me not to be satisfied with this diagnosis of the error of the left eye and I persisted, long in vain, until I found the following:

L. + Sph. 0.50 + Cyl. 2.75 ax. 90°—Cyl. 1.12 ax. 60°=20/60

I am unable to explain the origin of this irregular astigmatism. But I was still unsatisfied, and after a time I was able to demonstrate a remarkable subnormality of accommodation differing in degree in the two eyes. His presbyopic correction ordered was:

R. + Sph. 1.50 with cylinders
L. + Sph. 2.50 with the two cylinders.

In 24 hours the visual acuity of the left eye had risen to 20/50, with an immediate disappearance of all symptoms, and a satisfaction in distant and near vision of the most gratifying kind.

These data suggest that:

1. Subnormal, paretic, or insufficient accommodation, or premature presbyopia, even paralysis of the accommodation, of a functional or reflex nature, not dependent upon organic disease, exists in a certain, probably much larger than suspected, proportion of young or middle-aged persons.

2. The youngest of my patients was 20, the oldest 50. Several cases show that the subnormal accommodation existed during adolescence. That 18 were women and 9 men has only the significance that women are more subject to eyestrain than men because they do more near-work with the eyes, are less resistant, etc.

3. It is usually permanent or ingravescent, although there was complete recovery in one of my cases.

4. It may be caused by such degrees and kinds of ametropia as compel the renunciation of the accommodative function, especially high hyperopia or astigmatism, etc.; monocularity; glare of footlights; the use of magnifying glasses in engraving, etc.; long-continued abuse of the eyes; a direct inhibiting reflex to the accommodational mechanism. It will be noticed that 17 of my patients had unsymmetric astigmatism, and most of the others an ametropia or anisometropia unconquerable by

the visual mechanism. In many cases there may be no discoverable or pathologic cause, the determining factor being a personal and physiologic peculiarity. We are prone to forget that presbyopia really begins with the beginning of life, as the recession of the near-point commences in infancy, and is continuous throughout life up to the age of 60 or more. In the normal progress, and when uncomplicated by ametropia, this recession, at about 45, reaches a degree which makes reading wearying at 14 inches with ordinary-sized type, because the book and writing cannot be held further away; because the letters are so small, and because the macular image is too minute. If our arms were five feet long and our printers used type about a third inch in height, all might get on without presbyopic glasses. The crystalline lens of the eye loses its inherited and high elasticity with each year of life. As it has no neurologic connection with the brain, and is not nourished by red blood-corpuscles, this loss of elasticity is most natural. It is consequently as natural and inevitable that its inherited and primary elasticity should differ in different individuals and that local ocular and also systemic disease and denutrition, eyestrain, etc., should still further make the ingravescent inelasticity of varying degrees of progress. The resultant symptoms will depend upon the amount and morbidity of the near-work demanded of the accommodation. The number of those under 45 with subnormal accommodation is thus probably much higher than supposed and this fact gives us the suggestion to be constantly upon our guard as to its presence.

5. It is of all degrees and varieties, and may even differ in amount in the two eyes.

6. It may complicate the condition of head tilting, torticollis, etc., with secondary spinal curvature, due to a peculiar axis of astigmatism in the dominant eye. The pathogenic results of dextrocularity and sinistrocularity should not be forgotten.

7. The pathognomonic symptoms are the persistence of common eyestrain reflexes (such as migraine, headache, indigestion, intestinal fermentation, constipation, nervous disorders, dermatoses, etc.) after proper correction of the ametropia and muscle imbalance, and especially an inability to carry on continuous near-work.

8. The diagnosis is impossible by any of the ordinary tests. The loss of power has come on so slowly or has been so long present that the patients have no suspicion that the print is not clear, and it is usually possible for them to read even the finest letters with ease, and for a short time. The comparative rarity of the cases also throws the oculist off his guard, and routine begets carelessness. Abnormally wide pupils of one or both eyes, the demand of high corrections for distant vision, certain occupations, certain forms of ametropia and anisometropia, high heterophoria, unrelieved reflexes, photophobia, etc., are suggestions that there may be accommodation weakness.

9. It is an active cause of heterophoria, adding to the proof of the common dependence of muscle imbalance upon ametropic and optical causes. It is therefore an added demonstration, if it were needed, of the mistake of the tenotomists who operate for heterophoria. In the vast majority of cases, heterophoria is ametropic in origin, innervational in nature, and is an effort of nature to lessen eyestrain. The results of operation are therefore evil, and make the cure more difficult by physiologic methods.

10. The treatment is by means of bifocal spectacles which accurately neutralize the error of refraction for distant, and the deficiency in accommodational power for near vision. As in all treatment whatsoever, success here also depends upon the amount of irreparable damage done before the appropriate therapeutic measure is found. Usually relief is sudden and striking. Whatever of usefulness there is in the nonsensical "fogging system" is explained by the fact of incorrect refraction and subnormal or paretic accommodation.

EROTOMANIA: CONSIDERATIONS ON ITS MANIFESTATIONS AND PATHOGENESIS, WITH THE HISTORY OF AN INSTRUCTIVE CASE.

BY

J. LEONARD CORNING, M.D., LL.D.,

of New York City.

There exists, and has long existed, great confusion in the use of this term among writers on insanity and medicolegal topics. This is the less excusable, in view of the remarkable literature that grew around the subject about the middle of the last century, much of which—certainly in point of description and analysis—is as convincing now as the day it was set down. To Esquirol, the most brilliant, by far, of the contributors to this literature, is due the credit of adequately describing the characters of erotomania, which, in consonance with his dictum that disorders of the intelligence may constitute the primary step in mental alienation, he classified among the monomanias, a group which, indeed, one may say he created. If we recall the practically exclusive importance, which up to his time had been ascribed to derangements of the affective faculties in the etiology of insanity; how competent opinion insisted upon regarding them as primary elements under all circumstances and on all occasions, we cannot fail to perceive how great, how far-reaching, was the service rendered by Esquirol.

Among the various monomanias, there is scarcely one of more interest to the physician than that constituting the subject of the present writing. Indeed, one may say without exaggeration, I think, that to confine the knowledge of this remarkable affection to the small group of physicians who have made the study of nervous and mental diseases their lifework, is a grave error, not to say injustice. There is, in fact, scarcely any considerable community in which instances of erotomania may not occur, and where prompt recognition of the trouble may not prevent crime, or at least, great misfortune and unhappiness. In view of this, and the further likelihood that a physician in general practice may at any time be called to decide as to the mental condition of one afflicted with this peculiar psychosis, I have been encouraged to undertake the present paper.

Erotomania differs from other aberrations of the generative instinct in this, that in it this instinct seems to be entirely wanting. For this reason, erotomania is to be confounded neither with nymphomania nor satyriasis, an error frequently committed, however, by modern writers.

This point is well brought out by Esquirol. "In the latter (nymphomania and satyriasis), the disorder," he observes, originates in the reproductive organs, the irritation of which reacts upon the brain.

"In erotomania, love is in the head. The nymphomaniac and the satyriasiac are victims of physical derangement; the erotomaniac is the plaything of his imagination. Erotomania is to nymphomania and satyriasis what the lively, chaste and honest affections of the heart are to unbridled libertinism. While the most filthy proposals and actions the most shameful and humiliating characterize the victim of nymphomania or satyriasis, the erotomaniac does not desire, does not even dream, of the favors he might obtain from the object of his daft devotion."

The proof of this, quite aside from the morbid exaltation of his declarations and actions, is seen in the fact that sometimes his mania fastens upon a totally inanimate object, which his imagination esthetically personifies, so to speak, after the manner of a child lavishing commendation on a doll, or religionists who dower with the attributes of the living, images of clay or stone. All this appeals to women, who are often the victims of erotomania, though less frequently so than men.

While it appears, then, that the love of the eroto-

maniac is essentially an abstraction, a delirious flight of ideality winging forth upon the void; while his imagination, urged by an imperious besetment, constructs an image of impossible perfection, there is usually present this bias to translate ideality into concreteness, to give tangible shape to the image, to enliven it. Hence his tendency to endow some female, often of the most commonplace order, or, as sometimes happens, of a station much above his own, hence, I repeat, his tendency to ascribe to such a *Dulcinea*, seen by chance, perhaps, and quite without acquaintance, all the fictitious attributes of his own unleashed extravagance. For this reason the erotomaniac may pursue the object of his infatuation with an assiduity requiring the intervention of the police; or, if vehemently rebuffed by her, he may occasionally become both violent and dangerous. Erotomania, as has already been said, is one of the monomanias; and an adequate appreciation of its characters involves some knowledge, clinical and pathologic, of the group to which it belongs. Such a consummation will be furthered in no small degree by quickly retracing the steps that have led to our present conception of it.

The first fact to impress one in such a retrospect is that shortly after Esquirol announced his views, it became apparent that the different monomanias could coexist or succeed one another in the same subject, and that an isolated affection of the understanding was impossible without participation, more or less, of the rest.

From this it followed that a classification based on a single delusion, however convenient, was, to say the least, without strict scientific accuracy. There arose, therefore, a scurry among observers to discover some factor common to all the monomanias. In 1857, Morel sought to establish the element of heredity as of prime importance in the etiology of insanity. To be sure, the idea had been broached before, but in the crudest fashion, the thought being merely to trace the insanity itself from one generation to another. Morel's service consisted in attempting to establish the transmission of a peculiar mental condition (degeneracy), predisposing to the occurrence of insanity.

From this onward, degeneracy became a dominant fact, universally recognized as of the first importance in the etiology of the psychoses, and more particularly of those monomanias described with such lucidity and painstaking care by Esquirol. A voluminous literature now appeared; and since conservation of consciousness, the irresistible nature of the morbid concept, and the ability to reason are the characteristic features of the group, various arbitrary designations arose, differing according to whether the writer's attention was dominantly attracted by one psychologic element or another. Here we have the key to a further confusion, arising from the introduction of such names as "Monomanies avec conscience," "Folie lucide," etc.

Adopting the first of these designations, Baillarger, writing in 1861, divides the monomanias into intellectual and impulsive. The first are characterized by a delirious idea, which, imposing itself upon the mind, becomes the starting point for a whole series of logical deductions, deductions that completely govern the life of the subject. It is evident that erotomania belongs to this group. Having, as already indicated, perceived in degeneration the common origin of the monomanias, Morel, in 1861, grouped them all together under the common designation "*Délire émotif*."

One of the most striking peculiarities of degenerates, by the way, is their predisposition to aberrations of the genic faculty, such aberration being largely dependent, no doubt, upon inefficiency of the regulative principle governing the functional balance of both the organs and the mental faculties. This is well exemplified in erotomania where extraordinary erethism of certain centers exists in the presence of complete inhibition of others.

Ignoring, for lack of space, the publications of a number of worthy authors who have advanced the subject in detail, but scarcely fundamentally, we come at length to a group of German writers who, entering the field at a comparatively late day, were greatly influenced by the pioneer work of the French writers, and more particularly by that very great luminary, Morel. They admit the primordial importance of the delirious idea; find the origin of the condition predisposing to it in degeneracy, and under the name *primäre Verrücktheit* or *Paranoia (monomanie)*, they set it off among the chronic insanities.

"Paranoia," according to Krafft-Ebing, one of the most distinguished of this group of writers, "is a chronic psychic disorder, exclusively found among the branded¹ and of which the principal symptom is the presence of delirious ideas. These delirious ideas are the primary creations of the brain; they are formed by processes of conclusion and judgment, which scaffold up into a veritable edifice of illusion. Despite all appearances of lucidity, however, the intelligence is disturbed in a peculiar manner, in the sense that, despite the conservation of the faculties of perception and reflection, the paranoiac is incapable of rectifying his imagination, his illusions. . . . He accepts them, in fact, without criticism, as acquired facts, and makes use of them as such."

All this applies, of course, to the morbid psychology of the erotomaniac.

Two forms of paranoia are recognized by Krafft-Ebing—the one severe, original or congenital; the other, a chronic or *tardy* variety. The first develops before, the other after puberty. He proceeds, furthermore, to subdivide the chronic or *tardy* variety into an expansive form—that in which the subject exalts his personality; and a depressive one—that in which he depreciates it.

To the first of the latter, the chronic, expansive form, the erotomaniac has been assigned, not, as erroneously alleged, because he is always, *i. e.*, continuously, expansive, but because he is usually so. In the case presently to be related there were periods of both exaltation and despair, the last-named condition leading to a threat of suicide.

Finally, Legrand du Saulle, Krafft-Ebing, Trelat and others, have insisted upon the emotionally impulsive, obsessional character of the sexual aberrations of degenerates, a feature also accentuated by Jousset, in 1866.

To sum up, it may be said that the salient characteristic of mental degeneracy is the lack of balance prevailing in the central nervous system—the lack of effective cooperation of the various centers. Hence, in erotomania, one of the most characteristic manifestations of degeneracy, we have the enormous exethism of the psychic centers, with its morbid psychosexual ideation, its "*hypertrophie d'un sentiment vrai*," coexisting with depression of the mechanism of normal sexual animality, and consequent inhibition of desire.

A considerable difference is observable in the manifestations of erotomania, dependent largely upon whether he or she has met success in the pursuit of the object of adoration or encountered a rebuff.

In the first instance, the subject himself, carried away by his delirious obsession, becomes an easy prey to blackmail, and may even steal or commit other crimes to prove his devotion. With cases of this type it is not worth while further to concern ourselves. It is the second group of cases, those in which the subject has been thwarted in his pursuit, that presents the most interest, both from a psychologic and medicolegal point of view. As a rule, the subject begins his pursuit with a certain timidity, a certain reserve; he follows the object about, at a respectful distance, and unobtrusively. Presently, unsatisfied with these shadowy advances, he becomes bolder. Then it is that he salutes the subject

of his infatuation; casts longing glances at her, or embodies his sentiments in imploring missives, replete with unbridled eulogy. Endless correspondence of this clandestine sort is a passion with the erotomaniac, the chosen medium, indeed, for the expression of his amorous extravagances. The study of this welter of sentiment is most informing to the physician and should never be neglected. From it the true condition of the subject may be educed with absolute certainty. Arranging such a correspondence as chronologically as may be, we find that in the beginning, at least, the subject is egotistic, filled with a sense of his own worthiness; in short, that he is a megalomaniac. Later, when thwarted or rebuffed, he may react in various ways: (1) He may display mortification, chagrin; or (2) exasperation, revengefulness. Under the sway of the first, he may commit suicide; under the dominance of the second, he may make violent or even murderous attacks upon the subject of his obsession or upon those of her entourage, friends, relatives or advisers, who, he conceives, may have caused her to flout his advances. In all this, it is not to be forgotten, that sexual gratification plays no part as an actuating idea. Further, and parenthetically, the married erotomaniac, and this applies more especially to the woman, has no desire for sexual congress, submitting to it, if at all, rather to demonstrate her devotion than from physiologic prompting.

Again, should erotomania be common to both parties, should the man and the woman thus obsessed despair of a consummation, of a union, a double suicide may result.

To recapitulate, the crimes perpetrated by the erotomaniac are traceable either to exasperation, despair, or ideas of persecution. The first and last lead to crimes of violence against the object of his obsession, incited by jealousy or resentment at her obtuseness to his advances; or against her friends or relatives, who oppose or are imagined to oppose obstacles to his daft pursuit. In the second factor, despair, is found the root of the homicide with subsequent suicide, and the double suicides as well.

As previously and repeatedly noted, erotomania, like the other monomanias, has its root in degeneracy. Consequently the various stigmata, physical or mental, or both, may be found in the erotomaniac. The list of these evidences of degeneration, these stigmata, has been considerably extended since the days of Morel.

Among the more striking physical stigmata are deformities of various kinds—malformations or incomplete development or enormous overgrowth. Hence, malformation of the external ear; asymmetry of the face; unequal development of the two halves of the cranium; harelip; strabismus; irregularity in the shape and position of the teeth; flat, ridged or pointed palate; enormous development of the jaw, observed in criminals, and webbed or supernumerary fingers.

The mental stigmata are quite as characteristic. Prominent among these are lack of mental equilibrium, which, indeed, in a sense, comprises all the others; hyperemotionality; inordinate impulsiveness; powers of imagination so extraordinary as to attain the dimensions of veritable hallucinations; domination of the mental sphere by delirious ideas, culminating in impulsive, explosive acts; as a consequent of the last-named qualities, and of the general lack of balance in the psychic sphere, impairment of the will; imperfect development of the moral sense, with consequent impairment of the ability to distinguish right and wrong; and finally, inordinate egoism and total lack of power to take an impersonal view of anything. The fact that the erotomaniac is completely under the dominion of his delirious idea, that his whole mental life, including his attitude toward others, is merely a logical derivative of his obsession, invests him with a medicolegal interest that is unique.

The foregoing introduction, somewhat cursory though it be, will serve, I trust, to make the following case

¹ Those who exhibit the stigmata of degeneracy, mental, physical, or both.

intelligible, even to those but little given to psychologic exercises :

To my professional attention was brought about two years since Mr. E., a man of 29, in somewhat frail health, already grayed and wrinkled by a series of unique vicissitudes.

The knowledge I then and subsequently got of him is derived partly from interviews had with him at my office; in part, from his correspondence, voluminous and characteristic—in fact a veritable mine of psychologic data, procured for me very opportunely by a member of his family; and finally, not a little from a kind of history of himself, which, at a hint from me, his self-esteem set down with great alacrity.

The early youth of E. affords scant premonitions of his subsequent morbid career. We learn that he was diligent in his studies; irreproachable in the observance of the rules of discipline; in a word, a bit too angelic, perhaps, to meet the exactions of normal exuberant boyhood. His conduct at this time gave no token of original aptitude; he was a ready learner, could repeat anything he read, verbally, and without effort, and could draw an inference when the reasoning required was of an obvious, mechanical sort. He stood well in mathematics, but his "compositions"—some of which had been preserved and came under my eye—were notably puerile, being totally devoid of naïveté, of those ingenuous sallies of the unexpected, so characteristic of the lively years. As he passed his examinations without difficulty and gave no trouble, he was much valued by his teachers, who held him up as a model to be envied by his less fortunate companions.

Thus, he slid through his school days. At the age of puberty, however, and while he was preparing to enter college, an extraordinary change came over him. He neglected his studies, became irascible and capricious; shunned his family and associates, and gave himself up to listless solitude and morbid brooding. When taxed with his neglect of study and reproached for his singular conduct, he would flare forth in uncontrollable fits of anger, ending by flinging out of the house, to wander about for hours together, regardless of his meals or his engagements.

With what did he occupy himself during this wayward errantry? His own statement is explicitly informing. "My mind," he writes, "was full of longing for a divine woman, sinless and pure. The more I thought of her, the more perfect she became. I was ashamed of my low feelings when I thought of her, and resolved to live for my higher self." There is much more to the same effect, the subject laboring incoherently in a welter of maudlin apostrophe. It is a significant crisis; for at this time the seeds of morbid ideality were sown, of an ideality that, finding a sudden, capricious realization in an unsuspecting member of the opposite sex, would flower to the proportions of a dominating, delirious obsession.

E. was packed off to college. There he remained for upward of two years, following the lectures in a negligent, desultory kind of way, always solitary and shiftless; always brooding on the impossible image of feminine perfection, which, gradually approaching the vividness of an hallucination, was already half personified. His neglect, or rather inability to study, brought the inevitable. He was taken from college, and placed as a subordinate in a commercial house. He did no better, receiving his discharge in a few weeks. Then, other attempts at employment; everywhere humiliation; everywhere failure. He became a disagreeable pensioner on the bounty of his family.

One day, while wandering about in the public park, he encountered a young woman to whom he was at once attracted. "I knew it was *she*!" he exults, "as soon as I saw her." To her, then, was immediately transferred his haunting ideal; in a twinkling that image of perfection, that diaphanous shade of dreamland, looming, already half animate, within the ken of his delirious fancy, received the substantial adjuncts of common flesh and blood.

Was there a change wrought in the quality of his sentiment by this sudden mating of the ideal with concreteness? Did a covert hope of sexual gratification slink in?

When questioned on this point, he shakes his head, coupling the gesture with an expression of disgust.

We learn, further, that he followed the object of his infatuation to her home; learned her name; followed her about for some days, shyly at first, and then more openly; that later he saluted her obsequiously, leering the while with all his eyes; and that ultimately—and despite the fact that she ignored his advances on every occasion—began ardently to write her.

These letters, to which he never received a reply, are a veritable chronicle of his amorous besetment. Three stages are discernible: (1) A stage of delirious exaltation; (2) of depression; (3) of persecution.

During the first period the correspondence is laden with the most extravagant epithets of devotion and endearment, interspersed occasionally with doggerel verses, in which the subject strives to give outlet to a seething appreciation.

The following bit of delicate apostrophe, taken from one of his letters, utters the burden of his ethereal longing:

"Oh! me darling pray be sure
I shall keep you ever *pure*;
Naught so white in heaven above
As the nightdress of my love!!!"

Et hoc genus omne.

The second stage is characterized by the dominance of despair. His pursuit ignored, his letters unheeded, whelmed in chagrin at the futility of his efforts, he breaks forth in a storm of reproaches, culminating, presently, in a threat of suicide. The solemnity of the resolve offers no bar, however, to his poetic bent, as witness this eruption of the tragic muse:

"Oh! how endure this cold repulse?
I'm weary of the strife!
Nay, I will check my beating pulse
And end my tearful life."

Upon the receipt of this and several other effusions of like character, the relatives of the young woman, already informed of the identity of E., communicated with his family, placing at the disposal of his relatives the whole correspondence, and insisting with great indignation that their kinswoman should forthwith be relieved of this embarrassing pursuit; and threatening, in default of such relief, immediately to notify the police.

Informed of this, and vehemently upbraided by his family, E. burst into a violent fit of anger. His condition was now greatly changed. He was taciturn, morose, and suspicious; kept his room; and, when alone, wrote continually. His letters at this time, none of which were allowed by his family to reach their destination, were full of invectives, reproaches, accusations, and threats against the late object of his devotion. He had reached, in fact the third, or persecutory stage of his malady. Here is the opinion he now held of his Dulcinea, coupled with a poetized threat of murder:

"Cold, heartless wench!—
(Or shall I call thee whore?)
Soon thou shalt see me never more.
I've sworn thy death!—
Ring dirges on the bell!
For soon I'll follow thee to hell!"

In view of the later developments in his case, I advised that E. be committed to an institution for the insane; but a difference of opinion arising forthwith among his relatives as to the pressing need of such a drastic step, he was sent abroad under surveillance. Since then, so far as I know, he has caused no further scandal.

Not by any means in every case of erotomania are the three conditions of exaltation, despair, and persecution exhibited by E. in evidence. More commonly the megalomaniac stage merges, under provocation, directly into only one of the last-named phases.

While none of the physical stigmata of degeneration were present in E.'s case, he certainly disclosed some of the mental ones about the time of, or shortly after puberty. What is of equal consequence, several members of his family were known as eccentric; while one, a female relative on the maternal side, died in an asylum.

Reference has been made to the thefts committed by erotomaniacs. The source of these acts is, usually, not to be sought in a coexisting kleptomania. On the contrary, they are commonly the direct, logical sequence of the subject's delirious idea, of an impulse to shower favors, burn incense at the shrine of his erotic obsession. In kleptomania, then, the impulse to steal is bedded in the delirious idea itself; in erotomania it is a derivative, a logical product of that idea, a child, so to speak, of the amorous obsession. This, I repeat, is the usual psychology. It must not be forgotten, however, that now and then a case occurs in which erotomania and kleptomania are associated. Under such circumstances, it is evident that the impulse to steal, as well as the impulse to love, resides each in its own delirious concept.

According to Ball, the evolution of the disease is gradual, progressive, and the termination inevitably dementia.

Krafft-Ebing, however, believes that this dementia is not the direct consequence of the erotomania itself, but on the contrary, is brought about either by a complicating insanity, or by alcoholic or venereal excesses (masturbation) or both.

CONCLUSIONS.

From what has gone before it is evident that:

1. Erotomania, like other manifestations of paranoia, is due to degeneration.
2. Erotomania may occur in either men or women, but is more common in the former.

3. Broadly, it is an affection of the imagination, a morbid extravagance of the ideal.

4. In its individual manifestations, it presents the characters of a love, pathologic and essentially psychic and devoid, moreover, of carnal appetite.

5. There is nearly always, though not invariably, a tendency to personification; the subject foists his ideality upon a living person, or upon an inanimate object (statue, picture). In the latter case, his apostrophes and gestures disclose the personifying propensity.

6. The delirious idea of the erotomaniac, like others of the same class traceable to degeneracy, is impulsive, obsessional, irresistibly compelling. Though his intelligence may show him the consequence of yielding to his obsession, he is powerless to resist it. He should, therefore, not be held to a legal responsibility for his acts, but should be restrained, and, if necessary, committed to a hospital for the insane.

7. Erotomania may occasionally coexist with nymphomania or some other form of sexual aberration, or with mysticism.

8. The obsession of the erotomaniac is usually for an individual of the opposite sex.

9. While erotomania may disclose itself in youth, it is really a disease of adult life, coming on after puberty, and ending not seldom in dementia.

OCCUPATIONS WITH RELATION TO TUBERCULOSIS.

BY

JOHN B. HUBER, A.M., M.D.,
of New York City.

The consumptive is far more a source of danger to his fellow-workmen than to his family, especially if his calling be within doors.—*Cornet*.

Some preliminary observations are essential before considering occupation statistics in detail. Of first importance, of course, are physical conditions—the physique of the workman. Then there are the low wages in some callings, because of which physical needs—food, fresh air, and the like—cannot be adequately satisfied. Next come family tendencies concerning occupations. This obtains in other countries more than in our own. In England, a bricklayer, for instance, has been for generations of a bricklaying family, with no aspirations for anything else than to lay bricks. Among us the son of a bricklayer may not be content until he has become a politician, a poet, a philanthropist, or a physician—poor fellow!

Then there is a process of natural selection with regard to occupation, some men by nature and physical endowments tending to farming and the like; others of sedentary habits to book-keeping, and the like; others by reason of mental and moral tendencies, allied with enervated physique, to bartending, or hotel service, and the like. Then there are in individual cases long periods of decline in strength of body and mind when a man successively drops from a good job to one not quite so good; so that from grade to grade he finally reaches the ranks of the unemployed. There is no little pathos in the popular impression that after 40 a laborer is "a dead one." Then some men are steady workers; others are intermittently employed.

Very important is it to consider the conditions of life outside the working hours; here the workman's social stratum is important. For instance, the very poor man goes in the evening to a squalid home and eats food outrageously cooked in a frying pan. It has been said (I make no doubt of it) that many a poor man is driven to drink by the dreadful things which his wife has prepared for him to eat. The Women's Christian Temperance Union might make a note of this.

Cornet notes from the mortality record of a number of Berlin mutual aid associations that there is among engravers a mortality from tuberculosis of 40%, among

waiters 45%, painters 47%, polishers 54%, bookbinders 63%, cabinet and piano makers 55%, upholsterers 61.5%. It is quite certain that in factories where there are no cuspidors, and where careless and uncleanly tuberculous workmen spit on the floor, so that the sputum is swept up in the dust, the danger of infection is greater. And the dissemination of sputum may occur in other ways, as by emptying cases of mull, in beating carpets, and cloths, and the like. In many cases it is difficult to determine the sources of infection.

The city of Munich presented at the Dresden Exposition of 1903, an analysis of its cases of tuberculosis on the basis of occupation.¹ Of 65,766 cases in the Poliklinik, 4,177 were diagnosed as tuberculosis. The greatest number of patients came from the classes described as workers in dust, and of these were especially those in metal dust; next come the workers of wood, such as carpenters, then the manufacturers of clothing, while the fisherfolk and farmers are apparently hardly represented. We shall see that these data correspond fairly well with others now to be reviewed.

For the accompanying diagram, and for other data in this paper, I am indebted to Miss Brandt, the statistician of the Charity Organization Society, of New York City. Here are 53 occupations specifically considered. The tuberculous deathrate of marble and stone cutters is shown to be six times that of bankers, brokers, and officials of companies, an excellent reason, among others, why one should cast his lot among the latter fraternity, if possible. The high mortality among marble and stone cutters is undoubtedly due to irritation of the respiratory tract by remote inhaled particles of stone. The high mortality among cigarmakers is due largely to the irritating effects of tobacco upon mucous membranes; but the bad air and the wretchedly unsanitary condition under which these people work, both in factories and in their homes, are essential factors. Cabinet makers and upholsterers breathe in dust, while plasterers, whitewashers, and the like, inhale in addition cement and injurious chemicals.

As regards musicians, all of the artist callings are in Miss Brandt's classification, included in this occupation the orchestra conductor, as well as those who play in theaters, dance halls, restaurants, upon the streets, and the like. Many of these most lovable people lead irregular bohemian lives, having no thought for the morrow. During their periods of poverty they become enervated from exposure and lack of food.

Draymen and teamsters work in the open air; so it would seem they should not be very tuberculous. But they lift tremendous loads. They carry cases on their backs, such as ordinary men are barely able to turn on end. They drink heavily, moreover, as is also the case with hackmen, hucksters and peddlers. In all these occupations the hours are long and irregular, and there is much exposure. Janitors live mostly in unsanitary basements.

Saloon keepers, hotel servants and bartenders show a heavy mortality. They are, by their physical and moral makeup, unfitted for any other occupation. Beside, saloons are dark, dank, dirty and bacillus-laden. In this table they are classed with restaurant keepers, otherwise their mortality surely would be much higher.

Hat and cap makers work in overcrowded, ill-ventilated apartments. Their hours are long, and their wages are said to be very low; beside, injurious dust and dyes are used in these trades. The tailors and the garment makers, however, have a deathrate which would be surprisingly low, were it not for the fact that Jews, who, as a race, certainly enjoy a comparative immunity to tuberculosis, monopolize these trades.

Glass blowers show the influence of exposure to extreme heat; they are, also, apt to sit for many hours in constrained positions.

¹ New York Medical News, October 21, 1903.

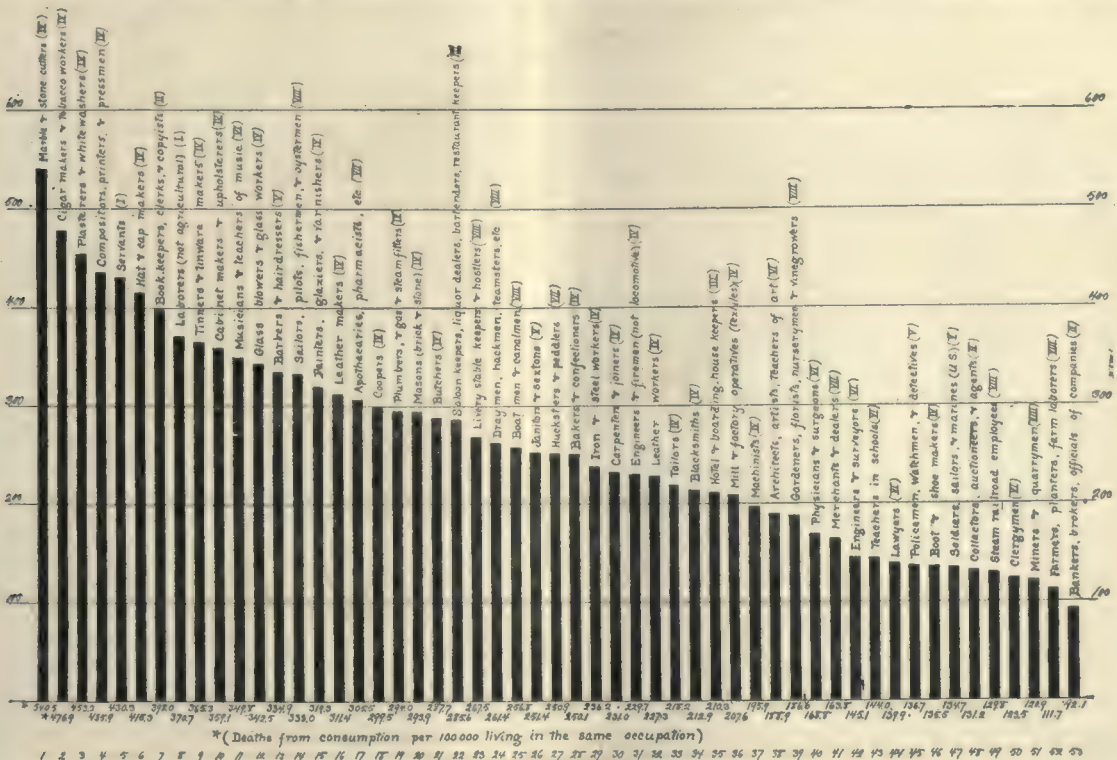
The laboring class (the nonagricultural) is very large, and is made up of many elements. Its members work irregularly at tremendously exhausting labor. There is among them much intemperance. Their food is badly cooked at home, and many of them bring from Europe constitutions weakened by a struggle with hard times there, and live in the cheapest of lodging houses or the worst of tenements.

It will be noted that occupations with a high mortality are conducted generally in cities and large manufacturing towns, while occupations having a low tuberculosis deathrate are almost all carried on in small towns or in rural districts.

It seems odd that miners and quarrymen should occupy a position so low in the list; for their work is exhausting. It would be presumed that they inhale much coal and other dust. Various explanations are given for this. Miss Brandt observes that there is a very high deathrate among quarries in England, and that among miners the rates vary enormously, but with the kind of material mined and with the locality. The sta-

difference in the mortality rates was probably due to the insufficient precautions taken in the Transvaal mines to prevent the scattering of dust, and therefore recommended that dry mining should be converted into wet mining by means of jets and sprays. Here Oliver coincides with Cornet.

W. O. Eastwood, Esq., of Whitby, Ontario, comments upon a form of tuberculosis popularly known as "knife-grinder's rot," which prevailed some time ago to a much greater extent than it does now-a-days. It affected chiefly those engaged in grinding on the dry stone. It was recognized as the wellnigh unavoidable fate of those who were tempted by the high wages to undertake this work. Latterly, however, some kind of an exhaust or blower was devised that carried or drove the grit and small particles of steel in such a direction that the workmen no longer inhaled them; and, thereafter a deadly tendency became practically eliminated from this occupation. From a medical work published 50 years ago, Mr. Eastwood quotes: "The fork grinders of Sheffield who grind dry, died from 28 to 32 years of age;



tistics show very high rates for tin, copper, and lead miners, while coal miners show varying rates in different coal fields, but all low. The slight susceptibility of coal miners is attributable largely to the fact that they are a picked class of men, the work precluding the entrance of any one not of a physique above the average.

Cornet attributes this comparative infrequency of pulmonary tuberculosis among coal miners as due to the fact that the amount of moisture in the subterranean atmosphere of the mines approaches the saturation point and renders the desiccation and dissemination of sputum impossible. No doubt this has much to do with the matter. Possibly also the coal dust possesses a slight disinfecting power.

Dr. Oliver of Newcastle-on-Tyne, England, has produced an excellent paper on the gold mines of South Africa, in which he reports a very high deathrate of 70 per 1,000 among white rock drill miners of the average age of 35, as against the mortality among English miners in coal of 6.3 per 1,000; in ironstone of 6 per 1,000; in tin of 8.1 per 1,000. He considered that this very great

razor grinders, who grind both wet and dry, died from 40 to 45 years of age, while table knife grinders, who work on wet stones, lived to between 40 and 50 years."

Street-sweepers do not seem to be particularly prone to tuberculosis. Flick and others declare such to be the case. It seemed at one time that many among the New York City street-sweepers were tuberculous. This appeared all the more likely, because the streets of this city are not sprinkled nearly as much as upon general principles they should be—not nearly as much as continental cities. New York is an extremely dusty city, and Street Cleaning Commissioner Woodbury, assisted by the health department, instituted an investigation. Out of a total of 1,872 men, 283 were found to have pulmonary affections. Of this number, 60 were tuberculous—rather a small proportion among nearly 2,000 men. And this proportion is measurably accounted for by the fact that the sunshine and pure air, rain and other water out of doors, kill the microorganisms.

Miss Brandt observes regarding the accompanying table that the deaths of women engaged in gainful occu-

pations are understated therein. This is likely, for the reason that when a girl or woman begins to lose health she can stop work more easily than a man, and that after doing so she more quickly ceases to identify herself with her occupation. The natural exit from her occupation

DEATH-RATES IN THE 340 REGISTRATION CITIES OF THE UNITED STATES, CLASSIFIED ACCORDING TO SIZE.

Number of cities	Size	Population of the group	Number of deaths		Deaths per 10,000 population		Percentage of all deaths due to pul. tuberculosis	Rank according to tuberculosis death-rate
			From all causes	From pul. tuberculosis	From all causes	From pul. tuberculosis		
6	500,000 inhabitants and over	8,074,561	157,494	18,036	195.1	22.3	11.45	1
13	200,000-500,000 inhabitants.	3,721,248	70,930	7,698	190.6	20.7	10.85	3
19	100,000-200,000 inhabitants.	2,412,538	40,598	4,566	168.0	18.9	11.26	4
37	50,000-100,000 inhabitants.	2,539,681	48,700	5,571	191.8	21.9	11.44	2
52	25,000-50,000 inhabitants.	1,903,222	30,960	3,129	162.7	16.4	10.01	6
213	8,000-25,000 inhabitants.	3,073,182	53,737	5,330	174.9	17.3	9.92	5
Total registration area		28,807,269	512,669	54,898	178.0	19.1	10.69	

being by marriage, not death, the proportion of women below 45 is considerably greater than the proportion of occupied men, in all occupations, except the two or three which are the resort of widows and of single women unexpectedly thrown on their own resources. With this large proportion at the ages when pulmonary tuberculosis is most prevalent, it is improbable that the death-rates among occupied women are lower than they are among all women. The rate for servants is the only one which seems reasonable. It is gratifying to note, from the very low death-rate among mill and factory operatives, that sanitary conditions have obviously improved in these buildings.

In the excellent book entitled "Dangerous Trades," the following occupations are enumerated as being more than others conducive to tuberculosis:

DANGEROUS TRADES.—PULMONARY TUBERCULOSIS.
DUST PRODUCING OCCUPATIONS.

Potters, Dusty occupations, Earthenware makers, Cotton operatives, Locksmiths, Bakers, Blacksmiths, Coopers, Woodturners, Rope makers, Bricklayers, Masons, Carpet manufacturers, Tin workers, Cutlers, File cutters, Glass makers, Copper workers, Gunsmiths, Zinc, iron, and steel workers, Stone quarriers, Gold-workers, Brass-workers, Chimney sweeps, Wool workers, Textile workers, Bookbinders,	Printers, Hatters, Tailors, Drapers, Shoemakers, Miners, Soldiers, Sailors, Gardeners, Porcelain and cement makers, Masons, Typographers, Mother of pearl grinders, Lead miners, India rubber makers, Millers, Brewers, Carpenters, Chemical and flax workers, Laundresses, Boiler makers, Ship builders, Upholsterers, Railwaymen, Publicans, Coal heavers and trimmers.
---	--

With regard to the occupation of the soldier, Cornet quotes Schmidt: "The civil population was everywhere better off than the army with respect to mortality from tuberculosis," so that it would not seem that this disease was generally introduced among the military by the civilian recruits. The greater frequency of tuberculosis among the soldier class was ascribed to the excessive exertions and hardships of the service, to carrying knapsacks, to insufficient nourishment, to a completely altered mode of living, and to homesickness. Cornet, however, from a consideration of conditions in the

Prussian, Bavarian, Austro-Hungarian and Belgian armies, reached other conclusions—that a number of tuberculous individuals enter the army, and that the military service as such, in spite of the greatly increased demands on the physique cannot be held primarily responsible for its occurrence. In fact, the decrease in the number of those taken sick during the second year of service, which becomes still more marked in the third year, almost seems to indicate that the same age and class in the army enjoys a greater immunity from infection than the corresponding class of civilians. This protection, Cornet observes, is not absolute, for cases of infection undoubtedly occur in the army, especially when the hygiene of the barrack is faulty. Formerly, when barrack life was equivalent to crowded living and uncleanness, infection probably occurred very often, and it may still do so in some armies. It is possible also that the quartering of soldiers on citizens during maneuvers furnishes much chance of infection. But there is a compensating factor in the extended stay of the soldiers in the open air, which does not obtain among civilians of the same age. A causal relationship between tuberculosis in the armies and the so-called ill-effects of military service, overexertion, etc., cannot be supported.

For much the same reasons, therefore, Cornet considers that tuberculosis does not become more prevalent during wars, in spite of the fact that soldiers are exposed to great bodily hardships, to cold and wet bivouacs, to insufficient nourishment and to sudden climatic changes.

IS CESAREAN SECTION EVER JUSTIFIABLE IN THE MANAGEMENT OF PLACENTA PRÆVIA?

BY
RICHARD DOUGLAS, M.D.,
of Nashville, Tenn.

Lawson Tait's brief article in the *Medical Record*, in 1899, practically initiated the question of the justifiability of cesarean section in the management of placenta prævia. His advocacy was such a radical departure from the ordinary obstetric methods that the profession was loath to accept it.

With the appearance of E. Gustav Zinke's essay, read before the American Association of Obstetricians and Gynecologists, September, 1901, the question became a warm one.

From the time of publication of Tait's paper in 1899 to April, 1903, Truesdale was able to collect only 13 recorded cases of cesarean section, done for placenta prævia. This shows with what indifference the suggestion was received. But within the last year, owing to the effective advocacy of Zinke, this number has doubled. Evidently, in a limited way, this radical departure is meeting with endorsement. It is yet an open question which Ehrenfest's statistic argument has not answered in the negative; nor has the logical discourse of Higgins restrained the hand of the surgeon; nor yet does the oft-quoted statement obtain that "surgeons who advocate this step have had little or no experience in obstetrics," for I will show that under proper conditions it receives the endorsement of many of our leading obstetricians.

In seeking an answer to this very important question, results prior to the aseptic era should not be used against the obstetric methods. Modern methods alone are under consideration. Two lives are quivering in the balance. To the mother we must concede every right of our first consideration. It is certainly at variance with all human instincts entirely to disregard that of the child; yet, it is axiomatic in obstetric practice that in the management of placenta prævia, that which is best for the mother is opposed to the interest of the child. Now, if under proper conditions cesarean section can be shown to be in the interest of both mother and child, surely

a substantial advance over the canonic methods is established.

We shall attempt a solution of this subject through a study of methods and results. De Lee, at his last report, had 30 cases of placenta prævia without a maternal death; Fry was equally successful in 14. Hirst collected 104 cases, with the death of only one mother. These exceptional records are in striking discord with the results usually obtained.

In the Sloan Maternity, in New York, the maternal mortality is 12%. At the Boston Lying-in Hospital, in 75 cases, Higgins found a maternal mortality to be 10.16%, and upon the basis of these figures, he argues against cesarean section. Strassmann, in a series of 231 cases of placenta prævia, found a maternal mortality of 9.25%. Statistics without number may be introduced in evidence that the mortality of placenta prævia, unclassified, is fully 10%. This in the hands of our obstetric masters; it would be very safe to claim a much greater mortality in the private work of the general practitioner. I have had 12 cases of placenta prævia in which treatment was followed by obstetric methods, losing two mothers.

No one has had the temerity to recommend sweepingly cesarean section for all cases of placenta prævia. The most enthusiastic advocates of the operation restrict it to placenta prævia centralis; and in this only when there are complicating conditions. Therefore, it is interesting to see what the maternal deathrate is in those cases with central attachment of the placenta, treated by the accepted methods. In this investigation we are met by difficulties; for, unfortunately, very few records give a classification of the variety of placenta prævia, and for our argument, everything depends upon this.

According to the figures of Heffmeyer, Behm, Lomer and Strassmann, a prognosis is from three to eight times more serious in central prævia than in other varieties (Williams). This gives a range of mortality from 9% to 30%.

Dorland's figures are valuable for our purpose. He collects 88 cases of central attachment of the placenta. In these the maternal mortality was 22.8%. Schauta finds that in 50 cases of placenta prævia centralis, 18% of the mothers was lost.

If it were possible to ascertain from the records it would be interesting to know how many of these cases of placenta prævia are met in primiparas. A contemplation of the mortality would, doubtless, be appalling.

After this review of the maternal deathrate, an inquiry into that of the child naturally follows. The modern obstetric methods, especially the application of aseptic technic, have greatly reduced the maternal mortality; it has not materially affected the infantile. Hirst places it at 50%. At the Sloan Maternity it was 45%. In 251 cases of Strassmann, it was 61%; in Schauta's 254 cases it was 70%. De Lee, in 25 cases, saved all the mothers, but is "strangely silent" in regard to the children. I cannot comprehend the assertion of Grandin and Jarmin, that 90% of the children should be saved. Fry, in his 14 cases, in which all the mothers were saved, lost 9 children.

These figures are all based upon unclassified placenta prævia. In a series of cases of placenta prævia one may expect a maternal mortality of 10% and a fetal mortality of 50%, and may comfortably congratulate himself if these results are obtained. In central attachment of the placenta it is not unfair to estimate the maternal mortality at 20%, and in such cases 75% to 85% of the children are lost. Erich Radtke¹ pursues the study of placenta prævia beyond the puerperium, and in a study of 80 patients who had suffered from placenta prævia, 30% were sterile; 23% had aborted at subsequent pregnancies; 57% of the 80 patients suffered from subsequent anemia, vertigo, headache, etc. They were found to be suffering from various pathologic conditions, such as

endometritis, laceration of the cervix, perineum, etc. From the facts obtained from these studies Radtke concludes that in very many cases marked injury to the health results from placenta prævia.

Now, what of cesarean section. Not for placenta prævia, but the elective operation, when performed for absolute conditions. Higgins states that the mortality still remains about 25%. Hirst affirms this, and Harris says the American mortality for cesarean section is about 30%.

There have been 32 cases in the last five years in the Lying-in Hospital in Boston, with a mortality of 10%. In 551 cases of cesarean section collected by Olshausen and Veit the mortality was 19%. Opposed to this, we have the personal cases of Olshausen, Leopold, and Zweifel, with mortality of 3%. The remarkable record of Reynolds, of Boston, with 22 successive successful cases, and the wellknown excellent results of Ill, Hirst, Kelly, and others, show that a well-conducted cesarean section upon a fit subject is a comparatively safe procedure.

Insufficient as my own experience has been, it nevertheless has weight with me. I have had 3 cesarean sections and 3 Porro operations on women, at or near full term. All 6 of the mothers recovered. Only 3 of the children were known to be alive at the time of operation, 2 of these were saved and are now living. Two of these patients were operated upon in log huts, in remote country districts, at night, with insufficient light and meager assistance, amid surroundings in every way unfavorable. Both of these patients recovered. Upon this limited experience, I think Deaver is approximately correct when he says that "cesarean section for other conditions than placenta prævia, has a mortality of about 10%."

In what does cesarean section for placenta prævia differ from the elective operation? There are several reasons that contribute to a higher mortality in the placenta prævia cases: 1. It is an operation of emergency; sufficient time cannot be granted for proper preparation. 2. The patient may have bled freely. 3. In all probability she has been subjected to repeated examinations and thus exposed to infection. These all serve to increase the maternal mortality. These factors, separately or combined, may constitute absolute counterindication to operation.

Deaver, whose statistics are the latest that I have seen, finds that in the 24 recorded cases of cesarean section for placenta prævia there was a maternal mortality of 20%. An analysis of these cases shows that in many instances the operation was undertaken in the face of conditions which should have been prohibitive.

If, from the list of 24 cases of cesarean section for placenta prævia, we select the patients that were proper subjects for the operation, we find the maternal mortality reduced to 18.75%. By cesarean section in these cases, the fetal mortality is reduced to 56%. These are the results in placenta prævia with rigid cervixes and other unfavorable conditions. Compare this with the known fetal deathrate in placenta prævia centralis, 75% to 85%, we have a saving of 30% in lives. This, in itself, is sufficient to warrant a sober consideration of the propriety of the operation. Certainly it is not our right, in the interest of the child, to imperil the mother; neither is it our privilege entirely to disregard the child. Yet, we cannot hope that cesarean section for placenta prævia, will ever yield the low infantile mortality that is achieved in the elective cesarean section for pelvic deformities, etc. We must not lose sight of the fact that in 62% of the cases of placenta prævia the patients are prematurely delivered, and the mortality of premature children is known to be very high. This argument is neither for nor against the surgical over the obstetric methods; and while it is held by some that a child delivered through the abdomen does not breathe well, good authorities deny this, and I have not specially observed it. In effecting dilation of the uterus, sufficient even for bipolar

¹ Centralblatt für Gynäkologie, November 19, 1903.

version, the placenta is more or less separated and the asphyxiated child encounters greater peril, even if quickly extracted through the parturient canal, than confronts it by the cesarean route.

Briefly summarized, the argument stands about in this light. The maternal mortality of placenta prævia centralis, treated obstetrically, varies from 18% to 30%; and as Radtke has shown, many who recover sustain pelvic lesions, resulting in invalidism. Against this, when the same condition is treated by cesarean section, the mortality is 18.75%. (Deaver.)

The infantile mortality in placenta prævia centralis, by vaginal delivery, is 75% to 85%. In properly selected cases, it is only 56% after cesarean section. These are the actual figures, justified by the results up to date. It is my firm conviction that the maternal mortality can be reduced below 10%. We are not warranted in anticipating a reduction in the fetal mortality below 50%.

My arguments are not for the universal adoption of cesarean section in the management of placenta prævia. All obstetricians are not capable of doing abdominal surgery, neither are all obstetricians qualified to dilate dextrously a resistant cervix, guard against infection and hemorrhage, securely place the colpeurynter or the gauze tampon, and execute skilful bipolar version; and very few can safely conduct an accouchement forcé. The abdominal surgeon's work is in the open; his mistakes and accidents are revealed. But the obstetrician's are hidden within the deep recesses of the vagina and uterus.

The field of application for cesarean section in these cases is limited, but I believe that the conclusions of Zinke are in the main correct. He says: "I firmly believe that the cesarean section and Porro operations are perfectly legitimate and elective procedures in all cases of placenta prævia, central and complete, and especially so when the patient is a primipara, when the os is closed and the cervix unabridged; when hemorrhage is profuse and cannot be controlled by tampons and separation of the placenta around the internal os is difficult or impossible."

I would modify this by saying that cesarean section is indicated in cases of central attachment of the placenta in a primagravida with an undilated and rigid cervix, with moderate hemorrhage, a viable child and the operator a capable abdominal surgeon. The counterindications to the operation are an exsanguinated patient, or one who has been subjected to various obstetric efforts, the presence or probability of infection, a dead fetus and an unskilled operator. The propriety of a Porro or a Dührssen operation in the presence of infection is another question.

Mrs. T., aged 28, was eight months advanced in her first pregnancy, when, on May 31, at 6.30 p.m., she was seized with a sudden free hemorrhage. There was no pain or other warning symptom preceding or accompanying the loss of blood. Dr. E. O. Tucker was summoned at this time and found her bleeding freely. The cervix was long, conical and rigid. An opiate was administered, the hemorrhage lessened in quantity, but continued moderately until 8 p.m., at which time a rather profuse bleeding again occurred. I saw her in consultation at 9.30 p.m.—three hours after the onset of the symptoms. There was still slight hemorrhage, but the patient was in fair condition. On examination I found a narrow vagina; she was a very compact woman; the cervix was long and rigid, and with some force and difficulty, I managed to insinuate my finger through the cervical canal and recognized a placenta prævia centralis. Cesarean section was suggested, to which Dr. Tucker consented. The conditions to my mind seemed ideal. The patient was in good condition, child was living and near full term. Dr. Tucker's examination was careful and cleanly; there had been no attempt to tampon or dilate, hence, the chances of infection were small. It was clear to us all that delivery through the birth canal would be attended by the greatest jeopardy to the mother and almost certain death to the fetus. Knowing that Strassmann found that 34% of 61 cases in which the patients were treated by tamponade had fever, we deemed it wise to move this patient carefully, without packing, the short distance to my infirmary. She was thoroughly prepared for immediate operation. The classic Säger cesarean section was done. The lower segment of the uterus was held by the assistant's hands; no tourniquet was used. After the extraction of

the child, I was in no haste to remove the placenta. After contraction and retraction of the uterus, the placenta was removed without difficulty or hemorrhage. I then passed my hand into the uterus, dilated the cervix from within, flushed out the uterine cavity with hot saline solution, poured through the incision in the fundus and allowed to pass into the vagina. A wide strip of gauze was placed in the uterus and brought out through the cervix by an assistant. The uterine and parietal wounds were closed in the usual way; the patient was placed in bed in good condition, evincing no shock nor other distress. Neither stimulants nor saline solutions were required. The child cried as it was extracted from the uterus and after a little attention from Dr. Tucker was in good condition. Twenty-four hours after operation a temperature of 100.4° was recorded. The gauze was removed from the uterus and the temperature declined to normal. Milk appeared on the third day, but the quantity was not sufficient to nourish the child. The patient had an afebrile recovery and left the infirmary on the eighteenth day after operation.

Knowing the questionable propriety of cesarean section for placenta prævia, and contemplating reporting the case before our local society, I wished to obtain the views of some of the leaders of obstetric and surgical thought upon this question, I sent the following telegram to 14 different men:

"In placenta prævia centralis; first pregnancy; child viable; compact woman; rigid cervix; free hemorrhage; surroundings favorable; would you endorse cesarean section? Kindly answer."

With the following answers, I rest the case.

"Conditions justify such action; best chances for mother and child."—Henry D. Fry.

"If child living do immediate cesarean section, otherwise forcible delivery for mother's sake."—W. R. Pryor.

"If you do cesarean section, put large drain of strong iodoform gauze from uterus down through cervix."—W. R. Pryor.

"Yes, would do cesarean section in interests of both mother and child, if very difficult to use colpeurynter."—Howard A. Kelly.

"I unhesitatingly advise cesarean section."—George H. Noble.

"Cesarean section if cervix cannot be dilated without great danger; otherwise not."—J. Whitridge Williams.

"Believe cesarean section safest under conditions named, if patient not exsanguinated."—Charles P. Noble.

"Cesarean section offers best chance of recovery."—Charles A. L. Reed.

"By all means, yes; have had a successful and easy case only lately."—Edward J. Ill.

"Yes, if surroundings are favorable, and if you will do the work."—L. H. Dunning.

"Certainly, if cervix very rigid."—Clarence J. Webster.

"Not as a rule, unless cervix very rigid, hemorrhage more than average, and version seems difficult."—B. C. Hirst.

"I do not favor cesarean section under the circumstances stated."—E. S. Lewis.

RADIOTHERAPEUTIC NIHILISM.¹

BY

GORDON G. BURDICK, M.D.,
of Chicago.

I am in doubt about the intrinsic value of this paper, but I think it is time that some attention is called to the happy-go-lucky, go-as-you-please way of giving radiotherapeutic treatment. Unquestionably some operators are getting good results, while it is equally true that other operators are having a sad time of it, and are in serious doubt as to the real value of the ray.

Some operators are independent of the surgeon, having very little use for his services, and as far as my observation goes, they are the most successful. Other operators seem to think that they exist simply to give radiotherapeutic treatment in cases that have been given up, or at least, in which there has been a very serious operation by some surgeon, condemning very loudly every other operator who dares to leave the surgeon out of his calculations. I do not desire to leave the impression that I have a mania against surgeons, far from it, as I am one myself, but what I want to impress upon the society is the fact that the surgeon is of limited usefulness in malignant disease, and just as long as rönt-

¹ Read before the American Röntgen Ray Society, St. Louis, September, 1904.

gen-ray operators exist for no other purpose than to treat patients whose cases surgeons have rejected as too extensive for an operation, their alleged experience should not be allowed to have any weight in determining the value of the röntgen ray in the treatment of malignant disease.

Again, we find operators using all sorts of apparatus, from a 2-plate to a 24-plate static machine, and from a 6-inch to a 30-inch coil, multitudes of interrupters, giving all periods from about 200 to 15,000 interruptions per minute; using tubes from various manufacturers, with glass varying in composition and thickness from a sixteenth to an eightieth of an inch, and nearly every operator depending upon the fluorescent image on the screen to determine the strength of the ray, apparently not knowing that the fluorescent effect is due to the electromotive force, and that the electromotive force is the same in a 2-plate or 24-plate static machine.

We must come to the old controversy of the low, medium, and high tube again, some operators having good results with one kind, and getting no results while using the other; all of these views must be reconsidered to bring order out of chaos.

It is my opinion that the destructive effects noted in the various malignant conditions is due solely to the chemic ray, and in order to get the best results the degree of penetration should be controlled, in order to allow the ray to come to rest in the tissue where we want results. The more amperage sent through the tube, the richer the radiation will be in chemic effects, and it should be the aim of each operator to use a ray as rich in chemic effects as is compatible with safety in tissue treatment. I believe, also, that the human tissue may become a transformer of a ray that is driven through the body at a high velocity, and that a motion actually takes place within the cells similar to but more rapid than we have when a current of electricity is sent through the body, and by these means we can account for the tonic effects noted in all patients who are rayed with hard tubes. The denser the tissue the more of the ray is transformed, which accounts for the fatty and colloid degeneration noted in sarcoma, the motion is so rapid that disorganization of the carcinoma cell takes place, and it is replaced by a less dense tissue in order to accommodate itself to the rapid pace at which it is compelled to move.

It is clear that anomalous results should be had in this new science, considering the different types of apparatuses in use, but the principal difficulty is the röntgen-ray tube. It has been thoroughly demonstrated that after a tube has been hoisted high enough to carry it to the line, a sustained electromotive force will give as much penetration as desired in ordinary radiotherapeutic treatment, and that the shape and position of the electrodes will determine the quality of the tube regardless of the degree of exhaustion after a given point has been reached, and that furthermore, the parallel spark gap as a means of determining the degree of exhaustion is fallacious, inasmuch as I have constructed tubes with a twin anode and two cathodes, which, with the same degree of exhaustion, gave a resistance upon one side of $\frac{3}{4}$ inch and upon the other 9 inches, so that we have in the same tube both a soft and hard one without disturbing the vacuum in the slightest degree, so that the construction of tubes plays an important part in the variations of technic noted by different operators, and accounts for the ever-recurring controversy of the soft and hard tube.

I have also found great variations in the diameter of the glass used to construct the various makes of tubes, and some of those broken and measured carefully have shown a variation of from $\frac{1}{4}$ inch to $\frac{1}{80}$ inch. When it is remembered the great amount of absorption glass is capable of, it cannot be wondered at that variations will take place and severe burns result occasionally from a new tube. All skiagraphers know how difficult it has

become to get tubes that are capable of making body pictures. It is also certain that a tube undergoes a change each time it is used.

It should be remembered that in an exhausted tube a shower of ionic metal accompanies the cathode stream, and forms chemic combinations when reflected from the target to the glass walls of the tube, and we are compelled to use aluminum for our cathode, as it is of the lowest atomic weight, and when pure, leaves an invisible deposit, the thicker the layer becomes the more of the energy of the ray is absorbed, and as all metallic substances transform the ray into waves of different lengths during its passage, it can readily be seen that tubes containing an aluminum alloy might make a tube with special idiosyncrasies that would have peculiar effects not obtained with a tube in an ordinary condition.

Many times in practice I have found a case that has resisted the ray stubbornly, and in sheer desperation I have passed the ray through a thin layer of some suitable metal, when suddenly the case took on a different character, and the patient began to get well. This phenomena has been verified in bad cases by other operators when I have been asked for advice.

There are many questions of the utmost importance connected with this subject that requires the most careful investigation before a reliable technic can be developed that is safe for unskilled operators to follow.

The issues that I wish to place for discussion are as follows:

1. Technic for lupus and local tuberculosis. Tube within four inches of the skin, and the penetration regulated to within a half inch, in order to take advantage of the ray of low velocity that resembles the cathode rays.

2. Technic for carcinoma and epithelioma. Tube at 10 inches, and the penetration calculated to about the center of the growth, producing irritation at least twice and then increasing the degree of irritation to a high velocity, in order to get a cellular degeneration.

3. Sarcoma requires a very high degree of penetration, depending upon the density of the growth.

4. When a lethal effect on tissue is desired, use a very low tube.

5. That the lethal effects are due to the chemic radiations.

6. That the tonic effects are due to the fluorescence of the ray, fluorescence being understood as a form of motion.

7. All unbroken carcinomas should be thoroughly rayed before operation.

Campaign against Malaria in Italy.—*Public Health Reports* says: In view of the sanitary efforts that will be necessary to contend with malaria in Panama, a special interest from an American standpoint attaches to the campaign that is being vigorously pushed against this disease in the Roman Campagna, a section once thickly peopled, the site of prosperous cities, but now, owing to malaria, a desert waste, not more than a tenth of which is under cultivation. The first inroads of malaria in the once flourishing Campagna were attributed to the neglect of the cultivation of land incident to changed social conditions brought about by the decline of the Roman Republic. In the past great efforts have been made, both by the papal and the Italian governments, to induce cultivation of this vast area, but owing to unfavorable economic conditions little has been heretofore accomplished. When malaria begins in May the section is practically deserted. The shepherds with their flocks take refuge in the mountains. With the discovery of the relation of mosquitos to malaria a rational prophylaxis became possible. At present the railroad employes, whose occupation renders it necessary for them to remain at their posts during the unhealthy season, are protected by screened houses, mosquito masks, and prophylactic administration of quinin. Statistics of this work have heretofore been given in these reports. In the month of October, 1904, in the seven zones of the Roman Campagna, where the Italian Red Cross Society is making its antimalarial campaign, prophylactic doses of quinin were given to 2,433 persons, in addition to those whose treatment was begun in previous months. In the zones under observation there were reported, during the month, 13 primary cases of malarial disease, 38 relapses, and 62 cases of nonmalarial disease. Thirty-four patients were sent to Rome for treatment in hospital.

SPECIAL ARTICLES

PRESIDENT GARFIELD AT ELBERON.¹

BY

ANDREW H. SMITH, M.D.,
of New York City.

It is safe to say that no other wound ever inflicted upon any person produced such widespread, intense, and long-continued interest as that received by President Garfield, July 2, 1881.

From that date until September 19, the whole civilized world hung with strained and painful interest upon the almost hourly bulletins that encircled the entire globe with their messages of alternate hope and fear.

And then came the end. Never before was there a name spoken in sorrow by so many lips, in so many lands, in so many tongues. Never before was there such universality of grief, such a demonstration of the kinship of mankind. Crowned heads everywhere were bowed in sympathy, and the simplest peasant felt that something sad had happened in the world. In England, the Queen put on the garb of mourning, and the London cabby tied a bit of crape upon his whip.

Sometime during the last week or ten days in June, President and Mrs. Garfield took up their residence in the hotel at Elberon, N. J., where their purpose was to remain for a considerable period. Soon after his arrival, the President held an informal reception. This gave the people an opportunity to meet him with easy informality, and a pleasant impression was created by his genial bearing. Thus, when the shock came a few days later, the inhabitants of Elberon were not left to a vague surmise as to the personality of the stricken sufferer, but felt that they knew him; he was one of them; they had grasped his hand and exchanged cordial greetings with him, and besides being their President, that he was also their friend. All through the feverish weeks that followed, this tie of sympathy became closer, and to the general tension of feeling throughout the country was added a local sentiment that increased with every passing day.

Leaving Mrs. Garfield at Elberon, the President made a trip of two or three days to Washington, and it was at the railroad station there, as he was about to take the train to return to Elberon that the shooting took place.

The telegram received at Elberon announcing the intelligence also stated that the President was lying at the station unconscious, and in a state of collapse. The inference plainly was that death was immediately impending. This intelligence being communicated to Mrs. Garfield, she prepared to take the first train to Washington, with little or no hope that she would find her husband living on her arrival. In her anxiety to start she repaired with her maid to the Elberon station some time before the train by which she was to proceed was due. Soon after she left the hotel a second telegram was received, stating that the President had rallied, and had been removed to the White House. Realizing the relief it would be to Mrs. Garfield to know of these more hopeful conditions, I drove to the station where I found her sitting in the waiting-room in an apparently dazed and stupefied condition. She scarcely comprehended what I said to her, but when I repeated it, she merely raised her head and replied, "Thank you." The train arriving at that moment she was helped into the car and, perhaps somewhat comforted, began her pitiful journey, on which every heart in Elberon accompanied her.

It is needless to dwell upon the satisfaction with which, as the weeks rolled by, we received the favorable bulletins from Washington, nor later upon the anxiety and apprehension which gradually spread through the community as the reports became less encouraging. In the early days of September a service of prayer was held in the chapel at Elberon, as in so many places throughout the land.

Removal from the extreme heat and malarial influences of the capital began to be considered by the President's medical attendants, especially when it became known that he yearned for a sight of the blue sea and the luxurious lawns and hedges he had seen at Elberon. He did not know that a pitiless

drouth of weeks had dried up everything that was green, and had left a somber brown in its place, nor that while the sea was blue, there was a brassy sky above it. Yet it was the best attainable, and infinitely better than the festering heat and murk on the shore of the Potomac; and it was decided that the removal should be undertaken.

The owner of the Franklyn cottage, at Elberon, which was large and roomy, and directly overlooking the ocean, offered it unconditionally, and the offer was accepted.

The movements of the next two days were watched by the Elberon people with intense and sympathetic interest. During the afternoon of September 5, teams appeared on the streets loaded with railroad ties and rails, which were distributed along the way from the cottage to the station. At dusk a large company of workmen appeared, and began laying a temporary track. A crowd soon assembled to look on, and the number increased, until by midnight fully 1,000 persons were on the ground. A singular psychic phenomenon was the solemnity which inspired the entire company. Not a loud word was spoken in all that motley crowd. But for the blows of the sledges as the spikes were driven into the ties, the silence was as profound and awesome as when by night entrenchments are being thrown up by troops in the face of the enemy. The night was dark, and locomotive headlights were placed at intervals along the track. The light from these threw moving shadows upon the sea of faces, and gave a ghostly aspect to the entire picture. It was a scene not to be erased from the memory of anyone who participated in it.

A few of the spikes for holding the rails in position were left over, and were eagerly secured as mementos by the neighboring cottagers. One of these was brought home by my son, then a little lad, and is still preserved in my house at Elberon.

The work lasted until dawn, and in the morning a track was seen stretching along the roadside and over intervening lawns up to the edge of the veranda of the Franklyn cottage. A section of the veranda railing had been removed as the last token of readiness and welcome. In the course of the preceding afternoon a detachment of United States infantry and a squad of calvary appeared and pitched their tents in a field adjacent to the town. A tall flagstaff was erected there and the flag given to the breeze, which was to be looked up to, morning by morning, for tidings of the night, till the morning came when its mute message needed no interpreter.

Meanwhile, at Washington, preparations for the removal had been perfected over night. Very early in the morning the president was lifted from his bed onto a stretcher, which was carried down to the street and placed in a covered wagon. Two orderlies led the horses slowly through the quiet streets to the railway station, and without accident or discomfort, the transfer was effected to the bed provided in the special car. A separate car carried the family and the attendants, including those of the professional staff not immediately on duty. The train started at 6.30, and as soon as the limits of the city were passed the speed was increased to, at times, over 60 miles an hour. It was found that this rapid motion secured a maximum of steadiness to the car and of comfort to the patient. Orders had been given by which other trains in either direction were sidetracked while the presidential train was passing. No whistle or bell was sounded anywhere along the route. At the stations silent throngs were gathered, who, with uncovered heads, waited to see the passing of the train. What they saw was scarcely more than a flitting apparition, the train coming into sight and disappearing so quickly as to make no distinct impression upon the eye.

An hour after midday the train reached Elberon, and was switched from the main to the temporary track. For this purpose a small yard engine was employed. Fully 2,000 people were assembled between the station and the cottage. At one point there was a sharp grade to be overcome, and the little locomotive was unequal to the task. Instantly as many shoulders were given to the work as there was space for them along the sides of the cars, and for the remainder of the distance the engine was dispensed with. At the cottage it proved that the floor of the piazza was exactly on a level with the floor of the car in which the President lay, and as the car opened at the side, the removal into the house was easily effected. The room

¹ Retiring address as president of the New York Academy of Medicine, delivered January 5, 1905.

selected as the sick room was large and airy and looked upon the sea, which the sufferer could watch without changing his position. This was his chief solace through the weary days that followed.

With the President came the surgical staff that had been in attendance upon him in Washington. It comprised Dr. D. W. Bliss of Washington, Surgeon-in-Chief; Dr. J. K. Barnes, Surgeon-General of the Army; Surgeon J. J. Woodward of the Army; Dr. Robert Reyburn of Washington; and, as consultants, Dr. D. Hayes Agnew, of Philadelphia, and Dr. Frank H. Hamilton, of New York. Of these six, Dr. Reyburn alone remains. His confreres passed away so soon, and in such quick succession, that they may almost be said to have accompanied their illustrious patient.

Proximity to the sea did not at once bring to the President the cool breezes for which he pined. The summer had been exceedingly hot and dry, and the sixth of September was the hottest day of the year. The sun beat down upon the treeless shore with a fierceness as distressing to the sympathizing inhabitants of Elberon as it was to the patient himself. If there was a puff of air it came from the barrens to the westward, where the sand, unmoistened for weeks by a drop of rain, had the heat of the Lybian Desert.

The President's room was like an oven. The wash of the waves under the windows was as tantalizing to the ear as is to the eye the ever receding vision of water on the thirsty plain. This continuing, the second day it was proposed to drench the roof and sides of the cottage with water from the hydrants. But, before the necessary pipes could be laid, a delightful sea breeze sprang up, and thenceforward the air was cool and refreshing, and it was felt that the chances for the invalid had been decidedly promoted by his removal from the hot and humid atmosphere of Washington.

But a very few days sufficed to show that no radical benefit was to be expected from the change. Day by day, the President grew weaker, hour by hour the evidences of pyemic infection became more marked. Three days after the arrival at Elberon, Drs. Barnes, Reyburn and Woodward returned to Washington, ostensibly, because the patient being more comfortable did not require the attendance of so large a staff, really, because of the obvious hopelessness of the case.

I did not see the President alive after he was brought to Elberon, though I was constantly informed of the progress of the case, and was frequently asked for suggestions to meet the varying conditions that arose.

At first the people wondered that the temporary railroad was not removed. As the days passed, however, the significance of its remaining was silently accepted.

The morning of September 20 was peculiarly beautiful, and every eye turned first toward the camp where the flag was floating. A single glance sufficed to tell the tale which everyone half expected, yet dreaded to know. The flag was at half-mast, and we knew that Garfield was dead. The long struggle for life, of which the whole world had been a sympathetic witness, was over. Quietly during the night the end had come.

The early morning trains brought the members of the Cabinet and other important personages connected with the government. There was one man who attracted general attention. Clad in deepest mourning, with bowed head and dejected mien, he might have been taken for a brother or near relative of the dead President. But no, he was the man upon whose shoulders the dead President's mantle had fallen, the new President of the United States.

Throughout the morning there had been a busy time for those having in charge the final arrangements for leaving Elberon. Someone started the idea that as the President's death had occurred in the State of New Jersey, the trial of his assassin might have to take place in the same State. This was met by the assertion that if such should be the case, the expert testimony of only those would be received who were qualified to practise in New Jersey under the laws of that State. This statement, which was probably incorrect, wrought dismay to the rather numerous staff of surgeons who had come with the President from Washington. According to its tenor, not one of them could testify as a skilled witness if Guiteau should be tried in New Jersey. There was no time to procure an opinion

of counsel, and it was hurriedly determined to have someone present at the autopsy who would be competent to fulfil the presumed requirement of the law. As I was immediately available, it was decided to make a courtesy of necessity, and to invite me to witness the postmortem. Early in the afternoon, I was summoned by a mounted orderly to the Francklyn cottage. I still remember that the approach of the orderly across the intervening lawns was announced from a considerable distance by the hollow sound which the baked earth gave out under the horse's feet.

The autopsy was held in the room in which the President had died. I was struck by the absolute similarity between an autopsy on a President and one held on a pauper. It is here emphatically that all distinctions are leveled. The entire medical staff was present, as also was Mr. Lamb, of Washington, then a medical student, who was to perform the manual work of the autopsy. It was the opinion of all who had been in attendance on the case that the bullet had coursed downward on the right side of the body, and would be found in the right inguinal region. This conclusion was based upon the apparent direction and depth of the wound as indicated by a flexible probe, which probe, however, I was informed, had always been manipulated by the same person, the surgeon-in-chief.

This expectation was strengthened by the indications furnished by Dr. A. Graham Bell's "induction balance," according to which the bullet, or a metallic substance at least, was located at a point "somewhat to the right, and four inches and a half below the umbilicus." So confidently were these indications accepted that it was agreed to remove the hollow viscera at once, as preliminary to a study of the track of the ball. This was done, and the organs so removed were received in a large receptacle and placed in another part of the room.

And then began a search of absorbing interest. It was immediately evident that the supposed fistulous track that was to have led to the bullet had no existence, for the flexible catheter, which had been introduced into the wound by the usual hand, and in the usual manner, as the first step in the examination, was found curled upon itself and lying in a pocket of considerable size, which had formed beneath the iliac fascia. Deprived of the guide which this catheter was expected to furnish, the examination was continued in an aimless way through the neighboring muscles, the perplexity increasing every moment as to where the bullet could possibly be hidden. Amid comments not altogether complimentary to so-called instruments of precision, attention was now directed to the point at which the missile entered the body; and it was then noticed that the bodies of several of the vertebrae were overlaid by a dense mass of partly organized exudate of almost cartilaginous consistency. When this was cut away, a hole was revealed in the right side of the body of the first lumbar vertebra, through which a probe passed in an oblique direction entirely through the bone, emerging on the left side of the spinal column. Seeing this, I divined at once that the bullet must be in the left side of the body instead of the right. Crossing the room to where the detached viscera were, I began to pass them through my fingers, and in a few moments I came upon the bullet. The announcement of its discovery to my confreres, who at that moment were more than ever mystified at its disappearance, put an end to a very embarrassing and somewhat dramatic situation.

The bullet was found to have passed through the body of the vertebra in a direction slightly downward and backward, and keeping behind the peritoneum, to have lodged at a point just below the level of the left extremity of the pancreas (about 10 inches from the location it was supposed to occupy), where it became encysted. In its passage, it had grazed the splenic artery, giving rise to a traumatic aneurysm. The rupture of this aneurysm was the immediate cause of death.

The bullet, encysted as it was, must have been practically harmless, but it was in its passage to its resting place that harm of an irreparable nature had occurred. Besides the injury to the splenic artery, the missile, in traversing the cancellous structure of the body of the vertebra, had carried numerous fragments of bone before it, and these were strewn through the soft parts along the entire track, a distance of several inches. Each of these fragments became a center of suppuration and

septic infection, a condition from which recovery was obviously impossible. From this, it will be seen, that the wound was from the first necessarily fatal.

Another condition, however, equally hopeless, must have been present, though not recognized at the time nor mentioned subsequently in the report of the autopsy. I have already mentioned the mass of fibrin of gristly hardness that enveloped the front of the vertebral column at the point of injury. It did not occur to any of us at the moment that the thoracic duct necessarily included in that mass must have been compressed by it and its lumen utterly obliterated. It was not until a day or two later that this obvious inference came to my mind. I wrote at once to Dr. Woodward at Washington, who had the specimens in charge, but was too late to secure a reexamination of the part. The effect of such obliteration I have discussed at some length in a paper published in the *New York Medical Record* of December 2, 1899, and I will not pause to consider it at this time. Suffice it to say, that it so far prevents the absorption of the nutriment contained in the food as to cause a slow starvation incompatible with a long continuance of life. Death in such cases is preceded by extreme emaciation; and this was President Garfield's condition during the latter weeks of life, notwithstanding that he took, and apparently digested, an abundance of nutriment.

The result of the autopsy showed clearly that no treatment whatever could possibly have saved the President's life. In the first place, the track of the bullet was so devious that no instrument could be made to follow it, and at the point where it finally terminated there was no evidence during life of a foreign body. To open the abdomen, therefore, in search of the bullet would have been an unthinkable procedure. But even if the exact course and location of the ball could have been known, no practicable operation could have sealed up the wound through the vertebra and made it aseptic, nor have removed or made aseptic the loose fragments of cancellous bone scattered through the soft parts, nor have revealed the injury to the vessel that later caused it to give way; and lastly, nothing could have prevented the throwing out of the exudate upon the front of the vertebrae that compressed and obliterated the lower portion of the thoracic duct, and thus doomed the victim to gradual death by starvation. As to criticisms regarding diagnosis, it is doubtful if the elements for a correct diagnosis were present at that time. If it had been a few years later, and with the röntgen ray available, the location of the bullet would have been easily ascertained, and German prestige would have gained as much by the use of the ray as American prestige lost by the employment of the "induction balance." But the results would have been in no way affected, even if such a diagnosis had been made.

Antisepsis was carried out as perfectly as circumstances and the knowledge of the period admitted of, and in no case could it have been applied effectively through the whole course of the wound.

The removal of the remains of President Garfield from Elberon took place the morning following the autopsy, and was the occasion of a display of much popular sympathy. With it closed an incident that will long be remembered in the history of the place. To this day inquiries are constantly being made for the "house where Garfield died," and strangers stand and gaze upon it as if still under the spell that rested upon the place a quarter of a century ago.

Looking back we can now see that the finishing touch to the Garfield tragedy was added when the wretch who fired the shot was executed as a murderer. This weak concession to the popular desire for vengeance was in the last degree regrettable, as aside from the wrong committed, it gave to the homicide the character of a political assassination, instead of sending it down into history as the freak of an irresponsible degenerate. Had it been treated as the latter, not only would there have been a blot less on our national record, but also less incentive for a repetition of the crime. A man who would glory in being a martyr to a cause he had espoused, would shrink from being isolated for life as simply a dangerous lunatic. Guiteau, forgotten in absolute seclusion, would not have appealed to the imagination of his imitator, and, for aught we know, Mr. McKinley might have been living at the present moment, if the American people at that time had been more calm and self-contained.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 14, 1905. [Vol. XLIV, No. 2.]

1. The Ocular Symptoms of Lesions of the Optic Chiasm, with the Report of Three Cases of Bitemporal Hemianopsia. G. E. DE-SCHWEINITZ and JOHN T. CARPENTER.
2. The Mathematic Point of Reversal in Skiascopy. SWAN M. BURNETT.
3. Syphiloma of the Ciliary Body. HERMAN KNAPP.
4. Temporal Cleft of the Nerve Head. CHARLES H. BEARD.
5. Development of the Faculty of Binocular Fusion. EDWARD JACKSON.
6. Dairy Hygiene: With Special Reference to the Limitation of Bovine Tuberculosis. RICHARD COLE NEWTON.
7. Is Pneumonia Increasing? JOHN S. FULTON.
8. The Management of Hernia in Infancy and Childhood, with Results of Operative Treatment. WILLIAM B. COLEY.
9. The Schott Method of Treating Diseases of the Heart and Bloodvessels. JAMES M. ANDERS.
10. Paraurethritis: An Anatomic Review, with Report of Two Cases. J. W. CHURCHMAN.

1.—See *American Medicine*, Vol. VIII, No. 4, p. 141.

2.—See *American Medicine*, Vol. VIII, No. 3, p. 96.

3, 4.—See *American Medicine*, Vol. VIII, No. 5, p. 183.

5.—See *American Medicine*, Vol. VIII, No. 5, p. 184.

6.—See *American Medicine*, Vol. VII, No. 25, p. 970.

7.—See *American Medicine*, Vol. VII, No. 25, p. 977.

8.—See *American Medicine*, Vol. VIII, No. 1, p. 9.

9.—**The Schott Method.**—J. M. Anders discusses the baths and resistance movements and their special effects on the heart and bloodvessels through stimulating metabolism. He reports a number of cases treated. The object is to establish compensatory hypertrophy. The shrinkage in size following the first bath and exercises is not maintained. Cases of exophthalmic goiter have yielded completely. Contraindications to treatment are fever, advanced arteriosclerosis, far advanced myocarditis, valvulitis with extreme dilation, aneurysms of the larger trunks, except in the incipient stage; any case in which blood-pressure is lowered by the treatment, cases in which the tonometric figure is as low as 65 mm. or 60 mm. of mercury, and those in which chronic bronchitis and asthma are well marked. [H.M.]

10.—**Paraurethritis.**—J. W. Churchman reports cases, showing that gonorrheal infection of paraurethral ducts occurs in the male and may manifest itself during or before urethral symptoms have appeared. It may simulate inflammatory lesions of the surface of the glans, notably, beginning chancre, chancreoid, or herpes. Once established it is destroyed with difficulty, the organisms reappearing in abundance after cauterization of the duct. The infection can be overcome by repeated cauterizations and antiseptic applications, and if careful prophylactic measures are taken there is not necessarily a bad urethral invasion. [H.M.]

Boston Medical and Surgical Journal.

January 12, 1905. [Vol. CLII, No. 2.]

1. The Systematic Use of Work as a Remedy in Neurasthenia and Allied Conditions. HERBERT J. HALL.
2. Improved Technic for End-to-end Intestinal Anastomosis. ALFRED H. GOULD.
3. Observations on Experimental Drainage of the Peritoneal Cavity of Cats. FRED T. MURPHY.
4. A Consideration of Autointoxication and Autoinfection as Cause of Various Mental Disorders. L. VERNON BRIGGS.

1.—**Work as a Remedy in Neurasthenia.**—H. J. Hall offers a protest against the almost universal treatment of neurasthenia by rest. The neurasthenic suffers fatigue or irritability beyond the reasonable results of mental or physical exertion, and is thereby incapacitated for his ordinary occupation or for enjoyment of life. Neurasthenics lead faulty lives; in many cases there is a tendency to overestimate the importance of small things or to worry. Worry is closely associated with a sense of fatigue, often not distinguishable from that which follows arduous labor, except that it is not relieved by physiologic rest. Some of the profoundest neurasthenics have never over-functioned in any discoverable way. A feeling of fatigue is brought on by the mere thought of exertion. Things that the patient likes to do are less fatiguing than distasteful activities. When there is lack of fat and blood, the rest cure may do good, but the great need in most cases is to bring about gradu-

ally the conditions of a normal life by pleasant and progressive occupation. Most neurasthenics are adaptable people, with artistic taste and critical ability, and there is an inborn love in man of making beautiful things out of crude elements. The writer has established a shop for the manufacture of pottery and woven fabrics, having a competent teacher and assistants. The patient after a few days' rest, and without warning, is required to do something, and a gradually progressive program is written out for each day and entrusted to the nurse. This eliminates anticipatory fatigue. When the patient turns out work of value, it is sold, and the proceeds credited to the maker. The accumulated indications point to the probability of fairly quick results. [H.M.]

2.—Improved Technic for End-to-end Intestinal Anastomosis.—Alfred H. Gould says the three principal methods of intestinal anastomosis, stated in order of rapidity of execution are: (1) Mechanical devices; (2) plain anastomosis; (3) mattress anastomosis. Gould suggests an improved method for simple end-to-end anastomosis, the only original feature, of which is the method of beginning the first layer of continuous sutures, The mesenteric border of the bowel being most inaccessible, the first guide sutures are placed so as to bring taut and appose the mesenteric third of the circumference of the two ends. These borders being united for the distance between the guide stitches by a continuous suture passing through all the coats, a third guide stitch is placed midway in the unsutured segment, between the original guide sutures, and each of these thirds is united as was the mesenteric third, by continuous suture. This effectually unites the severed ends, and the whole circumference at the line of junction is now united by a reinforcing, seromuscular suture, continuous or interrupted. [A.B.C.]

3.—Observations on Experimental Drainage of the Peritoneal Cavity of Cats.—Fred T. Murphy experimented upon a number of cats, placing drains of various material through the abdominal wall and into the peritoneal cavity. This was done to determine how long the peritoneal cavity was actually drained before it was shut off from the point of drain exit by omentum or adhesions. At the first operation on a cat an incision was made through the rectus muscle out the bladder and a drain inserted into the peritoneal cavity and into the pelvis. The omentum was simply pushed to one side, and the incision closed around the drain. After various intervals of time a second operation was performed. The animals were placed on a board, inclined at 20°, the peritoneum was opened at the left costal border about 2 inches from the median line. Through this opening, by passing in a funnel, a gelatin fluid mass stained with carmin, was introduced. Thus at this incline, if the drain was not walled off by adhesions, the stained gelatin would soon appear. The various materials used for drainage were gauze, cigaret drains, rubber dam, and glass tubes. Roughly summarized, the gauze and cigaret drains failed to drain the general cavity after about 18 hours, and the rubber dam and glass tubes after about the third 24 hours. In all instances the omentum was the active agent in the process of walling off. Murphy concludes that if it is desired to fender a given septic area extraperitoneal as speedily as possible the gauze and cigaret drains should be used; if, however, it is desired to drain the cavity longer, then the rubber dam or glass tube should be used. [A.B.C.]

4.—Autointoxication and Autoinfection as Cause of Mental Disorders.—L. V. Briggs bases his paper on his own cases and the stated opinion of many men of experience whom he quotes at length. If autointoxication is a definite factor many patients now sent to insane hospitals will be sent in the future to general hospitals for active treatment. Autointoxication from infectious fevers and glandular diseases is recognized as a cause of mental disorders and many of the latter not now associated with infection may be shown to be due to this. We do not know that *folie circulaire* is not caused by a sporulliferous protozoon which divides once in 3, 6, 9, or 12 months, instead of in 1, 2, 3, 4 or more days as in malaria. Among the diseases attributed by various writers to a possible or probable autointoxication are melancholia, epilepsy, general paralysis of the insane, mania, acute delirium and transitory frenzy, nearly all rapidly developing confusional insanities, dementia præcox, neurasthenia, hysteria, etc. [H.M.]

Medical Record.

January 14, 1905. [Vol. 67, No. 2.]

1. The Diseases of the Isthmian Canal Zone. RICHARD LIGHTBURN SUTTON.
2. The Value of Publicity Regarding Tuberculosis. DENSLOW LEWIS.
3. Sudden Death, Especially from Embolism following Surgical Intervention. BYRON ROBINSON.
4. The Treatment of Digestive Disorders. JAMES W. HUNTER, JR.
5. Infections of the Gallbladder. THOMAS W. HARVEY.
6. Pneumonia in High Altitudes. Summary of 101 Cases of Lobar Pneumonia Treated at the American Hospital, Mexico City, from 1890 to 1904. ALBERT R. GOODMAN.

1.—The Diseases of the Isthmian Canal Zone.—R. L. Sutton gives a review of the most prominent features of the various tropic and other diseases commonly encountered in the canal region. The list includes malaria, dengue, beriberi, infection with intestinal parasites of numerous species, lesions due to the bites of various insects, heat exhaustion and sun-stroke, acute and chronic rheumatism, dysentery, leprosy, smallpox, and yellow fever. The latter is not epidemic at present in this region, and sporadic cases are rarely seen. Malaria is more widespread than any other affection, and the estivoautumnal form is the commonest variety. Quartan infections are not observed. Dengue is the disease which most frequently attacks the newcomer, and the local form is peculiar to the unreliability of the primary and terminal eruptions, which do not possess the diagnostic value usually accorded to them, as they are absent in the majority of cases. Blood counts show an early leukopenia with a normal differential count, which is later followed by eosinophilia after the second rise and lymphocytosis as convalescence begins. Beriberi assumes both the tropic and paraplegic forms, and especially affects the Chinese contingent, although the natives do not entirely escape. Uncinariasis is the most important and dangerous of the intestinal infections, and may cause extreme degrees of anemia with hemoglobin as low as 20%. Eosinophilia is very high, seldom being below 20%, and in one instance being over 65%. Castor-oil, followed by three 20-gr. doses of thymol, at two-hour intervals, cures most patients. Dysentery, both of the bacillary and amebic type, is much in evidence among the natives, but our troops suffer little from it, owing to the careful guarding of the water-supplies. Hepatic abscess is seldom encountered.

2.—The Value of Publicity Regarding Tuberculosis.—D. Lewis points out that the only hope for success in the combat with tuberculosis lies in a widespread dissemination of knowledge concerning the disease among all classes of society. The matter of first importance is to help the people help themselves, and let them know the truth about every phase of the malady, and its danger to the individual infected and to others who come in contact with him. The question is a most far-reaching one, and the State, as a whole, is deeply concerned, and should assume an active part in taking measures to restrict infection, and to assist the poor who become diseased. Rational prophylaxis requires especially safeguarding of the child, and this must be carried out on the broadest possible lines. Public facilities for securing wholesome milk for the poor, the provision of temporary homes for infants of tuberculous parents, supervision of the children in schools and employed in factories, and the proper education of parents, are all essential features. Where the adult is concerned, the problem has a bearing on almost every phase of public and private relationships, and building laws, control of water and food supplies, sanitary regulation of conditions of factories, public conveyances, jails, lodging houses, etc., are of paramount importance to intelligent prophylactic endeavor. There is still much to learn, but the essential fact to remember is the necessity at present of disseminating the knowledge that we already have.

3.—Sudden Death, Especially from Embolism Following Surgical Intervention.—Byron Robinson subjects the causes of sudden death to an exhaustive analysis, and then describes 19 illustrative cases. A large proportion of the instances of sudden death are due to embolism, usually through invasion of a vegetative center in the floor of the fourth ventricle, or through asphyxia, caused by embolic lodgment in the pulmonary artery. The operations most often followed by embolism are those for appendicitis, hemorrhoids, hernia and pelvic diseases, and on the kidney, prostate and bladder.

Prophylaxis includes placing the patient in as perfect condition of physiologic and anatomic rest as possible, several days before the operation, and by a complete evacuation (a dozen movements), of the intestinal tract, and flushing of the kidney by giving 8 ounces of half decinormal salt solution every 2 hours, 6 times a day. With these systems drained to a maximum, the patient can be placed in the most perfect state of physiologic and anatomic rest, which is the safest condition for any surgical intervention, and is a prophylactic against embolism. Such a state withstands to the highest degree the trauma of anesthesia, shock, peritonitis, infectious invasions, nephritis, pneumonia, and embolus.

4.—The Treatment of Digestive Disorders.—J. W. Hunter, Jr., says that the prevalent methods of treating digestive disorders give unsatisfactory results. An inability correctly to diagnose digestive affections, a tendency to treat all cases of indigestion by a routine method, and the injudicious administration of ferments are responsible. He advocates a rational plan of treatment based on a careful physical examination, which should comprise all the organs of the body, and in doubtful cases, also include examination of the stomach contents and feces. Constipation must be corrected and the teeth and mouth should receive what treatment is necessary. Proper mastication of the food and healthful methods of cooking are essential, as well as moderate exercise, fresh air, sunlight and rest. The various bitter tonics are useful, and antacids, such as sodium bicarbonate or magnesium carbonate, in some cases combined with an intestinal antiseptic and a mucous protective, will do much to prevent flatulence. Acute attacks are treated by carminatives, followed by a saline, an emetic, or lavage. A case is described which had been unsuccessfully treated with enzymes, and which promptly yielded to rational measures. These consist in assisting nature without rendering the functions dependent on medication, which in the long run, reduces their activities instead of stimulating them.

5.—Infections of the Gallbladder.—T. W. Harvey takes as a text, a case of biliary calculi, with a stone in the common duct successfully treated by removal of the gallstones and drainage of the gallbladder, and discusses the subject of cholecystitis in its relation to the formation of gallstones and as a source of abdominal symptoms in general. Infections of the gallbladder may be innocent to start with, but always involve danger of serious secondary lesions, such as pancreatitis, malignant disease of the biliary passages, and even, in the author's opinion, cirrhosis of the liver. The differential diagnosis is often difficult and the possibility of confusion of appendicular and biliary inflammation must always be kept in mind. There is no doubt of the possibility of spontaneous cure, for latency is the rule where infection of the gallbladder has gone on to the formation of gallstones. Attacks of biliary colic may be cured by the expulsion of the stone, and even when complete obstruction occurs, ulceration and perforation into the intestine may give free outlet to the bile, and cause the symptoms to subside, but this is a matter of chance. Infections of the gallbladder are surgical diseases. Treatment consists in incision and drainage of the gallbladder, or in its complete extirpation.

6.—Pneumonia in High Altitudes.—A. R. Goodman summarizes the statistics of the morbidity and mortality from pneumonia in the American Hospital, Mexico City, from 1890 to 1904. Of 4,367 cases of disease treated during this period, 101 were pneumonia. A marked preponderance of the disease was observed in the first six months of the year, *i. e.*, before the rainy season. The average mortality was 39.8%.

New York Medical Journal.

January 7, 1905. [Vol. LXXXI, No. 1.]

1. The Proper Scope of Scientific (So-called Expert) Testimony in Trials Involving Pharmacologic Questions. SOLOMON SOLIS COHEN.
2. Poisoning by Wood or Methyl Alcohol and Its Preparations as a Cause of Death and Blindness: A Supplementary Report. CASEY A. WOOD.
3. The Treatment following the Bloodless Reduction of Congenital Hip Dislocation. DEXTER D. ASHLEY and FREDERICH MUELLER.
4. Conservative Treatment of Affections of the Uterine Annexa: Its Indications and Limitations. GEORGE TUCKER HARRISON.
5. The Management of Pneumonia. OLIVER T. OSBORNE.
6. Hemorrhoids. SAMUEL G. GANT.

7. Pneumococcus Arthritis: Report of a Case. W. H. WITT. With Pathologic Report. WILLIAM LITTERER.

2.—Poisoning by Wood Alcohol.—C. A. Wood has made a thorough review of the literature of this subject, and in this article he calls attention to the large number of instances of death and several cases of blindness that have occurred recently. The most important of these recent intoxications *en masse* have been the deaths from methylated whisky of some 20 people in New York City, and 15 in Jurjew, Russia. As a part of this wholesale intoxication there were three cases of blindness in Jurjew and an unknown number of toxic amblyopes in New York. In all we have 158 authentic cases of blindness, and 156 deaths from this poison. The author says that whenever a patient shows decided symptoms of alcohol intoxication, abdominal distress, and weakness of the extremities, followed by sudden blindness in both eyes, the presumption is that he has imbibed some methylated preparation. However blind he may become, sight almost always improves after a few days, to relapse once more into permanent blindness. The visual fields are contracted and present absolute central scotomas. In the fundus oculi are seen at first a congested nerve head with injected vessels; later, grayish-white (secondary) atrophy and contracted vessels. These signs, generally accompanied not only by blindness, but by redness of the eyeball, pain in the globes, tenderness on pressure over the lids, discomfort on looking about, slight photophobia and dilation of the pupils correspond in the first stage to an acute retrobulbar optic neuritis. When the early inflammation and swelling of the nerve subside, vision for a time improves, but the damage to the nervous tissues shortly terminates in a postneuritic atrophy with eventual permanent blindness. [C.A.O.]

3.—Congenital Hip Dislocation.—D. D. Ashley and Frederick Mueller discuss the paralyzes which sometimes follow the bloodless reposition of congenital hip dislocation. The phenomena of paralysis appear in the fields of both the large nerves supplying the lower extremities. If the shortening has been considerable and the resistance great, it is not unusual to observe paralysis of the entire limb, both nerves being injured. As a rule, the crural nerve proves to have received the less damage. In the majority of cases only motility is lost, sensibility remaining intact. If the sensibility is involved, neuralgias appear some time after the trauma, and develop to hyperesthesia, the toes especially becoming very sensitive, even to the slightest touch. The diagnosis of injury in the sciatic field is very easily made from the loss of motility in those muscles which are supplied by the peroneal nerve, which is noticeable in every case where an injury of the sciatic nerve has been sustained. The prognosis of an injury to the sciatic nerve is not a favorable one throughout. The duration of the paralysis of the peroneal nerve is quite protracted. In severe cases there may be 2 or 3 months of the neuralgic stage, followed by 4 to 8 months of the stage of flabby paralysis, after which there is a period of gradual restitution of motility, which is quite often not complete. During the neuralgic stage a weak descending galvanic current of from 1 milliampere to 3 milliamperes is used. During the stage of flabby paralysis, faradization and galvanism may be successfully used. [C.A.O.]

5.—Pneumonia.—O. T. Osborne outlines with some detail the management of this disease. The first consideration in the treatment is a large, well-ventilated room. In rare cases in plethoric, sturdy men with a full, bounding pulse and marked signs of serious congestion of the lung, venesection can be done with good results. These, however, are the very cases in which the author believes that fair sized doses of a cardiac depressant or a drug like antipyrin will also be of advantage. The profuse sweating caused by a gram (15½ gr.) of antipyrin, with the action of some brisk purge, followed by morphin to stop the pain, and dry cupping, or if preferred, a hot poultice, may and often does abort a case of pneumonia. About a quart of milk should be given in 24 hours. Two raw eggs a day, given in bouillon or coffee, or with sherry or brandy, as seems best, furnish the kind of albumen the patient needs. Expressed beef juice, which means more than the blood from meat, the actual, expressed meat serum, is one of our best heart muscle stimulants, and should be given in ounce doses, three or four times a day. Troublesome high temperature should be treated by

sponging with tepid water. Warm, moist applications over the portion of the lung involved, during the first stage, will mitigate the pain and add to the general comfort of the patient. These applications may be of hot water, or water and alcohol fomentations, but nothing holds the heat better than the old flaxseed poultice bound tightly to the chest, especially if a hot water-bag is placed alongside of it. Such applications should be kept warm. In the case of children the author is in doubt as to their value. He believes the glycerin pastes do considerable good. Codein is used to relieve an irritable cough. As a stimulant for the bronchial mucous membrane, ammonium chlorid in small doses, with ipecac; this, put up in an acid preparation, is almost invariably well received by the stomach. Alcohol should be given only when the circulation seems to demand it. Nitroglycerin may be used to equalize the circulation, dilate the arteries, and render a tense pulse less hard. Strychnin should be given if the pulse becomes irregular, and shows poor tension. Caffein should be given from the beginning in the form of coffee. [C.A.O.]

6.—Hemorrhoids.—S. G. Gant, in this condition, operates under local anesthesia, induced by distending the tissues by means of injections of sterile water, the pressure exerted upon the terminal nerve filaments being sufficient to prevent cutting pain, although some patients suffer momentary discomfort, caused by the distention, this being immediately relieved when the tissues are excised. The ligature, clamp and cautery, or linear excision method may be used. The writer states that he has operated upon more than 250 patients with hemorrhoids, under sterile water anesthesia, with satisfactory results; 186 of these were included in a collection of 320 cases of various rectal operations, performed under this method of anesthesia. This group of operations embraced every variety of pile tumor, under all conditions ordinarily encountered, and effective radical treatment was rendered by this method, which the writer claims is so easy and simple to accomplish in the office, patient's home, or dispensary, without resorting to general anesthesia and with so little danger and inconvenience to the patient. [C.A.O.]

Medical News.

January 14, 1905. [Vol. 86, No. 2.]

1. Care of Puerperas. JAMES D. VOORHEES.
2. Trauma and Chronic Compression of the Epigastrium and Etiologic Factors of Gastric Ulcers. WILLIAM ACKERMANN.
3. The Nervous Symptoms Accompanying Pernicious Anemia. ROY M. VAN WART.
4. Prostatectomy in Emergency Cases. JOHN F. ERDMANN.
5. Observations on the Blood-pressure in Disease. ROGER S. MORRIS and CHARLES W. EDMUNDS.

1.—Care of Puerperas.—James D. Voorhees says continued asepsis after delivery is of first importance. This falls largely upon the nurse. The vulva and the nipples should be regarded in the light of clean laparotomy wounds. For the first few days a pad of gauze wet with a 1 to 10,000 mercuric chlorid solution should be worn over the vulva. Early vaginal examination and vaginal douching are condemned. After 10 or 12 days, hot douches help in the process of uterine involution. Immediately after delivery, if the uterus shows a tendency to relax, Voorhees gives an intrauterine douche of acetic acid; he doubts the efficacy of the abdominal binder. After delivery a fluid diet should be given until the bowels move. During pregnancy the nipples should be cleaned and softened by cocoa butter or abolin. If the nipple is small it should be massaged. The hardening treatment of the nipple is not favored. After delivery, until the milk comes, the child should be put to the breast three times the first day, five the second, etc., allowing it to nurse but a few minutes, cleansing the nipple with boric solution before and after nursing, and anointing afterward with abolin. The patient should be kept in bed at least two weeks after delivery, and longer if there is any tendency to subinvolution. The patient should not walk till the third week. [A.B.C.]

2.—Trauma, Chronic Compression of the Epigastrium, and Gastric Ulcers.—W. Ackermann states that judging from decubital ulcers elsewhere, it is reasonable to suppose that ulcers may be caused by compression of the gastric walls. It is owing to occupation that they are more frequent among

men than women. Many cases of dilation are probably due to cicatrices following traumatic ulcers. Artificially produced ulcers are slower to heal in animals previously rendered anemic. This may explain the relationship between chlorosis and anemia. The decreased alkalinity of anemic blood may explain the hyperacidity usually present. Ulcers following contusions of the abdomen are reported by a number of authors. Injuries may cause an extensive lesion limited to the mucosa, or a hematoma between the muscularis and the mucosa, the pressure of which may bring about necrosis. It is natural that gastric juice should act detrimentally on injured surfaces. The writer reports a case from a kick; others from occupations requiring a stooped position, as tailoring, bookkeeping, etc.; or continual pressure, as in shoemaking and basketmaking; or temporary pressure from heavy weights on the epigastrium, such as teamsters are exposed to. [H.M.]

3.—Nervous Symptoms Accompanying Pernicious Anemia.—R. M. Van Wart states that the symptom-complex presented by the degenerations in the spinal cord in all these cases has been described as a separate disease under the name combined sclerosis. The symptoms are easily understood when we consider those of isolated disease of the posterior tracts and the lateral tracts and combine them. In pernicious anemia the posterior tracts are involved earliest and the disease may not extend beyond this. In other cases the crossed pyramidal tracts may be involved simultaneously or later. Cases of spinal cord lesions in pernicious anemia may or may not present symptoms. As arsenic is constantly used, some of the sensory disturbances may be due to a peripheral neuritis. The patches of degeneration result from either a fibrosis or a true endarteritis. Lenoble thinks there is thrombosis, due to altered blood with stasis and rupture. Optic atrophy, pupillary phenomena, convulsions, and hemiplegia have been reported. Apathy, indolence, and increasing inability for mental work have been frequently noted. Marcus describes a case resembling dementia paralytica, with delusions of grandeur, lasting six months and ending in recovery. The writer gives a case of his own in detail corresponding to the type usually seen in pernicious anemia. [H.M.]

4.—Prostatectomy in Emergency Cases.—John F. Erdmann cites records of eight cases which belong distinctly to this class, in which six different emergency indications are dealt with. They are as follows: 1. Impassable urethra, due to stricture, with rupture and gangrene of the entire scrotum and perineum. 2. Retrograde hemorrhage, bladder being full of clots and bloody urine, with malignancy of the prostate. 3. False passage; retrograde hemorrhage; suprapubic aspiration, with infiltration of the abdominal wall extending to the thorax and to the gluteal regions. 4. Acute obstruction, due to exposure to cold and wet, inability to catheterize; trauma of the urethra. 5. Trauma of the urethra; catheterization for several days, retrograde hemorrhage, etc. 6. Deep stricture of the urethra; obstruction; catheterization cystitis, with absorption. The perineal route is recommended in emergency operations, because: 1. The opening is practically at the lowest point of the bladder and complicated devices for drainage, such as are necessary in suprapubic sections, are not required. 2. The old, being irritable and feeble and requiring to be moved frequently, the drainage in the suprapubic method is constantly interfered with, while in the perineal method it is readily controlled. 3. The after-soiling, when the tube is removed, is slight and easily controlled in the perineal method, as compared with the suprapubic. 4. Bladder irrigations are more readily done by this method. [A.B.C.]

5.—Observations on the Blood-pressure in Disease.—Roger S. Morris and Charles W. Edmunds give a historic review of recent work done along the line here indicated, with the various instruments in common use, discuss at length the sources of error, give illustrative tracings and conclude as follows: We urge the necessity for a more widespread use of the sphygmomanometer, with the publication of results. The instruments are too little employed by those in active practice, not to mention hospital workers, and the results obtained from them too frequently underestimated. It would be folly to say that every case, to be successfully treated, should have blood-pressure determinations made, but that there are some cases

—and their number will doubtless increase—in which the treatment can be most successfully carried out when we know accurately the height of the arterial tension, is a statement which needs no amplification. We emphasize the necessity upon those who use the Riva-Rocci type of apparatus for obtaining a broad cuff, one 15 cm. (6 in.) wide. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Trypanosomiasis is unquestionably one of the most prominent of the clinicopathologic objects which at present date looms within the visual field of the scientific eye of each of (at least) three of the great continents—Europe, Asia, and Africa; and it admittedly engrosses at the same time a very fair proportion of the intellectual attentions of the island continent of Australia, and even of our own America. At a meeting of the Berlin Medical Society (October 26, 1904) this subject occupied the almost exclusive consideration of the members. The president, von Bergmann, gave the special tribute of the appreciative recognition of his confreres to Professor R. Koch for his recent researches in this department of pathology, which he has carried out in the southern section of the "Dark Continent." The trypanosome belongs, as of course all readers by this time know, to the flagellate group of the protozoa. The parasite is easily detected in the blood, even under a lens of moderate magnifying power. The practised eye at once sees that some of the red corpuscles move about over the microscopic field in a quite abnormal fashion. A closer examination shows that those unusual forms of displacement are due to the presence of certain animalcules, whose form and structure can be studied only under a higher magnification, and with the aid of special staining reagents. Of all the latter, the best is that devised by Romanowski. Its application demonstrates that the body of the parasite—which now displays a blue tint—is of pisciform outline, and displays laterally a delicate wavy membrane. It possesses a nucleus—now tinted red; and on one side of this latter structure there is found another minute corpuscle of a corresponding hue. This was taken for a nucleolus by the early observers; but is, in reality, a centrosome. The flagellum is attached in the immediate vicinity of the centrosome, a position which corresponds to the anterior part of the parasite. Accordingly, the trypanosome always moves with its flagellum directed forward. These parasites multiply their numbers by longitudinal segmentation; and, as the individuals of the newer generation very often remain adherent to the parent, characteristic "formations rosaceae" are in this way produced.

Types and Similarity of Symptoms of Trypanosomiasis to Those of Malaria.—The various lesions, and their accompanying symptoms and physical signs, which are now known to be referable to the presence of trypanosomes in the circulating fluids of the human body—and of the blood of other animals—are closely related to those which are characteristic of the effects of malaria. They include irregular paroxysms of fever, accompanied by splenic and glandular enlargements and general weakness—proceeding to development of anemia, edemas (general and local), with occurrence of cutaneous erythema, and various other indications of the presence of deleterious matters in the circulating fluid. The processes may assume either an acute or a chronic type—the latter frequently tending to supervene upon the former. The existence of at least half-a-dozen types of trypanosomiasis have up to the present been definitely established. 1. Trypanosomiasis of rats, which has been carefully studied by Rabinowitch and Kemperer. This has been proved to be very widely diffused among

animals of this species, in fact, it is the exception to meet with a specimen which is absolutely intact. But it is also one of the most benign forms, and appears to be productive of no morbid manifestations whatever. This can only be explained, of course, by the extremely slight degree of virulence of the parasite and its accompanying products. The flea is believed to be the agent of transmission of the trypanosome. 2. The best known form of trypanosomiasis is that known as the tsetse disease, to which Livingstone called attention many years ago. This formerly mysterious malady appears to have been originally an endemic disorder of Central Africa, especially in the territories neighboring the banks of the Zambezi, but it has now spread all over the Dark Continent. This plague is not confined, (as some of the other forms) to a single animal species; it affects the horse, ass, ox, sheep, goat, dog, rabbit, and even rat. Fortunately man appears to have remained entirely refractory to its ravages. In each of the animal species here mentioned, the degree of receptivity was found to vary with the race and the individual. The agent of transmission of the disease is the tsetse fly, *Glossina palpitans*. 3. The surra, a type which appears to have originated in India, and has now established itself in the Philippines, Java, and Mauritius. The trypanosome of this variety displays morphologic characters closely approximating that of the tsetse disease, and like the latter, is transmitted by the agency of a fly of the genus *Glossina*. 4. The *mal de Cadera*, which is endemic in South America, is caused by the presence of a trypanosome which differs in some of its features from the preceding types, especially with regard to the centrosome, which is very minute and difficult to stain. 5. A trypanosome has been observed by Taylor in Pretoria, which infects oxen. It is comparatively benign, although of much more considerable dimensions than the others described. 6. It was believed for a long time that the trypanosome did not possess the power of establishing colonies in the blood and tissues of *homo sapiens*.

Human Trypanosomes and Sleeping-sickness.—That consoling delusion was dispelled by the discovery of trypanosomes in human blood by Doghton. Some time afterward, Castellani rediscovered those parasites in the cerebrospinal fluid of negroes affected with the sleeping-sickness; but this observer seemed to regard their presence as an item of secondary importance. The merit of establishing the pathogenic relationship between trypanosomes and sleeping-sickness belongs to Bruce, who also demonstrated the fact that the agent of transmission is a fly of the genus *Glossina*. The special fact which must be emphasized in this connection is that the so-called sleeping-sickness represents merely one of the stages of human trypanosomiasis, and that accordingly, its absence, in any given individual, by no means implies the necessary absence of infection by parasitic trypanosomes. It must also be remembered that the parasite may exist in the blood, even for a period of years, without giving rise to any notable morbid manifestations; the sleeping-sickness appears to constitute the final stage of development of human trypanosomiasis, and it has been suggested that the appearance of the symptom-group is the result of the passage of the parasites into the cerebrospinal fluid. The recognition of sleeping-sickness dates as far back as the opening years of the last century, when it was first observed in this country among slaves who had been imported from Africa. The disease was often found to develop in individuals who had left the Dark Continent a number of years (5 to 8) before. That it has never been propagated in America appears to be due to the fact that there is no insect suitable to function as the vehicle of transmission from one human being to another.

Variable Virulence of Trypanosomes.—In the present state of our knowledge, cases of trypanosomiasis may be arranged in two groups, according to the specific

history and virulence of the parasites. The first group is constituted by that of the rat, in which the parasite is exclusively specific for that animal, while its virulence is very slight indeed. The second group includes all the others, of which the parasites, which are more or less distinct in their morphology, are possessed of a degree of virulence of extraordinary variability and are able to attack different species of animals. This very peculiar variability of virulence is manifested not merely in contrasting different species of animals subjected to the infection, but even in the transmission of the parasite from one animal to another of the same species. This fact was strikingly demonstrated by Koch himself in the cases of two specimens of the equine genus, which had been brought from Togo and presented to the Zoological Gardens at Berlin. The stallion presented grave symptoms of the tsetse disease, while the other offered no morbid manifestations whatever. The blood of each contained trypanosomes in abundance. The blood of the stallion, when inoculated into other animals, produced correspondingly grave symptoms, while that of the other produced only the most benign form of infection. And the most curiously convincing item of evidence of the extraordinary variability of the effects of the presence of the trypanosome, combined with the direct proportion of the intensity of the infection to the virulence of the parasite inoculated, was afforded by the results of the inoculation of his companion with the blood of the stallion. The inoculated animal rapidly developed the gravest symptoms and succumbed soon after its companion.

Prophylaxis of Trypanosomiasis.—But the virulence of the trypanosomes may be artificially concentrated or attenuated by the repeated passage of the parasites through certain animals. It is thus that Professor Koch has added to his many other valuable scientific discoveries by demonstrating that it is possible, by inoculation with attenuated cultures, to immunize different species of animals against the effects of the inoculation of very virulent cultures of the same trypanosomes. The procedure appears, however, to have this drawback—like the preventive inoculation of smallpox in the prevaccine days—that the immunized animals preserve the trypanosomes in their blood, and thus remain a permanent source of infection of their kind. Accordingly, Professor Koch has arrived at the conclusion that the only rational means of endeavoring to secure the extinction of the tsetse disease—with a view to the prophylaxis and treatment of which his scientific expedition to South Africa was undertaken—is to sacrifice without delay every animal whose blood is found to contain the parasite.

REVIEW OF LITERATURE

Concerning Osteomalacia and Thyroid Disease.—E. Hoennicke¹ believes that osteomalacia is closely associated with disease of the thyroid gland. The geographic distribution of both diseases is identical. The thyroid gland is often found to be abnormal in osteomalacia, and symptoms of thyroid involvement are often noted in this disease. Primary disease of the thyroid gland leads to osteomalacia through disturbance of the phosphorus metabolism. The various types of osteomalacia constitute a disease entity, while the different forms of puerperal osteomalacia are explained on physiologic grounds. Castration is of value in the treatment of osteomalacia because it lessens the amount of phosphorus consumption, and the internal administration of phosphorus is valuable as it increases the amount of that element in the system. [W.E.R.]

Bee Sting Poisoning.—O. Neumann² reports the case of a man of 28, who was attacked by a swarm of bees, receiving numerous stings. When seen one and a half hours later he presented the following picture: Eyebrows and lips swollen,

forehead, scalp, lips, nose, ears, and skin down to clavicle were discolored by extravasated blood; the conjunctivas were injected; the pupils were dilated, and reacted but slowly to light; the limbs were cold, the finger-tips cyanosed, his pulse 56, temperature 95.7°. He was absolutely apathetic, had vomited three times and had his bowels moved three times. He improved somewhat when ether injections were given and ice applied to his head; he complained of being cold, having pain in his abdomen and head. He collapsed once more while having a bowel movement. During the next two hours he had three more loose stools and vomited several times. He was given tincture of opium, 10 drops twice, but in spite of that he had 20 stools, some mucoid, others bloody, and persistent tenesmus. He felt much better the next day, but still very weak, and had three stools; his pulse and temperature had returned to normal. [E.L.]

Primary Sarcoma of the Liver with Cirrhosis.—The combination of cancer of the liver with cirrhosis is by no means rare; but it has always been held that sarcoma of that organ is almost never associated with connective-tissue proliferation. J. Rubinato,¹ however, reports such a case, in which the characteristic symptoms were a moderate enlargement of the liver, with icterus, ascites, and a rapidly developing cachexia. Previous observations have shown that primary sarcoma of the liver is usually characterized by a very large organ, with absence of icterus and ascites. The change in the clinical picture, as exhibited by this case, was held by the author to be due to the association of sarcoma with cirrhosis, which condition was found at autopsy. It is believed that the cirrhosis preceded the development of the sarcoma, and that the tumor arose from interacinous connective tissue. [B.K.]

Gonorrheal Arthropathies.—P. Bogdanoff² has studied the complications of gonorrhea historically and clinically, and says in conclusion: 1. The reaction to gonorrheal infection does not remain local for any length of time. Very early the infection finds favorable conditions for spreading, entering the blood, etc. Thus a generalized infection, or a "gonæmia" may result. 2. Much depends on the virulence of the gonococci and on the resisting powers of the individual, general and local. 3. Gonorrheal arthropathy is one of the local manifestations of the disease. It is sufficient for the living gonococci to reach the joint in order to cause arthropathy. Mixed infection is, of course, possible, but not a necessary factor. 4. Sometimes joint infection is the only symptom of gonorrhea. Most frequently this complication takes place in the acute stage. 5. The diagnosis rests on a clinical basis since negative bacteriologic examination of the joint contents is not decisive. 6. There is no specific treatment for gonorrheal arthropathy. [L.J.]

Investigations on Carbonic Oxid Poisoning.—Medical cases occur in which it is important to know whether the person died from inhalation of carbonic oxid or whether the body had been placed after death in an atmosphere impregnated with that gas. F. Strassmann and A. Schulz³ performed a number of experiments to determine the amount of carbonic oxid gas which the human body can absorb after death. It has always been assumed that if carbonic oxid gas is found in the blood it must have entered through the lungs. Modern investigators, however, have shown that this is untrue, as this gas can enter through the skin and penetrate to the interior of the body. It is not even necessary that the gas be in the pure state, as it may be mixed with air or smoke. The authors' tests were made on seven cadavers, which were placed in air-tight boxes and there exposed to the gas for varying lengths of time. The gas was found in every part of the body, depending upon the length of exposure. The authors conclude, that if a body which has been exposed to a carbonic oxid atmosphere only a short time shows the presence of that gas in the innermost bloodvessels, the mode of entrance was by inhalation and not by absorption. Another important differential sign is the difference in the amount of the gas in the two layers of the superficial muscles; in absorption the outer layer will contain more carbonic gas than the inner layer. [W.E.R.]

¹ Berliner klinische Wochenschrift, October 31, 1904.

² Wiener medicinische Wochenschrift, 1901, xxxiv, No. 38.

¹ Deut. Archiv f. klin. Med., Bd. lxxxii, p. 188.

² Dissertation, Moscow, 1904.

³ Berliner klinische Wochenschrift, November 28, 1904.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Surgery of the Deep Urethra.—G. Frank Lydston¹ reports several interesting cases. In one instance a man of 32 had been under treatment for stricture of the bulbomembranous function. Perineal section was proposed, but refused by the patient. About this time the patient was thrown from a buggy in a runaway accident, and his perineum struck square against the buggy wheel, severely lacerating the perineum and rupturing the deep urethra. The patient was seen eight hours after the accident, there had been no retention of urine; external urethrotomy was at once performed. The urethra had been torn across transversely. The stricture was dissected out and the severed ends brought together over a full-sized sound. The patient made a complete recovery, being completely cured of his stricture. Lydston also reports two cases of urethrorrectal fistula following perineal prostaticectomy. In the first case the patient was a man of 60. A moderately large but very hard fibrous prostate was removed by the perineal route. Enucleation was impossible and morcellement was resorted to. On the fifth day the perineal drainage was removed and on the eighth day a urethrorrectal fistula had been established. A subsequent operation for the purpose of closing the fistula was a failure, but a month later an additional one succeeded. The second patient was a man of 65, and a large fibrous prostate had been removed by morcellement through the perineal route. On the twenty-first day it was apparent that a urethrorrectal fistula existed. The perineal wound healed, but all the urine was voided by way of the rectum. No attempt was made to close the fistula, the patient suffering little inconvenience from the condition. [A.B.C.]

Malposition of the Colon due to Prolapse of the Right Kidney.—P. Aiglave,² in a study of 16 cadavers, 8 each of male and female, found that 4 of the latter possessed anomalous conditions of the ascending colon depending upon prolapse of the right kidney. Normally, the hepatic flexure of the colon is in front and just below the lower pole of the kidney. The colon is fixed to the kidney at this point by the attachment of the primitive mesocolon to the parietal peritoneum which covers the kidney; this fusion forms a fascia subcolic and prerenal, called the fascia of Toldt. When the kidney descends and takes with it the flexure of the colon, a kink in the latter organ is produced. This leads to fecal stasis, and finally to dilation of the cecum. In the treatment of the condition described, the first step is to do a nephropexy and thus remove the cause of interference with the colon. In some cases this will so nearly return the colon to its normal position as to relieve the symptoms. In other instances the colon will have to be freed from the adhesions which bind it in the abnormal position. In some cases, where the adhesions are dense and the colon is markedly deformed, the ascending portion must be excluded by an ileocolostomy transverse or, by preference, ileosigmoidostomy. This last expedient is particularly called for in cases where in addition to the kidney, the liver is prolapsed and holds the colon in the abnormal situation. [A.G.E.]

Psychic Disturbances from Abscess of the Frontal Lobe.—The patient, of which Borchard³ speaks, sustained an injury; the wound produced was 7.5 cm. long and 5 cm. wide in the left frontal region. Between the pieces of bone destroyed, blood-stained piece of brain substance the size of a walnut protruded. The child was unconscious for three days. The patient left his care well, but some time later mental derangements set in. The child would talk a great deal, would laugh without apparent cause and would follow people on the street. When the patient came to him now, he found a bulging at the point of the former wound, and upon incision he obtained considerable pus, which had accumulated in the frontal lobe. When this was accomplished, the child's mental condition became normal again. [J.F.]

Abuse of the Cystoscope in Prostatic Disease.—G.

Frank Lydston¹ says when the diagnosis of prostatic obstruction is clear, the indication for radical operation is also clear without further examination. Any exploration of the bladder which is unnecessary is dangerous. Cystoscopy is specially dangerous and is to be avoided, unless absolutely necessary. The use of the cystoscope, especially when anesthesia is used, compounds the immediate danger to the patient and the subsequent danger of operative procedures. A properly performed radical operation is much less dangerous than cystoscopic exploration. The use of the cystoscope rarely accomplishes more than the gratification of the operator in the establishment of refinements in diagnosis. So far as the diagnosis of stone is concerned, the use of the cystoscope is superfluous; the prostate demands a radical operation, whether or not stone be present, and if a stone is found, it can be removed at the same time. There are exceptional cases of posterior median obstruction and of prostatic overgrowths at the neck of the bladder in which the cystoscope is necessary. These cases are safer for exploration than the orthodox type of prostatic obstruction, but even in them, diagnosis can usually be established without the cystoscope. [A.G.E.]

Stone in the Kidney.—H. Betham Robinson² says the three most important indications of stone in the kidney are pain, attacks of renal colic, and hematuria. Any stone free to move about in the pelvis or calices is apt to produce pain. A stone forced into the sensitive ureteral orifice will bring on an attack of renal colic as severe as that produced by the passage of a stone through the ureter. A stone fixed in the pelvis, a calyx, or in the parenchyma will produce only a dull pain, or none at all. The pain of typical renal colic is characteristic, the pain radiating from the lumbar region downward to the groin and testis of the affected side; there is nausea and vomiting, accompanied by sweating and followed by a rise of temperature; a blood-clot passing down the ureter may simulate colic from the passing of a renal stone. Hematuria occurs far less common than textbooks would have us believe. The blood is mixed with the urine and is rarely found in clots. Hematuria is apt to be associated with previous jolting exercise. The use of the röntgen rays as a means of diagnosis is of doubtful value. The best shadow should be cast by a calcium oxalate stone, the next by the phosphatic calculus, and the least, if any at all, by the uric acid stone. The author had skiagraphs taken in four recent cases, under favorable circumstances, in which the symptoms were sufficiently marked to warrant exploration. Two gave positive information and two negative. In all of them calculi were found. The incision usually employed by Robinson for nephrotomy is the oblique lumbar one, which begins just below the last rib, at the outer border of the erector spinae, and passes forward and downward four or five inches toward the anterior superior spine of the ilium. [A.B.C.]

Bleeding Hemorrhoids Treated with Rectal Injections of Calcium Chlorid.—Boas,³ by means of a small glass syringe, injects immediately after the day's bowel movement, 20 gm. (5 dr.) of a 10% solution of pure crystals of calcium chlorid; the patient is told to retain it as long as possible. If the bleeding is profuse, the injection is repeated at night before going to bed. The injections do not produce irritation and are to be continued for some time after the hemorrhage has ceased. [E.L.]

Hypodermic Medication in Inoperable Cancer.—J. A. Shaw-Mackenzie⁴ reports cases treated with much benefit by chian turpentine and others with soap solution. The former was recommended by Clay 25 years ago, but was largely unsanitized when given by mouth, and hence failed. The author uses 5 m. of a 20% solution in olive oil, injecting this after sterilization deeply into the subcutaneous tissues of the buttock, avoiding the muscular tissue on account of pain and tension. Local anesthesia is induced by ice. This quantity is increased by 5 m. on alternate days up to 60 m. The soap solution, 1%, is given in the same dosage and is less painful when injected into the arm or chest than when inserted in the leg. Amelioration was in decrease in the tumor, diminution of fetor and discharge, and cessation of pain. [H.M.]

¹ Medical Times, January, 1905.

² British Medical Journal, December 24, 1904.

³ Therapie der Gegenwart, 1904, vi, 320.

⁴ Medical Press and Circular, October 19, 1904.

¹ Annals of Surgery, October, 1904.

² Revue de Chirurgie, December 10, 1904.

³ Arch. f. klin. Chir., 1904, Bd. lxxiv, Heft 1.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Orthopedic Surgery

H. AUGUSTUS WILSON

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Dermatology

M. B. HARTZELL

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Pathology

ALLER G. ELLIS

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 4.

JANUARY 28, 1905.

\$5.00 YEARLY.

Take Hygiene Out of "Politics!"—*American Medicine* has often and constantly insisted that the care of the health of the people should be taken out of the hands of political bosses and rings. Increase of the evils and sufferings of the dependent classes, degradation of the profession, and degeneration of the medical science which must finally alleviate, inevitably come with the rule of the American politician. The experiment has been thoroughly tried, and has as thoroughly failed. There is encouragement in the fact that even the politician is becoming conscious that there is no cure except in the absolute divorce of control of the public health and politics. So tremendous are the possibilities of evil in the water-supply of New York City that Mayor McClellan, "partisan" as he confesses himself to be, has advised that a bill shall be introduced into the State Legislature to turn over the whole question to a permanent committee of three who shall be beyond all political influence. To some such conclusion every city must finally come, and in it every physician will concur. Typhoid fever is neither Republican nor Democratic, although in another sense it is intensely Socialistic. Let the public health control in every aspect and way be freed from partisanship and politics!

Medical Heroes for the Hall of Fame.—For the "Hall of Fame" 29 names were selected in 1900, none of which was that of a physician, and this year 26 more will be named. Among the great men who have influenced American life for good and advanced the cause of civilization there can be no doubt with the considerate that medicine has furnished as many as any other calling or profession. Why then were medical men excluded? Simply because of the traditional failure on the part of the world to recognize the value of professional life to the community. This blindness should be done away with. The *Western Medical Review* proposes to nominate five medical heroes for the honors in the balloting of 1905 for the Hall of Fame, and gives the names of Rush, Ramsay, Warren, Sims, and Holmes. The suggestion occurs that it might be better for the professional voters to limit their balloting, and choose two, or at most three, physicians to honor. Warren, it seems, should be the first named, as the discovery of anesthesia has lessened human suffering, and at the same time advanced science immeasurably. As the John the Baptist of the

gospel of protection against infectious diseases, Holmes deserves the gratitude of Americans and of the world.

Model Tenements in New York.—Accompanying the reports of gifts to hospitals and other institutions aggregating hundreds of thousands of dollars, made by New York millionaires, comes the announcement that Mr. Henry Phipps has given \$1,000,000 for the erection in that city of model tenements. We are glad the trustees of this fund have hastened to state that a prime object will be to prevent the inhabitants of the projected tenements from gaining the impression that they are the recipients of charity. They will be given an opportunity to obtain clean, comfortable, healthy living quarters, but they will have to pay rent, as though the houses belonged to private individuals. Mr. Phipps, in his letter making public the offer, expressed the hope that the buildings will earn 4% on the investment, the income to be devoted to building more houses. He specifies that the structures are to be fireproof, thoroughly sanitary, well lighted, and well ventilated. If possible, spaces around the tenements in which children can play are to be reserved. If the trustees of the fund make the undertaking as successful financially as is the Washington enterprise we recently noted, the donor will find his hopes more than realized. Mr. Phipps is one of our rich men who is making wise use of the money he bestows. There are vast possibilities for good in bettering the quarters of the less favored people in our cities. The benefit is not for them alone, but affects the whole city by diminishing foci of disease.

State Aid for Charities.—The biennial report to the Pennsylvania Legislature of the Board of Public Charities again makes prominent an excessive drain upon the taxpayers of the State. While the appropriations recommended by the board aggregate little more than the legislative grants for the preceding period, \$9,406,923.75 as against \$8,922,222.25, the amounts applied for by the various institutions reach the enormous total of \$15,033,462.09. The beneficiaries applying include State, semi-state, and private institutions. For the first named, which of course must be supported by appropriations, less than half, \$4,448,499.05, of the entire amount is recommended; to the purely private hospitals alone go \$3,413,600. For each of four hospitals in Philadelphia

is asked \$250,000. This would mean to each one more than \$10,000 monthly for the two years, and shows an appalling difference between expenditure and income from patients. And yet these and other institutions are constantly increasing their capacity and new hospitals are being chartered. Why? Do manufactories or stores conducted on sound business principles increase in size or in number when they are already being conducted at a loss? Are a kind of paupers increasing so rapidly that new buildings are necessary to care for them only when they are sick? Hospitals connected with teaching institutions, as are the four referred to, should certainly receive first notice as things are now conducted, and we are not striking specially at them. We do protest against the unbusinesslike and uncharitable management of hospitals which allows them to incur a deficit by treating free of charge people who are able to pay for their care, thus damaging both the medical profession and, in the end, the people. Which of the dozens of begging hospitals in Pennsylvania and other States will be the first to raise its head in pride as having become self-supporting? In the halcyon days for which we hope, when legislators cease abject slavery to bossism and investigate the matters upon which they act, they will prick this expanding bubble of frenzied hospital finance. And the closure of the numerous hospitals thereby caused will never add one jot to the burdens of the really worthy poor.

Hope arises with the inauguration of Governor Charles S. Deneen, of Illinois, on January 9, 1905. He is pledged to a clean administration of the charitable and penal institutions of the State. Already it is reported that the 5% monthly political assessment long paid to the party "slush fund" by the officers and employees of the insane asylum at Kankakee has been suspended. As State's Attorney in Chicago, Mr. Deneen demonstrated his ability, his honesty, and his high ideals; and these qualities are coupled to courage and discretion in reform. Therefore the medical profession may well hope to see Illinois become an example for her sister States in decent institution government. Perhaps it is not too much to hope that scientific medicine may now be permitted in Illinois institutions to accomplish something for the increase of medical knowledge and for the consequent amelioration of the conditions of human existence. Certainly we expect to see some asylums conducted without "graft," and this alone will be an enormous benefit in its education of public sentiment in all the States to the point of demanding absolutely honest expenditure of all funds appropriated for charitable purposes. The medical profession should warmly uphold the hands of the new governor of Illinois.

Another method of division of fees is illustrated in a circular before us issued by a "maternity home." The statement is as follows:

Where the parties are well able to pay, it is but fair and just that we should get a good fair price, and that you should get a reasonable fee for finding a suitable place like ours for the girl where she will receive the best of care and have a good home found for the child. In order that you may get a fair fee for your trouble in these cases it is nearly always necessary to add

it to our net price, making one price of it, as otherwise they will feel that what you do for them should be done out of friendship, or at most for a very small fee. In order that we may do this, you should work for our mutual interest, and endeavor to get them to pay as large a price as possible under the circumstances. You can best judge what they can pay, as you are where you can interview them personally and learn their resources. Our net prices run from fifty dollars, to poor girls that are capable and willing to help with the work and that cannot pay more, up to two or three hundred dollars, to those that want the best of everything and are well able to pay for it. The average price being from \$100, to \$200, to this you may add whatever you think a fair and just fee for yourself, if you think best to do so, or cannot well collect it of them. By this we do not mean that we will divide our professional fee, or pay you a percent for sending cases to us, but that where you are unable to collect a reasonable fee from them direct, we will endeavor to collect a fee for you, adding it to our net price for room and board or deduct it from the price we get for room and board. If you write us for prices in any case, give us all the particulars, and state what is the most you think they can be induced to pay, and how much you want for your fee, if any; then we can make a price in a letter that you can show to them, or you can fix the price and we will give them as good accommodations as we can afford for the price you make.

Like all such propositions, the payment of the family physician who refers the patient to the home is a secret, kept from her and her friends. In that plan there is not only the temptation, but the certainty of underhandedness and injustice. Precisely in these cases where misfortune compels acceptance of almost any offered terms, unprofessional greed is sure to demand iniquitous charges. Such institutions need rigorous public and ethical oversight.

A Review of the Uric Acid Question.—Modern investigations have shattered many of the uric acid idols of our forefathers, but their memory still is worshiped to an inordinate degree. The literature on this perennial subject is so voluminous, and withal so contradictory, that the average physician is considerably at sea when he endeavors to form a working hypothesis by which to treat his patients. This is particularly true of the physician who has not had sufficient chemic and biologic training properly to interpret all the recent work upon the subject. The profession therefore should gladly welcome the effort of a contemporary¹ to epitomize, editorially the vast amount of literature and furnish an historic review of the uric acid question. The scope of this intended summary is best given in the writer's own words which occur under the heading "Truth and Poetry Concerning Uric Acid:" "It is our intention to review thoroughly though succinctly, the mass of work which has been done on the subject. We shall try to sift out the wheat from the chaff, and shall make an effort to distinguish what is the truth from what is mere poetry in this matter. In our next issue we shall begin with a review of the doctrines which have been held regarding the formation of uric acid in the body; in succeeding numbers of the *Journal* we purpose taking up the normal fate of uric acid in the tissues, the facts bearing on the localization of the processes of uric acid formation and decomposition, the chemic and physical properties of uric acid and urates, including the conditions of solubility and precipitation, and, finally, the relation of

¹Jour. Am. Med. Asso., January 14, 1905.

uric acid to pathologic processes." The high standard of the editorial pages of the *Journal* ensures a fair and authoritative consideration of the question at issue.

Tibet: Its Meteorology.—Tibet, like Japan, till quite lately remained a land of mystery to the inhabitants of all the other continents. Recent events, however, give the most substantial grounds for belief that the searchlights of Anglo-Saxon curiosity will be continuously made to illuminate its various recesses in the near—and, very probably, throughout the still far distant—epochs of advancing civilization and enlightenment. The explosive electric contacts which have just been established between both the above Oriental nations, and the Anglo-Saxon and Russian representatives of western civilization, respectively, must, if continuously maintained, tend to establish a more homogeneous current of thought than has hitherto encircled the world. Nearly all the obstructions have now been more or less shaken, even where not quite shattered. The climate of Tibet would seem to be at present the greatest enemy an unwary explorer is likely to encounter. The forces of the Tibet Mission seemed to suffer more from frost-bite than they did from the resistance offered by the Tibetans. It is interesting in this connection to recall the fact that the first (even slight) sketch of the climate, natural history, and diseases of this weird country, which appeared in the English language, is contained in a paper "by Mr. Robert Saunders, surgeon at Boglspoor in Bengal," which was communicated to the Royal Society in London, and "read February 26 and March 5, 1789." The writer tells us how, after passing the sources of the Pachu stream:

Here we quit the boundary of Boutan and enter the territory of Tibet, where nature has drawn the line still more strongly, and affords, perhaps, the most extraordinary contrast that takes place on the face of the earth. From this eminence are to be seen the mountains of Boutan, covered with trees, shrubs, and verdure to their tops, and on the south side of this mountain to within a few feet of the ground on which we tread. On the north side the eye takes in an extensive range of hills and plains, but not a tree, shrub, or scarce a tuft of grass to be seen. Thus, in the course of less than a mile, we bid adieu to a most fertile soil, covered with perpetual verdure, and enter a country where the soil and climate seem inimical to the production of every vegetable.

After a further five-day experience of gradual penetration of the land of the Lama, we are told that:

The wind from the eastward of south is now the coldest and most piercing; passing over the snowy mountains and dry sandy desert before described, it becomes divested of all vapor or moisture, and produces the same effect as the hot, dry winds in more southerly situations. Mahogany boxes and furniture that had withstood the Bengal climate for years were warped with considerable fissures and rendered useless. The natives say a direct exposure to these winds occasions the loss of their fore-teeth; and our faithful guide ascribed that defect in himself to this cause. We escaped with loss of the skin from the greatest part of our faces.

Goiter Near—not in—Tibet.—On coming to note the more strictly professional observations which he had made in his exploration of "the roof of the world," Mr. Saunders first refers to the condition now known as

goiter, on which he offers some very interesting remarks, but without giving it any special name:

Of the diseases of this country, the first that attracts our notice, as we approach the foot of the hills, is a glandular swelling in the throat, which is known to prevail in similar situations in some parts of Europe, and generally ascribed to an impregnation of the water from snow. The disease being common at the foot of the Alps, and confined to a tract of country near the mountains, has first given rise to the idea of its being occasioned by snow water. If a general view of the disease, and situations where it is most common had been the subject of inquiry, or awakened the attention of any able practitioner, we should have been long since undeceived in this respect. On the coast of Greenland, the mountainous parts of Wales and Scotland, where melted snow must be continually passing into their rivers and streams, the disease is not known, though it is common in Derbyshire and some other parts of England. Rungpore is about 100 miles from the foot of the hills, and much farther from the snow, yet the disease is as frequent there as in Boutan. In Tibet, where snow is never out of view, and the principal source of all their rivers and streams, the disease is not to be met with; but what puts the matter past a doubt is the frequency of the disease on the coast of Sumatra, where snow is never to be found.

The argument, based on the above facts, must indeed be admitted by all reasoning readers to be absolutely destructive of the snow-water hypothesis of the genesis of goiter. The writer then proceeds to offer the theory which had been suggested to him by his own observations:

On finding the vegetable productions of Boutan the same as those of the Alps in almost every instance, it occurred to me that the disease might arise from an impregnation of the water by these plants, or the soil probably possessing similar qualities, the spontaneous productions of both countries, with very few exceptions being so nearly alike. It, however, appears more probable that the disease is endemic, proceeding from a peculiarity in the air of situations in the vicinity of mountains with such soil and vegetable productions. I am the more inclined to think so, that I have universally found this disease most prevalent among the lower class of people, and those who are most exposed to the unguarded influence of the weather, and various changes that take place in the air of such situations. The primary cause in the atmosphere producing this effect is, perhaps, not more inexplicable than what we met with in the lowlands of Essex and fens of Lincolnshire. An accurate analysis of the water used in common by the natives, where this disease is more or less frequent, and where it is not known in similar exposures, might throw some light on this subject.

With regard to the progress and life history of this disease, some interesting and instructive remarks are also offered:

This very extraordinary disease has been little attended to, from obvious reasons; it is unaccompanied with pain, seldom fatal, and generally confined to the poorer sort of people. The tumor is unsightly and grows to a troublesome size, being often as large as a person's head. It is certainly not exaggerating to say that one in six of the Rungpore district and country of Boutan has the disease. As those who labor most, and are the least protected from the changes of weather, are most subject to the disease, we universally find it in Boutan more common with the women than men. It generally appears in Boutan at the age of 13 or 14, and in Bengal at the age of 11 or 12; so that in both countries the disease shows itself about the age of puberty. I do not believe this disease has ever been removed, though a mercurial course seemed to check its progress, but did not prevent its advance after intermitting the use of mercury. An attention to the primary cause will first lead to a proper method of treating the disease; a change of situation for a short while, at that particular period when it appears, might be the means of preventing it.

The Therapeutics of Tibet.—The therapeutic armamentarium of the Tibetans was found to be fairly well furnished with medicines for internal use. In his conferences with the Rajah, this prince graciously favored Mr. Saunders with above 70 specimens of the medicines used by his people.

They have many sorts of stones and petrifications saponaceous to the touch, which are employed as an external application in swellings and pains of the joints. They often remove such complaints, and violent headaches, by fumigating the part affected with aromatic plants and flowers. . . . The many simply in use with them are from the vegetable kingdom, collected chiefly in Boutan. They are in general inoffensive and very mild in their operation. Carminatives and aromatics are given in coughs, colds, and affections of the breast. The centaury, coriander, caraway, and cinnamon, are of this sort. This last is with them the bark of the root of that species of *Laurus* formerly mentioned as a native of this country. The bark from the root is in this plant the only part which partakes of the cinnamon taste, and I doubt very much if it could be distinguished by the best judges from what we call the true cinnamon. The bark, leaves, berries, and stalks of many shrubs and trees, are in use with them, all in decoction. Some have much of the astringent bitter taste of our most valuable medicines, and are generally employed here with the same view, to strengthen the powers of digestion, and mend the general habit. Their principal purgative medicines are brought by the Chinese to Lassa. They had not any medicine that operated as a vomit, till I gave the Rajah some ipecacuanha who made the first experiment with it on himself. (!)

The Surgery of Tibet.—But, while the medical therapeutics of the subjects of the Grand Lama were fairly complex, the surgical procedures were of a decidedly elementary type—less so, however, it should be observed, that those of their Chinese neighbors of that date, and of the present day. Their practice of opening buboes with a lancet and keeping them open till all hardness had disappeared has already been quoted. Also their external application of saponaceous stones (and of aromatic vapors) to swollen and painful joints. Venesection and cupping appear, however, to have been the principal surgical operations. Their ideas about the methods and applications of the former present many features in common with the phlebotomy of western Europe down to the close of the first third (or so) of the past century:

In bleeding they have a great opinion of drawing the blood from a particular part. For headaches they bleed in the neck; for pains in the arm and shoulder, in the cephalic vein; and of the breast or side, in the median; and if in the belly, they bleed in the basilic vein. They think pains of the lower extremity are best removed by bleeding in the ankle. They have a great prejudice against bleeding in cold weather; nor is any urgency or violent symptom thought at that time a sufficient reason for doing it.

And their method of cupping is practically identical with that used by the Zanzibari savages, who made the bulk of the column which crossed equatorial Africa under the leadership of the late Sir Henry M. Stanley for the purpose of "inflicting relief" upon Emin Pasha, and which has been so graphically described by the Irish medical hero of that ill-starred "expedition" Thomas Heazle Parke.

Cupping is much practised by them; a horn about the size of a cupping glass is applied to the part, and by a small aperture at the other end they extract the air with their mouth.

The part is afterward scarified with a lancet. This is often done on the back; and in pain and swelling of the knee it is held as a sovereign remedy.

Syphilis and Its Treatment in Tibet.—Regarding syphilis and its treatment, Mr. Saunders has some interesting information to convey. He proceeds to this subject after concluding the remarks on goiter which are quoted above:

The people of this happy climate are not exempt from the venereal disease, which seems to rage with unremitting fury in all climates, and proves the greatest scourge to the human race. . . . nor could I allow myself to think they were acquainted with the method of preparing quicksilver so as to render it a safe and efficacious medicine. In this, however, I was mistaken. The disease seems in this country to make a more rapid progress, and rage with more violence, than in any other. This is to be accounted for from the grossness of their food and little attention to cleanliness. There is one preparation of mercury in common use with them, and made after the following manner: A portion of alum, niter, vermilion, and quicksilver is placed in the bottom of an earthen pot, with a smaller one inverted put over the materials, and well luted to the bottom of the larger pot. Over the small one, and within the large one, the fuel is placed, and the fire continued for about 40 minutes. A certain quantity of fuel, carefully weighed out, is what regulates them with respect to the degree of heat, as they cannot see the materials during the operation. When the vessel is cool, the small inverted pot is taken off, and the materials collected for use. I attended the whole process, and examined the materials afterward. The quicksilver had been acted on by the other ingredients, deprived of its metallic form, and rendered a safe and efficacious remedy. A knowledge of chemistry has taught us a more certain method of rendering this valuable medicine active and efficacious: yet we find this preparation answering every good purpose, and by their gradual manner of exhibiting it perfectly safe. This powder is the basis of their pill, and often used in external application. The whole, when intimately mixed, formed a reddish powder, and was made into the form of pills by the addition of a plum or date. Two or three pills taken twice a day generally bring on, about the fourth or fifth day, a spitting, which is encouraged by continuing the use of the pills for a day or two longer. As the salivation advances, they put a stick across the patient's mouth, in the form of a gag, and make it fast behind. This, they say, is done to promote the spitting, and prevent the loss of their teeth. They keep up the salivation for 10 days or 12 days, during which time the patient is nourished with congee and other liquids. Part of this powder is often used externally by diffusing it in warm water, and washing sores and buboes. They disperse buboes frequently by poultices of turnip tops, in which they always put vermilion, and sometimes musk. Niter, as a cooler, is very much used internally by them in this disease, and they strictly enjoin warmth and confinement during the slightest mercurial course. Buboes advanced to suppuration are opened by a lancet, with a large incision, which they do not allow to close before the hardness and tumor are gone. In short, I found very little room for improving their practice in this disease. I introduced the method of killing quicksilver with honey, gave them an opportunity of seeing it done, and had the satisfaction of finding it successfully used by themselves before we left the country.

Smallpox the Great Horror of the Tibetans.—We are also informed that the "happy climate presents us with but little variety in their diseases." Fevers were generally a result of some "temporary cause," and the general experience of them was that they were "easily removed," and seldom fatal. "The liver disease is occasionally to be met with," and "complaints of the bowels are not unfrequent"; but according to Mr.

Saunders, "the grossness of their food, and uncleanness of their persons, would in any other climate be the source of constant disease and sickness." He mentions that "the most obstinate and fatal disease to be met with in the country" is the dropsy. He (rather sympathetically) attributes this fact to their deficient knowledge of recent therapeutics. "They are ignorant (as we were, not many years ago) of the proper method of treating diseases of the liver and other viscera; this is, I believe, the cause. . . ." The epidemic disease which loomed most largely on the Tibetan horizon was the smallpox. It is referred to in the following impressive sentences:

The smallpox, when it appears among them, is a disease that strikes them with too much terror and consternation to admit of their treating it properly. Their attention is not employed in saving the lives of the infected, but in preserving themselves from the disease. All communication with the infected is strictly forbidden, even at the risk of being starved, and the house or village is afterwards erased. A promiscuous and free intercourse with their neighbors not being allowed, the disease is very seldom to be met with, and its progress always checked by the vigilance and terror of the natives. Few in the country have had the disease. Inoculation, if ever introduced, must be very general to prevent the devastation that would be made by the infection in the natural way; and where there could not be any choice in the subject fit to receive the disease, many must fall a sacrifice to it. The present Rajah of Tibet was inoculated, with some of his followers, when in China with the late Tishoo Lama.

The practice of inoculation with the smallpox virus is one of inexorable antiquity in the empire of the celestials—like so many other of the more prominent and useful of the modern European inventions, such as gunpowder, printing, etc.

BOOK REVIEWS

New Methods of Treatment.—By DR. LAUMONIER. Translated and edited from the second revised and enlarged French edition by H. W. SYERS, M.A., M.D. Cantab. Chicago, W. T. Keener & Co., 1904.

This is a useful, but not altogether authoritative, summary of the more recent theories and practical advances in treatment. It is entertainingly written and well translated, and if one retains his critical faculty in referring to it, will furnish him with many valuable hints for the benefit of his patients.

Nervous and Mental Diseases. A manual for students and practitioners, with an appendix on examination.—By JOSEPH NAGEL. Edited by VICTOR COX PEDERSEN. Lea Bros. & Co., Philadelphia and New York, 1904.

Nagel and Pedersen have endeavored to present in a condensed form the subject of nervous diseases and insanity. This volume has the same objections that all epitomes have, that necessarily the subject is so condensed that one unacquainted with nervous diseases can scarcely get a clear understanding of the subject. However, the subject is accurately presented and the illustrations are numerous and adequate.

The Principles of Refraction in the Human Eye, Based on the Laws of Conjugate Foci.—By SWAN M. BURNETT, M.D., Ph.D. The Keystone, Philadelphia.

This treatise will be of unique interest to all students of the optics of practical ophthalmology. Such a fundamental law in refraction as that of the conjugate focus does not receive sufficient mention in ophthalmic textbooks. A careful reading of Dr. Burnett's work will prove of the greatest assistance in solving the problems involved in the determination of the optic properties of the eye. The text is illustrated by 25 original explanatory diagrams by Chas. F. Prentice.

The Essentials of Nervous Diseases and Insanity.—By JOHN C. SHAW, M.D., revised by SMITH ELY JELLIFFE, M.D., Ph.D. Fourth edition. W. B. Saunders & Co., Philadelphia, New York, and London, 1904.

The authors have succeeded in presenting the difficult subject of nervous diseases and insanity in a condensed and clear form. There are many excellent illustrations which aid greatly in elucidating the text. The book is highly recommended to the student and to the general practitioner.

Essentials of Medical Chemistry.—By LAWRENCE WOLFF. Sixth edition. Revised by A. FERRE WITMER. Philadelphia: W. B. Saunders & Co. 1904.

The latest edition of this wellknown compend has been brought down to date; enough of the old has been eliminated to make room for new material without increasing the size. The answers are concise and practical, and will prove helpful to students.

Qualitative Analysis Brief.—By ALLARD MEMMINGER. Second edition. Revised and rewritten. Philadelphia: P. Blakiston's Son & Co. 1904.

The value of this brief has been increased by the addition of new material. It gives an outline to be followed by students of chemic analysis in a college of pharmacy, but may be used in other connections. Alternate pages are left blank for notes.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otolaryngology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of Wm. Osler, M.D., Baltimore; John H. Musser, M.D., Philadelphia; James Stewart, M.D., Montreal; J. B. Murphy, M.D., Chicago; A. McPhedran, M.D., Toronto; Thos. M. Koch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Edmund Landolt, M.D., Paris; Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Berlin, Paris, Vienna, Leipzig, Brussels and Carlsbad. Vol. III., fourteenth series, 1904. Price, cloth, \$2.00 net. J. B. Lippincott Company, 1904.

Gallstones and Their Surgical Treatment.—By B. G. A. MOYNIHAN, M.S. (Lond.), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo volume of 386 pages, illustrated with text-cuts, some in colors, and nine colored insert plates. W. B. Saunders & Co., Philadelphia, New York, London, 1904. Cloth, \$4.00 net.

Saunders' Medical Hand-Atlases: Atlas and Epitome of General Pathologic Histology.—By DR. H. DÜRRCK, of Munich. Edited, with additions, by LUDVIG HEKTOEN, M.D., Professor of Pathology, Rush Medical College, in affiliation with the University of Chicago. With 172 colored figures on 77 lithographic plates, 36 text-cuts, many in colors, and 371 pages of text. W. B. Saunders & Co., Philadelphia, New York, London, 1904. Cloth, \$5.00 net.

Diseases of the Liver, Gallbladder, and Bile Ducts.—By H. D. ROLLESTON, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London; formerly Examiner in Medicine at the University of Durham, England. Octavo volume of 794 pages, fully illustrated including seven colored insert plates. W. B. Saunders & Co., Philadelphia, New York, London, 1904. Cloth, \$6.00 net.

A Manual of Personal Hygiene. Proper Living upon a Physiologic Basis.—By American Authors. Edited by WALTER L. FYLE, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second edition, revised and enlarged. 12mo volume of 441 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York, London, 1904. Bound in silk, \$1.50 net.

Medical Electricity. A practical handbook for students and practitioners.—By H. LEVVIS JONES, M.A., M.D., Fellow Royal College Physicians, Medical Officer in charge of Electrical Department in St. Bartholomew's Hospital, London; President of the British Electrotherapeutic Association, etc. Fourth edition, with illustrations. P. Blakiston's Son & Co., Philadelphia, 1904.

Diet in Health and Disease.—By JULIUS FRIEDENWALD, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and JOHN RUHRÄH, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Octavo volume of 689 pages. W. B. Saunders & Co., Philadelphia, New York, London, 1904. Cloth, \$4.00 net.

The Surgery of the Diseases of the Appendix Vermiformis and Their Complications.—By WILLIAM HENRY BATTLE, F.R.C.S., Surgeon to St. Thomas' Hospital, formerly Surgeon to the Royal Free Hospital, Hunterian Professor of Surgery of the Royal College of Surgeons of England, etc.; and EDRED M. CORNER, M.B., B.C., F.R.C.S., Surgeon in charge of Out Patients to St. Thomas' Hospital and Assistant Surgeon to the Great Ormond Street Hospital for Sick Children, etc. H. T. KEENER & Co., Chicago, 1905. Price, \$2.50 net.

Elementary Exercises for Students in Materia Medica and Pharmacy.—By PIERRE A. FISH, D.Sc., D.V.M., Professor of Veterinary Physiology and Pharmacology, New York State Veterinary College and Cornell University. Second edition, revised and enlarged. Published by the author, Ithaca, New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Would Use the Lash on Wife-beaters in the District of Columbia.—A favorable report to the House District of Columbia Committee of the bill providing for the corporal punishment of convicted wife-beaters has been made by Commissioner Macfarland. The other commissioners have not yet made their report upon the bill, but the favorable recommendation of only one more commissioner is necessary in order to return the bill to the House Committee on the District with a favorable report.

Cigaret Law Upheld.—The Iowa anticigaret law was upheld by the Supreme Court of the United States by a decision rendered on January 16, in two cases, affirming the decision of the Supreme Court of Iowa. The cigarettes sold were shipped into the State in small pasteboard boxes, and the contention was made that in enforcing the law the State authorities were interfering with interstate commerce. The court refused, however, to hold that the boxes were original packages. The opinion was delivered by Justice Brown.

Personal: Dr. Livingston Farrand, professor of Anthropology at Columbia University, has been named as head of the National Association for the Study and Prevention of Tuberculosis. The National Tuberculosis Association was organized less than a year ago at a meeting of the National Medical Association, under the presidency of Dr. Trudeau. **Pennsylvania: Dr. C. M. Harris,** specialist in ophthalmology, has removed from Philadelphia, where he was connected with the Wills Hospital and German Hospital, to Johnstown, Pa., where he will practise in the future.

Leper Colony in the Philippines.—According to *Public Health and Marine Hospital Service Reports*, the establishment of the new leper colony on the island of Culion is being pushed vigorously, and it is hoped that in a few weeks it will have sufficiently advanced to permit the removal of a few hundred lepers to the new location. Arrangements are now being made with the Board of Health with a view to transporting the lepers without unnecessarily endangering the traveling public. Immediately after the lepers are disembarked, the vessel will proceed to the quarantine station at either Cebu or Mariveles for thorough disinfection.

Miscellaneous.—The annual medical progress number of the *Interstate Medical Journal*, being the monthly issue of January, 1905, contains a commendable synopsis of the progress of medicine made during the past year. Under the titles of the various specialties and the various subdivisions of medicine and surgery a succinct synopsis has been given.—**New York.** Dr. Buikley's usual clinical lecture at the New York Skin and Cancer Hospital will be replaced on Wednesday, February 1, by a lecture by Dr. Boleslaw Lapowski on the "Treatment of Syphilis," and on Wednesday, February 8, by a lecture by Dr. Charles Mallory Williams on the "Treatment of Acne."

Safety in the Block System.—It is stated on reliable authority that the Erie Railroad running east from Chicago, using the block system of signals, carried 428,000 passengers during the World's Fair period without so much as injuring a single individual. The record of the Erie Railroad in the World's Fair year, was duplicated last year by the Vandalia road, which handled, by the block system on a single track line, the enormous passenger traffic poured into it by the Pennsylvania System during the St. Louis Exposition without a single accident of any kind. Prior to the installation of the block system the Vandalia averaged one collision every 20 days.

Cattle Quarantine Ordered.—The Department of Agriculture has issued regulations establishing, on February 1, a Federal quarantine against a large part of the South and Southwest, to prevent the spread of splenic, or southern fever among cattle. The quarantine lines are largely the same as last year, and it is declared to be in force until November 1, but this date is subject to change. These regulations allow cattle in the quarantined area to be shipped north in placarded cars, if shipped for slaughter and placed in quarantined yards on arrival at destination. If the stock is unloaded en route, it must be at yards reserved solely for southern cattle, and, after unloading, the cars must be disinfected before being used for native stock.

Still Faking.—A Boston exchange says: A fakir in this city has hit on a scheme for drawing money from sympathetic people that he has worked more than once to good advantage. He has a clever dog for a confederate, and the only other "properties" are a few bits of stale bread. The fakir will go along a crowded street, and will suddenly make a dive for a piece of bread that he has himself thrown in the gutter. The next minute he and the canine will be rolling in the dirt, fighting savagely for possession of the bread. The crowd that is attracted will shell out small coin generously to a supposed starving man, who sheds copious tears of gratitude. The dog is lost in

the shuffle, but he rejoins the owner ere long, and the two go off to another quarter to repeat their game.

Railway Casualties for July, August, and September Most Disastrous on Record.—The Interstate Commerce Commission has issued a report on railroad accidents in the United States during the months of July, August, and September, 1904, showing 228 passengers and 183 employees killed, and 2,154 passengers and 1,593 employees injured in train accidents. Other accidents to passengers and employees, not the result of collisions or derailments, bring the aggregate casualties for the quarter up to 1,032 killed and 13,207 injured. There were 1,439 collisions and 1,321 derailments, the damage to cars, engines, and roadway being \$2,439,073. The report says that while these figures show a gratifying decrease in the number of employees killed, the three months, as a whole, may be termed the most disastrous quarter on records in fatal accidents to passengers.

Further Experiments with Foods.—The so-called "poison squad," consisting of Department of Agriculture clerks who have volunteered for service in the food preservative and coloring matter experiments of Chemist Wiley, reassembled January 9 to continue the experiments until March, probably concerning the effects of artificial coloring of food on the system. They will then have a respite until the middle of April, when the work will be resumed until July 1. While continuance of these experiments beyond that date has not been finally determined upon, it is probable that during next year a similar squad will be utilized under the same strict rules to carry on experiments as to cold storage food products. These tests will have in view the determining of the exact effect of cold storage on foods and the rapidity of the development of bacteria under cold storage conditions.

Population and Morbidity of Greenland.—According to the census of 1901, there were 11,893 inhabitants in Greenland, an increase of 1,377 since 1890. This increase includes 441 Eskimos discovered by Captain Holm in 1894. The European population was 272. No real city exists in Greenland. The largest villages are Sukkertoppen, with 382, and Julianshaab, with 393 inhabitants. The census shows that the East Greenlanders are of pure Eskimo blood. The remainder of the population, however, is greatly mixed. The birth and the death-rate of Greenland varies greatly from year to year. The death-rate is greater in the south than in the north; tuberculosis claims 31% in the north and 28% in the south. About 13% of the deaths are from accidental causes, chiefly drowning. In 1901, about 84% of the population sustained themselves by seal catching, fishing and hunting. The remainder are connected with the administration, missions and trades. Since 1834 there has been a tendency to replace the Europeans by natives in the subordinate positions.

Benefactions during 1904.—According to figures collected by the *Chicago Tribune*, there was a falling off in the total amount contributed to charities during 1904 as compared with the previous year. So far, however, as hospitals are concerned the contributions of 1904 exceeded those of 1903. Over \$2,500,000 was given to hospitals throughout the country in 1904. Of this, Mr. Rockefeller gave a half million to the Johns Hopkins Hospital and Medical School at Baltimore. Henry Phipps added \$20,000 to the Johns Hopkins Hospital fund. To the Italian Hospital in New Orleans was left \$250,000 by the will of the late Salvatore Pizzati, and the Orthopedic Hospital of New York was given \$350,000 by Miss E. A. Watson. The Philadelphia hospitals were well remembered during the year, and the contributions to New England institutions were liberal. Hartford got one gift of \$300,000 from Mrs. Mary A. Terry for its city hospital. Closely allied with the hospital philanthropy, the general heading "charity" is set over a total of donations exceeding \$16,000,000. Mr. Henry W. Oliver, of Pittsburg, gave an even \$1,000,000 to various charities; Sarah Potter, of Boston, gave \$645,000; John C. Proctor, of Peoria, Ill., devoted \$300,000 to the purpose, and Daniel G. Parr, of Louisville, Ky., provided for the erection of an Old Ladies' Home in that city at a cost of \$350,000. In the same category, too, must be classed Mr. Carnegie's \$5,000,000 contribution to a "Hero Fund."

EASTERN STATES.

Boston's Milk Supply.—Examinations of Boston's milk supply made by the Board of Health during last summer showed that over 46% of the samples taken were warmer than the legal limit of 50° F.; 27.5% of the samples had more bacteria than the law allows, 500,000 to the cubic centimeter. Of these 9.75% had between 500,000 and 1,000,000, 12.75% between 1,000,000 and 5,000,000, and 5% more than 5,000,000.

Report of Cooper Hospital, Camden.—The annual report of the Cooper Hospital, Camden, for 1904, shows that 1,040 patients were treated in the wards; 772 were discharged cured, 85 improved, 85 not improved, and 17 left without permission. There were 115 deaths, and of these 46 occurred within forty-eight hours from the time of admission to the hospital. The average stay of each patient was 17 days. In the dispensaries 4,593 patients were treated, and 13,571 revisits were made, making a total of 18,164.

Insanity Increasing.—The annual report of the superintendent of the Connecticut Hospital for the Insane shows there were 2,259 patients in the institution for the year ending September 30, 1904. "It is unwise," says the superintendent, H. S. Noble, "to attempt longer to blind our eyes to the fact that all recent statistics bear witness to a large increase in insanity. It is a fact easily verified by a glance at the statistics of the State that the foreign element of our Commonwealth shows a much larger proportion of insanity than prevails among the native born. Although the native insane have increased to some extent, they have not done so in any such proportion as is apparent among the foreign elements. In 1900 the foreign-born population of the State comprised 26% of the entire number. From 1898 to 1902, four years, 38% of the admissions to the hospital were of foreign birth and parentage. In other words, the 26% of foreign population furnished 38% of insane during these four years. Why the emigrant population should be especially prone to mental alienation cannot be discussed here," says the report, "it may be remarked, however, that in most European countries, the former homes of our adopted citizens, the ratio of insane to the general population is higher than it is in this country."

The Health of Factory Employees.—The State Board of Health of Massachusetts, having made an investigation as to sanitary or other conditions affecting the health and safety of employes in factories, or other establishments throughout the State, has made its report to the Legislature. Recommendations of the Board are as follows: In each of the industries which the Board has reported upon, one or more establishments were found in which the proprietors had made reasonable provision for protecting the health of the operatives, while in others very little care was taken for their protection. We would recommend that it be the duty of the inspection department of the district police to require, so far as is reasonably practical under the varying circumstances, as efficient protection to the health of the operatives in any occupation as is provided in that occupation where, within the Commonwealth, such protection is most efficient. The desirability of a codification of all the laws relating to industrial pursuits and the sanitation of factories and workshops, after the manner of the British factory acts; of a more explicit phraseology; of the establishment of standards of ventilation efficiency and of the enactment of some measure against spitting upon the floors of factories, workshops and other confined spaces is respectfully suggested.

NEW YORK.

Hospital for the Care of Crippled and Deformed Children.—One of the applicants for State aid before the Legislature at the present session will be the New York State Hospital for the Care of Crippled and Deformed Children. This institution will ask for an appropriation of \$200,000 for the erection of a modern hospital building on the farm of 50 acres which has been purchased at West Haverstraw, Rockland county, and where the hospital will be installed in an old Colonial farmhouse in April next.

Vaccination in the Public Schools.—According to the New York State Department of Health, vaccination in the public schools has received constitutional standing by recent decision of the highest court in the State upholding our law in this respect, Section 210, 211, of the Public Health Law, which requires that all unvaccinated persons shall be excluded from the public schools. This is the nearest approach to compulsory vaccination in this State. Having passed the lower courts and been affirmed by the Court of Appeals, the full force of this law is established.

New Red Cross Hospital.—Large contributions have been made for a Red Cross hospital, which, while limited in capacity, is to rival in completeness other hospitals in the city. One hundred thousand dollars has been given by William T. Wardwell for the purchase of the site. John S. Huyler has donated the brick for the buildings, and an anonymous Philadelphia has started the endowment fund with a subscription of \$3,000. The new hospital will replace the old Red Cross Hospital maintained since 1893. As the Red Cross Society holds itself ready to supply the Government with nurses, a training school for nurses will be a feature of the new institution.

New York's Governor and the Insane.—The newly elected governor of New York, in his annual message, has this to say concerning the insane of that State: The management of the State hospitals for the insane, 14 in number, with a total number of patients on October 1, 1904, of 20,019, was completely centralized by legislation of 1902, abolishing the boards of managers of the various hospitals and leaving with the commission on lunacy complete jurisdiction, both as to financial control and internal administration. The advantages of centralized control of the financial operation of the hospitals are evident. It is of the utmost importance, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually, and the care of so many thousands of peculiarly unfortunate and defenseless persons, should rest on a broad basis of public interest and public confidence, and should retain the cooperation of philanthropic citizens throughout the State. In

my opinion, this can best be secured by leaving the control of all financial matters, as at present, in the hands of the commission, and by providing for each hospital a board of managers, in general charge, through the superintendent, of the internal affairs of the hospital.

PHILADELPHIA, PENNSYLVANIA, ETC.

Doctors Opposed the Contract Plans.—Recent news from Trenton, N. J., states that local physicians, headed by Dr. Alexander Armstrong, have begun a movement to stop the practice of doctors giving their services to beneficial societies for stipulated yearly sums. It is claimed that the society work has become so large in Trenton that the compensation is wholly inadequate and that it interferes with private practice. Almost all the physicians of the city have signed a circular designed to abolish the scheme.

Morbidity and Mortality in Philadelphia.—There was an increase in the deaths from all causes, the total last week reaching 500, as compared with 478 during the previous week, whereas the deaths for the corresponding period of last year totaled 736, an unusually large number due to the severity of the weather. Notwithstanding the increased deathrate prevailing, the health of the city is regarded as good by officials of the Bureau of Health, owing to a decrease in contagious diseases and deaths therefrom.

Asks State Appropriation to Fight Tuberculosis.—The County Medical Society at its annual meeting passed a resolution requesting the Legislature to appropriate \$500,000 with which to establish camps for tuberculous patients throughout the State. The resolution points out that such camps are established in New York State and that there the deathrate from tuberculosis is smaller than in any other State. The physicians propose that these camps shall be placed in farming districts and near industrial centers, so that the patients may earn their livelihood by working.

Filtered Water Checks Typhoid Fever.—The Chief of the Filtration Bureau says that in 1904 typhoid fever in the wards receiving a filtered water-supply was reduced 59.6%, in a population of 100,000, as compared with the number of cases in the unfiltered supply district. The Twenty-first and Twenty-second Wards, which are supplied with filtered water from the Roxborough plants, compared with the Twenty-eighth and Thirty-eighth Wards, supplied with raw water from the Queen Lane station, show a reduction in typhoid fever cases of 54.7% in a population of 100,000.

Sanatorium for the Tuberculous.—An institution to be known as the Radnor-Wayne Sanatorium for the Tuberculous is projected, to be located between Radnor and Wayne, Chester county, Pa. In the announcement, those planning the institution state that a number of public-spirited citizens of Philadelphia and New York, who are equipped with ample capital, and who have authorized the establishment of a sanatorium adjacent to this city that will exceed in size and equipment any institution of a similar character in the world. For this purpose, a tract of land, containing 67 acres, and located midway between Radnor and Wayne, was recently purchased.

Would Regulate Baby Farms.—Baby farms and the subject of child murder were revived by the bill introduced in the Legislature recently, which makes it a misdemeanor, punishable by a fine of \$1,000 or five years' imprisonment, to buy and sell infants. The Bureau of Health in Philadelphia favors amending the proposed law to the extent that baby boarding houses shall be under the supervision of the Bureau of Health, the latter having power to refuse or revoke licenses. The Bureau of Health has framed a bill, which will be introduced in the Legislature, covering these points. It will require that all proprietors of infant boarding houses obtain a license from the Board of Health. It is proposed, also, to have a monthly inspection of the boarding houses, and in that way the possibility of cruel treatment of the children and murder will be minimized.

A bill to prevent child labor has been introduced into the Legislature of Pennsylvania. The bill provides that it shall be unlawful hereafter to employ any child under the age of 13 years in any factory, workshop, laundry, renovating works, mercantile establishment, store, office, hotel, restaurant, place of public amusement, or in the distribution of merchandise or messages. No child under 13 years of age shall work at any employment whatsoever during the months that schools are open. It shall be unlawful to employ or permit the employment of any child under 16 years at any labor or service whatsoever between the hours of 9 p.m. and 6 a.m., and no such child shall work more than 10 hours for any one day or 60 hours in any week. Where children under 16 years are employed the employer shall keep on file, subject to the inspection of the compulsory education officers or factory inspectors, a certificate issued by the school superintendents or principals within whose jurisdiction the child resides. A record of the schooling of the child must be given, telling the schools attended and the amount of education had in reading, writing, spelling, English

grammar, geography and arithmetic. Penalties of fines are provided for infractions of the law, and the factory inspectors and school attendance officers are charged with its enforcement.

SOUTHERN STATES.

Galveston Free from Fever.—News from Galveston, under date of January 19, states that the last of Galveston's yellow fever patients was discharged yesterday and sailed for his home in England.

Would Tax the Bachelors.—News from Nashville, Tenn., states that in the lower house of the State Legislature a bill has been introduced to tax all bachelors after they reach the age of 23 years, and to increase the tax as they grow older. Between 23 years and 25 years of age the proposed annual tax is \$50; 25 to 35 years, \$100; 35 to 40 years, \$150; 40 to 45 years, \$200; 45 to 50 years, \$225. Over 50 years no tax is imposed.

WESTERN STATES.

Illinois State Teachers and Tuberculosis.—It is stated that at the meeting of the State Teachers' Association at Springfield great interest was manifested in the exhibits of the State Board of Health showing the prevalence of tuberculosis in the State, and its mortality as compared with that of other diseases. The Association unanimously voted to indorse the efforts of the State Board of Health and to assist in the supervision of tuberculosis by the dissemination of knowledge concerning the disease, the prevention, and cure.

Reductions in Deaths from Violence.—The Bulletin of Chicago's Health Department, commenting on the mortality in that city, says: One of the significant contributory causes of the low deathrate of 1904 is shown to be the reduction of deaths by violence. Of the total 2,614, fewer deaths from all causes there were 542, or a fifth, fewer from accident, suicide, manslaughter, and railroad and street car casualties. While the total of deaths by violence in 1903 was inordinately swelled by the Iroquois Theater casualty, there were 59 fewer suicides, 7 fewer murders, only 8 more railroad and 6 more street car killings in 1904. Since 1892 the proportion of railroad slaughter has decreased from 23% of all deaths by violence to an average of 14.6% during the last 5 years. In 1903 it was only 12%, the lowest since 1870; but last year it rose to 16%.

Influenza Prevalent in Chicago.—According to the Bulletin of Chicago's Health Department, influenza is more prevalent and more fatal in Chicago this winter than at any time since the epidemic year, 1891; 20 more deaths from this cause were reported during the week. In 1891 influenza was the chief agent in increasing the deathrate more than a fifth over that of 1890, and numbers of the survivors have never since regained their former condition of mental and physical health. This added terror of the disease makes it all the more important that nothing should be neglected which may tend to its restriction, and to this end the Commissioner again points out that influenza or the "grip" is a germ disease, and therefore contagious. Hence the obvious thing to do is to follow the advice of the authorities: Keep out of the way of contagion.

Tuberculosis and Pneumonia in Chicago and New York.—The Bulletin of Chicago's Health Department says: The discrepancy between the deathrates of tuberculosis and of pneumonia in New York and in Chicago is more marked in the current figures than ever. At the close of office hours in New York on January 7, there had been reported 164 deaths from tuberculosis and 318 from pneumonia out of a total of 1,603 from all causes—proportions of 10.2% of tuberculosis deaths, and 19.8% of pneumonia deaths. In Chicago the corresponding figures are 41 from tuberculosis and 135 from pneumonia out of a total of 542 from all causes, and proportions of only 7.5% of tuberculosis, but of 24.9% from pneumonia, or a quarter of all deaths from this latter cause. These figures show a 36% excess of tuberculosis proportion in New York over Chicago, and a 25% excess of pneumonia proportion in Chicago over New York. Such discrepancies have never been so marked as during the present pneumonia season.

Altitude in Blood-pressure.—An exchange states that careful scientific tests have been made by medical experts at Colorado Springs to determine whether the blood-pressure, like the pulse, increases with altitude. The subjects employed were young and healthy students of Colorado College, and the tests were unusually thorough in character. The results, it is asserted, show that 22 healthy adults of an average age of 20, at rest and in sitting position in Colorado Springs, presented a slightly lower blood-pressure than the same number under the same conditions did at the sea-level, and that these latter, when taken to the top of Pike's Peak, had a lower blood-pressure than that observed at 6,000 feet, while after three and a half hours spent on Pike's Peak, the average blood-pressure was found to have fallen lower than when they first arrived. The average pulse-rate increased as the tension became lower—that is, a pulse of 80 a minute at Colorado Springs became a pulse of 86 on Pike's Peak, and after three and a half hours rose to 99, while a normal blood-pressure of 130 in Colorado Springs fell to 121 on reaching the summit, and three and a half hours later it had fallen to 118.

FOREIGN NEWS AND NOTES

GENERAL.

Human and Bovine Tuberculosis.—In a pamphlet dealing with the crusade against tuberculosis, Professor Paul von Baumgarten discusses Koch's theory of the difference in pathogenicity between human and bovine tubercle bacilli. Reference is made to 10 cases of inoperable malignant disease, in which early death was inevitable, in which the patients were repeatedly inoculated with bacilli cultivated by Professor Baumgarten from bovine *Perlsucht*. The justification for this procedure appears to have been based on the hope that the tuberculous virus might prove antagonistic to the malignant process. No reaction followed the inoculations, and on post-mortem examination no trace could be found of tubercle formation. But though human and bovine tubercle bacilli may not be identical, Professor Baumgarten recognizes that they have a common origin and have become differentiated only through residence in different environments. He also admits that some strains of human origin are, without any preliminary modification, capable of proliferation in bovine tissues; and, as the nonidentity of the two types has not yet been universally established, he considers it would be unwise to relax any regulations which are at present being enforced with a view to safeguarding human beings from infection with tubercle bacilli of bovine origin.—[*British Medical Journal*.]

Alcohol and Insanity.—Dr. George M. Robertson, of the Sterling District Asylum, Scotland, in discussing the causation of insanity, gives the place of first importance to alcoholic intemperance. The difficulties in estimating the exact part played by alcohol are admitted, and their influence on the statistical tables ably treated, but he concludes that "in spite of all these difficulties and the errors of various kinds into which individuals may fall, the broad facts are substantiated that alcohol is the most important single factor in the production of insanity among men in this country, that we have lately experienced an enormous increase in the amount of alcoholic insanity, and that the average layman has a most inadequate conception of the mental injury that may be insidiously done by what he believes to be "drinking in moderation." A table, however, which accompanies this part of the report, setting forth the proportion of cases of alcoholic insanity—and by this it is evident are meant all cases in which alcohol was a distinct etiologic factor, and not only those cases clinically separable as alcoholic in type—and their estimated percentage to the admissions, had male and female admissions been equal in number, shows that for the last decennium, alcoholic insanity has described a curve beginning at 13.3%, rising during the year 1900-1 to 25.8% and falling steadily since then to the present figure of 13.2%.

"Explosive" Effect of Rifle Balls not Observed in the Russo-Japanese War.—An exchange states that an eminent Russian surgeon, Z. von Manteufel, has sent a communication to a St. Petersburg medical journal, relating his experience with wounds in the hospitals at the front. He says that he did not observe any cases of hollow vessels or organs of the body bursting in consequence of being struck by a bullet at close quarters. In previous wars such injuries have been caused by bullets fired at from 1 to 400 and even to 600 paces, or where the head has been struck, at from 1 to 800 paces. From 800 to 1,500 or 1,600 paces the wounds produced in previous wars have had a ragged edge, and beyond 1,600 paces contusions without penetration often resulted. But these experiences have not been confirmed in the present war in the case of bullets fired from the small-bore Japanese rifle, and Dr. von Manteufel had observed no effects of bursting even when the wounds were inflicted at short distances. The cases of wounds in the head observed by him, however, were all inflicted at distances of over 600 paces. It is probable, therefore, that all head wounds at shorter distances were fatal before aid could arrive. The cap or mantle of the Japanese 6.5 mm. bullet is thick and hard, and not easily deformed even by ricochet. The *France Militaire* states that some of the Japanese troops are armed with the 8 mm. Murata rifle, the bullet of which has a copper mantle much more yielding than that of the 6.5 mm. bullet, and causing wounds very similar to those observed in previous wars.

Russian Physicians at Harbin.—An exchange states that letters from Russian physicians at Harbin state that 32,000 wounded were received from the battles during the last four days of September. During the first weeks in October, 40 to 50 trains of cars loaded with wounded were always waiting at the station to be gradually emptied. There is a great difference now between the course of the wounds and those observed during the warm weather, the complications being much more serious and frequent. The wounded are not received until 8 to 12 days after the injury. The first-aid dressings are, therefore, left unchanged too long, and during the colder weather the soldiers are dirtier and infection of the wounds occurs more frequently. Another reason for the higher morbidity is that the Japanese are using larger bullets with a comparatively soft

copper mantle instead of the nickel steel mantles they used at first. During the warm weather scarcely any one succumbed in the hospitals to the effects of his wounds, but the outlook is different now, although the tidal wave of wounded has subsided. Fully 20,000 were given shelter in Harbin, the Red Cross and similar institutions caring for only 2,000, while all the rest were in the hands of the military surgeons. The writer of the letter from which we quote the above states that so much is said, written, printed and telegraphed about the work of the Red Cross that one is apt to forget that scarcely more than 10% to 12% of all the wounded pass through its hands. The care in the Red Cross hospitals averages better than in the military hospitals, but at an incomparably greater expense. There is plenty of good food in the army hospitals, and in every respect they hold their own in comparison, while in cleanliness they surpass the Red Cross. In the military hospital in his charge there are accommodations for 630 patients, with a surgical force of four, one of whom is a gynecologist. The letters written home by the recently deceased Dr. B. Bötcher have been published in book form under the title, "With the Red Cross in the Far East."

OBITUARIES.

Otis E. Hunt, aged 82, January 20, at his home in Newtonville, Mass. He was one of the most prominent physicians of New England, having been graduated from the Berkshire Medical College in 1848. He was at one time connected with the Massachusetts General Hospital. Several years ago he retired from practice. He was present when ether was administered at the Massachusetts General Hospital for the first time.

Odella Blinn, aged 60, December 20, at her home in Chicago. She was a graduate of the Woman's Medical College of Philadelphia, and went to Chicago more than 20 years ago. She was the first person to advocate a system of free public baths. She was said to have enjoyed a large practice and gave most of her earnings to charity.

Francis Edgerton, aged 67, January 18, at his home in Middletown, Conn. He was a graduate of Wesleyan University, the University of Vermont, and Columbia College. He was assistant surgeon in the Federal army during the Civil war, and was one time president of the Connecticut State Medical Society.

William H. Prioleau, aged 35, January 4, at his home in Charleston, S. C.; a graduate of the Medical College of the State of South Carolina in 1893; member of the American Medical Association; member of the Mississippi Valley Medical Association, and the Medical Society of the State of North Carolina.

Edwin Hellyer, one of the oldest physicians in Kensington, Philadelphia, January 16. He was a graduate of the Long Island College Hospital, in 1864. He was a specialist in obstetrics and diseases of women and was identified with many charities, and connected with many fraternal organizations.

Arthur O'Leary, aged 74, formerly of Boston, but more recently of Cleveland, O., January 18 in the latter city. He was a native of Canada and a graduate of Jefferson Medical College and he received the degree of doctor of physics from the University of Berlin. He was a man of great learning.

James Walter Hervey, aged 85, January 5, at his home in Indianapolis; a graduate of Indiana Central College, Indianapolis, in 1850; surgeon in the Federal army during the Civil war; one time member of the Indiana Legislature; delegate to the International Medical Congress in 1892.

Warren Hunter, aged 72, January 6, at his home in Onelda, Ill., from uremia; a graduate of the Medical College of Maine, Bowdoin College, Brunswick, in 1860; assistant surgeon in the Federal army during the Civil war.

Richard Kidder Taylor, aged 78, January 6, from heart disease, at his home in Keokuk, Ia. He was a graduate of the Medical College of Virginia, Richmond, in 1846, and he served in the Confederate service during the Civil war.

James Edward Kempf, aged 48, of Jasper, Ind., January 8, after an operation for appendicitis, at St. Anthony's Hospital, Louisville, Ky. He was a graduate of the University of Louisville medical department, in 1878.

S. R. Beckwith, aged 72, January 19, at his home in Chelsea, near Atlantic City. He formerly lived in New York City, and was a graduate of the Hahnemann Hospital College, Cleveland, Ohio, in 1853.

Edmund C. Purcell, aged 49, January 3, from pneumonia, at his home in Denver, Col.; a graduate of Missouri Medical College, St. Louis, in 1887; member of the American Medical Association.

Johannes Orlando Harris, January 10, from pneumonia, at his home in Ottawa, Ill.; a graduate of Geneva (N. Y.) Medical College in 1851; surgeon in the Federal service during the Civil war.

D. Albert Barnum, aged 59, January 1, at his home in Cassville, N. Y.; a graduate of the Albany (N. Y.) Medical College in 1895; assistant surgeon in the Federal service during the Civil war.

Frank Chambers, January 5, at his home in Chambers, Ky., from

dropsy. A graduate of the University of Louisville Medical College in 1875; member of the American Medical Association.

G. B. Freeman, aged 74, January 6, at his home in East Rome, Ga.; a graduate of Jefferson Medical College, Philadelphia, and surgeon in the Confederate service during the Civil war.

Cornelius J. Dumond, aged 68, January 22, at his home in New York City, where he had practised for 42 years. He was a graduate of the Albany (N. Y.) Medical College in 1865.

Jennie Brooks Hildebrandt, January 7, from pneumonia, at her home in San Francisco; a graduate of the Woman's Medical College of Pennsylvania, Philadelphia, in 1870.

Roosevelt H. Davis, aged 80, January 7, at his home in Eaton Rapids, Mich.; a graduate of the University of Michigan medical department, Ann Arbor, in 1852.

John Reynolds Pomeroy, aged 55, December 30, of septicemia following mastoid abscess, at his home in St. Louis; a graduate of the Toronto Medical Faculty in 1878.

Noble C. McMorris, aged 68, December 27, from pneumonia, at his home in Duncannon, Pa.; a graduate of the University of Pennsylvania, Philadelphia, in 1856.

Carl V. Scheuermann, aged 42, January 4, from pneumonia, at his home in Pittsburgh; a graduate of Western Pennsylvania Medical College, Pittsburgh, in 1894.

Cyrus McCormick, aged 59, January 3, at his home in Berryville, Va.; a graduate of the University of Maryland School of Medicine, Baltimore, in 1868.

Charles W. Goodale, aged 60, January 5, at his home in Metz, Ind.; a graduate of Rush Medical College, Chicago, in 1869.

David S. Minton, aged 65, January 2, from cerebral hemorrhage, at his home in New York City; a graduate of New York University, New York City, in 1878.

Leonard J. Gordon, aged 64, January 16, at his home in Jersey City. He was a surgeon in the Federal army during the Civil war.

Edward H. Craven, aged 82, January 19, at his home in Philadelphia. He was a graduate of the Jefferson Medical College, and practised in Philadelphia until within the past few years.

William C. Cox, aged 88, January 6, at his home in East Nashville, Tenn. He was admitted to practice in 1848.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 20, 1905:

SMALLPOX—UNITED STATES.		Cases Deaths	
Alabama:	Mobile..... Dec. 19-Jan. 9.....	3	
	From vessels in port		
Arkansas:	Fort Smith..... Dec. 10-17.....	1	
Illinois:	Chicago..... Jan. 8-14.....	16	1
	Danville..... Jan. 8-14.....	2	
	Peoria..... Dec. 1-31.....	7	
Kansas:	Topeka..... Jan. 8-14.....	1	
Louisiana:	New Orleans..... Jan. 8-14.....	7	
Massachusetts:	Everett..... Jan. 8-14.....	3	1
	Hyde Park..... Jan. 8-14.....	1	
	From S. S. Cymric		
Michigan:	Detroit..... Jan. 8-14.....	4	
	Grand Traverse Co. Dec. 1-31.....	1	
	Jackson Co. Dec. 1-31.....	1	1
Minnesota:	Clay Co. Jan. 3-9.....	1	
	Morrison Co. Jan. 3-9.....	1	
	Otter Tail Co. Jan. 3-9.....	8	
	Rice Co. Jan. 3-9.....	2	
	St. Louis Co. Jan. 3-9.....	3	
	Todd Co. Jan. 3-9.....	3	
	Wadena Co. Jan. 3-9.....	5	
Missouri:	St. Louis..... Jan. 8-14.....	17	
New York:	New York..... Jan. 8-14.....	2	
Ohio:	Toledo..... Jan. 10-17.....	2	
Pennsylvania:	Homestead..... Jan. 9-15.....	1	
South Carolina:	Georgetown..... Jan. 1-14.....	10	
Tennessee:	Memphis..... Jan. 8-14.....	2	
	Nashville..... Jan. 8-14.....	4	
Wisconsin:	Milwaukee..... Jan. 8-14.....	8	
SMALLPOX—FOREIGN.		Cases Deaths	
Brazil:	Para..... Dec. 1-14.....	54	
	Rio de Janeiro..... Dec. 12-18.....	102	34
France:	Lyons..... Dec. 18-24.....	1	
	Paris..... Dec. 25-31.....	14	4
Great Britain:	Hull..... Dec. 23-31.....	1	
	London..... Dec. 25-31.....	5	
	Manchester..... Dec. 25-31.....	2	
	Newcastle-on-Tyne..... Dec. 25-31.....	8	
	Nottingham..... Dec. 25-31.....	2	
India:	Bombay..... Dec. 14-20.....	25	
	Calcutta..... Dec. 10-16.....	1	
	Karachi..... Dec. 12-18.....	4	
Italy:	Catania..... Dec. 23-29.....	2	
	Palermo..... Dec. 18-24.....	14	5
Panama:	Colon..... Jan. 1-8.....	1	
Spain:	Barcelona..... Dec. 21-31.....	11	

YELLOW FEVER.

Brazil:	Para	Dec. 1-14.....	18
Mexico:	Coatzacoalcas	Dec. 25-31.....	2
	Juchitan	Jan. 1-7.....	1
Venezuela:	Maracalbo	Dec. 4-11.....	1

CHOLERA.

India:	Bombay	Dec. 14-20.....	1
	Calcutta	Dec. 10-17.....	138
Russia:	Dshewat	Dec. 8-14.....	264
	Lenkoran	Dec. 8-14.....	177

PLAGUE.

Arabia:	Crater	Dec. 17-24.....	43	28
	Hedjuff (Hospitals)	Dec. 17-24.....	5	7
	Shaikh Othman	Dec. 17-24.....	7	3
Brazil:	Rio de Janeiro	Dec. 12-18.....	35	15
Chile:	Iquique	Dec. 4-17.....	2	2
	Santiago	Dec. 2.....	1	
Egypt:	Port Said	Dec. 10-17.....	1	1
	Suez	Dec. 10-17.....	1	
	Tukh District	Dec. 10-17.....	1	
India:	Bombay	Dec. 14-20.....		102
	Calcutta	Dec. 10-17.....		15
	Karachi	Dec. 12-18.....	56	52
Japan:	Kobe	Dec. 16.....	1	
Mauritius:		Oct. 14-Nov. 3.....	65	35

Changes in the Medical Corps of the U. S. Army for the week ended January 21, 1905:

WOODSON, Captain ROBERT S., assistant surgeon, upon being discharged from treatment at the Army and Navy General Hospital, Hot Springs, Ark., to proceed to Fort McDowell, via Fort Clark, for the purpose of packing and shipping property.

DUNCAN, First Lieutenant LOUIS C., assistant surgeon, is relieved from duty at Malabli Island, Laguna de Bay, and will report for duty at the convalescent hospital, Corregidor Island.

The following-named dental surgeons are relieved from duty in the Philippines Division, to take effect as soon as practicable after the dates set opposite their respective names, and will then report for transportation to San Francisco, Cal., where they will report by telegraph to the military secretary of the army for further orders: John A. McAllister, March 10; John D. Millikin, April 14; George H. Casaday, April 21; Julien R. Bernheim, May 27.

LONG, CHARLES J., dental surgeon, will upon the expiration of his present leave proceed to Fort Snelling for duty, relieving Dental Surgeon Samuel W. Hussey, who will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transport to sail from San Francisco about March 1.

FFOLKES, BRUCE, contract surgeon, leave granted December 14, is extended one month.

SMART, Colonel CHARLES, assistant surgeon-general, the retirement from active service January 19, 1905, upon his own application, after more than forty years' service, under the provision of the act of Congress approved June 30, 1882, is announced, and he is placed upon the retired list of the army with rank of brigadier-general from January 19, 1905, under the provisions of the act of Congress approved April 23, 1904, the Senate having duly advised and consented to his advancement. Brigadier-General Smart will proceed to his home.

Changes in the Medical Corps of the U. S. Navy for the week ended January 21, 1905:

PLEADWELL, F. L., surgeon, detached from the Naval Dispensary, Washington, D. C., January 31, and ordered to duty at the Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., February 14—January 13.

PLUMMER, R. W., passed assistant surgeon, detached from the Naval Hospital, San Juan, P. R., and granted leave until February 15—January 13.

GARTON, W. M., passed assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home—January 13.

BUTLER, G. S., passed assistant surgeon, detached from the Constellation, January 18, and ordered to the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., January 21—January 14.

STUART, A., assistant surgeon, detached from the Naval Hospital, San Juan, P. R., and ordered to Washington, D. C., February 15, for examination for promotion, and thence home and to wait orders—January 18.

RODMAN, S. S., passed assistant surgeon, ordered to the Pensacola—January 18.

SELLERS, P. E., acting assistant surgeon, detached from the Gloucester and ordered to the Franklin—January 19.

ALFRED, A. R., surgeon, detached from the Solace and ordered to the Naval Station, Cavite, P. I.—January 19.

McLARTY, C., pharmacist, detached from the Solace and ordered to the Naval Hospital, Yokohama, Japan—January 19.

Changes in the Public Health and Marine-Hospital Service for the week ended January 18, 1905:

GREENE, J. B., passed assistant surgeon, seven days' extension of leave of absence from January 7, granted by bureau telegram of January 4, revoked—January 16, 1905.

TOWNSEND, W., acting assistant surgeon, department letter of November 22, 1904, amended to grant Acting Assistant Surgeon Townsend leave of absence for twelve days instead of thirty days from December 15, 1904—January 13, 1905.

Board Convened.

Board convened to meet at Washington, D. C., January 19, 1905, for the physical examination of an applicant for the position of second assistant engineer, Revenue Cutter Service. Detail of the board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

SOCIETY REPORTS

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Laboratory Section.

The meeting of this section was held at the General Wood Laboratory, Havana, Cuba, January 9, 1905, under the chairmanship of V. A. Moore, of Ithaca, N. Y.

The session was devoted very largely to water and sewage. George W. Fuller, of New York, chairman of the committee on Standard Methods of Water Analysis, submitted an exhaustive report on the changes and improvements in the methods that are being used in bacteriologic tests of water. The report was ordered to be distributed to bacteriologists both in this country and in Europe.

Reports of committees on a variety of technical subjects and several papers on bacteriologic topics were read.

The Persistence of Agglutinability of Typhoid Bacilli in Water.—EDWIN O. JORDAN (Chicago) contributed a paper on this subject. Both the theoretic and practical problems involved by either a positive or negative result from experiments upon the agglutinability of typhoid bacilli in water were of considerable interest and importance. This work had dealt chiefly with two aspects, that of the separation of *B. typhosus* and *B. coli* from mixtures of various ages in both tap water and previously sterilized sewage, and also the persistence of the agglutinability of the former after association with the latter for similar periods. The conclusions drawn were: (1) That the typhoid bacillus may be isolated without special difficulty after association with *B. coli* in tap water and sewage for from at least 12 days to 20 days; (2) that some strains of *B. typhosus* retain their property of agglutinability absolutely intact under these conditions.

A Cause of the Formation of Gas in Cans of Condensed Milk.—CHAS. W. DODGE (Rochester, N. Y.) stated that bacteriologic investigations of the condensed milk in cans, which were found to bulge shortly after their preparation, failed to find any microorganisms, which, either singly or in combination, would cause the fermentation of either dextrose or lactose under a variety of conditions usually favorable to such fermentations. Neither would the milk itself from such cans cause fermentation in fresh milk. It was found, however, that when dilute solutions of butyric or lactic acid, varying from 1 to 200 to 1 to 500 in distilled water, were allowed to act upon the metal of which the cans were made a slow evolution of gas took place, its rapidity being inversely as the dilution of the acid. It was probable that in the instance cited the gas was formed not by the bacteria directly, but the electrolytic action between the metal of which the cans were composed and the acids generated by the growth of bacteria in the milk before the latter was condensed.

An Unusual Channel of Infection with Bacillus Shiga.—DODGE stated that a laboratory worker accidentally broke a test-tube containing a culture of the Shiga bacillus, and some of the fluid was carried to his eye and was probably washed down into the pharynx. Twenty-four hours later typical clinical symptoms of acute dysentery appeared and lasted for several days. This occurrence of the accident and the infection might be merely a coincidence, but if not, the occurrence threw light on the rapidity of infection in dysentery in man.

An Improvement in the Technic of the Indol Test.—JOSEPH McFARLAND and J. HAMILTON SMALL (Philadelphia) contributed a joint paper on this subject. In order to render it possible to determine the presence of small quantities of indol in bouillon cultures, the following improved technic was devised: The culture to be tested received in addition of one drop of chemically pure sulfuric acid for each cubic centimeter of fluid, this being well shaken. In case the microorganisms produced both indol and nitrites, the red color now made its appearance. When, however, the organisms produced no nitrites, the usual dilute solution of potassium nitrite was allowed to trickle slowly down the side of the tube and form a layer on the surface of the fluid it already contained. The red color of the nitrosoindol now made its appearance at the line of contact of the two fluids. Tests on artificially prepared solutions of indol of upward of 1 to 750,000 gave positive results. The authors stated that this improved method was applicable for showing the presence of indol in melted gelatin cultures. After the gelatin had hardened, the color ring was fixed for a period of from 12 to 24 hours, when the color became diffused.

Discussion.—FREELAND HOWE, JR., detailed some results in the use of different kinds of nutrient mediums with different periods of incubation, and gave the results of observations on the water of the Susquehanna River at Harrisburg, Pa. F. C. HARRISON (Guelph, Ont.) gave the results of the examination of the water-supply of Frederickton, N. B. He discussed briefly the sewerage and water-supply systems of that city. EARL B. PHELPS (Boston) contributed some notes on the determination of the organic nitrogen in sewage by the Kjeldahl process.

Officers.—The election of the Laboratory Section resulted as follows: Chairman, William H. Park, New York; vice chairman, H. W. Clark, Boston; secretary, John S. Fulton, Baltimore, and recorder, H. D. Pease, Albany.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, Held in Milwaukee, Wis.,
December 28 and 29, 1904.

[Specially reported for *American Medicine*.]

[Concluded from p. 94.]

Ptosia of the Abdominal and Pelvic Organs.—R. C. COFFEY (Portland Ore.) drew the following conclusions: 1. The peritoneum is attached firmly, not only to the diaphragm, but loosely by all its outer surface to the abdominal and pelvic walls by means of loose connective tissue which allows it to move freely, but holds it always in contact. This connective tissue is much increased around the attachment of the supports of each organ. The irritation underneath and back of the peritoneum is followed, first, by an exudate which fixes it immovably to the abdominal wall. This exudate is soon displaced by an increase of normal connective tissue sufficient to meet the demands. The peritoneum itself is but slightly elastic, its seeming elasticity being due to the elasticity of the subperitoneal connective tissue. 2. Two peritoneal surfaces brought together and held firmly in an aseptic state blend and become one membrane. If suppurative or other disturbance occurs, blending does not take place, but inflammatory adhesions are formed. The former is permanent, while the latter is transitory, and will be absorbed generally. This differentiation is all-important. 3. The uterus is suspended entirely by its peritoneum and connective tissue. 4. The so-called true ligaments are not true ligaments, but muscles, and therefore perform the same function as all other muscular fibers in the animal organism, which is intermittent contraction, but never constant action. Their function is to sustain the normal poise or balance of the uterus during the changing positions of the body. 5. Whatever may be the cause, the condition existing is a stretching of either or both the peritoneum and connective tissue. The condition may be local or general, and may involve the support of one, more than one, or all the abdominal and pelvic organs. 6. The treatment in a general way will be the shortening of the peritoneum at the points at fault by some method of plication, and blending, or by bringing the peritoneum back to its normal contact with the abdominal wall. 7. The method (he described) for suspending the liver is, I believe, almost ideal theoretically, and so far in my experience, clinically and experimentally, in that it shortens the normal suspensory ligament, supplements it by extending the ligament to one or both lobes by blending of peritoneum. 8. None of the operations for gastropotosis so far are theoretically or practically ideal for all cases. The hammock operation, stitching the omentum to the abdominal wall, is best suited to those cases due to adhesions holding the stomach out of place by its omentum, in which the condition accompanies operations on the lower abdomen or pelvis only. No discomfort has been observed by any of my patients. Posterior gastroenterostomy is the best operation for those cases due to dilation or pyloric obstruction of any kind, and is all that is necessary, as it is held by its attachment high up and well back to the transverse mesocolon.

Appendicitis, with Special Reference to This Disease in Women.—ARCHIBALD MACLAREN (St. Paul, Minn.) said that in the light of recent experiences he believed the only safe advice both to the patient and the physician was that the appendix should be immediately removed in the early hours of every acute attack of appendicitis, and especially in first attacks, when the symptoms lasted six hours. "On the other hand, he did not believe that every case of appendicitis should be operated upon as soon as the diagnosis was made, because the physician frequently did not see these cases until from the third to the sixth day. The favorable time had now passed, and as Richardson had said, some of these patients were in such a bad condition that the operation itself might be enough to take away the only remaining chance of recovery. He had made 422 appendicectomies. In the first 241 there were 72 suppurative cases. Of these there were 42 men and 30 women, in spite of the fact that his work was largely the surgery of women. During the same time he had removed appendices showing chronic inflammatory changes 153 times in women, and only 17 times in men. He did not quote these figures for the purpose of giving the impression that they fulfilled his idea of the true relationship of chronic appendicitis in the sexes. He did not believe that chronic appendicitis was as frequent in the male as in the female, but it probably was not twice as frequent in the latter sex. It was, he believed, only a curious accident that he had seen proportionately so many acute cases in man and so very few chronic cases.

Management of Hospitals in Cities of 100,000 Population or Less.—D. S. FAIRCHILD (Des Moines, Iowa) stated that the problems involved in the management of hospitals in the smaller cities were difficult and complicated, growing out of two important facts: (1) The supposed self-interest of individual members of the medical profession, and (2) the lack of experience and knowledge on the part of boards of management. Public hospitals were generally of three kinds, as determined by the auspices under which they were organized and in part supported: 1. Hospitals under the auspices of some church. 2. Hospitals under the auspices of some society.

3. City hospitals supported by public taxation. The method of appointment of physicians to hospitals was liable to abuse only when piety or church zeal was mistaken for competency. He discussed the management of hospitals at great length.

Arthrotomy.—E. WYLLYS ANDREWS (Chicago) described a new method of arthrotomy for old dislocations of the shoulder-joint, and after mentioning the steps of the procedure at considerable length, he presented the following conclusions: 1. It must be considered established that great force is never justifiable in old shoulder dislocations. 2. Few cases can be left unreduced, on account of pain and pressure symptoms on the brachial plexus. 3. Resection is satisfactory but not ideal or wholly safe. 4. Arthrotomy by the old incisions is tedious, and never has been widely practised. 5. Arthrotomy by the author's method is simplified and made quicker and safer. It would possibly be as safe as resection and much more ideal in results.

Curetment and Puerperal Sepsis.—C. E. RUTH (Keokuk, Iowa) discussed the etiology of puerperal sepsis, the kinds of infection, prevention, dangers, as well as curetage, drainage, and hysterectomy in such cases.

Our Duty to the United States Army and Its Medical Corps.—DONALD MACRAE, JR. (Council Bluffs, Iowa) pointed out the importance of having a more efficient medical corps in the United States Army. He made an appeal to the patriotic sense of the American surgeon in civil practice to stand by the recommendations of the surgeon-general of the army, and otherwise to use his best endeavors to relieve a most deplorable condition in the most important branch of the service. He thought that the surgeon-general should be elevated to lieutenant-general, and be equal in rank to the head of any other branch of the army. A medical officer should be added to the general staff. A resolution was introduced and unanimously adopted respectfully petitioning President Roosevelt to direct that the military authorities provide a field medical organization for our army at least equal in all respects to the best that exists in any army, and which will meet the approval of military sanitarians generally, to the end that the sick and wounded in future wars may receive adequate care and attention. The secretary was instructed to forward a copy of this resolution to President Roosevelt at once.

Removal of the Covering of the Ovaries in Ovarian Dysmenorrhea.—GEORGE G. EITEL (Minneapolis, Minn.) presented a preliminary study on this subject, and described the technic of the operation he had performed in seven cases, as follows: The ovary is brought into clear view through a median abdominal incision; and one hemostatic forceps is placed at the juncture of the uteroovarian ligament and ovary, and another on the upper border of the broad ligament close to the ovary (lateral). By means of these two forceps the ovary is held by an assistant in the proper position, while the operator makes an incision with a sharp scalpel from the uteroovarian ligament to the lateral attachment to the broad ligament through the covering, and then carefully dissects one side, and then the other, down as far as cysts are encountered. The flaps of the covering of the ovary are now trimmed off, preferably by means of a pair of scissors. This having been done, the uteroovarian ligament is shortened by doubling it upon itself in a similar manner as is in vogue in shortening the round ligaments, in order to hold the uterus in a normal position. There is generally some hemorrhage as the base of the ovary is encroached, which can easily be controlled by pressure forceps and fine ligatures.

The Early Diagnosis of Tubal Pregnancy.—WILLIAM E. GROUND (Superior, Wis.), after going into the diagnosis exhaustively, and quoting from the literature, stated that during the last year he had operated upon 10 cases of tubal pregnancy. He had operated upon 28 patients altogether. His deductions were based on the histories and gross appearance of the uterus and appendages at the time of operation. He was firmly convinced that ample pathology was present to cause the arrest of the fecundated ovum in the tube. Five of his cases were in primiparas, who gave a history of painful menstruation and leukorrhea. Thirteen patients gave a history of a prolonged period of sterility; by this he meant three years or longer. The remaining 12 cases occurred in parous women, who had borne children or had been pregnant in less than three years. Many of these women gave unmistakable evidence of preexisting pelvic disease. One primipara had been married three years, one five, and another eleven years, before tubal conception occurred. Two cases occurred in unmarried women, one of whom had had a criminal abortion produced. Complications arose, and she was sent to him for abdominal section, when an unruptured tube containing a six weeks' fetus was found. Another case, a grass widow, was known to have had chronic appendicitis, was taken with a sudden severe pain in the right lower abdomen, followed by considerable shock, but she soon rallied and ran a slight fever. At this juncture he saw her. Menstrual irregularities were denied. Tenderness was present rather low in the iliac fossa for appendicitis, uterus was enlarged, and a slight bloody discharge came from the vagina. There was an ill-defined tumor to the right of the uterus. The abdomen was opened and found to contain blood clots and bloody serum. The right tube was ruptured on its dorsum, at about the middle, but the fetus was still in the tube. Chronic appendicitis was also present, and the appendix removed. Two cases had small fibroids, and one had an ovarian cyst as large as an orange on the opposite side.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

"TRAFFICKING IN TUBERCULOSIS."

BY

PAUL PAQUIN, M.D.,

of Asheville, N. C.

Under this caption appears a just editorial in *American Medicine* of October 8. I do not wish to discuss it, but I take advantage of the way it opens to write briefly of other phases of the pitiful situation of the tuberculous and some peculiar circumstances which lay them subject to all sorts of exploitation, not infrequently through the conduct of the profession. We who practise at resorts where these unfortunates congregate see certain sides of the problem and realize certain conditions that generally pass unnoticed elsewhere.

To begin with, many of the family physicians are too often lax in their methods of diagnosis and their counsels about catarrhs and lungs. They deal with too little concern with those who consult them early with colds or coughs or sore throats and turn them away with assurances of safety that very, very often cause disaster both to the patients and to the physicians' reputations. Then, the invalid being discouraged with regular medicine, the charlatan has his turn, and by persistent and not infrequently reasonable measures, begins his exploitation of victims which might have been saved had the legitimate attendant acted properly and promptly at first.

In the second place, patients subject to improvement by migration or who are sent away in search of climatic advantages are generally given this opportunity too late. They are, indeed, sometimes retained in the unfavorable climates where they contracted the disease until almost moribund. Then they grasp at any offer from any advertiser and again the quack has his whack.

Third, a large number of physicians send patients away to resorts—the mountains or seashore—with instructions to see no physician there, to report by mail and get advice and medicine from the home counsellor. The result generally is, that these sick people, knowing nothing of the different influences of various climates or of hygiene or the needs of their own conditions, commit some imprudences and get down so seriously as to lose every chance of recovery with or without medical aid. When about dead, they, in desperation, call a local doctor, who finds himself unable to do more than soothe the pain and anxiety, if that much. If physicians who send patients to resorts sincerely think they can justly and safely advise them and treat them at a distance they are much mistaken; they might as well resort to the eddy absent treatment. I have in my mind, as I write this letter, no less than seven fatal cases in the last two years, the patients coming to Asheville in search of health with just such injunctions from their home physicians. One of them, with one lung practically consolidated *in toto*, was smart enough (his home doctor told him to climb) to climb a steep hill 400 feet high in a few minutes, producing a sudden congestion in the good lung and death in an hour by asphyxia. Another started to sleep outdoors, as told by his home doctor, and not knowing how to overcome the various dangerous influences that must surround him in such a scheme (which is generally very valuable if properly conducted), he got into a sweat, then into a draft, then he chilled, and then he contracted pneumonia in both lungs. Another had been told to come here, drink plenty of whisky, live on a horse and in the open air, and shun drugs and doctors. He began with the whisky, he lived on horseback and more whisky, he lived outdoors nights and more whisky still, and became rosy and buoyant. He swore he was getting along famously. He gained weight fast and furious. He is dead—died fat, or rather bloated, and in the pink of appearance—from hemorrhages and acute alcoholism. He never drank before, but his home physician told him to. Another—literally a skeleton—was sent here with a cargo of creosote, an arsenal of smelling bottles, and a peck of morphin tablets, assured that he had only dyspepsia and no lung trouble, that

his daily pint of expectoration came from his stomach, and was warned to keep away from "health resort doctors." He did. Charitable persons brought in a physician when he was gasping his last and made a purse to send his remains home.

Now, whether the profession wills or dissents, people will seek a change of climate, when they can, to arrest respiratory troubles. Then why not the physicians, who find such sufferers, advise them where to go, tell them what physicians to go to if necessary for advice, but above all, send them on before nature's recuperative forces are gone? There may be no specified code of rules against a doctor who gives absent treatment to those he sends away or for forbidding them to seek professional advice except his, but such conduct is certainly often an outrage to the patients, and the consequences a grievous reflection on the profession.

Is it for lack of professional confidence that physicians are guilty of such behavior? Do they distrust all resort physicians because perhaps there are, as everywhere else, some black sheep among their men of high standing? There ought to be a remedy for this evil. As such, some time ago I suggested elsewhere a system of cooperation among the physicians. This involves the cultivating of mutual confidence on grounds of merit. When a physician has a patient to send away, he should first know the nature of the case, then the climate suitable for it, and not send him out haphazard among strangers to be governed by accidents. If he knows no professional brother at a resort, let him take a medical directory, pick out some one or more, write to them explaining his case and asking information about climate, etc. He will usually find himself in touch with as conscientious, as competent and as willing men as are in the profession, who at least know about the climate of their surroundings and the pitfalls of strangers and invalids there. He will know, too, of the off-color boarding houses, hotel sharks, and some other pirates, if any. (There are no more of these in proportion at resorts than elsewhere, however.)

A patient whose case is discussed in advance between the home physician and the resort physician selected, if sent away would be insured proper attention while gone, sure to remain (by means of professional reports) under the general supervision of the former, and to be returned to him when safe or circumstances demanded it. By this means, both physicians would receive proper compensation, if any available, for their respective services, and neither would receive any if none were available, but the patient would always fare as well as possible, rich or poor, and the profession would reap honors instead of condemnation. Would there be, in such a mutual plan, anything improper or out of sympathy with the American principles of ethics? It looks to me that it would engender closer relations and more trust, and that gradually greater good could be accomplished for the great army who trot the globe more or less aimlessly in search of health. As the editor of *American Medicine* properly suggests, the profession should take steps to guarantee the most humane, effective and fraternal services to the tuberculous, and prevent traffic in their misfortunes.

French Deathrate Lower.—Official figures on the population of France have been received by the Department of Commerce and Labor showing that the increase in population is not due to a larger birthrate, for the number of births in 1903 was the smallest in the preceding 10 years, but to a decrease in the annual number of deaths, the deaths in 1903 being less than in any year since 1893, with the exception of 1897. While in France the excess of births over deaths was 21 per 10,000 inhabitants, in 1901 and 1902 the ratio in Germany was 153; in Norway, 150; Austria, 125; Hungary, 121; and Great Britain, 119. According to official figures, the excess of births over deaths in France in 1903 was 73,106 and in 1902, 83,944, or 157,050 in two years, which, added to the population as determined in 1901—38,961,945—makes the number of inhabitants in France in 1903 39,118,995. There were 826,712 births in 1903, against 845,378 in 1902, a decrease of 18,666, and a decrease of 24,332 as compared with the average birthrate of the last 10 years. The number of deaths in 1903 was 753,606, a decrease of 7,828 as compared with 1902 and a decrease of 54,788 in comparison with the average for the preceding 10 years. The number of marriages recorded in 1903 was 295,996, an increase of 1,210 as compared with 1902, and of 4,119 in comparison with the last decennial average. The number of divorces is steadily increasing, being 8,919, or 488 more than in 1902, and 1,758 more than the average for the preceding 10 years.

ORIGINAL ARTICLES

THE HISTORY AND DEVELOPMENT OF SURGERY DURING THE PAST CENTURY.¹

BY

FREDERIC S. DENNIS, M.D., F.R.C.S.,

of New York City.

Professor of Clinical Surgery, Medical Department, Cornell University, New York City; Attending Surgeon to Bellevue and St. Vincent's Hospitals; Consulting surgeon to St. Joseph's Hospital and Montefiore Home; Ex-President American Surgical Association; Member German Congress of Surgeons, Berlin, and Clinical Society of London; New York Academy of Medicine.

Mr. President and Members of the International Congress of the Arts and Science.

The first word of the speaker on this occasion must be a personal one of respectful acknowledgment. To be invited by the administrative board to deliver an address upon any theme before this august congress, composed as it is of many of the world's most distinguished men of science, is a distinction which any one might justly prize. But to be chosen as the orator upon a topic so important, far-reaching and comprehensive as the history and development of surgery during the past century is an honor so exalted that while it pleasantly gratifies, it also most seriously appalls.

Permit me at the outset to record my profound and grateful appreciation of the high honor thus conferred, and at the same time to express the hesitation which I feel in attempting to handle so great a theme within the necessary limitations of the hour. It is obvious that the task is as fascinating as it is difficult. It is undertaken at the earnest solicitation of friends who have much stronger confidence than the speaker in his ability to narrate in a fitting way the triumphs of our great science.

To weigh the surgical events of a hundred years ago, and the motives which gave rise to them, requires us to summon to our thought, as far as possible all the circumstances of that period. Only when this retrospect is made, and the meager results then attained by surgery, are compared with its notable achievements in the present day, can the idea be fully grasped of how great, how wonderful, how grand, has been the progress during the past century. The advances which have been made in every department of human activity, the victories gained in every field, the innumerable inventions, the marvelous discoveries, the daring exploits carried forward to successful completion, the magnificent results secured along all scientific lines, are all discussed and celebrated in the meeting of this International Congress. But while the other sciences have indeed thrilling stories to relate, and can point with just pride to excellent deeds performed, the science of surgery stands out in bold relief, and conspicuous grandeur, apart from and above the others, in that it deals directly with human life, that most precious of mortal possessions, often lending to it not only a helping, but a saving hand. At the same time, its story is so simple and yet so grand, that the child and the savant may alike participate in the pleasure which the wonderful narrative is fitted to convey.

Surgery as a science made no profound impression upon the world until about a century ago. But from that time to the present the almost miraculous works which it has wrought, increasingly marvelous with every passing year, have aroused astonishment and admiration in every quarter of the globe.

In order to appreciate what surgery has accomplished, it is necessary to refer briefly to its status prior to 1800. A little over a century ago surgery as a science had no existence. It had no definite or dignified position. It received no aid or support from reigning monarchs or kings. It was in the hands of charlatans and

quacks, and barbers, and it was practised with some few exceptions by uneducated and irresponsible men. It was only in 1800 that surgery was divorced from the traditions of the past and given a place among the sciences. It was in 1800 that the Royal College of Surgeons obtained its charter from Parliament, which had refused over and over again to grant it. So bitter was the opposition to grant a charter to the "Company of Surgeons" that Lord Thurlow is said to have proclaimed in the House of Lords that "there is no more science in surgery than in butchering." It was only by an appeal to King George the Third, that this charter was finally granted. In marked contrast to this attitude of Parliament was the scene enacted at the Centenary of the College of Surgeons, a few years ago. Here were assembled the foremost statesmen of England, and the leading scientists of the world, to do honor to the occasion. The king himself joined in the banquet as an honorary member of the Guild. During all these centuries prior to 1800, as has already been stated, surgery had no established place among the sciences. Medicine, on the other hand, had a well-defined and honorable status. It received abundant help and liberal support from kings and rulers. Thus it becomes evident how bitter the struggle has been for surgery to establish its claim to honorable and dignified recognition. Thus it becomes apparent that the difficulties to be overcome to establish that recognition were then insurmountable. This is not to be wondered at when pain in surgical operations, inability to control hemorrhage, and prevention of blood-poisoning, were the obstacles to the successful practice of the art. These evils retarded the growth of surgery. Their removal since 1800, and chiefly during the past quarter of a century, has cleared the way for the achievements of the present day. From Hippocrates, who was born 460 B. C., to 1800 A. D., surgery made little advance. It was practised by illiterate men, with here and there a masterful mind groping in the dark for light. There were two great discoveries prior to 1800 that had an influence on the progress of surgery after that time, and without which surgery could never have become a recognized science. The first discovery refers to the circulation of the blood, which was made by Harvey, in 1628, and the further discovery of the capillary system by Malpighi, in 1661. The fearful dread of hemorrhage from an unknown source prevented any operations except those of dire necessity, which were generally performed through dead and gangrenous tissue. The second discovery refers to inflammation, the healing of wounds by blood clot, and the ligation of the vessels in their continuity, by John Hunter, who was born in 1728. These two great discoveries prior to 1800, like the two great discoveries after 1800, viz., anesthesia and antiseptics, have enabled surgery to establish its just claim to recognition among the sciences. These four great discoveries, the circulation of the blood, the repair of wounds, anesthesia, and antiseptics, are the four corner stones upon which a superstructure has been erected that has become a veritable temple of science, the dimensions of which eclipse in grandeur all other temples.

The progress has been greater during the past century than all the preceding centuries since the beginning of the world. This progress which surgery has made is due, in great part, to the dissemination of medical literature, to the formation of medical libraries, to the organization of modern hospitals, to the equipment of scientific laboratories, to the foundation of medical schools, to the establishment of medical museums, to the organization of training schools for nurses, and, finally, to the two transcendent discoveries—anesthesia and antiseptics. That medical literature has had much to do with the advance of surgery during the past century, is evident when it is shown that at the beginning of the Revolutionary war there was only one medical book, three reprints, and about 20 pamphlets by American

¹ Address before the International Congress of Arts and Science at St. Louis, September, 1904.

authors, while today there is on the average one new book for each working day in the year, 300 journals, and 5,000 original journal articles. American writers are publishing annually at least 500 medical volumes, to say nothing of the issuance of nearly 10,000 journal articles each year. In the department of surgery alone, during the two years of 1879-1880, there were written in America no less than 45 surgical books of importance and value, together with 1,717 journal articles beside, and from this record of nearly a quarter of a century ago, some idea can be gained of what surgical literature has accomplished at the present time.

That the foundation of medical libraries has had much to do with the progress of surgery, becomes manifest when it is considered that a hundred years ago there was in this country only about 250 medical volumes, all told, while today there are nearly 160,000 volumes in the libraries of medical colleges alone, to say nothing of the large and general medical libraries throughout the country, without mentioning the thousands and thousands of volumes in the medical libraries in Europe.

That modern hospitals have had much to do with the advance of surgery, is apparent when it is remembered that there were scarcely any hospitals a hundred years ago, while today they crowd nearly every city and town. This statement is emphasized by the fact that, in New York and in Philadelphia, there are four free beds to every 1,000 of their respective populations; and by the further fact that any American city without adequate hospital accommodations, is looked upon as in disgrace and behind the age; and, further, that the 433 hospitals in this country, which maintain training schools for nurses, exceed in value \$73,000,000, and their endowments exceed \$18,000,000. These figures represent less than a fourth of hospital wealth, since many of the hospitals maintain no training schools.

That the establishment of scientific laboratories has been a potent factor in surgical progress is proved by the fact that millions of dollars have been recently devoted to this purpose, and the work performed in these laboratories has had a tremendous influence upon the world. To Andrew Carnegie is due the credit of building the first purely scientific laboratory for medical and surgical research in this country; and from his example other like laboratories have been established in the land, until now America eclipses the world in the wealth and magnificence of its scientific institutions. The Laboratory of Hygiene in Philadelphia and the Caroline Brewer Croft Fund for the study of cancer at Harvard University are worthy of mention. Many well-equipped laboratories have been built in connection with large universities; while the magnificent gift of the Rockefeller Institute for Original Research affords another example of the influence which these establishments exercise in the development of medicine and surgery. In the Carnegie Institute there is a fund yielding over \$300,000 per year to be expended on its work. In a conservative estimate the property investment in all kinds of medical institutions, such as hospitals, laboratories, medical colleges, health department bureaus, training schools for nurses, etc., is three or four hundred millions of dollars, not to mention the endowment funds.

That the foundation of medical schools has had a great influence in the history and development of surgery becomes apparent when it is considered that about a hundred years ago there were only 200 medical men in practice in this country, while today there are over 100,000 workers in the field. A century ago our own country could boast of only two small medical schools, while now there are 154 medical schools, affording instruction to 26,821 students last year, many of whom will work in the chosen field of surgery; and nearly all of these medical schools are an integral part of some great university; \$418,000,000 scarcely represents the value of the property belonging to medical schools, and \$8,000,000 their endowment.

The recent munificent gift by Colonel Payne to Cornell University for the establishment of a medical department in New York City marks a most important epoch in the education of the physician and surgeon in the country. It is a fact worthy of honorable mention that the wealthy men of the present century have contributed most liberally to the science of medicine, as is obvious from a review of the recent different gifts and endowments amounting to many millions, especially during the past few years.

That the establishment of training schools for nurses has had much to do with the progress of surgery is obvious when it is considered that about a quarter of a century ago there was not an American trained nurse, if any, in the United States. Today there are about 11,000 pupils, and nearly 20,000 graduates. The inauguration of the first training school for nurses in the United States at Bellevue Hospital in 1873, marks an important epoch in the history of modern surgery in this country. From the initial school at Bellevue others have been established throughout the country, and now every important hospital in the land has a competent corps of trained nurses as an essential feature of the modern hospital. The far-reaching and widespread influence of the Bellevue training school, which was the first in this country to grant a diploma, cannot be overestimated, as it relates to the improvement in the care of the sick, to the establishment of other training schools, and to the opportunities offered to make possible the practice of surgery of the present century. The valuable services of Mrs. W. H. Osborn for nearly 30 consecutive years and the untiring labors of Mrs. W. P. Griffin, who has been its faithful president for nearly 21 years, entitles them to a high place of honor in the estimation of the medical profession. The progress of surgery in this country has been largely influenced by the help and aid which this department of philanthropy has offered to suffering humanity.

It is indeed a truth that without the Bellevue Training School for Nurses, and the influences which have sprung from it, the surgery of the present century and notably of the last quarter of a century in America would not have been possible. The lady managers of the noble charity can feel a just pride in the silent and beneficent work which they have accomplished on behalf of suffering mankind, and can feel, moreover, that they have participated in the great work that marks a milestone in the progress of surgical science in the United States.

That medical museums have exerted an important influence is apparent from the fact that a century ago there were none in the land, while now there are many. Not a few of these are admirably equipped and appointed. They contain over 200,000 gross specimens. For their maintenance nearly \$200,000 is expended annually, or one dollar each for the preservation of each specimen.

The history of surgery during the past century furnishes one of the most remarkable chapters in human affairs. It is obvious that life is the most important factor and element in the history of the race. Without life, of what avail is all else in the world? Surgery has to do with the saving of human life, and as such is the grandest and noblest of the sciences, and the most beneficent to mankind. A study of its development brings us face to face with the most startling and miraculous discoveries which have had an influence upon the health, the happiness, and the mortality of the race.

It is only necessary to remember that a little over a hundred years ago there were scenes enacted in the name of surgery which eclipsed in horror the frightful cruelty of the Spanish inquisition, the untold miseries of the Bastille, the indescribable sufferings of the Black Hole of Calcutta, the excruciating pains of the Turkish bastinado, and the cruel massacre of the Huguenots. One shudders at the horrible cruelties which were perpetrated

on suffering mortals in the name of surgery. The records of torture which have come down to us through the years of the century have no counterpart in the various experiences of modern life. Patients were held down upon the operating table by brute force and were operated upon while in the full possession of their senses; they were heard to shriek and to cry out in heart-rending screams for a discontinuation of their tortures; they were incised with red hot knives, and they were compelled to have their wounds dipped in a caldron of seething tar to control hemorrhage.

Through God's infinite mercy in the progress of the century, all this is now changed. The patient falls asleep without a struggle; and when he awakens to consciousness the operation is finished. The convalescence is fever free, and painless; the mortality is reduced almost to zero in many cases, and the operation itself robbed of all its horrors. The evolution which surgery has made to effect such a wonderful change is one of the most fascinating studies in the world's history.

To dwell upon this in orderly manner is the purpose of the present discourse. In order to simplify as much as possible the comprehensive subject, it is necessary to divide it into four different parts, and to trace the rise, progress, and development of surgery in its triumphal march as it pertains to these four great events in history, during the past century.

1. The discovery and employment of anesthetics.
2. The discovery and practice of antiseptics.
3. The discovery and application of modern therapeutics and of new diagnostic aids.
4. The improvement of old and the discovery of new operations, with their mortality.

1. *The Discovery and Employment of Anesthetics.*—Among the important events in the history of mankind which have been far-reaching and beneficent in their influence, the discovery of anesthesia easily stands in the foremost ranks. What greater blessing has science ever conferred upon the human race? Other discoveries and inventions have indeed been revolutionary in their results for social advancement and comfort; but anesthesia outranks them all, in its combinations of kindness and power at a point of unutterable need. This wonderful boon to suffering humanity, now grateful in use throughout the civilized world, comes from our own land—America. No other nation has presumed to lay the slightest claim to any priority in its discovery. Anesthesia with its worldwide blessings is confessedly American.

In 1844, Horace Wells, a dentist of Hartford, Conn., heard a lecture by Colton on nitrous oxide gas. In illustration of the lecture the gas was administered to a person in the audience. The man fell to the floor; but was insensible of his fall, confessing afterward that he was absolutely unconscious. This episode caused Wells to think that perhaps the gas could be utilized in dentistry for the painless extraction of teeth. With a true courage of his convictions he tried the experiment upon himself, inhaling the gas, and having one of his own teeth extracted by his assistant. When a few moments afterward, he returned to consciousness, he cried out in his enthusiasm "a new era has dawned upon the world, I did not feel it more than a pin prick" and Horace Wells was a greater prophet than he ever dreamed himself to be in the moment of wild excitement.

In 1844 William Morton, a Boston dentist, heard that sulfuric ether could be inhaled in small quantities, and that it produced a certain degree of unconsciousness. Like Wells, Morton immediately tried the experiment upon himself, a daring thing to do. After inhaling the ether he became insensible for eight minutes. The moment he came to himself, the thought flashed through his mind that in ether was a vapor which would produce insensibility for a longer period than gas, and that here was an anesthetic peculiarly suitable for surgical work. Accordingly, he sought his opportunity. It

came on October 16, 1846, a red-letter day in the history of surgery, not only in America, but throughout the world. That day Morton administered ether to a patient in the Massachusetts General Hospital, in Boston, who was to be operated upon by Warren for the removal of a vascular tumor. Under the influence of ether the patient remained unconscious during the operation, which was highly successful. To be sure Crawford W. Long had administered ether prior to this time, but Long did not quite trust the evidence of his own experiment, and feared that his success might be due to an incidental hypnotic influence. The work of Jackson should also be mentioned since as a chemist he made ether; but it was Morton who really proclaimed the discovery of anesthesia in an emphatic way, so as to arrest universal attention, and introduce a new epoch in surgical science.

November, 1847, was another red-letter day in the progress of surgery, for on that day Simpson, the famous Scotchman, made announcement of chloroform as a valuable anesthetic.

One of the most memorable nights in the history of the world was when Simpson resolved to try personally the inhalation of chloroform. Sitting with his friends, Duncan and Keith, around a supper table, he proposed a trial of the experiment. The three men, without the slightest adequate knowledge of what the result would be, inhaled the vapor. It was a brave, hazardous thing to do; but they did it. Almost instantly their conversation sparkled with unwonted scintillations of wit and humor; but it suddenly ceased, and a deathlike silence reigned in the room. In a few moments the sound of falling bodies might have been heard; and then again all was silent. Simpson was the first to recover consciousness. He says that when he did so, he heard himself saying: "That is good." Then he saw Duncan lying on the floor, sound asleep and snoring; while Keith was struggling to regain the chair from which he had fallen when the chloroform did its work.

That was an historic scene, fraught with inestimable value to mankind. Here were three noble men, brave heroes, every one of them, experimenting at the conscious risk of their own lives, with a vapor respecting whose fatal qualities they knew not, in the hope of discovering a way by which poor suffering humanity might be spared from pain. They took the chance of sacrificing their own lives, if necessary, for the good of mankind. Such acts of patient research, weary waiting, unselfishness, bravery and heroism belong only to a profession in which saving of human life at the risk of losing one's own life is undertaken.

It appears that Simpson's mind had long worked on the great and perplexing problem. His daughter tells us that "very early in his student days he had so sickened at the suffering he witnessed in the operating theatre that he had shrunk from the scene, decided to abandon his medical studies and seek his way in the paths of law." This however, he did not do. On the contrary he resolved "to fight a good fight" in the field upon which he had already entered, and he did, thereby securing for himself an undying fame, and conferring an immeasurable benefit upon mankind to the end of time.

Before leaving this part of our subject, it seems pertinent to call the attention of the enemies of vivisection to the splendid heroism and unselfishness which Wells, Morton, and Simpson displayed in making these hazardous experiments upon themselves, and not upon lower animals. This world would be far better off if these enemies to the true progress of surgery would take this noble object lesson to heart, and cease their senseless tirade against vivisection, which has been as absolutely necessary to science as its benefits have been great. The only object and aim of vivisection is to save man from suffering, misery and death. Shakespeare's thought that "it is sometimes necessary to be cruel in order to be kind" is true in this connection.

The topic of anesthesia must not be dismissed without a reference to Koller's discovery of local anesthesia by cocaine, especially in ophthalmic surgery. The use of the spinal canal for medication, of which the injection of cocaine for anesthesia is one of the administrations in vogue, was suggested by Corning in 1884. This particular form and method of anesthesia has been a contribution to surgery within the past quarter of a century, and has met the needs of a class of cases to which general anesthesia could not be applied.

As to the mortality of anesthetics, Poncet concludes that chloroform is more dangerous than ether, since Juillard's and Gurlt's statistics show one death in from 2,000 to 3,000 administrations of chloroform, and one death in from 13,000 to 14,000 of ether, while in nitrous oxide gas there are practically no deaths.

The influence of the introduction of anesthetics upon the progress of surgery can be best illustrated by a reference to the statistics of operations recorded in the Massachusetts General Hospital. Halsted has given the figures for 10 years before and 10 years after the discovery of anesthesia, which I quote. During the 10 years prior to the employment of anesthetics, there were only 385 operations performed in the Massachusetts General Hospital, or about 38 annually, or about 3 each month, or less than 1 a week. In the 10 years after the use of anesthetics began, and before the discovery of antiseptics, there were 1,893 operations, or say 189 annually, or about 15 every month, or nearly 4 each week. If now the number of operations in the same hospital during the past 10 years is considered, it is found that they amount to 24,270, or about 2,427 annually, 262 every month, and about 50 each week, while of those performed in the year of 1903, they number no less than 3,109, or about 250 each month, or about 65 each week. What a tremendous advance upon the less than one operation each week of about half a century ago to the 65 each week at the present time in one hospital alone. It must be said, however, that this remarkable increase is largely due to the introduction of antiseptics, as well as anesthetics, in surgical practice. In other words, Hoffman has shown that the increase in surgical operations during the past half century has been more than six times as great as the increase in hospital patients as determined by the Massachusetts General Hospital. So we are led to the second chief topic of this address.

2. *The Discovery and Practice of Antiseptics Equal in Importance that of Anesthetics, and Contribute Almost as Largely to the Progress and Development of Surgery during the Past Century.*—This discovery unlike that of anesthesia belongs exclusively to no one nation. Pasteur, in France, discovered that putrefaction is due to the presence of bacteria in the air. Lister, in Scotland, applied the discovery to surgery. In Germany and in the United States a yet further application of the technic was made. Antiseptics, therefore, have been an evolution in which all well-progressed countries, notably Great Britain, have taken a part. Lord Lister's discovery will always stand as one of the great milestones in the advance of surgical science.

There are certain remarkable facts connected with the early surgery of this country which clearly foreshadowed the introduction of antiseptics. Absolute cleanliness was a characteristic feature of Mott's surgery. His personal toilet and the cleansing of every instrument before use indicated that he recognized perfect cleanliness as a *sine qua non* to surgical success; also the employment of animal ligatures in this country anticipated their general adoption as an essential part of antiseptic technic. Dorsey, as early as 1844, successfully ligatured large vessels with buckskin and catgut. Hartshorne used parchment and Jameson proposed ligature from deerskin. All these factors, which now are recognized as an essential part of antiseptic surgery, were marked steps toward the perfect aseptic technic of today.

The general subject of antiseptics cannot be passed over without a just and generous recognition of Lord Lister's work. It is simply right to say that to him belongs the exclusive honor of having discovered antiseptic surgery. While at Glasgow, in his early professional life, Lord Lister became impressed with "the evils of putrefaction in surgery." What appalled him in his clinical observations was the difference of healing between a simple and compound fracture. In a compound fracture there was communication between the seat of fracture and the external air. This condition gave rise to suppuration, blood-poisoning, and death. In a simple fracture there was no communication between the seat of fracture and the external air, and the wound healed speedily without suppuration, blood-poisoning, or death. This striking behavior in the action of wounds led Lister to the discovery which has made his work imperishable, and has given an earthly immortality to his name. Mr. Lister believed that the blood in the wound underwent putrefaction in the same way as Pasteur had demonstrated that meat decomposed through exposure to the air. Lister's first endeavor was to overcome the evil by scrupulous cleanliness, just as Mott had done. But he quickly found that this method was inadequate to meet the need. Studying the subject, he immediately realized that Pasteur's theory was correct; that putrefaction was a fermentation produced by bacteria in the air; that these microorganisms could not develop, *de novo*, in the putrefying substances; and that there was no such thing as spontaneous generation of bacteria. He also saw that when the bacteria in the air could be prevented from entering the wound, the wound would not suppurate, nor give rise to blood-poisoning. He then asked himself the question, how can these bacteria be destroyed, or how can their fatal entrance into a wound be prevented? In other words, how could we kill the bacteria and yet not harm the patient?

This was the problem and proposition. Its solution is antiseptic surgery. Lister had heard of carbolic acid as a deodorizer. As such he applied it, undiluted, to a compound fracture, with repeated renewals. Watching with intense interest the application, he was overjoyed to see that suppuration was almost entirely prevented, and so all fear of blood-poisoning and death removed.

This was, practically, the discovery of antiseptics. A method for preventing putrefaction was found, and in consequence, aseptic healing by gradual evolution and by modern improvements followed. No one can measure the vast influence which this wonderful discovery has had upon the human race. It has eliminated local pain in a wound, it has prevented general fever, it has made possible many new life-saving operations, it has saved millions of lives.

The influence of antiseptics upon the increase of surgical operations, and the decrease of mortality attending them, is difficult to estimate. Suffice it to say, by way of illustration, that in the Boston City Hospital prior to the introduction of antiseptics, there were in 1878, according to Halsted's statement, only 132 operations performed, while in the same hospital in 1903, there were 2,719. In the New York Hospital, in 1878, there were 142 operations, in 1903 there were 1,680. How different and justly so the prevailing idea of the day as regards the operative part of surgery. Prior to the past century, operations were looked upon as a tacit confession of failure, and such they commonly were. Today, they are properly recognized as the grand triumph of a new science. These facts tell the story of the progress of surgery more forcibly and eloquently than could be done by any spoken discourse, no matter how carefully prepared.

3. *The Discovery and Practice of Modern and Surgical Therapeutics and of New Diagnostic Aids.*—This part of our subject embraces all the nonoperative methods of treatment of surgical affections which have been devised during the past century. It is obvious that within the

limits of this address mere mention only can be made of the various remedial agencies and the general results which have been obtained by their application.

The Röntgen rays were discovered about 1896, and the civilized world was startled by a discovery which ranks after anesthetics and antiseptics as one of the greatest advances in the science of surgery. Röntgen demonstrated that the Röntgen rays would pass through the human body and throw a shadow picture on a photographic plate. In other words, that the rays had the power to pass through substances which were opaque to ordinary rays of light. Bullets can be seen and located in the body and bones can be distinctly outlined, because they are denser than the soft tissues. Fractures and diseases of the bones, dislocations and diseases of joints as well as foreign bodies in the economy can be observed. Tuberculous processes in the lungs can be distinguished, and the heart can be seen actually pulsating. Gallstones can be made out in the gallbladder, and calculi can be detected in the pelvis of the kidney and in the urinary bladder. Sarcoma, myelitis, syphilitic osteitis, bone abscess, periosteal and central origin of bone tumors can be diagnosed. Carcinoma, tuberculosis, osteoarthritis, osteoporosis can be made out with distinctness. Brain tumors, notably gumma, Hodgkin's disease, aneurysm of the large vessels, and glandular enlargements and growths in the mediastinum can be demonstrated.

The Röntgen rays have also been used with a view to the cure of certain malignant diseases, notably cancer of the skin and sarcoma, especially when the disease cannot be treated by ordinary means. It does not appear to have been of any special value in other forms of cancer located in the organs of the body. The Röntgen ray has also been employed as a depilatory, also to bring about atrophy of the glands of the skin and to relieve pain. The Röntgen ray also is used to cure pseudoleukemia and splenomedullary leukemia, rodent ulcer, lupus vulgaris, and chronic eczema.

Great credit belongs to our distinguished chairman for the magnificent work which he has performed in the application of the Röntgen rays to surgery, and his writings upon this subject are worthy of close study.

The *Finsen light* is a discovery which was made about 1897, by means of which certain forms of cutaneous disease of an infective origin, notably lupus, have been cured. This result is accomplished by means of a light which can be employed without accompanying heat, and which causes an inflammation of moderate intensity upon the skin. Sunlight fails to destroy bacteria, owing to the presence of heat, while the Finsen light, deprived of heat, effects a cure.

In 1878, Blunt and Downes proved the efficacy of chemic rays of light to kill bacteria. Finsen demonstrated that the action of light was increased if it be applied through rock crystal lenses, and the heat absorbed by passing it through a violet colored liquid and water, while the part of the body to be treated is made anemic by pressure. Finsen apparatus increased the efficacy of the violet or chemic rays, and absorbed red or heat rays. The effect of light upon bacteria is slow in its operation, but its rapidity is increased by concentration, by means of mirrors or by lenses. The heat rays, such as ultra red, red, orange, or yellow, must be eliminated, as they burn the tissues, while the blue or violet rays destroy the bacteria. The arc electric light comes next, and is now often used because it can be obtained at all times. The incandescent light is of no value, owing to the fact that it possesses too few chemic rays. The electric light requires a special apparatus for its use, since its rays are divergent and not parallel, as is the case in the sun's rays. Professor Pupin says that the time is not far distant when a new method of producing light of short wave length will be perfected, which will be far more powerful than the Finsen light. The shortcomings of the present method of pro-

ducing light of great actinic power, consist principally in the absorption of this light by the glass of the vacuum tubes in which it is produced. Within the last year, a method has been discovered of fusing quartz, and blowing it out by means of the oxyhydrogen flame into bulbs, which are used for electric vacuum tubes. Quartz, as is well known, absorbs light of short wave length to a very slight extent, and it is the light of short wave length which is employed at the present time for therapeutic purposes. When this discovery is applied to surgery, the field of usefulness of light as a remedial agent will be greatly enhanced, and without doubt many new diseases will be relieved, that the present Finsen light fails to cure. The results of treatment of lupus by the Finsen light are interesting. In 456 cases in which the treatment had been completed at the end of 1900, no fewer than 130 are known to be free from recurrence for from one to five years. In the rest of the cases the period of cure is too short to establish any reliable data. In 44 cases of lupus erythematosus, 14 were reported cured and 15 improved. In 49 cases of alopecia areata, 30 were reported cured. In 24 cases of rodent ulcer and canceroid, with 11 favorable results. In 25 cases of acne vulgaris, 13 were cured. These statements give an approximate idea of what has been accomplished in a short time by Finsen light, and, without doubt, improvement in the technic will result in even a greater number of percentages of cure.

Radium is a new element which was discovered in 1899 by Madame and M. Curie. The term radium is derived from the Latin word radius, meaning a ray. At the present time there is great interest in the question of the therapeutic use of this metal, but sufficient time has not elapsed to determine its value.

Radium is a new therapeutic agent which has recently been used in surgery, and furnishes a new illustration of the development of the science. Radium as a therapeutic possibility is little understood, but about which much has been written. The public press has been flooded with sensational articles about radium, while the medical press has been conspicuous for the meager accounts of its therapeutic uses.

The action of radium depends upon its "spontaneous source of energy" upon living tissues. The action of radium upon the tissues is very similar to the Röntgen rays, and its use is indicated in those cases in which the Röntgen ray is applicable. Radium as a therapeutic agent depends upon its radiations, which are three kinds, and have been designated by the terms Alpha rays and Beta rays and Gamma rays. The Alpha rays consist of a current of electric charge that contains an amount of energy far greater than Beta rays or the Gamma rays. The velocity of the Alpha rays is said to be 20,000 miles per second. Ninety-nine percent of the energy of radium is in the Alpha rays. The Beta rays consist of a negatively charged stream of particles very similar to the cathode. The Gamma rays travel with tremendous velocity and are similar to the Röntgen rays from a hard tube. The Alpha rays have very slight actinic properties, while the Beta and Röntgen rays are highly actinic, and are therefore the rays used in therapeutics. Beta rays do not penetrate the tissues deeper than half an inch, while the Röntgen rays from the pure radium pass through the body. Radium gives off heat and a gas called helium, but these properties have no influence in the therapeutic action of radium. Radium destroys bacteria and affects the metabolism of cells and is used in the treatment of certain skin affections, notably lupus, keloid, nevi, rodent ulcer, epithelioma, carcinoma and sarcoma. The action is similar to the Röntgen rays, but the chief advantage of radium consists in a precise estimate of the dosage, while the Röntgen ray, on the other hand, is a more powerful energy, but it is difficult to estimate its exact strength.

Electricity has had great influence in the development of surgery during the past century. It has been em-

ployed in many ways, both as a diagnostic aid and as a means of cure. The electric light is used as a means of diagnosis to explore the hidden parts of the body such as the throat, larynx, esophagus and stomach, also the bladder and the intestinal canal. Perhaps one of the most useful purposes to which electricity has been employed in a diagnostic way is illustrated by the cystoscope by means of which the interior of the bladder can be explored with a view of determining the exact nature of the lesion, the shape and anatomic relations of a growth or the presence of a foreign body in the hollow and heretofore impenetrable viscus. The stomach also has been explored with a view to determine the nature of the lesion. It is also used to test the contractility of muscles which respond quickly or slowly to the faradic current according to the condition of the nerve. In this way the surgeon can diagnose functional or organic disease of the nerve by the behavior of the muscles when the electric current is applied. The electric current is used in surgery as a curative means in the removal of small malignant growths and nevi, to arrest primary hemorrhage in places when the ligature is inapplicable, or secondary hemorrhage where compression is not admissible. In the form of an *ecraseur*, electricity is used to remove pedunculated tumors, to cauterize long sinuses, to arrest suppuration in the eyeball, to sterilize the pedicle after appendectomy, ovariectomy or hysterectomy, to cause coagulation of blood in the treatment of aneurysm, to overcome obstruction in the eustachian tube, to find bullets embedded in the human body, by a probe which was invented by Girdner, of New York, to stimulate muscles and nerves, to improve the circulation of the blood, and to even relieve severe pain.

Serum therapy is a newly discovered method for the treatment of certain surgical diseases, among which may be mentioned hydrophobia, tetanus, acute phlegmonous inflammations, anthrax, and other infectious processes. The history and development of surgery during the last quarter of a century would be incomplete without a reference to the inoculation method to prevent certain surgical diseases. The principle involved in this system is the one enunciated by Pasteur, to whom the world owes an everlasting debt of gratitude. In 1880, Pasteur announced to the French Academy of Science that he had discovered a method of inoculation, by means of which he could reduce the virulence of a disease caused by a special germ. An attenuated virus of the germ disease was inoculated into the system of a susceptible animal, and this infection would give rise to only a mild attack of the disease. The attenuation of the virus, as Pasteur termed it, was accomplished by cultivation of the special germ in certain mediums exposed to the air. His research up to this time was limited to chicken cholera; but he announced that in the future he believed that the great principle of inoculation would extend to other diseases. In 1881 he proved to the world the correctness of this view by announcing his cure of anthrax, that fatal malady affecting sheep and cattle. The world was sceptical of his discovery, and the president of the Agricultural Society of France urged Pasteur to make a public test of his cure. To this proposition Pasteur, in the true spirit of scientific faith, assented, because he was fully convinced of the truth of his theory. Fifty sheep were supplied by the president of the Agricultural Society for the test. To this flock Pasteur requested that 10 cattle be added and 2 goats be substituted for 2 sheep, with the understanding that failure in his experiment with cattle and goats must not invalidate the test, since he had never carried on experiments with cattle or goats. The acceptance of this challenge by Pasteur was a brave act; because he knew if he failed in this public experiment the world would denounce and deride him. The inoculations of the attenuated virus of anthrax were then made on 24 sheep, one goat, and five cattle, at certain intervals upon three successive occasions. After a proper time had elapsed the 60 animals

were injected with a culture of the anthrax microbe. Forty-eight hours after this injection of the full strength virus into all the animals, the public gathered to witness the success or failure of this most wonderful experiment in the scientific world. The sight that the eyes of the vast crowd witnessed beggars description. In the paddock were seen dead or moribund every animal that had not been previously inoculated with the attenuated virus. In this same paddock were seen the remaining animals that were inoculated with the attenuated virus walking about apparently in perfect health. This paddock formed a veritable arena in which was witnessed the greatest battle that science has ever fought. The victory was complete, unequivocal, and overwhelming. This successful experiment established a new epoch, and this new principle was soon applied to certain human diseases.

In 1885 Pasteur proved the value of this method in the treatment of hydrophobia. In this latter disease the virus of rabies was inoculated into guineapigs or rabbits, and an attenuated virus was made from the spinal cord of these inoculated animals. The mortality of hydrophobia by Pasteur's treatment, by Celli, of Rome, has been only 5%, since 1899, at which time the institute was built and organized, and during these four years 2,000 patients have been treated with the serum.

The value of serum therapy is shown by a reference to the work of the lamented Walter Reed, of the United States Army, who was instrumental in wiping out yellow fever, a disease which destroyed over 80,000 persons in this country during the past century. Today this scourge has been wiped from the face of the earth. The bubonic plague, the most frightful disease that could visit a country, created panics among the people in former years; but now, owing to the efficacy of serum therapy, its entrance into this country creates only a passing comment. Even in New York the disease was observed at quarantine, and was stamped out immediately. Thompson predicts before long that the bubonic plague, which is now practically confined to the valley of the Euphrates, will be annihilated from even that locality, as well as cholera from the valley of the Ganges. Haffkine's serum for the treatment of this bubonic plague reduced the susceptibility of those exposed to the infection 75%, and the mortality by 90%.

Gilman Thompson says that "thirty years of bacteriology in all of its applications have done more for mankind than all the medical research that has preceded. In an estimate made by Alfred Russell Wallace of 25 discoveries of worldwide importance made during the nineteenth century a fifth were contributed by medical science, and all but one of these were made during the last half of the century. Two more have been greatly influenced by medical science, viz., the theory of the antiquity of man and the doctrine of organic evolution. Yet we have not wholly emerged from the shadows of the Middle Ages, for have we not still among us those who fain would abolish such experiments as have made possible discoveries like those of vaccine, antitoxin; and antihydrophobic inoculations, even as there are those in Persia, who would mob physicians seeking to check the spread of cholera?"

Tetanus is a surgical disease which baffled the skill of physicians for centuries. Recently it has been treated with very encouraging results by means of antitoxin. This method of serum therapy, together with the application of antiseptic surgery has yielded results that offer a striking illustration of the onward march of surgery. In olden times the mortality in tetanus, according to Lambert was 80% for acute cases, 40% for chronic cases, and 60% as an average for all cases. The mortality in tetanus treated by antitoxin and by antiseptic surgery was about 61% for acute cases, and 5% for chronic cases, and 30% for all cases.

From these statistics it is evident that antitoxin has reduced the mortality half, and if the antitoxin were

properly used, the mortality would be much less than half. The reasons why antitoxin has no better statistics at the present time are because the antitoxin has not been pure or long enough continued, or not in sufficient doses, or too late in its administration. If properly used, the mortality would be striking, and from now on the results will be entirely different. Antitoxin has its widest field of usefulness as an immunizing agent. All surgeons agree that it would not be justifiable to immunize a patient on the vague supposition that tetanus might develop. The use of the antitoxin as a prophylactic measure is consequently limited to those cases where the wound has been inflicted in such a manner as to allow garden earth, plaster from walls or manured soil to come in contact with it, or where the traumatism has been caused by a rusty nail upon which the bacilli are discovered, or in a given locality where tetanus is prevalent, or where the wound is a lacerated one with entrance of foreign bodies into it. In these cases Murphy states that the injection of antitoxin has reduced the mortality 50%.

Bazy, a French surgeon, had four fatal cases of tetanus in his practice in one year, and subsequently began injecting 20 cc. of serum into all patients who suffered from lacerated wounds, into which extraneous matter had of necessity entered. Since he adopted this practice, tetanus has not followed in those cases in which a strong probability existed that this dreaded disease might develop. Lambert mentions that Nocard, in veterinary surgery, immunized 375 animals, and in no single case did tetanus develop, while he had 55 cases of the disease in nonimmunized animals in the same environment. Antitoxin does not affect in any way the bacilli of tetanus, or the spores. Both the bacilli and their spores, when they penetrate the tissues by a wound, live for days and weeks. In these cases, when antitoxin is given for the purpose of preventing the symptoms which would be caused by the toxins during the first few days, it will destroy the action of the toxins. If, however, some of the spores remain quiescent, they may only develop into bacilli at a time when the antitoxin has been eliminated, and if they then develop into bacilli the toxins produced will be absorbed, and cause symptoms just as if they had received no immunization dose of antitoxin. For this reason, the immunizing dose should be repeated after the first week, and even after the third week.

Antitoxin as a remedy during the progress of the disease, has an important influence upon tetanus; but not to the same extent as when employed for immunizing purposes. Welch believes that the longer the period of incubation, the better will be the results from the use of antitoxin, and that this remedy is of little value with a short incubation period, that is, less than seven days. When antitoxin is used under these circumstances, it should be continued long after the symptoms of tetanus have subsided. Lambert has also called the attention to a most important point in the treatment of tetanus, and that is, the great care the surgeon should exercise after all symptoms have disappeared. For example, absolute quiet should be insisted upon long after the patient has become convalescent, since he knows of five deaths recently in New York City where the patients were awakened suddenly out of a sound sleep, and a convulsion was brought on from which the patients died.

Antiseptic surgery plays an important role in the treatment of tetanus, since it has been shown that in the majority of cases of tetanus the infection proceeds from the development of the spores rather than from the bacilli. It has also been demonstrated that the spores develop better under special circumstances of a mixed infection, and, therefore, all tetanus wounds should be made aseptic in order to destroy the microbes of suppuration, notably the streptococci and the staphylococci. It often happens that the wound is situated on an extremity, notably on the finger or toe, and the question

arises as to the propriety of amputation of the affected part. This operation is of no avail unless the sacrifice is made immediately after the infliction of the injury, but it is indicated if the wound cannot be thoroughly disinfected. It is better to live without a finger or toe, or even a leg, than to run the risk of tetanus with its attendant suffering, which leads in the acute cases so often to death. The small punctured wounds, which may seem insignificant, should be incised deeply, thoroughly cleansed, and then properly drained. The toxins of tetanus are chiefly eliminated by diuresis. To best utilize this channel of elimination the imbibition of large quantities of fluid is indicated. The saliva has also been said to be a channel of elimination. The function of the skin has not been proved to be of any avail in eliminating the poison. The employment of anodynes forms also a prominent part of the treatment. This step, therefore, should not be overlooked, since it is clearly proved that much suffering can be relieved by certain drugs. Among the drugs that are found to be most useful are chloroform, morphin, chloral, bromids, physostigmin, antimony and nitrate of amyl. Chloroform is a most valuable remedy, because it relieves the intense suffering and diminishes the intensity of the spasm and also prevents suffocation. This agent must be used with every precaution and with every stimulant present, and ready for immediate use. Statistics show that when chloroform was employed in the treatment of tetanus, that the mortality was 10% less than in the cases when the drug was not employed. Thus it is evident that the use of antitoxin, the employment of antiseptic surgery, the administration of certain anodynes and the enforcement of quiet to avoid reflex disturbances, comprise a plan of treatment which will offer brilliant results in the cure of this terrible malady. The success of this treatment in tetanus alone is a monument of the progress which surgery has made during the past quarter of a century.

The antitoxin treatment of diphtheria affords the most forcible illustration of the value of serum therapy in the treatment of infectious diseases. This disease does not, strictly speaking, belong exclusively to surgery; but it affords an opportunity to show the results of the use of antitoxin, and it often happens that the disease may require surgery for its relief. From the statistics of the Health Board of New York City prior to January 1, 1895, the mortality was as high as 64%, and in 1902, as a result of the use of antitoxin, mortality was reduced to 9.5%. From a period of 5 years, from 1888 to 1894, the mortality was from 64% to 44%, and the following 4 years, from 1895 to 1898, the mortality dropped to 12%. In 1902 the mortality was reduced to 10.9%. In another series the cases were also not selected. They were collected from hospitals, asylums, private residences, and many of them were moribund at the time of the use of the antitoxin, and the mortality was less than 8%, as contrasted with 64% to 44% 20 years ago or before antitoxin was employed. In 1903 the improvement was still greater, since in 1,208 cases of diphtheria only 72 died, thus giving a mortality of only 5.9%. If the 26 moribund cases were deducted, the mortality is only 3.8%. There remains no longer any doubt as to the value of serum therapy in this disease, and if these results can be taken as prophetic of the result of serum therapy in other infective diseases a new era has dawned upon the civilized world. Billings has called attention to one fact, and that is the necessity of the early administration of the antitoxin, since in 1,702 cases injected on the first day, only 85 patients died, including the moribund cases; the mortality was only 4.9%. Finally, in 1,610 cases collected from 12 physicians in private practice, and not including the moribund cases seen in consultation, there were 24 deaths, or a mortality of only 1.5%. An antitoxin has been made by Calmette, who worked in the Pasteur Institute, to prevent death after the bite of venomous serpents. This antitoxin has

already afforded immunity to thousands of persons who had been poisoned by the bite of venomous reptiles in India and Australia.

The antitoxin treatment of snake bite was discovered by Vital, of Brazil. He made some extensive experiments with antitoxin at the institute, over which he had charge. This serum was better than the control tests with Calmette's antivenom serum. Vital called the serum antiophidic, and he reported 21 cases of bite of venomous reptiles with recovery, without any appreciable clinical symptoms. The strength of this antiophidic serum is shown by the fact that even a fraction of a milligram of the snake venom causes severe symptoms to appear when injected into lower animals. In three of the 21 cases, the symptoms appeared almost immediately after the bite of the snake, and were most pronounced in type. In these three cases, however, 20 cc. to 60 cc. of the antiophidic was injected and recovery took place, notwithstanding two hours had elapsed in one case, and three hours in another case. Vital has also prepared a special serum for the bite of rattlesnakes.

In India, 22,000 persons and 60,000 cattle have died in one year from the bites of the poisonous ophidia. Many of these deaths can now be prevented by inoculation of the antivenene. In tuberculosis the mortality has been reduced 50%. Koch's wonderful discovery is an enduring monument to his greatness. In Germany alone 90,000 persons die annually from tuberculosis. This gives us an idea of the far-reaching influence of Koch's marvelous discovery.

[To be continued.]

HEPATIC ABSCESS.*

I. History. II. Distribution. III. Frequency. IV. Etiology.

BY

NORVELLE WALLACE SHARPE, M.D.,
of St. Louis, Mo.

I. History.—Hepatic abscess may not be classed as an affection of today, nor essentially as a product of modern civilization. Comparatively ancient writings bear pertinent references. Hippocrates,¹ in his "Aphorisms," discusses the condition, while here and there during the succeeding centuries crops out some remark, some allusion, showing that not only did this morbid state obtain, but that physicians were cognizant of its existence, and sufficiently interested to record their views. Not, however, until comparatively recent times have really valuable contributions to our knowledge been made. During the decade following 1840 meritorious records were made by the English and French. Today there is a copious literature. (It may here be parenthetically noted that no effort will be made in this article to review the literature of the distant past nor to exhibit a complete list of even the modern writings; but attention is directed rather to only certain of the more valuable observations with the desire that cumbersome overloading be avoided.) The only epidemic of simple hepatic abscess on record occurred in Hanover, in 1830; concerning which I have been unable to gather authentic details.

II. Distribution.—Hepatic abscess is not confined by geographic limitations, for evidence is to hand showing its widespread distribution. The so-called "tropic abscess," however, manifests itself almost wholly south of 45° north, invades all continents, is most frequently found in the lowlands, and exhibits a preference for the rainy season. Yet wide as may be its distribution, certain localities, from the larger aggregate of cases that develop, may with justice be held as "tropic liver abscess" centers. Of these the most conspicuous are: British India, Ceylon, Cochin China, Tonking, Malacca, Burmah, the Indian Archipelago, coast lines of Persia

and Arabia, west coast of Central and South America. It occurs in practically an epidemic form in Algiers, Nubia, Egypt, and west coast of Madagascar. In Polynesia—only New Caledonia. With no very definite reason in explanation, we find that Singapore, the Sandwich Islands, and Australia are almost entirely free. In the Philippines it is found in moderate abundance, but not of sufficient intensity nor of such widespread distribution to warrant classification as a "center." In the temperate zone; it is rather rare in northern and middle Europe, more frequent in the southern portions, chiefly in southern Russia and portions of Italy, Bosnia, and Roumania. In the United States and Canada it is quite infrequent.

III. Frequency.—It is most difficult to determine with any degree of certitude the frequency with which hepatic abscess attacks man. So diverse is the diagnostic skill and personal equation, so different the clinical and microscopic facilities, so varied the climatic, hygienic, and social conditions. This is well illustrated by the record of Hart,² covering 20 years in the New York Presbyterian Hospital, who found but 28 cases; Biernsprung,³ who found hepatic abscess in 108 out of 7,326 autopsies; Councilman and Lafleur,⁴ 507 in 2,590 autopsies. Woodward, in the autopsy records of 3,680 dysenterics, found 21%. Boston, in the autopsy records of 2,430 dysenterics found 20%; the annual report of the Sanitary Commissioner with the government of India, for 1894, showed that 35% of European soldiers dying from dysentery in India had pus in the liver; Girard* found, from the clinical histories of 18,000 hospital cases of various kinds, treated at the Presidio between 1899 and 1902, 12 cases of abscess of the liver.

IV. Etiology.—Critical anamnesis in the vast majority of cases encountered in the temperate zone, will develop an etiologic source starting either in the tropics or some of the wellknown hotbeds of the disease.

The consensus of opinion has been for many years, particularly among the English school in their observations in India, China, and Egypt, that only Caucasians or such natives as may have adopted so-called "civilized" customs of living, constitute its roll of victims. It usually attacks males between 30 and 50. Certain conditions predisposing to the production of an hepatic abscess have been generally acknowledged, especially by observers in the tropics; overindulgence in meats, alcohol, highly seasoned foods, and drastic cathartics, together with all other factors that tend to the production of hepatic hyperemia, or the diminution of hepatic integrity. Other predisposing causes that have obtained recognition are "colds," overexertion, exposure to intense heat, whether solar or artificial, excesses in *Baccho et veneri*, traumatism involving the hepatic vicinity or directly the liver itself, and unfavorable hygienic surroundings. Or, as summed up by Scheube⁵: "It is a matter of fact that in the Caucasian, shortly after his arrival in the tropics, as a result of the constant high temperature, a more or less pronounced hyperemia of the liver occurs, which in the beginning increases, later decreases the secretion of the bile, and also produces subjective symptoms. Furthermore, the mode of life and diet is not accommodated to the requirements of the hot climate, and increase the hyperemia (coffee, alcohol). The result, after years, is hypertrophy of the liver, hypertrophy of the connective tissue, atrophy of the glandular elements, the "Indian liver" of the English. These hyperemic or hypertrophied livers, forming a *locus minoris resistentiae*, are most frequently the seat of abscesses."

It clearly follows, if the foregoing claims be granted, that those who lead a relatively abstemious life characterized by regular habits are less prone to attack by a tropic hepatic abscess. This is borne out by the statistical contrast ordinarily offered by women and chil-

* Read by invitation before the Medical Society of St. Louis County, October 12, 1904.

* Jour. of Assoc. Military Surgeons, March, 1903.

dren, natives, and the French, as opposed to the English residents, in particular the British male.

Hepatic abscesses which owe their etiologic factor to suppurative processes in adjacent or remote structures, the transfer occurring by a more or less direct metastatization and those which are merely a by-product of a general septicopyemic condition, are those usually encountered in the temperate zones. This class is also found in the tropics, but develops a scanty recognition in the literature owing to the overwhelming prevalence of the so-called "tropic abscess." It may be safely anticipated that with the increase of the imperialistic tendency among the more aggressive Caucasian nations a definite augmentation of hepatic abscesses will be met; these to consist largely, if not wholly, of the forms indigenous to the tropics. It is entirely speculative, though of very considerable interest, as to whether these exotic abscesses will in the future, by successful implantation in the temperate zones, become practically indigenous. Certain hepatic abscesses owe their existence to the presence of foreign bodies, such as biliary calculi, parasites from the bile ducts and *Ascaris lumbricis*. Abscess following *echinococcus* invasion is of record, but is rare. Infection, via the bile ducts, induced by calculous irritation, has been observed among others by Covert, Geigel, and Koth. In two cases stones occluded the common duct and were held to be the immediate cause of the suppurative process.

Strümpell⁶ showed that by means of the bile ducts and the blood channels, bacteria could enter the liver there to excite a suppurative inflammation, and that through the agency of trauma the same end might be attained. Ziegler⁷ suggested a lymphatic entry and inflammation by continuity from purulent inflammation of neighboring organs.

The portal vein furnishes the readiest channel of the circulatory system, as an avenue of ingress for infective material from the intestine, as well as from itself when a pyelephlebitis or pyelethrombosis obtains. In the latter conditions we find comparatively rarely an inflammation of the trunk, the process ordinarily manifesting itself in its hepatic branches or in some radicle of the portal system. A fair idea of the relative importance of the different viaducts for infection may be gained from the statistics of Hart,⁸ who was able to classify a series of 28 cases of suppurative hepatitis as follows:

Entrance via portal vein.....	17
Entrance via hepatic artery.....	3
Entrance via biliary ducts.....	2
Unclassified.....	6
	28

Perityphlitic abscess, suppurative appendicitis, gastric and intestinal ulcers, splenic abscess, putrid bronchitis, pulmonary gangrene, septic endocarditis, septic phlebitis, (uterine, hemorrhoidal, etc.), are among the more frequent etiologic sources from which an hepatic abscess may be derived.

Gerster⁹ has called attention to the frequent occurrence among Russian Jews of abscess of the liver, associated with hemorrhoids. He suggests the following chain of factors: Sedentary habits among a poorly nourished people, hemorrhoids, infective thrombosis of hemorrhoidal veins, thrombotic material conveyed to the liver through portal vein, abscess of liver. Scientific proof not presented, but hemorrhoidal hypothesis is suggested as most tenable, ordinary etiologic factors being absent.

Schmorl has found necrotic lesions in the liver (in eclampsia) due to thrombotic processes in periportal vessels.

The hepatic artery serves as the conduit when material is transferred from remote sites, the route being focus, vein, vena cava, right heart, pulmonary artery, lung, pulmonary vein, left heart, aorta, coeliac axis, hepatic artery, liver.

That substantial protection is furnished the liver by the lung is evidenced by Waldeyer's autopsy findings in

pyemic cases, pulmonary infarcts 66%, as against hepatic infarcts, 6%.

It is admitted that by retrograde embolism, infectious material from the vena cava may be transferred to the liver by way of the hepatic vein. It has been held by Councilman and Lafleur,¹⁰ and again by Rogers,¹¹ that infective agents may, by migration through the bowel wall, traverse the peritoneal cavity, and so finally attack the liver with production of abscess. This will be alluded to later.

Excluding instances in which bacteria have either penetrated the wall of a bile duct by autokinesis, or have been extruded therein by ulcerative process from contiguous structures, or have been transmitted by the cystic and hepatic ducts from a suppurating gallbladder; all bacteria, brought to the liver by means of the biliary ducts, are transmitted from the alimentary canal.

Hepatic abscess produced by trauma, though infrequent, may not be considered a rarity; it is more usually observed following an injury with subcutaneous hepatic contusion, hepatic apoplexy, or a frank rupture, than when an open wound exists. The avenue of infection is ordinarily to be found along the biliary or blood channels.

The pus of an hepatic abscess is frequently contaminated by various microorganisms, staphylococci, streptococci, sundry diplococci, *B. coli communis*, etc., whether in pure culture or mixed. Not rarely is pus encountered that is sterile; this condition is observed ordinarily in old abscesses in which microorganic life has become extinct. Tuffier, Moty, and Scheube, among other observers, have recorded such findings. While by no means invariable, hepatic abscesses harboring pathogenic organisms may frequently be assigned etiologically to some extrahepatic septic focus, the original flora being reproduced either in pure or mixed culture, and having traversed some one of the avenues of infection already discussed. There are at least two other forms of abscess etiologically quite distinct from these, which embrace a large proportion of the classes known as the "tropic liver abscess," and "dysenteric liver abscess." In the first class the etiologic factor is an ameba; in the second, a bacillus.

Dysentery is one of the oldest known diseases; one of the most ancient writings on medicine, the Papyrus Ebers, alludes to its existence; the earliest Indian medical writers refer to it under the title "atisar." Herodotus discusses its prevalence in Thessaly. Hippocrates, however deserves the credit of having first seriously considered dysentery to be an independent disease. With the later centuries, many writers have occupied themselves with recording their observations upon this condition, and since the birth of scientific microscopy, different observers in various countries, chiefly of the tropics, have noted organisms in the stools of the dysenteric.

In 1853, Davaine¹² described certain small actively motile organisms that he had discovered in stools which he designated *Cercomonas hominis*. Somewhat later Lambert described similar bodies, and applied the title *Cercomonas intestinalis*. Malmsten,¹³ in 1857, found an oval ciliated organism about 0.1 mm. in length, which he called *Paramœcium coli*. Lamb,¹⁴ in 1859, was the first to give an account of amebæ in intestinal contents. He oriented these in connection with other organisms, but seemed to have attached no special significance to their presence. Cunningham¹⁵ notes, in 1870, that he had found numerous amebæ in cholera stools in 18% of all cases examined. Lösch¹⁶ was the first observer who gave a definite description of a species of ameba found in the stools of a dysenteric, together with a careful clinical history and autopsy findings, to which he gave the name *Amœba coli*. This case was observed by Lösch in the clinic of Prof. Eichwald, of St. Petersburg, in November, 1873. From this date, and stimulated largely by the work of Lösch, and later by Kartulis, has developed the painstaking investigation of the amebæ in special

relation to their pathogenicity to man. Subsequent observers have applied names and descriptions more or less accurate, having earmarks of the several personal equations. Councilman and Lafleur¹⁷ have suggested *Amœba dysentericæ* (Kruse and Pasquale advocate the same) reserving *Amœba coli* (Lösch) for nonpathogenic amebæ occasionally found in the normal bowel. Parenthetically it may be noted that Lösch found that his amebæ were killed by an exposure, of a minute, to 1 to 5,000 solution of quinin.

In 1881 Cunningham¹⁸ recorded that he had discovered amebæ in the intestinal canal of healthy individuals as well as those suffering from cholera and other diseases with the reservation that in cholera they were not encountered in great abundance. In the dung of the horse and cow he found what he considered to be spores, and observed that a strong solution of fresh cows' dung, filtered, had proved to be the best culture fluid. Leuckart places *Amœba dysentericæ* (of Councilman and Lafleur) in the class rhizopoda of the protozoa. He describes it as an unicellular organism from 8 microns to 37 microns in length (according to Braun¹⁹), but usually between 12 microns and 26 microns; average diameter 20 microns, varying often but fairly uniform in the same case. Body of the ameba of two portions—the inner, granular—endosarc or entoplasm, the outer, a clearer hyaline portion—ectosarc or ectoplasm. This division is not to be definitely made out during the resting stage, but in an actively motile organism is very distinct. The greater part of the body of the cell is composed of a finely, or coarsely, granular endosarc—often containing vacuoles of varying size. A nucleus may occasionally be made out in fresh unstained amebæ, more distinctly in stained specimens; it averages about 6 microns in size, situated in the endosarc near its border, a nucleolus at times is found. The most commonly found foreign body within the ameba is the red cell, as many as 15 or 20 having been noted within the same host, the chronic cases having, as a rule, fewer than the acute. Micrococci, bacilli, and granular debris have not infrequently been encountered within the body. Probably the most interesting of the subjective phenomena of the ameba is its autokinesis. Futcher²⁰ directs attention to its capability of change of form, two varieties; and power of changing location: 1. A pseudopodium from the hyaline ectosarc is thrown out and then withdrawn. 2. And the more remarkable, when a process of ectosarc is thrown out which instantaneously partially or completely encircles and envelops a cell. In locomotive autokinesis a hyaline process is thrown out, and the granular endosarc with its inclusions rapidly flows into the process; by repeated throwings out on same side progress is quite rapid. The most active amebæ are found in the acute cases; cold tends to retard activity, though they remain for hours fairly active at ordinary room temperature. Below 75° F. ameboid movements cease, restorable however by the warm stage. By the same means activity may be continued indefinitely. Late investigation confirms the early work of Lösch that activity is immediately arrested by quinin solution 1 to 5,000. During death of cell, vacuolization occurs. Reproduction presumably occurs by fission or sporulation. Staining of the ameba is not wholly satisfactory, it takes various basic anilin dyes. Mallory and Wright²¹ advocate thionin as a differential stain especially valuable in distinguishing amebæ in sections from mast cells. The nuclei of amebæ and granules of mast cells stain brownish-red; the nuclei of mast cells and of all other cells stain blue. Cunningham has noted certain resistant forms similar to the gamete forms of malaria parasites confirmed by Grassi, Calandruccio and Quincke. They hold that these "encysted" forms are necessary under certain conditions for the transmission of the disease from one person to another. Amebæ are difficult of cultivation. Not only are they found in certain specific forms of dysentery, but as well in chronic diarrheas,

cases of intestinal tuberculosis, typhoid, hemorrhoids and even in the stools of the healthy. According to Quincke and Roos,²² three varieties are found in human stools. 1. *Amœba intestini vulgaris*, 40 microns in diameter, coarsely granular, nonpathogenic to man or cats. 2. *Amœba coli mitis*, same size, pathogenic for man, but not for cats. 3. *Amœba coli* (Lösch) or *Amœba coli felis*, up to 25 microns in size, pathogenic both for man and cats, and produces dysentery in both.

Usual habitat of *Amœba dysentericæ* (Councilman and Lafleur) is in the colon; but it is also found in liver abscesses, sputum of patients with hepatopulmonary abscess, and in pleural and peritoneal cavities when an hepatic or pulmonary abscess ruptures; also in buccal cavity (*Amœba buccalis*, Sternberg; *Amœba gingivalis*, Gros); urogenital tract (*Amœba urogenitalis*, Barez, 1889); and in necrotic bone, Kartulis has found amebæ in pus from necrotic inferior maxilla of an Arab; while Flexner²³ has isolated the same from an abscess of the floor of the mouth. Up to 1890, when appeared the classic work of Councilman and Lafleur on "Amebic Dysentery," amebæ had been observed in intestinal contents by a number of observers, prominent among whom were Grassi,²⁴ Perroncito,²⁵ Calandruccio,²⁶ Blanchard,²⁷ and Sonsino.

This discussion of the ameba would have been illadvised were it not for the fact that our conceptions of certain forms of hepatic abscess have undergone radical alteration as the result of the development of fairly definite data concerning the ameba as an etiologic factor in hepatic abscess. The ameba has within the intestinal canal associate parasites—ciliated infusoria, *Trichomonas intestinalis*, rather frequently *Cercomonas intestinalis*, *Strongyloides intestinalis* (noted in what is known as "Cochin China diarrhea"). These may also find a field of activity within an hepatic abscess; but we are not, as yet, prepared to admit, when they present themselves, any definite etiologic significance. Futcher, in his analysis of cases occurring at the Johns Hopkins Hospital, notes the presence of *Staphylococcus aureus*, *B. coli communis*, *Streptococcus pyogenes*, *Micrococcus lanceolatus*, and *B. pyocyaneus*, in addition to amebæ, in the pus of an hepatic abscess.

Kartulis has strongly upheld the view that tropic dysentery is caused by amebæ; he further held that they played an important role in the production of an hepatic abscess, emigrating from the radicles of the portal vein into the liver substance and producing suppuration, not directly however, but rather by carrying along in their bodies pyogenic bacteria. Scheube²⁸ has taught that these originators of suppuration reach the liver mainly through two channels; either from intestinal ulcerations via branches and radicles of portal vein, or by the bile ducts, whose radicles send their venous blood to the portal vein. When ulceration attacks the ducts, or when they become obliterated (Accorimboni has suggested that a stagnation enables the bacteria emigrated from the bowel to develop their noxious power) the latter channel of infection plays an important part in abscesses of the temperate zone, while in the tropics the first avenue prevails, infection from dysenteric intestinal ulceration constituting the form most frequently encountered. The credit of first orienting this theory of transportation belongs to Budd rather than Scheube. Macleod, discussing the observation that the dysenteric hepatic abscess is comparatively frequent, while hepatic abscess associated with or following other infections (typhoid, etc.) is rather infrequent, suggests that a dysenteric intestinal ulceration in counterdistinction to a typhoidal intestinal ulceration is notably complicated by submucous suppurations. Scheube²⁹ developed the following points, which apparently militate against the amebæ of dysentery, having an etiologic significance in these forms of hepatic abscess: 1. The infrequency of hepatitis in the temperate zone. 2. Frequent occurrence in Europeans,

but rare among natives of tropic countries. 3. Rare occurrence among women and children. 4. The occasional observation that the hepatitis precedes the dysentery. As to 1—the dysentery of tropic countries, as a rule, is more severe and exhibits a far greater tendency to become chronic than that developing in temperate climes; and further, it is mainly with chronic dysenteries that hepatitis appears; 2, and 3—in the beginning of this article (Scheube⁵) will be found the rejoinder; as to 4—we are justified in receiving such observations with great reserve.

Some idea of the frequency with which the ameba is found to have caused or complicated an hepatic abscess may be gathered from the following data, which, however, are by no means complete:

Futcher³⁰ alludes to 119 cases of amebic dysentery, in which 27 or 22.6% developed an hepatic abscess. Of these, 24 patients were males and 3 females; 35% occurred between 21 and 30 years of age. (Waring's statistics confirm the latter point.)

Koch³¹ among five autopsies in cases of dysentery in Egypt, found that two had abscess of the liver; amebæ were found in the base of the ulcers and the material covering the ulcer (never in the bloody mucus nor intestinal contents) and in the capillaries adjoining the hepatic abscess (in the wall only micrococci).

Kartulis, while in Egypt, observed 500 cases of hepatic abscess, between 55% and 60% of which were dysenteric in origin. Zancarol found in 444 cases, 59% of dysenteric origin.

Edwards and Waterman,³² in collecting cases from the literature, found 699, of which 524, or 72.1%, were of dysenteric origin.

In America, Osler³³ was the first (1890) to identify amebæ in the pus of an hepatic abscess. His morphologic findings agreed with those of Kartulis, save in that of somewhat larger dimensions.

Zancarol and Macleod³⁴ call attention to the fact that in autopsies upon those who have not presented any dysenteric manifestations during life, and who have stated that they had never suffered from dysentery, dysenteric ulcerations and cicatrices have sometimes been found.

We are thus forced to the conclusion that with more carefully made autopsies, the number of so-called "idiopathic liver abscesses" may be anticipated to definitely decrease. This also is a document in evidence when considering those abscesses that develop tardily after an attack of dysentery or after exposure to a dysenteric infection. But recently, Pel³⁵ records three cases of hepatic abscess occurring 11, 15 and 20 years after an attack of amebic dysentery. It is of more than mere academic interest, though not germane to the present article, whether during these extended periods of time living amebæ inhabited the crippled intestinal wall, and years later invaded the liver; or whether hepatic invasion took place early and an abscess resulted that, during the years, manifested no specially definite semeiology. Nor have we, as yet, evidence to justify a final dictum as to whether the ameba is capable of producing an hepatic abscess without a contemporaneous or antecedent amebic ulceration of the intestinal wall.

But sustained by anatomic study of the infected structures, which show that the lesions are quite different in general characteristics and mode of production from those produced by any organisms with which we are familiar, and reinforced by the definite work of Quinke and Roos, and of Kartulis, who succeeded in cultivating the ameba and in producing dysentery in animals by inoculation with pure culture, we are justified in maintaining the etiologic significance of the ameba toward amebic abscess of the liver.

It should not be permitted to pass from mind that the *amebic abscess of the liver* is, in reality, not an abscess. A general employment of somewhat loose technical phraseology, is the sole excuse for this misnomer. Protozoic in-

fections do not lead to the development of pus, and if pus be found in such infections, it is due to secondary contamination by pyogenic organisms, as has been so clearly noted by Flexner. The content of these "abscesses" consists of liquefied necrotic, hepatic tissue, the parenchyma prevailing in the earlier stages to be mixed with, and succeeded later by, interstitial structure.

The interesting theory of Councilman and Lafleur³⁶ regarding metastatization from the intestinal ulcer to the liver, to which allusion has been made, may be developed somewhat as follows: Amebæ are found both in the lymphatics and in bloodvessels, also in lymph spaces and lymphatics of the tissue. It would seem probable that they should travel along these canals. But the lymph-glands, though swollen, are not affected to the same degree as found in other forms of dysentery. The closest examination fails to show amebæ, though follicles of glands often show necrosis of cells with nuclear fragmentation, probably due to active soluble products of the amebæ. If amebæ are not found in lymphatic glands belonging to infected tissue, and there are no marked changes in them, extension of process along lymphatics can be excluded. Amebæ are frequently found in walls and interior of bloodvessels, both in those with retarded and competent circulation. The right lobe of the liver is the area specially affected, and certain preferred situations in this are to be found, viz., under surface, neighborhood of the hepatic flexure of the colon, and upper surface beneath diaphragm. When the left lobe is involved, usually multiple abscesses are scattered throughout the liver. If amebæ were carried as emboli by the blood, why should they be lodged in any particular part of the liver? The direction of the portal vein would rather favor lodgment in the right lobe, but would not explain why abscesses are so generally superficial. Also, when pulmonary abscess exists (explainable by contiguity) there is no evidence that amebæ have been carried by the blood stream; also, metastases in distant organs do not occur, but would if amebæ were carried by the blood. Councilman and Lafleur hold, Rogers concurring, that amebæ pass from the intestinal wall into the abdominal cavity, either entering the liver directly from the hepatic flexure of the colon, or they wander, or are carried, as other insoluble matters are, along the upper surface of the liver beneath the diaphragm. This theory is certainly suggestive and in accord with sound surgical thought, regarding progressive infection of the peritoneal cavity from a septic focus, by means of intraperitoneal currents, which tend to focalize on the diaphragm. Some additional light is thrown on the occurrence of miliary abscesses by the work of MacCallum, who found amebæ in considerable numbers within the portal capillaries at margin of the ulcers.

Attention is directed to the further writings of Lösch,³⁷ Hlava,³⁸ and Kartulis,^{39 40 41 42 43} upon the ameba, amebic dysentery and amebic abscess of the liver.

Shiga,⁴⁴ in 1898, was the first to prove that two forms of dysentery, an amebic and a bacillary, could be demonstrated. His work took place during the Japanese epidemics. He isolated a definite bacillus and dubbed it *B. dysenteriae*. His findings in Japan were later followed by confirmatory work in the Philippines, United States, Germany, and other countries. The work of the Johns Hopkins Commission in Manila, and of Kruse of Germany, in 1900, merits praise. Shiga, among other proofs, states that *B. dysenteriae* is present in all cases of bacillary dysentery, and is never found in other diseases, nor in healthy persons. Very recent work, chiefly by Americans, tends to loosen somewhat his restrictions.

Flexner, Fisch,⁴⁵ Duval and Bassett,⁴⁶ Le Fétra and Howland⁴⁷ have demonstrated the presence of *B. dysenteriae* in the stools of infants suffering from certain forms of summer diarrhea. A discussion of the identity of the two conditions is manifestly not germane.

B. dysenteriae is easy of cultivation, but somewhat diffi-

cult of recognition, in that it resembles *B. coli communis* and the typhoid bacillus as observed under ordinary conditions. When plating, contamination by *B. coli communis* is easily and frequently experienced. Its resistance to changes of surrounding conditions is rather high; in particular, low temperature does not affect its vitality. Infected material may survive the coldest winter. Spores are not formed. It stains well with all coloring mediums. Certain ones are stainable by Gram-Weigert method; those negative to Gram take borax-blue and may be differentiated by .05% acetic acid solution. It has been thought that to Flexner and his school great credit was due for having established the truth that the bacilli found in different parts of the world by different investigators were the same kind, and that therefore bacillary dysentery throughout the world was caused by one and the same bacterium and is one and the same disease. The work of Flexner and his school is indeed of the highest order, but another advance seems to have been scored, for His, Park, Gay, Martini, and Lentz have but recently shown that *B. dysenteriae* does not represent a single type, but at least two well-defined groups of organisms, with which, apparently, Flexner concurs, and further states that we may anticipate mixed infections; that is, *B. dysenteriae* plus streptococci plus staphylococci. We have not, however, in the rapid progress of our laboratory diagnosticians, divorced ourselves from the clinically definite group of cases which is etiologically due to *B. Shiga*. Concomitant with, or subsequent to, this bacillary infection of the bowel do we find a group of hepatic abscess cases. The proportion is small when contrasted with the amebic form.

The writings of Shiga,⁴⁸ Kruse,⁵⁰ Flexner,⁵² Strong and Musgrave,⁵⁶ Duval and Bassett,⁴⁶ Wollstein,⁵⁷ Martini and Lentz,⁵⁸ Lentz,⁵⁹ Gay and Duval,⁶⁰ Vedder and Duval⁶¹ will prove suggestive and helpful.

SUMMARY.

1. Hepatic abscess is a pathologic condition that has been recognized for many centuries.
2. It is widespread in its occurrence.
3. The so-called "tropic liver abscess" occurs most frequently in the hot countries.
4. Sporadic cases of tropic liver abscess are encountered as exotic manifestations in the temperate zones.
5. It is impossible to tabulate definitely a general ratio of frequency of occurrence.
6. Hepatic abscess is at times the result of trauma; usually, however, the result of invasion of the hepatic tissue by various forms of parasites, protozoa and pyogenic organisms.
7. That form commonly known as "amebic abscess of the liver," is in reality not an abscess, but rather a necrosis and liquefaction of hepatic tissue. When pus is encountered, it is the result of contamination by pyogenic organisms.

REFERENCES.

- 1 Hippocrates: Aphorisms, Vol. v, Vol. vii.
- 2 Hart: New York Presbyterian Hosp. Reports, 1900, Vol. iv.
- 3 Biernsprung: Dissertation, Berlin, 1875, Berlin Path. Institut.
- 4 Councilman and Lafleur: Johns Hopkins Hospital Reports, 1890-1891.
- 5 Scheube: Die Krankheiten der Warmen Länder, Jena, 1896.
- 6 Strümpell: Textbook of Medicine, 1887, p. 446.
- 7 Ziegler: Textbook Path. Anat. and Pathology, 1887, p. 675.
- 8 Hart: New York Pres. Hosp. Reports, 1900, Vol. iv.
- 9 Gerster: Mt. Sinai Hosp. Reports, Vol. iii.
- 10 Councilman and Lafleur: Johns Hopkins Hospital Reports, 1890-1891.
- 11 Rogers: British Med. Jour., September 20, 1902.
- 12 Davaine: Compt. Rendus, 1853.
- 13 Malmsten: Infusorien als Intestinal-Thiere beim Menschen, Virch. Arch., Bd. xli, 1857.
- 14 Lambil: Beobachtungen und Studien aus dem Franz-Josef-Kinder-spital, Theil 1, 1860.
- 15 Cunningham: Sanit. Report on Cholera to Government of India, 1870.
- 16 Lösch: Massenhafte Entwicklung von Amöbe in Dickdarm, Virch. Arch., 65, 1875.
- 17 Councilman and Lafleur: Johns Hopkins Hospital Reports, Vol. ii, Nos. 7, 8 and 9.
- 18 Cunningham: Quarterly Jour. Mic. Science, No. 21, 1881.

- 19 Braun: Die Thierischen Parasiten des Menschen, Zweite Auflage, p. 44.
- 20 Fletcher: Cases of Amöbic Dysentery in Johns Hopkins Hosp.: Jour. Amer. Med. Assn., August 22, 1903.
- 21 Mallory and Wright: Path. Technique, p. 293.
- 22 Quincke and Roos: Berliner klin. Woch., Bd. xxx, 1893, p. 1089.
- 23 Flexner: Johns Hopkins Hosp. Bull. Vol. iii, p. 105.
- 24 Grassi: Atti della società italiana di scienza natur, 1882.
- 25 Perroncito: Quoted in Centralbl. für Bakteriologie, 1887, 2, 138.
- 26 Calandruccio: Atti del Accademia Gioenia (4), ii, 1889.
- 27 Blanchard: Les animaux parasites, 1890.
- 28 Scheube: Die Krankheiten der Warmen Länder, Jena, 1896.
- 29 Scheube: Ibid.
- 30 Fletcher: Cases of Amöbic Dysentery in Johns Hopkins Hosp.: Jour. Amer. Med. Assn., August 22, 1903.
- 31 Koch: Arbeiten aus dem Gesundheitsamte, No. 3, Cholera Bericht.
- 32 Edwards and Waterman: Pacific Med. Jour., 1892.
- 33 Osler: Johns Hopkins Hosp. Bull., Vol. i, 1890; Centralbl. für Bakteriologie, Bd. vii, 1890.
- 34 Zancaro and Macleod: Lancet, 1894, p. 678, 1895, p. 1037.
- 35 Pel: Berlin. klin. Woch., 1904, n. 14.
- 36 Councilman and Lafleur: Johns Hopkins Hosp. Reports, Vol. ii, Nos. 7, 8 and 9.
- 37 Lösch: Centralbl. für Bakteriologie, Bd. vi, 1889.
- 38 Hlava: Centralbl. für Bakteriologie, Bd. i, 1887.
- 39 Kartulis: Zur Aetiologie der Dysenterie in Aegypten, Virch. Arch., Bd. cv, 1885.
- 40 Kartulis: Ueber tropische Leberabscesse und ihr Verhältniss zur Dysenterie, Virch. Arch., Bd. cxviii, 1889.
- 41 Kartulis: Zur Aetiologie der Leberabscesse Lebende Dysenterie Amöben im Eiter der dysenterischen Leberabscesse, Centralbl. für Bakteriologie, Bd. ii, 1887.
- 42 Kartulis: Ueber Weitere Verbreitungsgebiete der Dysenterie Amöben, Centralbl. für Bakteriologie, Bd. viii, 1890.
- 43 Kartulis: Einiges über die Pathogenese der Dysenterie Amöben, Centralbl. für Bakteriologie, Bd. ix, 1891.
- 44 Shiga: Centralbl. für Bakter. u. Parasitenk., 1898, xxiii, p. 599.
- 45 Fisch: St. Louis Courier of Med., Vol. xxvii, p. 424.
- 46 Duval and Bassett: American Medicine, 1902, Vol. iv, p. 417.
- 47 Le Fétra and Howland: Arch. Pediat., Vol. xxi, 3.
- 48 Shiga: Deutsche med. Woch., 1901, xxvii, p. 784.
- 49 Shiga: Zeitschr. f. Hygiene u. Infectionen., xli, Heft 2, p. 355.
- 50 Kruse: Deutsche med. Woch., 1900, Vol. xxvi, p. 687.
- 51 Kruse: Deutsche med. Woch., 1901, Vol. xxvii, pp. 370 and 386.
- 52 Flexner: Johns Hopkins Hosp. Bull., Vol. xi, p. 37.
- 53 Flexner: Philadelphia Med. Jour., 1900, Vol. vi, p. 414.
- 54 Flexner: Johns Hopkins Hosp. Bull., 1900, Vol. xi, p. 231.
- 55 Flexner: Centralbl. für Bakteriologie, 1901, Bd. xxx, p. 449.
- 56 Strong and Musgrave: Report of the Surgeon-General of the Army, (U. S.), 1900.
- 57 Wollstein: Jour. of Medical Research, Vol. x, No. 1.
- 58 Martini und Lentz: Zeitschr. f. Hygiene u. Infectionen., 1902, Vol. xli, p. 540.
- 59 Lentz: Zeitschr. f. Hygiene u. Infectionen., 1902, Vol. xli, p. 559.
- 60 Gay and Duval: Univ. of Penn. Med. Bull., Vol. xvi, Nos. 5 and 6.
- 61 Vedder and Duval: Journal of Experimental Medicine, 1902, Vol. vi, p. 181.

THE THEORY AND PRACTICE OF PERCENTAGE FEEDING IN INFANCY.¹

BY

WILLIAM P. NORTHRUP, M.D.,
of New York City.

What is the best substitute for mother's breast milk? When the milk of the mother fully agrees with the child's digestion, when it is not disturbed by shocks, sorrows, anemia, overfatigue, and worry, when it is not decreasing in quantity, and losing its balance in quality, there is no substitute worthy the name.

If the mother's milk fail, what then? Provided a hired nurse can continue to furnish a suitable milk, can avoid sorrowing for her own baby, avoid homesickness, avoid overeating of unaccustomed good things, avoid languor and indisposition to exercise, avoid making herself an intolerable inmate of the house, a substitute breast milk is the next best. These are "ifs" spelled large. In New York there are many wet nurses and agencies. Some are trustworthy women; some have all the tricks of jockeys. One hesitates to intrust an infant to the care of a strange creature with low intelligence, whose existence above stairs is tolerated only because of an abundance of breast milk. If and so long as their milk *fits*, wet nurses produce nature's best infant food.

When all breast feeding fails, what next? This audience knows the particular depressing regret that the doctor feels when a young mother first confides to him that she thinks her milk may be failing. He knows at that moment the milk is lost, for a devoted mother never hints at such a thing as its failing, till she has lost

¹ Medical Section, Pediatrics, St. Louis Fair, Congress of Arts and Science, September 21, 1904.

all hope herself of keeping it. The doctor also knows that a failing milk is a poor milk.

There is no difference of opinion on these points. A mother's breast milk is best. A wet nurse's breast milk is next best, if and provided it fit the needs or can be made continuously to fit the needs of the infant.

How feed a baby deprived of the breast? What is the very best substitute to be offered, at this date? In the center of civilization, without limitation of resources? In answering this question we must recommend a substitute which is available. We must not talk of goats', asses', or mares' milk in this country. Cows' milk alone is available, abundant, practicable. Cows' milk must be the basis for all substitute feeding for infants. We must be able to modify it to the likeness of mother's milk. In modifying it we must have an environment clean, dust free, and a personelle trained in the elementary knowledge of bacterial contamination. All this requires high grade, skilled labor, and costs proportionately.

The cows' milk should be milk of good, average quality, mixed, from a herd of native cows, healthy, in the locality in which they live (Holstein preferred). The milk should contain a uniform known proportion of fat. Cows should be housed in hygienic, well-aired buildings, so clean and so well aired as scarcely to reveal the characteristic odor of cows. The medical profession is indebted to Mr. G. E. Gordon for much valuable aid in procuring good milk, much instruction in the matters of the care of herds, barns, milk modification, etc. The technic of cleaning of man and beast should be so carefully carried out as to keep the bacterial count low. Milk properly kept in sealed bottles receives all its contamination in the first 10 minutes of its life—at the milking.

Milk, then, from a healthy herd of cows (tuberculin tested, udders healthy), collected clean, quickly cooled below 40° F., modified while quite fresh, delivered promptly, and guarded in transit and at the home from accidental contamination, is all important. These precautions are well appreciated at this date everywhere.

The literature of the American method of infant feeding, percentage feeding, the modification of milk in laboratories, by expert methods, began in the writings of Dr. Rotch, our chairman. The earlier prevailing, uncertain way of putting together indefinite compositions for infants' food, set him to work to bring forth order.

The steps of advance were as follows: 1. Ascertain the percentage of milk ingredients, especially of fats, sugars and proteids in the mixed milk of herds. To do this, it was necessary to reexamine by modern methods all previous analyses of milk. 2. Ascertain the proportions of similar ingredients in breast milk. For this purpose 5½ liters of breast milk from nursing women were collected for analysis. 3. Ascertain not only the percentage of fats, sugars and proteids, but ascertaining variations, so far as possible, in physical and chemie constituents of the proteids, and all points relating to their digestibility. 4. Ascertain, since there has been found so much variation in individuals, the corresponding percentages of fat and proteids, and designating them as "high average" and "low average" breast milks. Cows' milk varies less.

This systematic study has been a life's work, and the work is worth it. Having ascertained the percentage ingredients in cows' milk, the "high average" and the "low average" breast milk as to fats, sugars and proteids, the effort has been to produce as near as possible a duplicate of nature's feeding, from cows' milk, that is, a substitute breast milk.

This paper constitutes, incidentally, a brief report of such effort; a report of Dr. Rotch's work, seconded by the efforts of the Walker-Gordon Milk Laboratory Company. To produce the best results in preparing a substitute feeding for a city's needs, requires a central head to

direct, and an incorporated company to execute. The whole line of development, from the farm to the nursery, must be under one control. The farm and the laboratory must have their responsible manager. Apart from the personelle of the working force, there should be an inspecting chemist, bacteriologist, veterinary surgeon, and last, and very important, a commission of medical men interested in good milk, whose sole function is to advise and find fault.

The milk laboratory must have its own farm, absolutely under its control. The whole effort should be in the direction of producing milk of uniform fat-content, free from suspicion of tubercle bacilli, and with the least possible contamination at milking. The uniformity of the fat ingredients depends upon the individuality of the cows in the herd composition, the difference in the periods of their lactation, etc. The avoidance of contamination at milking depends upon the intelligence, faithfulness and persistency of the farm's manager. The highest results require a certain something else in the personality of the manager, namely, the ability to enlist the interest of the milkers and stable men in reducing chance contamination to its minimum. All this has been the result of long study, with great rewards of success. The milk must be clean—that is, clean of bacteria, clean of the products of bacterial growth. The perils in the life of milk are in the first ten minutes of the milking.

LABORATORY MODIFICATION OF MILK.

What is the American method of infant feeding, exact laboratory feeding, percentage feeding, prescription feeding? It is copying nature's formula in fresh cows' milk, putting up in the laboratory, nature's prescription, and preparing for the infant a feeding as nearly as possible such as the human breast furnishes. More than that, it is filling in the laboratory, prescriptions which may be changed to fit changing conditions and changing needs. Breast milk varies, does not always agree, does not always fit.

What is it not? It is not a patent food. It is not a powder to be moistened and fed in a bottle. It is not a commercial article made by enterprising advertising firms. It is not a product warranted to keep in the tropics forever. The modification of cows' milk to conform in proportion to breast milk presupposes a clean, fresh milk, promptly delivered to the laboratory. Speaking now only in approximate figures, cows' milk contains 4% fat, 4% sugar, 4% proteids. High average breast milk contains 4% fat, 7% sugar, 2% proteids, or the same amount of fat, more sugar, half as much proteids. How may we dilute the proteids half yet keep the fats the same? To simplify the statement of the problem, we may speak first only of the fats and proteids. The fats are in like percent in both. The proteids, twice as much in cows' milk as in breast milk. In readjusting these proportions it is found practicable to remove all the fat, dilute the proteids, and then put back the fats in proper proportions. While diluting the fat-free milk containing the proteids, the required dissolved percentage of sugar and the required percentage of lime water may be included in the diluent. The fat is removed from the fresh new milk by centrifuge, in the form of superfatted milk or cream, the different percentages varying according to the mechanical adjustment of the separator. The remaining milk, deprived approximately of all its fat, a "fat-free milk," is diluted until the proteids are in the desired proportions. That is, speaking in approximate figures, F. 4—%, S. 4—%, P. 4—%, becomes 0—4—4—, and the cream 8—4—4—. Fat-free milk is 0—4—4—, diluted with equal volume of water, makes the percentage content of proteid in a given quantity of milk just half as much, *i. e.*, 2%. Having removed the fat and diluted the proteids we have 0—2—2—. To transform cows' milk to breast milk 4—

7—2— then requires: 1. Removing all fat by centrifuge. 2. Diluting the fat-free milk half. 3. Putting back again the required amount of fat. 4. Sweetening with sugar of milk.

For all modifications except whey mixtures and the prescriptions calling for a combination of high fats and low proteids, such as 4.25% fat and 0.25% proteids, a 16% cream is used. For whey mixtures and above combinations a 32% cream is used. If preferred, gravity cream can be used. Any required diluent may be ordered in the modified milk, cereals, fresh whey, etc.

The proteids present further peculiar problems in the adaptation of cows' milk to the formula of breast milk. First, the proteids constitute 4% of the cows' milk, and only 2% of breast milk (2% or 1%). Further, they differ in quality. It is to this question of difference of quality that special attention has been directed in the last two years. The proteids of both cows' milk and breast milk are made up of two distinct elements, caseinogen and whey proteids. So, not only the amount of proteids, which constitute the nitrogenous elements of both milks, is twice as abundant in one as in the other, but they are again made up of two distinct elements which differ in the two milks, cows' milk and breast milk. To repeat, the proteids of cows' milk differ from those of breast milk, not only in quantity, but in quality, not only in absolute percentage content, but in the proportions of their two chief ingredients.

The woman's breast can compete on even terms in fat producing, but as to proteids, the preeminence of the cow as a cheese maker is beyond competition. Cows' milk contains five times as much caseinogen (casein, curd) as breast milk. On the other hand, breast milk contains two and a half times as much whey proteids. The laboratory is prepared to readjust the qualitative differences. The remaining modifications are very simple. The milk is to be diluted, as said before. To increase the sugar it is only necessary to dissolve it in the previously mentioned diluent; to produce alkalinity, allow lime water to replace a part of the diluent. When all is compounded, it may, if required, be pasteurized, the cotton or aluminum plug being in situ.

Any required modification can be made from the proportions required by the newborn till the weaning at 9 to 11 months of age. In sickness and in natural growth, the needs change and to this change a corresponding modification may be made.

The proper modification of milk can be effected only by skilled persons in a proper laboratory. This is thoroughly appreciated at the present time, and the increasing reliance upon laboratories testifies to this conclusion. The day of mixing drugs in the back office of the physician is past. These bottles, in crates and baskets, are delivered promptly at the house or sent in ice boxes to a distance by express. It is now possible in a well-appointed laboratory to make an artificial breast milk which shall have the right percentage of fat, of sugar, of proteids, of alkalinity, the required amount in each feeding, the correct number of feedings for 24 hours. Further than that, it is possible to rearrange the chief constituents of proteids so that the whey proteids shall be in excess of the caseinogen (casein). Furthermore, when such a formula is made up one can know what the infant is taking, can ascertain what element, if any, disagrees. Modified milk can be modified, changed, adapted. Milk can be modified until the feedings fit. A mother's or wet nurse's milk may not fit and cannot be modified. One cannot change the mother's milk, though one may exchange wet nurses.

Overworked society brides expect athletic babies. The poor doctor now has one refuge. Their hysteric milk will probably fail early and he can replace it with the milk of a mild-eyed cow sleepily chewing her cud on the sunny side of a barn. A good milch cow is usually petted and tranquilized, otherwise she "holds back" as

the milkers say. A prize dairy cow would go dry in a week under the stress and storm which most young mothers endure.

The growth of laboratory appreciation, the increasing demand for laboratories over the States and the Dominion, is but a natural result, a healthy response to demand.

There are now 18 laboratories and more cities are planning for them.

New York,
Boston,
Philadelphia,
Baltimore,
Buffalo,
Chicago,
Cincinnati,
Cleveland,
Detroit,

London, England,
Milwaukee,
Montreal, Canada,
Ottawa, Canada,
Pittsburg,
St. Louis,
Toronto, Canada,
Washington, D. C.,
Grand Rapids.

The cost of laboratory modified milk has been reduced to those who wish to do part of the work themselves. Modified milk in quart bottles is within the reach of the working man. It remains yet true that milk being such a sensitive, delicate product, and so easily contaminated, the best results must ever be with the milk wholly prepared for the infant by the skilled, trained staff of the laboratory.

The function of milk laboratories is to fill prescriptions, to carry out the behest of the physicians. No doctor asks a druggist to send him a medicine suitable to cure typhoid fever. He directs the druggist to fill his prescriptions. He furthermore prefers one druggist to another because of his reliability and exactness. He even frequently designates to his druggist that he wants clean drugs and designates the maker's name. The laboratory should stand for clean milk, a clean mixing place and clean people. It should stand for exactness and reliability.

In prescribing modified milk the physician has certain duties. If he is to hold a laboratory responsible for exactness he must prescribe intelligently. The physician who undertakes the feeding of a baby assumes a responsibility. It is like the tender who is responsible for the breathing air of the submarine diver. He should not write a prescription, and then go on a four months' vacation. He should first cautiously work up from a weak feeding to the strongest one tolerated, and thereafter he should make frequent regular tours of inspection. The infant in its first year changes so rapidly that it is not the same infant more than two weeks at a time. Some mistakes are made by doctors. They order a modified milk as they would a brand of patent food. They should prescribe it as they prescribe drugs in a mixture, and that mixture, too, containing drugs like digitalis.

The care of infants is an expert's work. Few things in nature are more delicate than the human young. I know what you would say if an inexperienced youth (amateur) should invite you to take your first born infant son a sailing with him on his first trial trip. I know what would happen if an inexperienced general machinist were to invite you to ride in his high-speed automobile, if he let the fact escape him that he had never tried automobiling before. Every pediatricist, like every other specialist, has his share of sad experiences with the mistakes of others. The mortifying thing about it all is that one cannot suggest that personal experience and special study is the first thing requisite. It is the man behind the prescription that counts. For those turning their attention for the first time to the subject, the following guiding points may be of service.

These three prescriptions have been found to serve as points of departure in the feeding of healthy infants.

1. *Sugar Solution.*—For the first three to five days of life a normal infant may take a 5% watery solution of sugar of milk 3 dr. to 4 dr. every three hours.

On the fifth to the seventh day the following prescription for the newborn may be given:

Fats, 2%; sugar, 5%; total proteids, 0.50%, or whey proteids, 0.25%; caseinogen, 0.25%; feedings, 10; amount in each feeding, 1 oz.; alkalinity, 5%. Heated to 155° F., for 20 minutes or raw (if preferred).

DIRECTIONS.—Feed every two hours by day, twice at night.

The first fortnight to the first month, according to its ability to digest, the average infant may take:

2. Low average breast milk.

Fats, 3%; sugar, 6%; whey proteids, 0.50%; caseinogen, 0.25%; feedings, 10; amount in each feeding, 1½ oz. to 2 oz.; alkalinity, 5%. Heated to 165° F., 20 minutes or raw.

DIRECTIONS.—Feed every two hours.

3. High average breast milk:

Appropriate for second to third month.

Fats, 4%; sugar, 7%; total proteids, 1.00% (to 2%), or whey proteids, 0.90%; caseinogen, 0.50%; feedings, 8; amount in each feeding 3 oz. to 4 oz.; alkalinity, 5%. Raw if weather is not too warm.

DIRECTIONS.—Intervals of feeding 2½ hours.

MEMORANDUM OF SIXES.

At 6 months, 6 feedings, 6 ounces, intervals 3 hours, total in 24 hours 36 ounces.

Taking these prescriptions as a basis, one may argue to conditions of babies not healthy and not thriving. It is a safe rule always to begin the feedings of a sick baby on proportions adapted to a much younger infant. It is desirable to keep prescriptions approximately "level," that is, in proportion of fats to proteids 3 to 1 and 2 to 1, as in prescriptions 2, and 3. Those constitute a well-balanced diet. A baby with enfeebled digestion, one recovering from acute diseases, especially enterocolitis, should in the beginning receive the proportions adapted to a much younger infant. It is easy to increase the quality and quantity, but less easy to correct an error of overfeeding. Judicious feedings presumably insufficient should be increased after 48 hours' trial until the desired proportions and adequate feedings are reached. It is possible even when strings of mucus from disease low down in the colon appear in the passages, to educate the stomach and intestinal digestion up to the proper proportions. Avoid changing prescriptions too frequently in strength, avoid distorting the proportions of the fats and proteids violently. Practise masterly inactivity when the passages show slight improvement indicating that the bowel is learning to digest the food. A gradual change from "lumpy" passages with green mucus to "grumous" and "granular," with less lumps and less mucus, shows improvement in condition.

Medication scarcely needs mentioning here. However, calomel, 6 mg. ($\frac{1}{10}$ gr.), every hour until 6 or 10 doses are taken, followed by a sweeping dose of castor-oil, and this routine repeated in 3 to 4 days constitutes a most useful addition to the successful adjustment of feedings. Never consign a baby to a definite prescription, especially a weak one, and then forget it for months. Against constipation give raw unboiled proteids. Develop the feedings to the maximum (a good, full diet), especially the proteids, and give raw, alkalinity 5%. Proteids can be given in clean laboratory modified milk to a higher percentage than the earlier teachings lead us to believe.

Fats, in an amount larger than can be properly digested, tend to cause vomiting, and many times constipation, with whitish, crumbly passages. As a rule, never exceed 4% fat.

Inspect the feedings of an infant under a year every two weeks. Do not neglect it for a long time. In short, do not consign it to an unchanging, weak prescription, and let it outgrow its feedings.

Mr. President:

Were you absent, I would fully express my appreciation of the noble achievement of exact percentage feeding. In a gathering of this quality, personalities sink into insignificance, and I must speak it.

The American method of exact percentage feeding is your monument in medicine. You may have built others, and may yet build others, but this is undisputed. To my mind, the successful feeding of babies deprived of good breast milk, the preparation of a fair duplicate of nature's ingredients in milk, resulting in the saving of infant life, is of such high value as to rank with the contribution of antitoxin and intubation. But few have had more experience or better success than I in its use,

and I speak with emphasis and conviction. I say again, that the gift to medicine of the exact modification of cows' milk in laboratories takes rank with the noblest monumental contributions of medicine and surgery. The laboratory has been proved, and it stays; it is needed, and it grows. You have taught us exact methods. You have taught us to think in figures, in percentages; you have advanced our usefulness in the most important field of pediatric practice.

LOBAR PNEUMONIA IN INFANCY.¹

BY

JOHN LOVETT MORSE, A.M., M.D.,

of Boston, Mass.

Instructor in Pediatrics, Harvard Medical School; Assistant Physician at The Children's Hospital and at The Infants' Hospital, Boston.

Infants are peculiarly susceptible to bronchopneumonia because of the undeveloped condition of their lungs. For the same reason, the pathologic changes in this disease in infancy are not only somewhat different in their character, but more severe than those found in later life. The prognosis is therefore much graver at this age. The incomplete development of the lungs does not seem, however, to predispose to lobar pneumonia or to have any great influence on the pathologic changes or prognosis. In infancy, as in later life, the cause of lobar pneumonia is, in the vast majority of cases, the pneumococcus of Fränkel.

It has been thought for many years that pneumonia is very unusual during the first two years of life. More recent studies show, however, that it is far more common than is generally supposed. For example, 6% of the patients treated at The Infants' Hospital in Boston during the last nine years had pneumonia. The explanation of the feeling as to the rarity of pneumonia in infancy is probably to be found in a combination of unwillingness to disagree with past teachings, imperfect clinical observation, lack of pathologic material, and, most important, the variation in the type of the disease as it occurs in infancy from that seen in later life. My own experience leads me to believe that while not nearly as common as secondary bronchopneumonia, lobar pneumonia is almost, if not quite, as common in infancy as primary bronchopneumonia.

My experience also leads me to believe that the course and prognosis of the disease differ materially from the descriptions given in many of the older as well as in some of the newer textbooks. It is, as in adults, more common in males than in females, and most common in the late winter and early spring.

SYMPTOMS AND COURSE.

Onset.—The onset, while acute, is less stormy than would appear from the usual descriptions. A chill practically never occurs. Convulsions are very unusual. They occurred in less than 1% of The Infants' Hospital cases. Vomiting is comparatively common. Cough rarely amounts to much in the beginning. High fever usually develops rapidly and is generally accompanied by drowsiness and apathy.

Temperature.—The most common period of pyrexia is, as in adults, seven days. A shorter duration of the fever is more common in infancy, however, than in later life, being more common, moreover, in the first than in the second year. The average duration of the fever is longer in the fatal cases than in those terminating in recovery. Hyperpyrexia is more common than in later life. In The Infants' Hospital series the temperature went over 105° F. in 41%; in 11% it did not go over 103° F. The temperature is often irregular. Remissions of even as much as from 3° to 5° are not at

¹ Read at International Congress of Arts and Science, at St. Louis, September, 1904.

all uncommon and are especially likely to occur in the first two or three, or in the last two days. The latter may perhaps be regarded as pseudocrises. Crisis is less frequent in infancy than later, and is, moreover, less frequent in the first than in the second year. In The Infants' Hospital cases, crisis occurred in 54% of the patients in the first year and in 77.5% of those in the second year. Lysis is especially common in the cases of long duration. Collapse during the crisis is less frequent than is usually taught.

Pulse.—The usual pulse-rate is between 150 and 170, being over 150 in about 75%. In The Infants' Hospital series no patient died in whom the pulse was under 140, and differences in the rate above this point had no apparent effect on the mortality.

Respiration.—The usual respiratory rate is between 55 and 80. It is more often above 80 than below 55. In The Infants' Hospital series no patient died in whom the rate of the respiration was below 55, and differences in the rate above this had no apparent effect on the mortality. The rate of the respiration is always increased out of proportion to that of the pulse. This change in the pulse-respiration ratio is most important in diagnosis. Motion of the alæ nasi is far from being a constant symptom in infancy. When present, it is, moreover, not pathognomonic, as it occurs in many other conditions.

Cough.—Cough is seldom a prominent symptom and rarely occurs unless the infant is disturbed or excited.

Pain.—Pain, as far as can be judged from the babies' actions, is a very constant symptom. Many show distinct evidences of pain by cry and cough when disturbed, and others keep as quiet as possible and avoid everything likely to cause deep breathing. Either condition should, in an infant, suggest the presence of pneumonia.

Skin.—Flushing of the cheeks is not at all common. When present, it may be on either one or both sides. In my opinion, it is of no diagnostic value either as to the presence of pneumonia or as to its location. Cyanosis is unusual except in the more severe cases. Pallor, however, is very common and when marked is of bad prognostic import. Eruptions, with the exception of transitory erythemas, are rare; herpes labialis is most unusual.

Digestive Tract.—Gastrointestinal symptoms are very common and very important. Marked anorexia is the rule. The problem of feeding infants with pneumonia is often a difficult one and sometimes can only be solved by the use of the stomach-tube. Vomiting is not a very common symptom. Diarrhea is far more common than constipation and is often of serious import. Distention of the abdomen is frequent, causes great discomfort, is difficult to relieve, and often hastens the fatal termination.

Kidneys.—Practically all textbooks agree that the kidneys are rarely involved. My experience leads me to differ from this teaching, which is due, I suppose, to the fact that the urine is seldom examined in infancy. In my experience the urine, which is always concentrated, often shows the evidence of acute degeneration and occasionally of acute inflammation of the kidneys. In some instances the renal disease may be the cause of death.

Blood.—The changes in the blood are the same as those found in later life, modified to a certain extent by the peculiarities of the infantile blood.

Nervous System.—The usual mental condition in infancy is one of drowsiness or apathy. Symptoms of cerebral excitement are comparatively unusual. When they occur early in the disease they are almost invariably "functional" in origin; when they occur later, they usually are. True meningitis, due usually to pneumococcus infection, may sometimes occur. If so, it is usually late in the disease. It cannot be diagnosed without lumbar puncture, as even localized spasms or

paralyses may occur in cases in which the autopsy shows no evidences of meningeal inflammation. The nervous symptoms are due in many cases to a complicating inflammation of the middle-ear. In the "functional" cases, the nervous symptoms are frequently associated with a high temperature. They bear no relation to the amount or part of the lung involved.

Lungs.—The physical signs of pneumonia in infancy are essentially the same as in later life, modified to a certain extent by the peculiarities of the infantile thorax. Some points, however, are worth mentioning. A diminution of the respiratory sound on the affected side is not infrequently the earliest sign and is of great importance in diagnosis. Tympany, transmitted from the abdomen, is not at all unusual in pneumonia of the lower lobes. The signs of solidification are often lacking for several days and may not appear before the crisis. This is hardly the place to discuss whether in these cases the pneumonia is "central" and finally works to the surface, or whether the development of the solidification has been delayed. Holt's supposition that the solidification may have been high in the axilla or near the spine seems a reasonable one.

The statistics in The Infants' Hospital series do not corroborate the old teaching that the apices are most frequently involved in infancy but agree with Holt's figures for infancy and childhood, the order of frequency being left lower, right upper, right lower and left upper lobes. In my series the left lower lobe was involved in more than twice as many cases as any other. A whole lobe is more often involved than a part. Several lobes may be involved together, but more often successively. There is no relation between the mortality and the part of the lung involved. Apex pneumonias are no more fatal than those at the base. The mortality, does, however, vary directly with the amount of lung involved.

VARIATIONS IN TYPE.

Pneumonia in infancy, as in childhood, may be of short duration or run a long course. Cases of short duration are probably more common in infancy than at any other age, while prolonged cases are not unusual. The prolonged cases are usually due to the extension of the process in the same lobe or in other lobes, but may occur without recognizable signs of extension. In such cases the temperature usually falls by lysis and resolution is delayed. A type almost peculiar to infancy is the "abortive." The onset in this form is the same as in the usual form and the physical signs are those of the congestive stage. In 24 to 48 hours, however, the temperature drops to normal, usually by crisis, and the lungs rapidly clear. The pathologic process in these cases apparently does not go beyond the stage of congestion. "Cerebral" pneumonia is a bad term and should be dropped, as it merely means pneumonia with pronounced nervous symptoms, which may or may not be due to true cerebral complications.

COMPLICATIONS.

It is probable that in all cases in which the pneumonic process reaches the surface of the lung there is a dry pleurisy. Friction sounds, are, however, almost never heard. A serous effusion is very unusual, but a purulent effusion is not uncommon and may develop either during the course of the pneumonia or during the first few days after the crisis. It was present in about 8% of The Infants' Hospital cases. Gangrene and abscess of the lung are almost unknown as sequels of pneumonia at this age. It must not be forgotten, however, that bronchitis and bronchopneumonia may complicate pneumonia in infancy.

The pneumococci may attack any of the serous membranes. The pericardium and endocardium are almost never involved in infancy, the peritoneum very rarely, the meninges occasionally. Acute inflammation of the middle-ear, pneumococcal or otherwise in origin, is

probably the most common complication. It occurred in 18% of The Infants' Hospital series. Nephritis is more common than is usually supposed.

MORTALITY.

While the mortality of pneumonia in childhood is very low, it is not so in infancy. The textbooks give altogether too favorable a view of the mortality at this age, because they do not, as a rule, distinguish between infancy and childhood. Pneumonia in infancy is a serious disease. The mortality in The Infants' Hospital series was about 25%. This is undoubtedly higher than the mortality in private practice and in infants not of the hospital class. Although too high, it does show, nevertheless, that pneumonia in infancy is a very serious and fatal disease.

PROGNOSIS.

The younger the infant, the worse is the prognosis. The prognosis varies with the amount, but not with the part of lung involved. Fever lasting more than nine days is of serious import. The prognosis is good when the temperature is not over 103° F.; it is serious when over 106° F. Variations between these two points have little or no influence on it. The prognosis is good when the pulse is not over 140 or the respiration over 55. The amount of the increase above these limits is of little importance. Convulsions occurring at the onset are not important; those occurring later are serious, as they usually mean severe toxemia or meningitis. The gastrointestinal are the most dangerous of the more common complications. Empyema is always a serious complication. It is more fatal in the first than in the second year. The prognosis is better when it is recognized and operated on early, and varies directly with the general condition.

TREATMENT.

The treatment is hygienic and supportive rather than medicinal. Far more harm can be done by overmedication than by undermedication. The infant should be disturbed as little as possible. It must have the greatest amount of fresh, cool air—if possible, it should be kept out of doors during the day; next best, close to an open window. The diet must be carefully regulated to suit the weakened digestion, and the food forced, if necessary. Stimulation should be used when indicated, and not as a routine measure. Strychnin is most useful; alcohol comes next; others are rarely necessary or advisable. The fever should not be treated unless it causes marked nervous symptoms or depression. It should then be treated by cold externally and not by coal-tar antipyretics internally. Cold must be used cautiously, as infants bear it badly. Fan baths and cold packs are usually better borne than sponge or tub baths. Cold applications to the head may cause great depression and must be used, if at all, with great caution. Local applications should not be used except for pain, for which hot applications are better and safer than cold. Bromid and codein may, if necessary, be used for restlessness if it is not relieved by simpler and more rational measures. Oxygen sometimes relieves cyanosis. The so-called "specifics," including creasote in its various forms, and the various serums, have, in my opinion, no effect on the course of the disease.

Dr. Doyen Aggrieved.—Dr. Doyen, the eminent surgeon, has begun suit for 200,000 francs against a cinematograph company for selling and circulating films reproducing some of his important surgical operations. He employed the company to take the cinematograph pictures, but is offended and annoyed at the public use of the films. Shortly after the first films were taken, a Parisian hostess who was anxious to provide a novel entertainment, had a cinematographed operation shown after a select dinner party. This started what promised to become the fashion until a woman who had undergone an operation happened to be present at a party where the cinematograph proceeded to give a graphic representation of her ordeal. Dr. Doyen, after trying in vain to stop the display of the films, began this suit.

FOREIGN BODIES IN THE ESOPHAGUS.

BY

CARL E. BLACK, A.M., M.D.,

of Jacksonville, Ill.

Ex-President Illinois State Medical Society; Surgeon to Our Saviour's Hospital, Passavant Memorial Hospital, etc.

It is not my purpose to present a discussion of the general subject of "Foreign Bodies in the Esophagus," but simply to report two cases which have come under my observation within the last few months, with some comments regarding the value of the röntgen ray in such cases. Formerly the diagnosis of foreign bodies in the esophagus was based upon the history of the case, supplemented by direct examination with probes, sounds, and bougies, and by the use of the esophagoscope. More recently the röntgen ray has brought to our assistance additional means of precision in diagnosis, as well as in treatment. The röntgen ray is useful either by means of the fluoroscope or röntgen-ray photography, or frequently by both combined.

CASE I.—The patient is a well-developed, thoroughly normal girl, aged 14, daughter of a farmer. Ten days before I first



Fig. 1.—Röntgen-ray picture of common pin lodged in esophagus, plate placed back of patient; a, b, c, d, e, are lead markers, one of which (a) covers head of pin.

saw her she accidentally swallowed a pin, which she was holding in the mouth. The family physician saw her and used a bristle probang several times without effect. As the symptoms were not severe, it was supposed that the pin had been pushed into the stomach. The irritation remained in the esophagus, and she could only use liquid food. For several days this was attributed to the use of the probang, and she was told this would soon pass away.

The symptoms continuing, on the tenth day she was brought to my office by her attending physician, at which time the röntgen ray was used. The fluoroscope seemed to show the pin in the esophagus, but was not altogether satisfactory, consequently a radiograph (Fig. 1) was made.

Several small lead markers (a, b, c, d, e) were used to assist in determining the exact location. The use of these I now consider unnecessary and rather unfortunate, as one of them, which was placed just below the lower extremity of the thyroid cartilage, covers the head of the pin. However, the picture clearly shows the pin, its location, and the fact that it is bent.

Fig. 2 gives a lateral view, showing the pin at its full length. Unfortunately the patient moved once during this

picture and it shows two pins instead of one. After getting the evidence of these pictures it was then easy enough to see the foreign body with the fluoroscope.

Under the guidance of the fluoroscope, forceps were introduced through the mouth, and the head of the pin grasped by them. These manipulations could be observed very well by the fluoroscope, although several attempts were made before the head of the pin could be turned up and the pin extracted. Evidently that portion of the pin, from the point to the bend, was imbedded in the tissues of the esophagus, and for this reason the bristle probang failed to dislodge it. After removal



Fig. 2.—Röntgen-ray picture of pin in esophagus, lateral view. (Movement of patient makes pin show double.)

of the pin the patient's symptoms immediately disappeared. The pictures were made before the patient was anesthetized, but of course it was necessary to anesthetize the patient in order to introduce the forceps and grasp the pin.

The head of the patient was drawn over the end of the table and held in position by an assistant. The röntgen-ray tube was placed below so that the operator could use the fluoroscope with his left hand and direct the forceps with his right hand.

CASE II.—This case is much more interesting than the preceding one. The patient, a boy, aged 10, was well developed, and in every way normal. Six days before I saw him he went to sleep at night with a half-inch iron washer in his mouth. During the night he awoke in distress and said that he had swallowed the washer. His family could not believe it possible that he had swallowed so large a washer, which of course is more than an inch in its outside diameter, the hole in it being a half inch in diameter.

However, he was unable to swallow any solid food, and milk had to be swallowed very slowly, or it would regurgitate. Still there was doubt in the mind of the physician, as well as the family, as to whether he had actually swallowed the washer, and if so, whether or not it had already passed into or beyond the stomach.

On the sixth day he was referred to me. The fluoroscope plainly showed the washer in the esophagus, at about the level of the interspace between the first and second ribs. The plate was behind the patient, and of course the vertebrae stand out most distinctly. Fig. 3 is from a radiograph of this case, and shows the washer in position.

The patient was given an anesthetic, and an effort made to extract or dislodge the foreign body. Under the direction of the fluoroscope the washer could be easily grasped by the forceps, but could not be dislodged by any ordinary traction. I then made a very short blunt hook, which could be easily hooked into the washer, but this was no better than the forceps. These manipulations could be plainly observed with the fluoroscope, which was of great assistance in directing them.

Finding that the washer was so thoroughly embedded and that it was surrounded by extremely swollen tissues, the efforts to remove it by extraction were quickly abandoned, and the patient sent to the hospital for operation.

It being late in the evening, operation was arranged for the following morning. About 7 o'clock in the morning, after passing a fairly good night, the patient raised up in bed and vomited a dark fluid, consisting of partly digested blood and stomach fluids. There was no bright or fresh blood. After vomiting he lay back on the pillow and expired, almost immediately and without warning. Unfortunately no postmortem could be secured.

These two cases well illustrate the value of the röntgen ray in dealing with foreign bodies in the esophagus. While the value of esophagoscopy and sounds and probes is not to be underestimated, the röntgen ray supplements their use in a most important way.

I had intended to present a röntgen-ray picture of the forceps in the esophagus grasping the foreign body, but out of consideration for the patient, did not make this picture, and have not since had the opportunity to do so. This can easily be done on the cadaver.

There are certain conditions in which the esophagoscope is particularly counterindicated, as for example, in cases with abscess. In such cases the use of the röntgen ray becomes doubly important. By making our pictures in two or three directions the foreign body can be located with almost as much exactness as by the use of the esophagoscope.

I wish especially to emphasize the value of fluoroscopy, not only as an aid to diagnosis, but of equal importance as an aid in directing and controlling the handling of instruments in the esophagus.

Beck, in his recent admirable book on "Röntgen Ray Diagnosis and Therapy," gives an illustration, showing a five cent piece in the esophagus of a child two years old. This had remained six days before a röntgen-ray

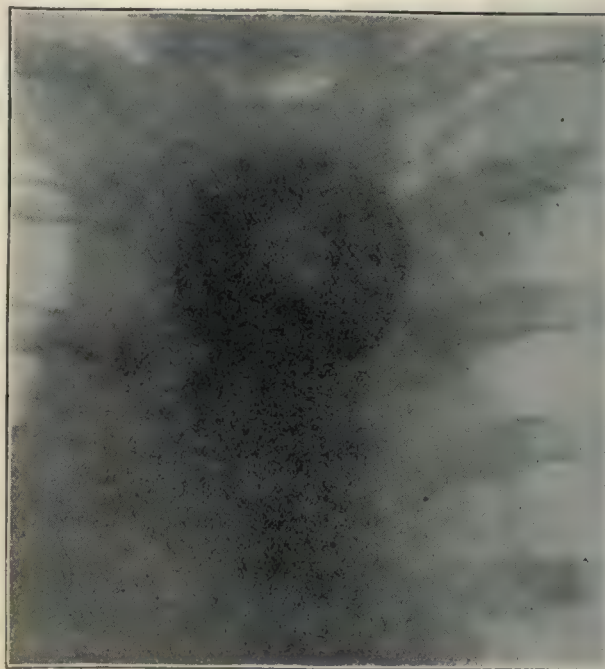


Fig. 3.—Röntgen-ray picture of a half inch washer in esophagus, plate placed behind patient.

examination was made. The coin, of course, is much smaller than the washer in my case, and is situated at a considerable higher level, being above the first rib.

In cases of metal foreign bodies swallowed, skiagraphy can be carried on until they are located, or until it is demonstrated with almost positive certainty that they have already passed through the alimentary canal and been discharged.¹

¹ The skiagraphs were made by my assistant, Dr. H. A. Potts, now assistant physician at the Illinois Central Hospital for the Insane at Jacksonville.

STRABISMUS AND ITS TREATMENT.¹

BY

C. M. HARRIS, M.D.,
of Philadelphia.Clinical Assistant to Wills Eye Hospital; Clinical Assistant to the
Ophthalmic Outpatient Department of the German Hospital.

In spite of all that has been written in regard to strabismus and its prevention, we still find it a very frequent condition and often at an age when the time for preventive measures has passed. The family of the patient is almost invariably careless because of a wrong impression as to its curability. It often remains for the patient himself to arrive at the age of discretion before realizing the cosmetic and visual disadvantages resulting from such a condition. Even among people who are usually quite careful as to the welfare of their children, this deformity is allowed to develop and become pronounced, because they feel that the patient may outgrow it. The advice of the family physician is not often sought at the beginning of the trouble. When it is, he cannot emphasize too strongly the importance of treatment at this time.

The defect is commonly of the convergent variety, and in the vast majority of cases, appears during the third and fourth years of life. Those occurring at this time are as a rule monolateral in type and almost always associated with poor vision in the deviating eye; the poor vision may be primary or secondary to the deviation. Those occurring after five years are often of the alternating type, *i. e.*, one or the other eye will fix indifferently. Good vision in both eyes is the rule, though the deformity is of course as great. Those squints occurring as a result of opacities in the refractive media, or of paralysis of certain extrinsic muscles, have no place in this paper, and are only mentioned for the purpose of excluding them.

The causes of strabismus have been variously given, but those most commonly accepted are given by de-Schweinitz, as follows: "1. Disturbance of the relation between accommodation and convergence by errors of refraction. 2. Disparity in length, thickness and tension of opposing muscles. 3. Inequality in the vision of the two eyes, or amblyopia in one eye, which removes the natural stimulus to exact convergence. 4. Disturbance of innervation and defective development of the fusion faculty."

The first cause given (that of errors of refraction) is a very important one both directly and indirectly. While high errors are often responsible for the squint, it is just as urgent that we correct them all, whether high or low, or we cannot expect a proper cooperation of all the factors concerned in muscular equilibrium. In high hypermetropia when excessive accommodation gives rise to increased stimulus to convergence, the point of convergence is considerably nearer than the point accommodated for, and convergent squint results. The second image is usually disregarded by the brain, and the visual activity of the deviating eye markedly lessened on account of its nonparticipation in the visual act. In myopia the opposite condition of affairs exists; in the endeavor to relax accommodation, convergence is accordingly decreased and a divergence results.

As to cause second (that of physical defects in the muscles) it is a condition often coexisting with the other causes given, and is one in which operative treatment would seem to be indicated; and yet careful early treatment may give gratifying results.

The third cause (relating to inequality of vision in the two eyes, or practical absence of vision in one eye) is probably the most frequent one, and requires the most careful treatment of the patient to develop the visual power in the deviating eye.

Much argument has taken place as to whether the

low vision in the deviating eye is primary or secondary to the squint; convincing evidence has been adduced in support of either, but that it is primary seems more likely. Careful training, however, will in many instances develop a considerable degree of visual acuity, with a favorable influence upon the squint.

The fourth cause (that of disturbance of innervation and defective development of the fusion faculty) is a factor, which according to some authors, predominates in all conditions of squint; it is undoubtedly closely associated with the foregoing causes.

As the vast majority of squints make their appearance during the third and fourth years of life, this is the accepted time for successful treatment, which should be begun as soon as they are detected. According to Jackson, the indications met by treatment are as follows: "1. To bring about normal innervation of the muscles concerned in ocular movements, by the removal and exclusion of abnormal requirements and abnormal overflow influences. 2. To place and keep the eyes, as far as possible, upon the best plane of visual acuteness and an equality of required effort. 3. To eradicate abnormal methods of using the eyes, especially dependence upon one eye to the practical exclusion of the other. 4. To develop binocular vision—the method of combining the visual sensations produced by the two eyes and the habit of employing them both in all ordinary seeing."

The treatment in children of this early age must be carried out with patience and intelligence or failure will result.

In correcting the errors in refraction, the little patient can seldom be tested by the usual subjective method, and it must be done by the skilful use of the retinoscope or ophthalmoscope. Under no circumstances should it be done without the eyes being under the full influence of atropin. We have a choice of several treatments which should be selected according to the demands of each case; they consist of proper glasses, a pad for excluding the better eye from participation in vision, cycloplegics as atropin and exercises by some variety of stereoscope.

The eyes having been carefully refracted and found highly hypermetropic (with fair vision in either eye) they should be fully corrected and kept under atropin for a period of from two to six months, according to the progress made. Neither eye should be covered, except by dark glasses when in bright light.

If the vision in the deviating eye is quite poor, as is frequently the case, full correction should be given and a pad should be worn over the better eye several hours daily. Another method is to instil atropin into the better eye, throwing the burden of seeing upon the other and giving it a constant stimulus to development.

In myopes, in whom there is divergence or a tendency to same, refraction should be done under a mydriatic, full correction given and the mydriatic discontinued. The stereoscope or Worth's amblyoscope (which possesses the same principles) are valuable means of developing visual acuity and subsequent fusion of the images, so that full binocular vision may be hoped for in a fair percentage of cases.

It seems conclusively proven that the fusion faculty is fully developed prior to the seventh year—this being the case, we must obtain a cure before this time if it is to be entirely satisfactory. However, our efforts need not cease between this period and puberty, as improvement and even cure have resulted. When the foregoing treatment can be properly applied, I believe it is best to defer all operative measures until puberty; a cosmetic correction is all that can be hoped for by this means, and even in this the results are sometimes disappointing.

Smallpox Then and Now.—Vaccination was made compulsory in the city of Madras in 1884. Before that date there were hundreds, often thousands of deaths a year; now the deaths rarely exceed ten.

¹ Read before the Northwestern Medical Society of Philadelphia, November 22, 1904.

SPECIAL ARTICLES

THE HEALTH OF THE NATION.¹

BY

WALTER WYMAN, M.D.,
of Washington, D. C.Surgeon-General United States Public Health and Marine-Hospital
Service.

The health of the nation seems rather a large topic, yet not too large for hopeful and practical consideration, nor yet so large as would be a kindred topic, the health of all nations, which is likewise one for serious and hopeful consideration. Indeed these two subjects have a direct bearing one upon another, and one cannot be adequately considered without considering the other.

It is a somewhat trite idea, but one whose significance is of great present import, that the nations of the earth today are more nearly related than ever before in the world's history. "Not only has the 'narrow frith' been practically abolished," says a recent writer, "but the wide ocean is traversed by passenger ships in five days, and by thoughts put into words in a few seconds. All the world has become one neighborhood so far as relates to distances. In no manner has this been more strikingly shown than in the warfare against contagious disease. But a few years ago a violent epidemic of yellow fever in Cuba would excite no more than passing notice, while today the news of two cases in the far-off neighborhood of Santiago is immediately wired throughout the United States and foreign countries. A few cases of bubonic plague in the Orient, which a few years ago would receive no attention, are instantly reported and published throughout the United States, and one case of cholera on a ship in the Mediterranean is likewise immediately telegraphed to the principal cities of the world. International congresses, conferences, and conventions, are frequent, bringing the nations together as one family in the struggle against these foes of mankind. As in 1892, when a case of cholera appeared in Jersey City, the New York Board of Health took active interest therein, so is the United States Government interested when epidemic disease is reported in England, France, Germany, Turkey, Egypt, or any port in the Orient, for communication therewith is now swift and frequent. And so closely related are we in health matters to our neighbors of Mexico, Central and South America, that periodic international sanitary conventions have been agreed upon by the several republics, and a permanent international sanitary bureau of American republics has been established and is maintained. I need further to refer only to the international congresses of medicine, of hygiene and demography, of tuberculosis, leprosy, and other allied subjects, to show how closely the nations are getting together in the efforts to prevent and suppress disease.

We hear much at the present time of international peace conferences and arbitration treaties. Is it too much to expect, as a corollary or parallel movement, the cooperation of nations to prevent and suppress communicable disease? There is at present pending before the Senate of the United States a convention—practically a treaty—subscribing to the findings of the international conference of Paris, 1903, embodying the principles and practice necessary on the part of all nations for successful warfare against plague and cholera.

The international sanitary conventions of American republics, previously mentioned, were instigated by the obvious advantage of an agreement for the sanitation of all yellow fever infected seaports. Seaports being the points of contact between nations, would properly be the first objective points in international sanitation, and their undoubted consequent prosperity would cause the sanitary movement to extend to other cities.

International sanitation might well be considered as adjunctive to the movement for universal peace. I believe it would be less difficult of achievement than absolute arbitration, or at any rate it could be made a powerful influence in establishing the latter. A former president of the French Republic, Monsieur Casimir Perier, at the opening of the Hygienic Conference

in Paris, in 1894, said: "The international principles which had their origin in the laboratory and are based on science are the only ones which bind nations together with strong ties and establish equitable and immutable laws."

This principle may be well considered by those who are seeking universal peace, and international responsibility with regard to disease is a subject worthy of the attention of all interested in the development of international law. So far as I know there is no mention in the treatise on international law of the responsibilities of governments to one another in matters of public health, but the time is ripe for adding such a chapter.

I quote from a recent writer: It seems "that nations are beginning to develop a conscience and a sense of justice for the rights of other nations. As a whole, the peace movement is another step toward the actual attainment of the ideal perfection of government." With this growing sentiment of harmony and fraternity among the nations there should be developed an international sentiment regarding sanitation and suppression of disease. If, as Tolstoi says, the only substitute for war is religion, international sanitation would be a powerful weapon in the hands of religion, if indeed it could not in itself be made a substitute for war. It surely would furnish a plain upon which nations might meet. It suggests a common enemy—disease—against which all might combine without fear of international complications, and would furnish a more worthy object than war for the expenditure of energy and money.

As to the health of this nation, the subject may be considered under two heads, the exclusion of disease and the extinction of disease. The former, which embraces the subject of quarantine, I will not discuss, as it may be considered by the distinguished gentleman who is to address you on the health of the port. As to the extinction of the ordinary communicable diseases, is the idea one that is visionary or has it a good basis in scientific achievements and in practical results already attained?

It is not my purpose to burden you with statistics, but surely enough has been published to show a marked diminution as the direct result of special effort, and to encourage the belief that in the future most of these diseases may be as rare as they are now common. Their subsidence or disappearance will be due chiefly to good laws and effective administration. Good laws imply good organization, and it may be profitable to consider for a moment the health organization of the United States as it exists today.

In general, I believe this organization is a proper one, but very defective in many of its details. The United States Public Health and Marine-Hospital Service has, under various acts of Congress, certain maritime quarantine functions and interstate quarantine functions. It has also a hygienic laboratory "for the investigation of contagious and infectious diseases and matters pertaining to the public health."

This last is generous and broad legislation, but is limited to laboratory investigations. Therefore, certain other investigations, which are desirable, cannot be made, for example, an investigation into the sanitary conditions at certain health resorts where tuberculosis patients are gathered in great numbers. I mention this as simply an illustration, but efforts will be made to meet this difficulty. The epidemic appropriation, under which investigations other than laboratory can be made, is limited to certain specified diseases, namely, cholera, yellow fever, smallpox, typhus fever, and bubonic plague. The laboratory has an advisory board, through which it is brought into relation with the medical departments of the army and navy, the Bureau of Animal Industry of the Agricultural Department, and through five distinguished scientists with the laboratories of leading institutions of learning. Thus the scientific work of the service is brought in contact with the profession.

In the practical administrative work of a sanitary character the service is brought into relation with State Boards of Health and quarantine officers through annual conferences required by law, and occasional conferences called either by the surgeon-general or the State health authorities.

Every State and Territory has a health department consisting either of a health commissioner, or State Board of Health, which has about the same relation to county and municipal

¹Address before the New York State Medical Association, New York County, at the New York Academy of Medicine, January 16, 1905.

Boards of Health as the national service has to the State organizations.

The chain of organization, therefore, seems theoretically a good one, and it would appear to be the part of wisdom to perfect and strengthen every link in the chain. This chain has not been forged all at once. Link after link has been added, and the several links strengthened as occasion seemed to demand. In a growing country this seems to be the natural and proper method. The other method has been tried and failed. So that our sanitary system must be one of gradual growth.

Thus far I have spoken only of the official health organizations, which are, of course, the most potent of all, based upon the statutes of the States and the nation, continuous in their operations and not dependent upon spasmodic effort or ephemeral enthusiasm. Yet it is impossible to ignore the valuable results of auxiliary organizations, voluntary in character, but inspired by noble and patriotic motives. They are too numerous to mention in detail, but I may refer to such organizations as the great American Medical Association, the American Public Health Association, State, county and city medical societies, and the auxiliary sanitary associations that exist in so many of our States and cities. Through these public sentiment is developed which crystallizes into statutory laws and organizations.

One of the most common pleas of the sanitarian of today is for a wider diffusion of knowledge of hygienic and sanitary principles. It has been frequently said that sanitary science is far in advance of its practical application. The facts are known, but not to a sufficient number, and appeals are often heard for the introduction into schools and colleges of more instruction in these essential and easily comprehended subjects. The plea is justified by every consideration, but I should like to call attention to the necessity of the spread of sanitary information among intelligent adults, among the learned, and the wise; among the men who govern our cities and our States, and among our legislators. The knowledge I would seek to have impressed upon them is the value of sanitation in the advancement of the individual happiness and national, State and municipal welfare. Too many regard sanitation as an ideal matter, efficacious theoretically. They should be impressed with the knowledge that improved conditions can and must be attained, and that bad sanitary conditions indicate sloth, a willingness to endure and ignore, characteristic of the least civilized and cultivated communities.

The possibilities of sanitation in the advancement of civilization should be impressed upon them, so that in addition to their high ideals of civil government they may also entertain ideals of sanitary advancement far beyond their present standards. Their influence and aid will then be more readily given when measures are brought before them for consideration or action.

There is one method of popular diffusion of knowledge which I have referred to on previous occasions and which seems worthy of further consideration. It is the making of sanitation an issue in local politics. Issues might be made on efforts to suppress the ordinary diseases by municipal improvements, particularly in the worst portions of a city. I am aware that these improvements are liable to be unpopular among those whose excessive profits on investments would be unfavorably affected thereby, and even among those whose individual physical welfare is to be improved. But these difficulties can be overcome if the political movement is shrewdly and fairly managed; and these issues being the subject of popular discussion, hygienic and sanitary knowledge would be brought out and broadly diffused. This idea has already been given expression by an association great in numbers and influence. At the recent annual meeting in San Francisco (last November) of the American Federation of Labor, three hundred delegates were present, representing a hundred national and international labor unions, with a membership of about two million. In that convention was passed the following resolution, which seems to be significant of the earnest and laudable attitude of these unions toward the sanitary movement.

The resolution was referred to the committee on resolutions and adopted by the convention on the tenth day of its sessions.

Resolution No. 157:

WHEREAS, In the proper embellishment of our towns and cities, by parks, monuments, ornamental buildings, boulevards, and driveways, there is too frequently an utter neglect in the removal of insanitary and unhealthful conditions in the less favored localities; and

WHEREAS, In our opinion one of the first duties of town and city governments is to make wholesome, by good drainage, paving, water-supply, and correct tenement house construction, those portions of cities and towns that are now neglected in these respects, thus imperiling the health and happiness of the working people; therefore be it

Resolved, In the interest of the poor, and well-to-do also, town and municipal councils should give greater legislative attention with adequate appropriations to the removal of these evil conditions in the less favored localities; and be it further

Resolved, That the labor unions by supporting candidates pledged in advance to the support of necessary and wise ordinances, according with the foregoing principles, will advance the health conditions and material prosperity of the country; and the American Federation of Labor in this convention assembled recommends these principles to its affiliated national, State, district, and local bodies.

The foregoing resolutions seem to confirm the ideas I have endeavored to express as to injecting sanitation as a live issue in municipal politics, and you will recall that one effect of such injection would be a wider diffusion of sanitary knowledge among the working people and a deeper impression of its importance among the more highly educated.

But there is more in these resolutions than the spread of sanitary knowledge. They express what seems to me to be a cardinal principle for guidance in practical measures to improve health conditions in the United States. They practically assert that the low, unsewered, unpaved, filthiest parts of our cities should receive the very first consideration in all plans for municipal improvements.

It should be the ambition of all those who take special interest in the health of the nation to bring about a slumless country. I have given expression to these views before, but they require repeated iteration. As stated in a former address, "there is no adequate reason why slums should exist anywhere, and by slums I mean places where through bad drainage, imperfect sewerage, inadequate air space, lack of pure water, and lack of sunlight, human beings are subject to disease and crime-inducing conditions."

Following this, all sanitary administration would be much easier and more effective.

Now, in the elimination of slums there are one or two principles involved, which should be carefully considered lest fatal mistakes be made. Such mistakes have been made, as may be seen in the reports of the commission on the housing problem in London. The right of the owner of the insanitary dwelling should be considered, and whether compensation should or should not be allowed him seems to be a matter dependent upon local considerations. But the rights of the tenants, however poor, must also be considered, and ordinarily it would seem wise to defer their ejection until provision is made for their housing in quarters equal in size, no greater in rent, and as convenient in locality as they have been occupying.

The bureau of which I have charge is now receiving, through the State Department, from the United States consuls abroad, and is collating the experiences and laws in foreign countries relating to these matters. The statement from one city contained a confession of mistake, in that while buildings are being put in sanitary condition, respectable workmen are driven into localities foreign to their trades and among a foreign element, all of which is detrimental to their self-respect. This difficulty suggests the possibility of a coordination of effort between the municipalities and our wealthy philanthropists. The municipalities can well afford to pass ordinances for the destruction or reconstruction of insanitary dwellings, with a proviso for a possible delay of execution until proper quarters as before indicated are provided.

I would not undertake to say whether or not a plan of this character is applicable to a great city like New York, but with regard to other cities I believe it is. If municipal ownership of tenement houses is objectionable, then would be very available the efforts of the millionaire philanthropist, who, not as a giver of charity but as one willing to accept a very moderate return on his investment, would erect the necessary buildings.

I have said that the health of this nation might be considered under two heads—the exclusion of disease and the extinction of disease. There is another consideration worthy of attention, namely, the development of a healthy and robust individual organism. The elimination of the ordinary diseases and the development of a higher average of individual health and strength would practically mean life on a higher plane in all its features. It would mean a greater average of mental aptitude for work in the higher fields of human activity—in all the arts and sciences.

When thus we review the good results of sanitation, and survey the field and realize that improved conditions are within our reach, we certainly must feel a desire to hasten the day when they may be realized.

In dealing with my topic, "The Health of the Nation," I have preferred to express these general ideas and principles, rather than to go into those details and statistics of disease and sanitary work which are narrated elsewhere in medical journals, reports of State and city Boards of Health, and of the Public Health and Marine-Hospital Service.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 21, 1905. [Vol. XLIV, No. 3.]

1. The Treatment of Acute Anterior Poliomyelitis by Nerve Transplantation. WILLIAM G. SPILLER and CHARLES H. FRAZIER.
2. Intestinal Obstruction in Children. JOHN F. ERDMANN.
3. Choice of a Time of Election in Mastoid Operations; Some Considerations Arising from the Difficulties of the Choice: Prospective Results. D. A. KUYK.
4. Two Cases of Objective Aural Tinnitus Due to the Action of the Tubopalatal Muscles. WALTER A. WELLS.
5. Osmology and Pharmacodynamics. HEINRICH STERN.
6. Some Problems of Presbyopia. GEORGE M. GOULD.
7. The Usefulness of the Ophthalmometer. F. C. HEATH.
8. Internal and External Hemorrhoids: With Special Reference to Their Treatment. LEWIS H. ADLER, JR.
9. Preoperative and Postoperative Treatment of Surgical Cases. L. SEXTON.
10. The Mechanism of Streptococcus Infection. GUSTAV F. RUEDIGER.
11. Cysts of Bartholin's Glands, with Brief Remarks on the Anatomy of the Normal Gland Structure. THOMAS S. CULLEN.
12. Some New Views Respecting the Horopter. GEORGE T. STEVENS.
13. Dengue in the Isthmian Canal Zone, Including the Report of the Laboratory Findings. W. NEWCOMB CARPENTER and RICHARD LIGHTBURN SUTTON.

1.—See *American Medicine*, Vol. VII, No. 25, p. 973.

2.—See *American Medicine*, Vol. VII, No. 26, p. 1008.

3, 4.—See *American Medicine*, Vol. VIII, No. 3, p. 96.

5.—See *American Medicine*, Vol. VIII, No. 2, p. 51.

6.—See *American Medicine*, Vol. VIII, No. 5, p. 184.

7.—See *American Medicine*, Vol. VIII, No. 5, p. 185.

8.—Internal and External Hemorrhoids.—L. H. Adler, Jr., emphasizes the importance of the general practitioner making an ocular and digital examination before prescribing. In the case of external hemorrhoids they should be removed, when inflamed, by excision. Incision leaves the distended skin which may subsequently cause trouble, and if sutures are used after excision there is danger of infection. If operation is refused, palliative treatment consists in hot applications with soothing and astringent lotions during the acute stage, keeping the bowels free. In the case of internal hemorrhoids the nevoid or capillary form should be treated through a speculum with the electrocautery or fuming nitric acid. Preventive measures are avoidance of sedentary habits, improper toilet paper, excessive venery, or use of alcohol or tobacco, improper diet, and drastic purgatives. In the early stages applications and injections of cold water will often prevent further annoyance. An ointment containing mercury and morphin relieves inflammation, and supraprenal extract in salve or suppository will stop bleeding. Prolapse is arrested by cold water and by astringents and sedatives combined with ichthyol. Of operative measures division is not permanent in its effects unless constipation is avoided. It should be performed under nitrous oxid, not ether. The writer prefers the clamp and cautery to Whitehead's operation, or injection, or the ligature. [H.M.]

9.—Preoperative and Postoperative Treatment of Surgical Cases.—L. Sexton calls attention to the importance of

treating general conditions as a preparation for operation. In emergency cases, morphin enemas of hot milk, coffee, and whisky all tend to ward off shock. In anemic and accident cases with less than 30% of hemoglobin, it is best to wait if possible till this percentage has been reached. We can differentiate hemorrhage from shock by the blood count, which should not fall below 3,500,000. When much blood has been lost intravenous infusion and hypodermoclysis raise pressure and stimulate the endocardium, and the anemic brain. It is better to stop at two pints if the pulse is restored than to risk pulmonary edema. Crile adds adrenalin, 1 to 50,000, to the saline solution. During collapse, strychnin $\frac{1}{10}$ gr., and digitalin $\frac{1}{10}$ gr., give the best results. In endeavoring to bring about reaction we should stop short of producing overaction, thus causing secondary hemorrhage. Old persons should be toned up by strychnin a week before operation, and should be gotten out of bed as soon as possible afterward. [H.M.]

10.—Mechanism of Streptococcus Infection.—G. F. Ruediger's investigations corroborate and extend work previously done in this field. Leukocytic exudate, the cell-free exudate, and suspensions of leukocytes or of bone marrow in serum or in defibrinated blood kill nonvirulent, but not virulent, streptococci. Suspensions of organ cells from guineapigs in serum or defibrinated blood, do not kill streptococci. Leukocytes in the body take up living streptococci. Leukocytes and bone marrow are the most important (if not the only) factors concerned in combating infections in rabbits and guineapigs. Normal human serum is a good culture medium and active phagocytosis by leukocytes has been demonstrated in man. The fact that cell-free exudate also destroys many organisms indicates that there may be destruction of cocci extracellularly also. Virulent streptococci when grown in heated serum secrete a substance which is toxic for leukocytes. This may explain why they are not taken up by the phagocytes, the body thus being robbed of its strongest defense against these organisms. [H.M.]

11.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

12.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

13.—Dengue in the Isthmian Canal Zone.—W. N. Carpenter and R. L. Sutton find that dengue is one of the few fevers in which a leukopenia persists from the first. Blood-examinations are of great value in differentiating it from malaria. Even though no parasites be found, a slight leukocytosis with decided increase in the percentage of large mononuclears and transitionals is indicative of the former while a leukopenia with a normal differential leukocytic count or varying degrees of a small mononuclear lymphocytosis and a marked eosinophilia late in the disease is characteristic of the latter. Albuminuria occurs seldom in an ordinary attack and then only in small amounts. The opposite is true of yellow fever. Convalescence is almost invariably ushered in by a pronounced small mononuclear lymphocytosis which persists for several days. It is suggested that the causative agent is a small diplococcus or a delicate bipolar staining bacillus closely resembling Pfeiffer's organism. It is probably transmitted by the respiratory tract and its virulence is much increased by the presence of the essential meteorologic factors and by overcrowding. [H.M.]

Boston Medical and Surgical Journal.

January 19, 1905. [Vol. CLII, No. 3.]

1. The Humane Treatment of Malignant Disease From a Surgical Point of View. JOHN C. MUNRO.
2. A Brief Consideration of Some of the Results of the Surgical Treatment of Cancer of the Stomach. R. H. FITZ.
3. A New Method of Performing Gastroenterostomy. ALFRED H. GOULD.
4. Points Pertaining to the Management of Diabetic and Nondiabetic Glycosuria. HEINRICH STERN.
5. The Brown-tail Moth Eruption. HARVEY P. TOWLE.

1.—Treatment of Malignant Disease from the Surgical Point of View.—John C. Munro makes a plea for more frequent surgical interference in incurable malignant disease. The relatively few happy results more than counterbalance the discouragements brought by the many failures. Many illustrative cases are recorded. Munro recommends exploratory laparotomy, unless a definite diagnosis of visceral cancer can be made,

and this latter is rare. Definite relief is afforded, even though temporary, in many cases; and occasionally suspected malignant disease turns out to be a benign affection and relief is permanent. In conclusion, he asks his medical friends to yield to the fact that cancer, wherever situated, is a surgical disease, especially in its early stages; that up to the present time surgery, and to a less extent, the röntgen ray, are the only and best known forms of treatment that promise permanent or temporary relief; that the outlook for success depends upon the early resort to surgery where operation is available; that the surgeon should be the judge as to the possibilities of surgical treatment. To the patient he appeals to accept the fact that cancer is incurable in a majority of cases; that the well-trained physician or surgeon will help him honestly, honorably and more successfully than the untrained charlatan who does infinitely more harm than can be calculated by any human mind. [A.B.C.]

2.—Results of the Surgical Treatment of Cancer of the Stomach.—R. H. Fitz in a brief article doubts the wisdom of resorting to surgical measures in cancer of the stomach. The high operative mortality, the suffering of the patient, the failure to bring relief in many cases, and the brief time of relief when such is afforded, all conspire to influence us to refrain from operation. He reviews a series of patients operated on at the Massachusetts General Hospital and others in Boston. Of the 37 patients operated upon and subsequently heard from, 28 died within 2 months after operation and only 1 is stated to have been in good condition at the end of 12 months. Equally good, if not better results are known to follow the medical treatment of such cases. He says: It would appear from this experience that merely exploratory operations in advanced malignant disease involving the stomach have a considerable mortality, afford no relief, and are followed by an early death; that explorations in such advanced cases, followed by operations intended to relieve symptoms, have a high mortality, and that in the survivors relief is inconstant, though sometimes prolonged at least a year. It may be admitted that the surgical treatment of advanced cases of malignant disease of the stomach is humane, because it sometimes gives more or less prolonged relief, and often shortens the period of suffering, even if it gives no considerable relief. On the other hand, the treatment of such cases by other than surgical methods often gives more or less prolonged relief and usually makes dying easy. [A.B.C.]

3.—A New Method for Performing Gastroenterostomy.—A. H. Gould reaches the posterior surface of the stomach in the usual manner, applies the clamp transverse to the line of the greater curvature and makes his incision in the fold held by the clamp. With thumb forceps, each free edge at the incision is grasped at its midpoint, the clamp is removed and the incision is stretched wide open until each end of the incision now becomes a midpoint on the side. This makes the line of incision transverse to what it originally was and now parallel to the greater curvature. With the edges now brought together and lifted up, the clamp is reapplied in the new axis of the incision. The jejunum is now brought up and a clamp applied in the long axis of the bowel at the site selected for anastomosis. The clamps are now placed parallel, and anastomosis is effected by suture as usual. Care must be taken not to make the incision in the jejunum too long, as the one in the stomach cannot now be lengthened without difficulty. Enterenterostomy is also performed between the proximal and distal loops of the jejunum. [A.B.C.]

5.—Brown-tail Moth Eruption.—H. P. Towle states that the insect is said to have been imported on some roses purchased in Holland. For some time it was known as an enemy to vegetation only, but observation and experiment have shown that it is responsible for an urticarial eruption in man. The lesions are round, firm, elevated, red, and about the size of a pea, discrete as a rule, but sometimes confluent. The eruption may last from a few days to several weeks. It is caused by very short, pointed hairs, with barbs, which occur at the time of the third and fourth moltings in June. If these are rubbed the points enter the skin and each succeeding movement drives them deeper. These can be found in the lesions. Filtered extracts made from the hairs do not irritate the skin and no poison has been isolated. The irritation is purely mechanical. [H.M.]

Medical Record.

January 21, 1905. [Vol. 67, No. 3.]

1. A Contribution to the Etiology of Malaria, and to the Analysis of Some Relations of Meteorology to Chemic Pathology. HOMER WAKEFIELD.
2. The Use of Sulfate of Copper Alone, and in Combination with Lime, for the Destruction of Mosquito Larvas, as a Deodorant, and as a Disinfectant. A. H. DOTY.
3. The Subconscious Self. J. ALLEN GILBERT.
4. Some Painful Affections of the Feet. Diagnosis and Treatment. CHARLES OGILVY.
5. An Inflamed Appendix in an Inguinal Hernia, Simulating Strangulation. JOSEPH E. GOLDING.

1.—A Contribution to the Etiology of Malaria, and to the Analysis of Some Relations of Meteorology to Chemic Pathology.—H. Wakefield discusses at length various telluric and meteorologic factors, such as humidity and effluvia from moist earth impregnated with decaying or other organic matter, which are concerned in producing a class of diseases which the author correlates under the heading of "subkatabolic." Malaria is one of these, and the author thinks that plasmodial infection is but one of numerous elements concerned in the etiology of the malady. Many features in the seasonal distribution, epidemiology, etc., of malaria are cited to show that the plasmodium cannot be the chief cause, that the real pathologic condition in malaria is a hydremia, and that the symptoms pathognomonic of the disease are those characteristic of the general suboxidation and subkatabolism incident to this hydremia, while the attendant blood changes are those of the anoxemia. The combined factors of paludal malaria are sufficient to account for all of the symptoms manifested without the interaction of microorganisms, though the evidence does not disprove that there may exist a form of the disease due to the effects of such an infection which may be responsible for some of the vicious cycles of the progressive processes. The communication is too extensive for all of its aspects to be presented in a brief abstract, and the original should be consulted for details.

2.—The Use of Sulfate of Copper Alone and in Combination with Lime, for the Destruction of Mosquito Larvas, as a Deodorant, and as a Disinfectant.—A. H. Doty reports on the results of a series of experimental tests undertaken to determine the questions indicated by the title. It was found that a solution containing 1 pound of sulfate of copper and 1 pound of unslaked or rock lime (calcium oxid) in 10 gallons of water was promptly effectual in causing the death of mosquito larvas when added in the proportions of 1 gallon of solution to 50 gallons of the infected water. Solutions of copper or of lime alone were less satisfactory. The result is not due to a toxic action of either of the chemicals, but to the fact that a precipitate is formed which rapidly removes from the water the organic matter upon which the larvas depend for nourishment and life. This method is applicable only in collections of stagnant and offensive water, where it not only destroys the larvas but also deodorizes the fluid, but in swamps or bodies of water covering large areas, other measures are preferable. As a deodorant, the mixture of copper and lime in the proportions stated is the most valuable and practical agent we possess for the purpose. Its action is rapid and permanent, it is practically harmless, is cheap and easily made, and can be employed equally well for deodorizing solids or fluids. The experiments on the germicidal properties of copper sulfate show that it has possibilities as a disinfectant, but no definite statements can as yet be made.

3.—The "Subconscious Self."—J. A. Gilbert, in a philosophic disquisition not susceptible of abstract in brief, discusses the psychology of consciousness. The author says that the question of the possibility of multiple personality depends on the nature of the conception "man." If by man is meant the zoologic animal, then facts force upon us the admission that there are cases in which two separate, distinct streams of consciousness are to be found correlative with one body, at least alternately, if not simultaneously. Psychologically, however, man is mind, he does not *have* mind, and to state that any man or every man has two selves either neglects the psychological nature of man or else forces us into the contradiction of stating that every man is two selves.

4.—Some Painful Affections of the Feet: Diagnosis and Treatment.—C. Ogilvy discusses the commoner causes of

foot pain, with the appropriate treatment. The diagnosis of "rheumatism of the feet" is often made, but is usually incorrect, the symptoms in most cases being due to some deformity, such as eversion or flat-foot. In eversion, or what is commonly called "weak ankle," the foot is everted, the internal malleolus projects very prominently, the toes point outward and the line of strain falls to the inner side of the foot, throwing excessive weight on the inner half of the longitudinal arch. This leads to loss of elasticity of the arch, the foot breaks down and flat-foot results. Flat-foot in its first stages is not diagnosed correctly in 50% of the cases, yet an early diagnosis is of the greatest importance, for it is a difficult matter to transform an everted painful foot with a broken-down arch into one which is capable of performing all its functions without pain or discomfort. The treatment may require the use of the Thomas heel, the Whitman plate, the plaster bandage, operation, exercise and massage, singly or in combination according to the nature of the case. Metatarsophalangeal pain is due to weakness of the anterior arch and is treated by the application of a felt pad and adhesive plaster. Bursitis of the heel is less frequently met with and is treated by hollowing out the heel of the shoe or by dissecting out the bursa. The subject of proper footwear is also considered and the essential points of a well-fitting shoe are enumerated.

5.—An Inflamed Appendix in an Inguinal Hernia, Simulating Strangulation.—J. E. Golding reports the case of a man of 68 who presented typical symptoms of strangulation in an inguinal hernia that had existed for 20 years. On operation no constriction of the canal was found, but the sac contained an inflamed appendix, which was removed and the Bassini operation for radical cure done. The appendix had the remarkable length of 9½ inches.

New York Medical Journal.

January 14, 1905. [Vol. LXXXI, No. 2.]

1. The Present Status of Railway Emergency Work. U. F. MARTIN.
2. A Clinical Study of Myoidema, with Especial Reference to Its Occurrence in Pulmonary Tuberculosis. HENRY L. SHIVELY.
3. Radium: A Review of the Literature. FRED G. HODGSON.
4. Differentiation in the Diagnosis of Nondeforming Clubfoot. JOHN JOSEPH NUTT.
5. Tic Douloureux and Other Neuralgias from Intranasal and Accessory Sinus Pressures. SARGENT F. SNOW.
6. Biliary Colic without Gallstones. JOHN G. SHELTON.
7. Scope of So-called Expert Testimony. SOLOMON S. COHEN.

2.—Myoidema.—H. L. Shively has made a clinical study of myoidema, with special reference to its occurrence in pulmonary tuberculosis. This peculiar muscular contraction, very usually present in cases of tuberculosis of the lungs, may be elicited by sharp percussion with the forefinger. The contraction occurs in the group of fibers near the point of impact, and appears as a well-defined, hard ridge, tetanic in character, and raised in a direction at right angles to the course of the muscle fibers. This whipcord-like elevation continues for a few seconds and then subsides. Frequently associated with this nodular form is a longitudinal furrow, also elicited by tapping, which, however, follows the direction of the muscular fibers and appears as a linear depression or sulcus of considerable length, often extending from the origin to the insertion of the muscle. To this appearance has been applied the name fascicular or fibrillary myoidema. In tuberculosis the phenomenon is limited to the muscles of the chest and upper extremity. In typhoid fever and lobar pneumonia the author has found it as well developed in the muscles of the trunk and lower extremity as in the chest and shoulder muscles. The conditions beside pulmonary tuberculosis in which this sign has been detected include simple and compound fractures, diseases of the hip and spine, necrosis, amputations, hemiplegia, paraplegia, cerebral abscess, locomotor ataxia, muscular atrophy, valvular heart disease, hepatic cirrhosis, nephritis, diabetes, jaundice, rheumatic fever, pleurisy, pneumonia, pneumothorax, empyema, bronchitis, carcinoma, aneurysm, and in secondary syphilis. It has also been observed in the perfectly healthy individual. In a series of 750 consecutive cases of pulmonary tuberculosis myoidema was present in 703. Of this number, 196 were incipient, 475 moderately advanced, and 79 advanced cases. Of the 196 incipient cases, both varieties of myoidema could be obtained in 135, the nodular alone in 19, the fibrillary alone in 24, and neither

form in 18 cases. Of the 475 moderately advanced cases, both kinds were present in 379, the nodular alone in 30, the fibrillary alone in 37, and neither form in 29 cases. Of the 79 advanced cases, both varieties were to be obtained in 74, the nodular alone in 4, the fibrillary alone in 1, and in no case was the sign not present at all. Shively believes that, although this sign is present in widely different conditions, it is not without value in arriving at an early diagnosis of pulmonary tuberculosis. [C.A.O.]

3.—Radium.—F. G. Hodgson has given a careful review of the literature of this subject. He says that in radium we have an element of extreme interest to both scientists and the medical profession. Its action resembles closely that of the röntgen rays, its main advantages being in the ease with which it can be carried around and used, especially in inaccessible mucous cavities, such as the nose, throat, esophagus, stomach, vagina, and rectum, and its bactericidal power. It is of undoubted value in lupus, rodent ulcer, epitheliomas, some sarcomas, and certain chronic skin diseases. [C.A.O.]

4.—Nondeforming Clubfoot.—J. J. Nutt believes that physicians frequently fail to recognize this disease and, therefore, the natural failure of the treatment. Peripheral neuritis, rheumatism, gout, lumbago, sciatica, neuralgia, and flat-foot are among the wrong diagnoses usually made. He says that the results from the treatment of nondeforming clubfoot are among the most satisfactory that the surgeon ever encounters, but the careful study of the diagnosis needs much more attention from both physician and surgeon. One may be most faithful and conscientious in stretching a gastrocnemius, but if the pain is due to rheumatism, antirheumatic treatment and not the traction shoe is indicated. Rheumatism, lumbago, gout, or sciatica may be present, together with a nondeforming clubfoot, and when the improvement at the ankle-joint becomes marked, and these symptoms still persist, other treatment must be added. [C.A.O.]

5.—Tic Douloureux.—S. F. Snow believes that 80% of the cases of tic douloureux and other neuralgias arise from intranasal and accessory sinus pressures. The author has treated and relieved 20 patients with chronic tic douloureux in the past seven years, and each one had wellmarked intranasal pressure or a collection within some of the accessory sinuses, more frequently the latter. The acute form, as seen by him, frequently accompanies a cold with sinus accumulation, and passes away with abatement of the inflammation or by securing proper nasal drainage. The subacute form may present an equal degree of pain, but does not clear up with the removal of nasal obstruction; it starts anew upon slight provocation, showing us that a proper outlet must be made from an affected sinus or some nasal pressure demands relief. With the chronic cases, any or all internal sinus morbid states from pus, granulations and polyps to diseased bone may be expected, and in these chronic cases a most patient, thorough clearing out is our only hope. [C.A.O.]

6.—Biliary Colic without Gallstones.—The cases reported and the statements quoted in this paper by J. G. Sheldon are presented in support of the theory that biliary colic may be due to contractions of the gallbladder resulting from an occlusion of the cystic duct—either by foreign bodies, inflammatory swellings, flexions or displacements; and that it is not necessary that a foreign body should be in transit through a duct for the occurrence of biliary colic. The author has found in the literature, the reports of 37 cases of biliary colic in which no stones were found at operation or autopsy and in which it was very improbable, from the symptoms and course of the cases that stones were passed into the intestine. In 32 out of the 37 cases, the condition found was acute inflammation of the gallbladder with distention. [C.A.O.]

7.—Scope of So-called Expert Testimony.—S. S. Cohen says that the difficulties attending expert evidence upon pharmacologic questions could be in large part obviated (a) by adopting the principle of controlled examinations, with preservation of portions of materials examined and exhibition of material results; (b) by submitting scientific questions to the judgment of a jury or commission of experts, who should report to the court, and whose unanimous report or discrepant

reports should be submitted to the trial jury as part of the evidence in the case. Before such a commission scientific experts might be allowed to appear frankly as advocates arguing upon evidence submitted, but no mere opinions should be given as evidence; it being the function of the commission to formulate opinions for the guidance of the court and jury having final decision of the case. As the plan suggested in the foregoing paragraph is not likely to be adopted for many years, if ever, the duty devolves upon physicians and pharmacists called as expert witnesses under the present system to guard their own actions and evidence so that the reproach of partisanship and venal interest which now justly or unjustly attaches to the testimony of experts upon pharmacologic questions may be removed from the honest and competent majority and a sharp line of distinction be manifest between them and others. The chief difficulties that honest, sincere, and competent expert witnesses have to meet are of three orders: (a) The necessity to state technical matters in untechnical terms; (b) the combination of witness and advocate in one person; (c) the confusion of judgments of fact, the result of scientific research and analysis, with opinions, and like confusion concerning statements of facts of general scientific knowledge; (d) the request for formulation of an opinion addressed to one whose studies have not qualified him to speak authoritatively upon the special questions involved. The author says it is not fair to condemn lawyers for the abuse and misuse of expert evidence, seeing that lawyers can use an expert witness for no purpose which the witness refuses to be used for. Courts may, however—from the viewpoint of scientific investigation—err both in the admission and in the exclusion of expert testimony. Newspapers and the public in general usually do grave injustice to the members of our professions, inasmuch as they do not know how often physicians, chemists and pharmacists, after examination of the facts in special cases, refuse to testify on behalf of the interests that have consulted them. Physicians and pharmacists asked to give expert testimony should stipulate that they are to tell the whole truth and to answer frankly and fully the questions of counsel on the other side; that they are not to be asked to lend themselves to pettifoggery or obscuration of any kind; that their opinions are to be held subject to modification by any additional facts that may be disclosed; that they are not to become advocates on or off the witness stand. He believes that the expert or scientific advocate has an honorable and useful field of work as assistant and adviser to counsel; but that his place in court is by the side of counsel, not on the witness stand. [C.A.O.]

Medical News.

January 21, 1905. [Vol. 86, No. 3.]

1. Precautions Used by the New York City Department of Health to Prevent the Spread of Contagious Disease in the Schools of the City. THOMAS DARLINGTON.
2. The Cystoscope as an Aid in Genitourinary Surgery. FOLLEN CABOT.
3. The Relation of Cholin to Epilepsy. JULIUS DONATH.
4. Some Ocular Reflexes—(Psychoses). S. W. S. TOMS.
5. Report of a Case of Postdiphtheric Paralysis. WILLIAM J. BUTLER.

1.—Prevention of Contagious Disease in Schools.—T. Darlington describes the system of school inspection inaugurated in New York in 1897 and that now in operation, dating from 1902. The schools are grouped so that each inspector looks after about 5,000 children. He inspects daily all those isolated by the principal, all absent from school for a few days, and all excluded from attendance. Weekly all the children pass before him, each one pulling down its own eyelids, opening wide its mouth, as it passes, the hair and hands being examined at the same time. If trouble is suspected the child has a more thorough examination later. In cases of measles and scarlet fever a special health officer verifies the diagnosis. Janitors are not allowed to reside in the school building. The facilities for the care of outer garments have been investigated. Envelopes have been provided for the separation of writing and drawing utensils. Sending a child to look after an absentee has been forbidden. School books from infected houses are burned, library books are disinfected. Nurses have been appointed to supervise the treatment of such diseases as conjunctivitis, pedic-

ulosis and other skin affections. Under the compulsory education law parents are fined for not putting their children under proper treatment. Five oculists were appointed for determining the presence of trachoma, and a dispensary fitted up for its treatment. Two inspectors have been assigned the work of vaccinating. [H.M.]

2.—The Cystoscope in Genitourinary Surgery.—Follen Cabot says cystoscopy will never become an easily accomplished method of examination. He discusses the advantages which its employment offers in calculus, newgrowths in the bladder, foreign bodies in the bladder, and tuberculosis of the bladder, kidney, etc. The dangers of cystoscopy have been overrated. After considerable experience he has seen no severe symptoms follow its use. He prefers to examine with a measured amount of fluid in the bladder, as objects are recognized much better if a regular plan is followed in this respect. He prefers to have 6 oz. or 8 oz. of boric solution in the bladder. In many patients cocaine is the source of much comfort, and in a 1% solution he has never seen any serious harm follow its use. He usually introduces a soft rubber catheter, draws off the urine from the bladder, and then with a small syringe introduces half an ounce of a 1% solution into the bladder. [A.B.C.]

4.—Ocular Reflexes (Psychoses).—S. W. S. Toms states that every practitioner is called upon to treat more derangements than diseases. Textbooks have not given us all the etiologic factors for hysterical and neurotic states, and these patients suffer without doubt. One thousand routine eye examinations convince him that many patients who complain of symptoms other than those directly referable to the eye, would have gone unrelieved had he not made these examinations. A slight visual defect may create profound nerve-racking disturbances, headache, vertigo, nausea, "bilious spells," nervous dyspepsia, cardiac neuroses, muscular twitchings, insomnia, seasickness and car-sickness, etc. A lowered state from overwork, worry, or disease, will rupture a compensated eye defect. No refraction can be accurately determined under the presbyopic age without mydriasis. [H.M.]

5.—Postdiphtheric Paralysis.—W. J. Butler reports a case of unusual extent involving the external recti, the soft palate, the pharynx, the abductors of the larynx, the diaphragm, and peripheral nerves. There was acute cardiac dilation, with pulmonary hypostasis and edema, and liver stasis. An acute myocarditis would explain all the physical signs and clinical symptoms. Codein was used to allay restlessness and cough. Strychnin exerted a favorable influence on the heart tone from the beginning. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Diffuse Prostatopelvic Carcinoma Cured by Röntgen Rays.—The röntgen ray treatment of deep-seated carcinoma has just received a very remarkable item of testimony. In the *Bulletin de l'Académie de Médecine* (No. 29—*Séance du 19 juillet, 1904*), a truly record case has been reported by MM. A. Imbert and L. Imbert. The patient had been a diabetic of long standing before he came under their care, but no sugar appeared in the urine during the period in which he was under their observation. However, his troubles do not appear to have been very oppressive; he had for some years been obliged to rise a couple of times every night to micturate, but there had never been any accentuated urinary trouble. The general health had been such as to permit active occupation. Toward the end of February, 1904, he was first affected, without appreciable cause, with very frequent and very painful micturition. The uneasiness became so excessive that he passed urine from 100 to 150 times in the 24 hours; this statement was corroborated by his local medical attendant, who also stated that the urine remained always clear. This excessive irritation was somewhat allayed by sedatives;

when, all of a sudden, and without appreciable cause, retention, unforeseen and complete, set in. The physician was, however, able to pass a catheter without difficulty; and the phenomena of vesical irritation having almost completely disappeared with the onset of retention, the passage of an instrument was not called for more than three or four times a day. The patient was first seen by one of the Drs. Imbert on March 14, 1904. The urine was then very turbid, but cleared rapidly during the ten-day interval of treatment before the second visit. The urethra presented no trace of narrowing. The prostate was enlarged, irregular in outline, and hard—giving the general impression of a malignant growth. A catheter was left in the bladder at first visit, but was tolerated but 24 hours, on account of the restlessness of the patient. It had been well borne by the bladder and urethra, and after its withdrawal micturition became frequent and painful. There was, however, no return of the retention. When next visited (March 24), the patient had become obviously emaciated. The catheter was again secured in the bladder; lavements of antipyrin and instillations of guaiacol were ordered. The catheter was tolerated for a week; and the pain and irritability diminished. But a few days later violent pain set in—in the left buttock and thigh—like those of sciatica, he said. A new tumor was found to have formed, and appeared to adhere to the ischium; the prostatic enlargement progressed; there were great difficulty and pain in defecation, and the emaciation progressed rapidly. Röntgen-ray treatment was begun on April 18, and repeated April 21, 22, 23, 25, 27, 28, 29, 30, and May 2, 3, 5, 6, 7, 8, 13, 18, and 21. The patient was placed in the prone position, which was the least painful, and the tube was arranged directly above the left buttock, so that the focus was at 22 cm. from the skin. The length of spark was about 15 cm. From the beginning the tumor decreased in size; on April 27 he declared himself better and able to sit up. On May 6 he was able to resume work; the prostatic tumor had disappeared, and with it, all adhesions; the ischial one had dwindled to the size of a hazel-nut. This result seems certainly a most encouraging one, and we will anxiously await similarly favorable reports.

REVIEW OF LITERATURE

Ptois of the Abdominal Aorta.—Stiffler¹ notes that the condition occurs in two forms, one in which the vessel is twice its normal diameter; he calls this the dilation form; it can be palpated above the umbilicus running along the gastrocolic ligament. The other he calls the contractile form, the vessel is reduced to the size of a little finger, is elongated so that it assumes a tortuous course through the abdomen, passing now to the right then to the left of the median line. When the condition cannot be attributed to a congenital defect or to an atony, trauma or mechanical influences must be held responsible. The contractile form is due to irritant, such as inflammatory scars, or proliferations arising from gastritis, gastric ulcer, appendicitis, parametritis, and perimetritis. Gynecologic or surgical procedures, reduction of the intraabdominal pressure, various cures, as water, antifat massage, paralysis agitans, hysterolepsy, and improper modes of correcting movable kidneys by unsuitable apparatus, these conditions favor the production of ptosis. The disturbances arising from ptosis of the abdominal aorta are principally functional in character, as interference with nutrition, central and vasomotor trophic neuroses, hypersensitive reflexes, and especially the syndrome referable to the neuroses of the celiac plexus. [J.F.]

Relation of the Islands of Langerhans to Diabetes Mellitus.—K. I. Karakascheff² examined the pancreas in 11 cases of diabetes mellitus, that came to autopsy. In all there was more or less degeneration of the glandular parenchyma, depending in most cases on a marked arteriosclerosis. The islands of Langerhans were, as a rule, normal, and in certain

cases were even the seats of proliferative processes. On the other hand, cases were observed in which these structures were partly diseased, without having produced diabetes during life. The proliferation of the islands, together with a cellular transformation which was observed in many places, are attributed to a new formation of glandular parenchyma; these processes only occurred where there had been a destruction of glandular tissue. Embryologic studies have shown that the islands of Langerhans are not separate organs, distinct from the true pancreatic tissue, but that they are of the same epithelial origin as the latter. They form a preliminary stage in the development of the glandular acini, and may be regarded as a reserve material, which replaces the glandular parenchyma, if this is destroyed. It is very improbable that the islands alone possess a specific relation to carbohydrate metabolism. It is more likely that the whole gland bears a relation to diabetes, since ordinary degenerative processes will affect the glandular acini as well as the islands; in fact, the latter are to be regarded as the more resistant of the two. In cases in which the acini alone are affected, while the islands of Langerhans remain intact, and are to produce new parenchyma, the symptoms of diabetes may not be manifested at all. [B.K.]

A Contribution to the Diagnosis of Renal Tuberculosis.

—R. Milchner¹ reports a case in which the patient was believed to be suffering from tuberculosis of the left kidney. That organ was enlarged, distinctly palpable, and tender. Catheterization of the left ureter brought forth blood and pus. The urinary sediment was stained with Gabbet's solution, and acid-fast bacilli were found. As the patient had grown very weak from loss of blood, and as all the symptoms were typical of tuberculosis, it was decided proper to operate. Instead of tuberculosis, a well-developed hydronephrosis with kinking of the ureter was found. The condition was relieved, and the patient made a perfect recovery. An investigation was then made to determine the cause of the presence of the bacilli. It was found that a catheterized specimen of the urine failed to show the presence of the bacilli, but a culture made from the labia gave positive results. It was concluded that the bacilli were from the smegma microorganisms, which are known to be acid-fast like the bacillus of tuberculosis. The case is reported to show the importance of making a differentiation between these two forms of bacteria, which are so much alike in their staining tendencies, before making the diagnosis of tuberculosis of any part of the urinary tract. [W.E.R.]

Radium in Nose, Throat, and Ear Diseases.

—J. C. Beck² reports the results of radium treatment in a number of cases, giving detailed notes on 11. He employs 0.050 gm. of radium salt of 10,000 radioactivity. He has used it only six months and reports cases thus early because they were by no means all successful and he thinks the true value should be known. In a case of syphilitic ozena and one of foul discharge from the ear, the pain and odor were distinctly lessened. In several cases of tuberculosis, little or no benefit accrued. In cases of tumor, primary or recurrent, pain was diminished and in one recurrence was possibly prevented. One case of lingua nigra was cured. In addition to the lesions in the locations mentioned, a rodent ulcer in an amputation stump in a subject of general arteriosclerosis, unhealed for 11 years, was cured by 10 applications of radium for 10 minutes each. Beck says his results with radium have not been startling, but he is continuing treatment in certain cases to try out the method. This he believes other physicians should do in order to establish the true value of radium as a therapeutic agent. [A.G.E.]

Treatment of Obesity.—K. Bornstein³ emphasizes that there cannot be a routine method for obesity, but that each case must be treated on its own merits. The main portion of the treatment must be dietetic; exercise is also of considerable value, but medical treatment comes in a bad third. Carbohydrates and fats must be limited, as they are the main fat builders; the hunger of the patient may be appeased by larger quantities of rye bread and vegetables rich in cellulose, and therefore of slight nutritious value, such as peas, potatoes, etc. Potatoes are forbidden by many, but as they have such a slight

¹ Berliner klinische Wochenschrift, 1904, No. 36.

² Deut. Archiv f. klin. Med., Bd. lxxii, p. 60.

¹ Berliner klinische Wochenschrift, December 5, 1904.

² Chicago Medical Recorder, December 15, 1904.

³ Therapie der Gegenwart, 1904, xlv, 388.

food value, Bornstein considers them an excellent substance to feed fat people. He does not advise the limitation of water and soups; concerning the former he says, that the more water is taken, the better are the tissues cleared of waste products; beer he forbids positively. He also forbids fat and rich soups, but of thin soups he says, that as they do not have a nourishing value they are very suitable. Instead of sugar he insists on saccharin, inasmuch as it has no food value, increases the amount of stool, and acts as a diuretic. Albuminous foods he advises, but says expressly he does not mean meat by albuminous foods, but rather vegetable albumins, as cheese, nutrose, plasmon, aleuronat, etc. Muscular labor must aid the burning up of the extra amount of albumins consumed, and of exercise, climbing is by far the best. He advises daily hot baths, as they induce freer elimination through skin and kidneys. Of drugs, iron and quinin should be given first place, and of other adjuvant measures, those regulating the bowels deserve consideration. [E.L.]

The Convulsions of Children and Their Relations to Epilepsy.—R. O. Moon¹ considers this subject in its relation to rickets, teething, specific fevers, traumatism, digestive disturbances, emotional shock, indefinite illness, etc. Illustrative cases are given. The author asserts that we should take a serious view of all convulsions occurring in infancy and are not justified in supposing that a single convulsion in childhood will end with itself and have no further evil influence. Most of the cases which arise in connection with extrinsic causes have a history of hereditary disease or alcoholism in the parents and both are predisposing causes of epilepsy. Even without such history the mere fact that the convulsion being often repeated makes the brain cease to be normal, and creates a distinct pathologic basis for the production of epilepsy. The precise relation of such convulsion to epilepsy can not be ascertained, and for this reason it is unfortunate that infantile convulsions and epilepsy, in many textbooks on the diseases of children, are dealt with in separate chapters. The impression is thus conveyed that there is a much greater difference between these two affections than seems warranted. The serious view here taken of infantile convulsions is borne out by Sir William Gowers, who says "no convulsion in childhood should be looked upon as of little moment, no matter how prominent and exciting a cause may be discovered; even a single fit in childhood indicates the need for careful supervision." [A.B.C.]

The Pasteurization of Milk.—A. E. Hippius,² in a thorough experimental study of the changes occurring in milk during pasteurization, arrives at the following conclusions: 1. This process effectually destroys all the infectious elements of milk. 2. Chemically the milk remains almost unchanged, if pasteurization is properly done. But even if some of the albumen should become insoluble, this has no practical significance, as all the albumen must first coagulate in the digestive tract and then become redissolved, before it can be assimilated. 3. The principal biologic properties of raw milk are preserved in properly pasteurized milk, which is thus the most desirable substitute for breast milk. Experiments with infant feeding ought to prove this conclusively and the author hopes to see this proof furnished by those who have the necessary clinical material. [L.J.]

The Route of Infection in Pulmonary Tuberculosis.—M. Wassermann³ reviews the literature and reports five cases which tend to show that the infection in pulmonary tuberculosis reaches the lungs through the pharynx and tonsils by way of the cervical lymphatics and the pleura. An abrasion or wound of the nose or mouth permits the tubercle bacilli, which are inhaled with dust, to penetrate the mucous membrane and enter the lymph stream. A lymphadenitis develops in which the bacteria multiply. They are next carried to the pleura where an inflammatory process causes adhesions with the lung structure, by means of which the bacilli enter the lungs. The lymphatic involvement is often so slight that the patient fails to notice it. The pleuritic involvement, however, is nearly always observed as it causes the "stitch between the shoulders," which is one of the first symptoms of pulmonary tuberculosis.

All of the author's patients noticed this pain and enlargement of the cervical lymph-glands at the beginning of their disease. Wassermann believes that the right apex is so frequently affected because the greater activity of that shoulder increases the flow of the lymph which carries the infection to that part. [W.E.R.]

Real Hydrophobia or Inoculated Modified Rabies?—The case to which Heydenreich¹ refers received the first injection of Pasteur's prophylactic five days after the occurrence of the suspected bite, and eight days after the inoculation a chain of symptoms developed, which he says is of the greatest interest. There appeared at the point of inoculation a hard, painful nodule, which was followed by pain over the entire body, decreased peristalsis, constipation, anorexia and a rise of the temperature. Then paresis of the detrusor vesicæ, of all the face muscles, of the tongue, with partial paresis of the pharyngeal muscles and disturbances of the mind. After two or three weeks there appeared attacks of oppression and dyspnea. Although the attacks were not of the stamp of clonic convulsions, they simulated a modified syndrome of the pharyngeal and pectoral convulsions of true rabies. After several months of these attacks, the patient became melancholic, his usual habits changed, and there was clouding of the mind, and finally idiotism. The patient died 10 months after the onset of the disease. Heydenreich maintains, if this had been a case of pure rabies, the period of incubation was only 13 days, which is extremely short. The most interesting feature is that a woman was bitten by the same dog and at the same time, but developed neither the symptoms of rabies nor those presented by the man. Her wound was more severe than that of the man. Because of her dread of the prophylactic substance and the injection, she refused to be treated in this manner. The dog was kept under observation for six days, but developed no symptoms of the disease. At the suggestion of a veterinary surgeon, who believed it safer to dispose of the animal, the dog was killed. [J.F.]

Mixed Typhoid and Paratyphoid Infection.—H. Conradi² reports the case of a child, who was taken with irregular fever, slight intestinal and cardiac disturbance, had roseolas and enlarged spleen; an attack of typhoid fever of irregular type was diagnosed. The patient's stool contained both typhoid and paratyphoid bacilli; they were demonstrated by their growth on agar. The number of colonies of paratyphoid organisms was but small as compared with those of typhoid organisms; there were about 5 of the former to 200 of the latter. In looking for the source of infection Conradi found that the child had been eating pieces of ice and drinking water from a spring near its home. In the water of this spring, as well as in the water of a rivulet feeding it, typhoid and paratyphoid bacilli were found. The first symptoms of the infection showed themselves 10 days after eating the ice. In another instance, the case of a physician, who had been taking care of typhoid fever patients, he also isolated both the organisms from the stool. He is convinced that in this case the organisms were acquired through contact infection. This patient, however, showed no symptoms of either disease. [E.L.]

The Conduction of Cardiac and Vascular Murmurs in the Thorax.—According to C. Klieneberger,³ systolic murmurs at the mitral valve are conducted especially toward the lower half of the left interscapular region. Presystolic and diastolic murmurs of this valve are conducted especially to the left axilla. Aortic insufficiency and stenosis often produce a systolic rumbling in the large vessels, which is conducted throughout the chest, and is heard with special distinctness in the supraspinous fossas. A loud, systolic rumbling over the lungs may be produced by insufficiency of the aortic, mitral, or pulmonary valves, or by congenital anomalies. This phenomenon is usually more intense in the last two conditions than in the first two. The author believes that considerable diagnostic importance attaches to the conduction phenomena in the supraspinous fossas and the left axillary region. Such phenomena refer either to an aortic insufficiency or a mitral stenosis. [B.K.]

¹ The Lancet, December 24, 1904.

² Medizinische Obozrenie, lxii, No. 19.

³ Berliner klinische Wochenschrift, November 28, 1904.

¹ Berliner klin. Wochenschr., 1904, 38.

² Deutsche medizinische Wochenschrift, 1904, xxx, 1165.

³ Deut. Archiv f. klin. Med., Bd. lxxxi, p. 130.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

The Radical Cure of Femoral Hernia.—Multiplicity of operative methods usually indicates a surgical condition not easy to cure. This is as true of femoral hernia as many other conditions; the average case may be successfully treated by any one of many methods, but in difficult cases most methods occasionally fail. Imperfect technic in carrying out an operation which might be successful in the hands of its originator, but not well understood by one who attempts to follow his lead, may give rise to failure in certain cases. Probably very few surgeons, who have not investigated the subject are aware of the great number of methods of cure of femoral hernia and modifications of these methods which have been advised. An excellent paper by Goebel,¹ from the clinic of Mikulicz in Breslau reviews over sixty monographs which have appeared in recent years and discusses an equally large number of different methods or modifications of methods suggested in these cases. Socin is credited with having introduced the modern method of operative treatment of femoral hernia in Germany in 1879. He held that the occurrence of this form of hernia is dependent usually upon the pressing outward of a subperitoneal lipoma; if we remove this lipoma with the hernial sac, after ligating the neck of the sac, the femoral ring closes and there is very little likelihood of recurrence. More recently, in this country, Ochsner² has advocated this method of treatment of femoral hernia, and no doubt very many surgeons have found by experience that it is perfectly satisfactory in the vast majority of cases. Goebel considers this simple procedure sufficient in many cases with a small femoral opening, but believes that the various modifications which have arisen show the method to be unsatisfactory in medium sized and most larger hernias. The numerous methods we may divide into three general classes, although Goebel gives a somewhat more complicated scheme than this, and various operators have attempted to prevent recurrence by one of them or a modification or combination. The simplest of the three consists in attempting to simply close the femoral opening by suture: Poupart's ligament may be brought down to the pectineal fascia by simple suture or an attempt made to close the femoral opening by purse-string suture, taking in the various fibrous structures forming the ring; or approximation of the structures forming the ring has been carried out by more complicated layer suture. In the second group of methods are included the attempts to prevent recurrence by transplantation of the neck of the sac. This has been carried out either without any special method of incision or by an incision opening the inguinal canal or opening the abdomen in some way or other. In the third group of methods a plastic operation has been resorted to for closure of the canal, the flaps being formed either of neighboring muscular, fibrous or bony tissue or a combination of these various tissues. The method which Goebel specially recommends was introduced by Mikulicz and consists in turning up a flap of periosteum, which may also include muscle and fascia. The incision follows the crista pubis from the tubercle of the pubis to the great vessels, and the flap raised is sutured to the undersurface of Poupart's ligament. After discussing the subject at length, Goebel concludes by saying that the operation for femoral hernia should be individualized and that the choice of operation depends upon the condition existing and the character of the tissues at our disposal for closure. This seems a very rational view. In the majority of smaller hernias, we believe that

simple isolation of the sac, closure high up and excision without any more complicated procedure is all that is necessary, providing firm healing takes place. No doubt many failures following this simple method occur from imperfect isolation of the hernial sac, and lack of closure high enough so that the funnel of the peritoneum which is left, draws up into the abdominal cavity, leaving the femoral canal entirely empty, when it naturally tends to close without anything further being done. To accomplish this, it is sometimes necessary to dissect out considerable adherent fat which exists in the canal as well as to free the sac and excise it. In the larger hernias it seems advisable to attempt some closure of the canal when there is considerable relaxation, and in such a case it is often possible to suture Poupart's ligament to the fibrous structures on the opposite side of the canal without undue tension and without compressing the great vessels. When this is not possible, it is certainly undesirable to attempt closure under great tension, and we cannot see any possible harm in making use of the flap of fascia, muscle, or, as Goebel suggests, of combining all these tissues with periosteum to close the canal. From observation of a series of cases quite as large as that on which Goebel bases his conclusions, we are of the opinion that the use of the fibrous flap alone in cases in which it is impossible to approximate Poupart's ligament with the other fibrous tissues without undue tension, is all that is necessary and will give entirely satisfactory and permanent results.

REVIEW OF LITERATURE

Mesosigmoiditis and Recurrent Volvulus of the Sigmoid Flexure.—Emil Ries¹ reports a case and discusses the subject at length. A man of 43, in 1892 noticed a discharge of pus and blood from the bowel, and was operated on for hemorrhoids. He was better for six months, but thereafter pain was noticed in the region of the sacrum. Again, in 1899, he was operated for hemorrhoids, and again there was improvement for a few months. For years there has been occasional attacks of nausea and some vomiting; lately, the abdomen has been bloated. Since the last operation pus and mucus have been repeatedly discharged from bowel. There has been some loss in weight. There is a dragging sensation and pain in the region of the sacrum. Digital examination revealed a diffuse infiltration of the paraproctic tissue high up. In the abdomen could be felt a tumor the size of a child's head, in the left iliac region. Under anesthesia, manipulation of this tumor caused evacuation of a large quantity of mucus, feces and gas, the tumor disappearing. A diagnosis of volvulus of the sigmoid was made, and operation was performed. A very thick mesosigmoid, presenting evidences of chronic inflammation, was found. The sigmoid was not twisted, but a slight impulse from above caused the formation of a volvulus. The mesosigmoid was attached to the anterior and lateral abdominal wall by several sutures, the abdominal incision was closed and the patient completely recovered. [A.B.C.]

Surgical Treatment of Kidney Lesions.—A. Yvert² reviews at length the lately proposed operative treatment for nephritis and what he further designates as purely medical diseases of the kidney; accordingly, the paper is divided into consideration of nephritis, acute and chronic, and medical affections properly so-called. In acute nephritis, with or without abscess, nephrectomy, nephrotomy, and decapsulation are to be considered. Of the first two, Yvert believes nephrotomy is the operation of choice. The mortality is 5%, while nephrectomy gives 33%. Decapsulation is yet on trial in this condition and no positive opinion regarding it is expressed. In calculous pyonephrosis, nephrotomy is to be employed. In chronic nephritis, nephrotomy first demands attention, because practised by Pousson, who is stated to be the pioneer in the surgical treatment of this lesion. Nephrotomy in 9 cases has cured 5, improved 2, and been followed twice by death. Nephrectomy has been practised 5 times with 5 cures, but in most cases the

¹ Beiträge zur klinischen Chirurgie, 1904, vol. xiii, p. 486.² Clinical Surgery, Chicago, 1904, p. 44.¹ Annals of Surgery, October, 1904.² Revue de Chirurgie, September 10, 1904.

lesion was localized. Capsulotomy by thermocautery has been successful in 2 cases. Decortication or decapsulation, as recommended by Edebohls, is still on trial; it is possibly preferable to nephrotomy in certain cases, but this is not yet proved; at present nephrotomy is the preferable one of the two procedures. It has the great advantage of giving almost instant relief, while decapsulation requires some ten days to exert its effect. This makes the former superior in cases of uremia or of urgent anuria due to other causes. Yvert concludes that surgical treatment of kidney affections is increasing in popularity; it should be used only after medical treatment has been thoroughly tried. Nephrotomy is the operation of choice. [A.G.E.]

The Treatment of Hematemesis by Gastroenterostomy.

—F. Gregory Connell¹ reports a case in brief and reviews the literature with special reference to advocated treatment. The author's case briefly is as follows: On June 9, 1903, a patient suffered an attack of gastric hemorrhage. With exception of an attack of typhoid fever some years previously the personal history was negative. Hemorrhages were repeated on June 10, 11, 12 and 13. Medical treatment failing, operation was performed. An examination of the external surface of the stomach gave no clue as to location or character of the bleeding point. As a hasty examination of the mucosa failed to reveal the point an anterior gastroenterostomy was performed. The patient did well for two days, but thereafter blood passed from the bowel and death occurred on the fifth day. Autopsy showed the site of anastomosis in perfect condition and there was no peritonitis. Blood was in the bowel and stomach in considerable quantity. A typical round ulcer, $\frac{1}{2}$ in. by $\frac{1}{2}$ in. in diameter, was found on the anterior wall near the pylorus. Connell advocates the following line of treatment in view of his experience with this case and a review of the literature: Gastroenterostomy is indicated in hematemesis (1) after a thorough search has failed to reveal the source of the hemorrhage; (2) in case the source of the bleeding is discovered, but in such condition as to make direct treatment impracticable or impossible. We should discountenance the idea, now quite prevalent, that nothing is to be gained by searching for the bleeding point and that gastroenterostomy is all that is necessary to prevent recurrence of the hemorrhage. [A.B.C.]

After-care of Laparotomies.—C. R. Hyde² deals with the medical aspect of this question, discussing abdominal distention, backache, tonics and cathartics, the abdominal binder, and sleeplessness. The first may often be avoided by giving the bowel something to do soon after operation; this may include hot water, coffee, and soon broths. Enemas may be given early; he has given them as soon as six hours after an operation. Backache is a most serious annoyance to many patients, but the surgeon rarely charts an order for its relief. Hot-water bags over the abdomen and under the back are often efficient. In five recent cases painting the back with tincture of iodine has given almost immediate relief. An abdominal binder furnishes a needed support for two or three months, but in case of primary union it should not be worn longer, unless the patient is very stout. Sleep must be secured the patient, even if drugs are necessary to accomplish this. Sleep is always promoted by keeping the bowels acting properly and the nervous system in as good condition as possible during the sedentary life entailed for the few weeks; to this end, Hyde is a believer in the use of tonics and cathartics daily. In cases of primary union, the patient should be out of bed and sitting in a chair at the end of two weeks and walking at the beginning of the third. In conclusion, Hyde says every laparotomy case is entitled to as much consideration after operation as during or even before that time. [A.G.E.]

Fracture at the Base of the Skull.—George L. Walton³ has studied the autopsy reports in 50 cases of death from fracture at the base of the skull. In a lengthy article he discusses fracture in this situation, presenting a number of illustrations. In his recapitulation he sums the subject matter up about as follows: 1. The majority of basal fractures are caused by impact received in the horizontal plane, frontal, occipital or lateral. 2. While some of the fractures resulted from extension

from the vault there was no suggestion of fracture by *contrecoup*. 3. The line of fracture tended to enter the fossa nearest the line of impact and to extend in the general direction in which force was applied. 4. The lines of fracture tended to follow the lines of least resistance and in 22 of the 50 cases these lines corresponded to those indicated by Rawling, but the exceptions were too numerous to allow of fixed rules. 5. The sella turcica was implicated in 36% of the fractures. The petrooccipital and the mastooccipital sutures furnished common lines of least resistance. The petrous bone containing the auditory apparatus was peculiarly liable to fracture, more often transversely than longitudinally. 6. In seven cases (14%) fracture was limited to the base after vault impact in the horizontal plane. 7. The orbital foramen was implicated in 21.4% of cases of orbital fossa fracture. 8. Inequality and immobility of pupils furnished the most frequent and unfavorable sign of fracture of the base. In 44 recorded cases the pupils were normal in only 13. 9. Reflexes may be lessened or lost in fracture of the base; on the other hand they may be increased to spasticity, probably through direct pressure on the pyramidal tract, as by hemorrhage. 10. Profuse and persistent bleeding from the ear does not suggest middle meningeal hemorrhage. In nine instances rupture of this artery was attended with bleeding from the ear but once. [A.B.C.]

Opening of New Side Paths for the Blood of the Portal Vein.—In presenting this matter, Talma¹ calls attention to the fact that very often cirrhosis of the liver exists and ascites is prevented by the esophageal varices. With an established collateral circulation between the liver and the abdominal wall the dilated esophageal veins may assume their original size. At all events, rupture of these veins rarely occurs when the blood-pressure in the veins is lessened by the established collateral circulation. He considers hematemesis an indication for omentopexy. The time necessary to establish the collateral circulation varies; as a rule it takes two or three weeks, but many weeks may pass before it is accomplished; in one case the collateral circulation was established in eight days. He calls attention to the fact that morbid anatomists have pointed out that thrombosis of the portal vein may occur in cirrhosis of the liver. Talma notes that the case he reports illustrates how thrombosis of the portal vein may occur without ascites, and he maintains that it is better to make communication between the intestines and the abdominal wall at several points, and in order to lessen the liability of intraabdominal hernia he produces adhesion between the mesentery of the descending colon and the abdominal wall and the ascending colon and the abdominal wall. [J.F.]

An Adenoma of Sebaceous Glands of the Abdominal Wall.—William C. Clarke² reports having removed a tumor 6 cm. ($2\frac{1}{2}$ in.) by 5 cm. (2 in.) in diameter from the skin and subcutaneous tissue of the anterior abdominal wall of a girl of 11 years. A microscopic study of the tumor showed it to be an adenoma of the sebaceous glands. The author reviews extensively the literature on this subject and concludes in part as follows: True adenomas of the sebaceous glands without associated lesions of the skin do exist, and these adenomas undergo fatty changes, with formation of cysts. The tumors are rare. On the other hand, adenoma or a hyperplastic condition of the gland secondary to or together with hypertrophy of the skin is not so uncommon. True adenomas of the sebaceous glands may become calcified or carcinomatous. The stroma of the tumor may undergo hyaline degeneration; giant-cells may occur in them, and the epithelial cells may undergo mucous degeneration and form cysts similar to those derived from the cell undergoing fat metamorphosis. It was shown that the tumor in the case here reported by Clarke was neither a dermoid cyst nor a simple inclusion cyst, nor was it derived from a supernumerary mammary gland, or the sweat glands. Hence the conclusion that the growth was a true adenoma starting from the infundibulum of sebaceous glands and retaining the type of the secreting portion. [A.B.C.]

Tuberculous Stenosis of the Small Intestine in Children.—L. Berard and R. Leriche³ supply notes on 12 cases, one

¹ Annals of Surgery, October, 1904.

² Brooklyn Medical Journal, January, 1905.

³ Annals of Surgery, November, 1904.

¹ Berliner klinische Wochenschrift, 1904, No. 34.

² Annals of Surgery, October, 1901.

³ Revue de Chirurgie, August and September, 1904.

being a personal observation. Sex has no influence. The site is not specified in all, but the lesion, as in adults, is more commonly in the lower part of the ileum, often involving the ileocecal valve. The number of stenoses varies, seven being found in one case. The symptoms vary. They come on slowly and may be indefinite. Indigestion, pain, alternate constipation and diarrhea, and vomiting are common. The vomit is essentially never anything but food. The mechanism of occlusion may be one of several adhesions, kinking of the bowel, etc. Submucous infiltration often adds to one of the other conditions and completes the obstruction. Cicatricial contraction is not so common as in the adult. Occasionally spasm alone may determine occlusion. The treatment is operative, but the danger is that the serious condition of the patient may cause the surgeon to defer operation, which alone can cause improvement. The operations employed are laparotomy, enteroplasty, enterectomy, enteroenterostomy, and intestinal exclusion. Simple laparotomy may be the operation of choice in cases not permitting of a more severe operation or as a preliminary to more active procedure if the patient survives. It may give temporary relief in hopeless cases and occasionally be curative when not expected. Enterectomy is the method of choice. In other cases the choice will be between exclusion and enteroanastomosis. [A.G.E.]

Postoperative Intestinal Obstruction.—Charles H. Peck¹ reports three cases in detail, and concludes in part as follows: The possibility of postoperative intestinal obstruction should be borne in mind in all abdominal operations, especially for appendicitis with peritonitis, pyosalpingitis with pelvic peritonitis. All raw surfaces should be covered when possible with normal peritoneum, or when this is not practicable, with Cargile membrane, or carefully arranged omentum. The cleansing of the peritoneum should be done rapidly and with the least possible trauma and handling. Flushing with hot saline solution is advisable when there is much foreign material to be removed. The smallest possible drain should be used, if any. Diet and regulation of the bowels should be watched with the greatest care during the first few weeks of convalescence; attacks of gaseous indigestion with colicky pain should be regarded with suspicion and treated promptly and vigorously. Determined efforts should be made to relieve early attack of obstruction by enemas, position, gastric lavage, etc. If palliative measures are unsuccessful after a few hours' trial, operation should be promptly resorted to. All patients who have been operated upon for intraabdominal inflammatory troubles should be warned of the possibility of the occurrence of obstruction before leaving the care of the surgeon, impressed with the importance of avoiding indiscretions in diet and attacks of indigestion, and seeking advice promptly should such attacks occur. [A.B.C.]

Paget's Disease and Carcinoma.—H. C. Jacobaeus² concludes that Paget's disease is from the beginning a carcinoma which originates in the epithelium of the excretory ducts. Paget's cells are outwandered cancer cells from the glands; the same appearance is presented when ordinary cancers, glandular in type, ulcerate through the skin. The resistance of the fibrous tissue in the involved part, and perhaps also the muscle as well, accounts for the slow growth and apparent benignity of Paget's disease, so-called, in the beginning. For this reason, cancers beginning in the deeper parts of the breast do not often reach the superficial tissues and give rise to the condition in question. [A.G.E.]

Abdominal Crises Caused by Meckel's Diverticulum.—Oliver C. Smith³ reports two cases. The first, a child of 10, was suddenly seized with pain in the appendiceal region, and vomiting. The symptoms strongly suggested appendicitis. Operation revealed a normal appendix, but sanguinopurulent fluid in the abdomen suggested a pathologic condition. Further search revealed an inflamed, distended, and perforated Meckel's diverticulum. Bile-stained feces were escaping through the perforation, which was near the ileum. The diverticulum was closed off at its base with a pursestring suture, and removed, the opening being closed by turning in, as is done with the

stump of an appendix. The diverticulum was 4 cm. (1½ in.) in length, and 2 cm. (¾ in.) in diameter. The appendix also was removed, the patient making a good recovery. The second patient was a male of 19, who three months before the present attack suffered from symptoms of intestinal obstruction. Enemas relieved the condition. In the present attack, the symptoms again suggested intestinal obstruction. In this case high enemas were unavailing, and operation was deemed necessary. The most marked point of tenderness on the rigid and distended abdomen was 2 cm. (¾ in.) below, and 1 cm. (2 in.) to the right of the umbilicus. Laparotomy was performed 18 hours after onset. Bloodstained serum escaped from the abdomen. Two coils of the ileum were found constricted; constriction being due to a twisting of the bowel around a Meckel diverticulum, extending from a point on the ileum 18 in. above the ileocecal valve to the left pelvic wall. The diverticulum was also twisted upon itself to the point of obstruction. The diverticulum was excised, its basal opening being closed by suture. A congested appendix was also removed. The patient recovered. Henri Blanc is quoted as reporting 48 collected cases, in 1899, in which a Meckel diverticulum caused abdominal diseases; 18 of these caused intestinal obstructions; 20 caused acute inflammation or perforation of the diverticulum, usually ending fatally; the remainder caused cysts, tumors, or hernia of the diverticulum. [A.B.C.]

Acute Septic Inflammations of the Throat and Neck.—Sir Felix Semon¹ says many textbooks group the most incongruous conditions under the head of "edema of the larynx." He speaks particularly of the acute infections which often prove fatal in a few days in previously healthy individuals. The term "pyogenic" as applied to bacteria is considered a bad one as the so-called pyogenic organisms do not always produce pus but are capable of causing any other variety of inflammation. Another point made is that these inflammations should not be named from the place first invaded as "angina Ludovici," "abscess of the larynx," "erysipelas of the pharynx," and other like terms. They are the same wherever by accident the first localization may be. This is usually in the tonsil but may be in the other places signified. The invasion, as a rule, is in persons previously in good health, regardless of sex or age. The "lightning" rapidity of most of the cases is the most serious feature; in one fatal case the whole attack lasted only 11 hours. Yet in the most rapid cases retrogressive changes ending in recovery may supervene at any time. Medicinal treatment is of little value. Foci raising the suspicion of abscess should be incised and tracheotomy must be done whenever dyspnea demands it. The hope of the future in these most serious infections is in the preparation of antitoxins. The use of antistreptococcus serum is now justifiable as time cannot be taken to determine the type of organism present. [A.G.E.]

Meckel's Diverticulum.—Frank E. Bunts² reports a case in which the sole content of a strangulated hernia was a Meckel diverticulum. Various authorities are quoted, and they agree in the main that this diverticulum is present in about 2% of all bodies examined postmortem. Mitchell found Meckel diverticulum in 39 instances on examining 1,635 bodies; 4 of the 39 were among women, the remainder being male subjects. The diverticulum does not always spring from the ileum. Lamb found the record of 14 cases in which it had sprung from the jejunum, and 7 in which it arose from the duodenum, 2 of the latter being in the Army Medical Museum. Usually it is found in the developed body, springing from the ileum at a distance of one to three feet from the ileocecal valve. Hernias in which the diverticulum has so far been exclusively found are the umbilical and inguinal variety. The case reported by Bunts was briefly as follows: A male laborer of 23 suffered from the symptoms of strangulated hernia. There was tumor, pain, and tenderness in the right inguinal region. Operation was performed, and the sole content of the hernial sac was a Meckel diverticulum, together with bloody fluid. The diverticulum being gangrenous, a segment of intestine 20 cm. (8 in.) long, from which the diverticulum sprang, was resected and an end-to-end anastomosis effected. The patient recovered. [A.B.C.]

¹ Annals of Surgery, October, 1904.

² Virchow's Archiv, Band clixviii, Heft 1.

³ Annals of Surgery, November, 1904.

¹ Brooklyn Medical Journal, January, 1905.

² Annals of Surgery, October, 1904.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 5.

FEBRUARY 4, 1905.

\$5.00 YEARLY.

Feeding at the Public Crib.—The annual raid on the public treasury by the private charitable institutions of Pennsylvania is now in progress. Would the "visitor from Mars" believe when told that nearly 200 of these institutions have applied for their share of the fifteen million dollars of the taxpayers' money, and that 175 of them have had their prayer granted by the State Board of Charities, which recommends that nearly ten millions be parcelled out among them? As regards those few institutions owned and controlled by the State, there is of course no question, but as to the others there is little or no genuine governmental control and no just or judicial discrimination as to service rendered or real desert. What part private and personal interest indirectly plays in all this, and what portion is motivated by corrupt greed and "division of the spoils" by a boss-governed and ring-ruled travesty of "statesmanship," none may hazard an exact estimate. Many of the most deserving charities, and those performing the highest and best service to the community, cannot bring themselves to apply, and would probably be refused if they should do so. Many others are ruled by the consideration that if they do not put in their applications the money will go to far less worthy institutions, and so each year the mad race goes on from bad to worse. And the mouths of thousands of institutional trustees and administrators are padlocked as regards the political rottenness of city and State legislation and government. The appropriation to their institutions would at once be stopped by the "machine" should a hint of criticism or reform be ventured.

Boric Acid and Borax as Food Preservatives: A Final Word.—We have several times made mention of the recent work on this subject by the United States Department of Agriculture. The official report of the experiments conducted by Dr. Wiley is now at hand in the shape of a volume of 477 pages.¹ Nearly half is an appendix made up entirely of elaborate tables showing the food balances in the various experiments. The report proper is a detailed account of the organization and conduction of the experiments upon a corps of young men selected from volunteers, mainly employes of the department, who during the tests continued their daily routine work. It closes with a summary of results, and

general conclusions. Both have been epitomized in our columns, but the specific findings regarding boric acid and borax are of interest. In round numbers, 80% of those substances ingested with food is excreted in the urine, small quantities by the feces, and the remainder chiefly by the perspiration. There was a marked tendency slightly to diminish the body-weight. The preservatives caused very little variation in the weight of food consumed compared with the weight of the body. The effects upon the blood-corpuscles were not sufficiently constant to form the basis of any definite conclusion. The effect upon the urine was to decrease nitrogen, decrease acidity, slightly decrease total quantity, increase the trace of albumin previously present in certain subjects, and exert no constant influence upon the number or kind of microchemic bodies therein contained. Upon the metabolism of nitrogen a slight inhibitive effect was noted, but there was a distinct increase in excretion of phosphoric acid. Almost no disturbance in the metabolism of fat was produced. There was a slight tendency to interfere with the combustion of food in the body. The total solids of the urine were markedly decreased, those of the feces markedly increased.

The Basis of Dr. Wiley's Conclusions.—From the findings we have specified, Dr. Wiley says it appears that both boric acid and borax, when continuously administered in small doses for a long period, or when given in large quantities for a short period, create disturbances of appetite, of digestion, and of health. In reaching his conclusions, he is mindful of the chief argument advanced in support of the use of these preservatives in food, namely, that when used in extremely small quantities they cannot be regarded as harmful. This argument must be met squarely, and, supported by his experimental data, Dr. Wiley does so in these words: "It appears, therefore, that there is no convincing force in the argument *de minimis*, unless it can be established that there is only a single preservative used in foods, that this preservative is used in only a few foods; that it will be consumed in extremely minute quantities, and that the foods in which it is found are consumed at irregular intervals and in small amounts. On the other hand, the logical conclusion which seems to follow from the data at our disposal is, that the use of boric acid and equivalent amounts of borax should be

¹ United States Department of Agriculture, Bureau of Chemistry, Bulletin No. 84, Part I, 1904.

restricted to those cases where the necessity therefor is clearly manifest, and where it is demonstrable that other methods of food preservation are not applicable, and that without the use of such a preservative the deleterious effects produced by the foods themselves, by reason of decomposition, would be far greater than could possibly come from the use of the preservative in minimum quantities. In these cases it would also follow, apparently, as a matter of public information, and especially for the protection of the young, the debilitated, and the sick, that each article of food should be plainly labeled and branded in regard to the character and quantity of the preservative employed." As a whole, the report is to be regarded as the chronicle of one of the most difficult, elaborate, and withal scientific of recent investigations bearing on medical topics.

Instruction in Public Health.—The demands of preventive medicine upon the profession yearly grow apace, and for men skilled in all that pertains to this subject there is an urgent and increasing demand. As an instance, Pennsylvania is endeavoring to establish a system of county and township health bureaus that will employ 1,500 physicians; those with a knowledge of general sanitation will be desired for these positions. A corps of specially trained men thus patrolling a State could work wonders in the way of eliminating sources of disease. Recognizing the widespread need for such men, the medical department of the University of Pennsylvania meets it by announcing the inauguration of a course of instruction in public health. This, to the best of our belief, is the first attempt at systematic teaching of the subject in this country. The course will begin on October 1, 1905, and is to include the following branches: Sanitary engineering, sanitary legislation, inspection of meat, milk, and other animal products, sanitary engineering of buildings, social and vital statistics in the United States, practical methods used in sanitary work (purely laboratory instruction), general hygiene, and personal hygiene. This addition to the medical curriculum is a most timely and progressive move by the University. We judge the course will be largely postgraduate in character, as the work outlined appears too elaborate for the time of the undergraduate and certain subjects therein included can properly be appreciated only by those who have completed the regular course in medicine. However this may be, it is to be hoped that many physicians will avail themselves of the opportunity to secure systematized instruction in the details of modern preventive medicine. We trust the opening of the course in the coming fall will be so auspicious as to warrant its continuance as a permanent feature of the department.

Deathrate among Physicians.—A summary of the deaths of physicians in the United States and Canada during 1904¹ shows a total of 2,142, the list including practitioners from all the so-called "schools" recognized by State medical boards. The mortality was 17.14 per 1,000. This is a considerable increase over the years immediately preceding, the rate being 14.74 in 1902 and

13.73 in 1903. The analysis by the *Journal* furnishes many interesting statistics regarding those dying during the past year. The average age was 60, ranging between 22 and 104 years; the average length of practice was 30 years. That the deleterious effects of the physician's life *per se* are largely counterbalanced by his general knowledge of hygienic and sanitary requirements, is shown by the average length of life, and the fact that 596 were over 70; 241 over 80; 19 over 90; and 3 over 100 years. Heart disease was given as the cause of death in 205 cases, but this is an indefinite term. Of the clearly defined diseases, pneumonia is first, with 172 deaths, 7.5% of the total. Tuberculosis caused 90 deaths, in all but 8 instances being pulmonary in location. Cancer caused 39 deaths; septicemia, 23; typhoid fever, 37; diabetes, 20; appendicitis, 15; insanity, 11. Violence of some kind caused 143 deaths; 95 were accidents, 36 were suicides, and 12 homicides. Among the accidental deaths were 21 from poison, 17 from railroad accidents, 14 from falls, 10 from drowning, 7 from runaways. Of those who committed suicide, 14 chose poison; 11, firearms; 3, severed arteries; 2, asphyxiation by gas; 1 drowning; 1, hanging; in 4 the method was not stated. Of the 12 murdered, 10 were shot, 1 stabbed, 1 the method was not stated. Of the entire number, 166 were members of the American Medical Association. The *Journal* desires to obtain exact information regarding deceased physicians, but in a large number of instances is not able so to do. We suggest that the physician living nearest a deceased colleague furnish to the *Journal* brief but accurate data concerning age, cause of death, years of practice, date and place of graduation in medicine. This means only a few minutes' time and would make possible very instructive vital statistics of the profession.

Undergraduates and Postgraduates in Our Large Medical Centers.—Because of continued and, we judge, somewhat plaintive statements, that the number of undergraduate students of medicine in New York is steadily declining, a contemporary¹ in that city has been at the trouble of collecting statistics relative to this question. The results, which were obtained from authorities in each of the colleges in the cities named, make up the appended table. The undergraduates are the matriculates for the year 1904-05, the postgraduates for the preceding year:

	Undergraduates	Postgraduates	Total
Chicago	2,265	647	2,912
New York	1,888	939	2,827
Philadelphia	2,075	477	2,552
Baltimore	918	90	1,008
Boston	779	110	889

This places New York below both Chicago and Philadelphia in the number of undergraduates, but her large number of postgraduates, not quite 200 less than those in the other two, makes her total second only to that of Chicago. The writer says there is a decrease in undergraduates in New York, but it is the legitimate outcome of higher standards of admission and means better physicians. We heartily agree with him that a decrease under such circumstances is a healthy symptom. Fur-

¹ Journal American Medical Association, January 14, 1905.

¹ The Post-Graduate, December, 1904.

thermore, New York is to be congratulated on her splendid showing of one postgraduate to every two undergraduate students. There are yet too many of the latter in our various institutions, though New York is not alone in reducing their number. Development of postgraduate facilities is now the most needed item of medical instruction in Philadelphia. Too many men from the West and South come here, look over our inducements, and go on to New York for their postgraduate work. We are not jealous of New York, neither do we wish to find fault with Philadelphia; we do mightily desire to see the latter rise to the occasion and make the most of her opportunities for teaching and of her corps of able teachers. That she needs a new school so to do, we are not at all sure; first, at least, postgraduate work should be begun, or made better, in existing institutions.

Selling Intoxicating Liquors (Nostrums) Without a License.—There is one method which has not been resorted to for limiting the debaucheries of the nostrum traffic, and the Women's Christian Temperance Union and other temperance people might well see what can be done by it to abate the evil. It is suggested by a recent occurrence in Illinois. A Greenville merchant was fined \$20 for selling Peruna, containing about 25% of alcohol, without a license. It is well known that the nostrum vendors are in fact rivalling the saloon-keepers, and the help of these should also be secured to drive out of competition the depraved drug, grocery, and departmental stores which are threatening the business of those who properly pay a license for carrying on the liquor traffic. The harm done, and the expense incurred by the community through the rum sellers should at least be partly offset by the license fees paid to the public treasury. But the patent medicine sellers evade the law by calling their vile alcoholic mixtures medicines. In this nefarious business the United States Government, with its copyrights and trade marks, protects the nostrum syndicates and drug saloons, and Congress still fails to pass the Pure Food Bill! In such contradictions and immoralities does our system of legislation land us.

Tramps and Smallpox.—The danger of carrying contagious disease from one community to another by wandering individuals commonly known as tramps has long been recognized, but a satisfactory solution of the problem involved has never been presented. Recent agitation of the subject in England resulted in a conference of urban and county councils with a view of devising effectual means of meeting the difficulty. Dr. Louis Parkes,¹ in discussing the resolutions adopted, says that smallpox has in quite a number of instances been traced to the influence of tramps and vagrants. The annual report for Derby² states that smallpox was brought into that county by tramps 40 times in 1903. As pointed out by Dr. Parkes, the obstacles to be met in preventing this spread of disease are many. Some of the means suggested by the conference, though highly desirable, entail proceedings that almost make them impracticable. Any measure to be effected must be based on the power

to detain suspicious persons, even to the full quarantine period of 14 days. But actual laboring men seeking employment, as well as tramps, come under the definition of men "wandering in public places," and to them detention is a serious hardship. The question of personal liberty is also an element to be regarded in framing preventive measures. Other suggestions, as the medical examination of common lodging house inmates and disinfection of their clothing, with temporary closure of such houses if necessary, are not open to serious objections. However, with the insertion of one proviso he regards as essential, Dr. Parkes believes comparatively little trouble would be met in carrying out all the recommendations of the conference. The necessary feature is that sanitary authorities be given the power to award fair compensation in each instance that actual or prospective income or wages are lost by the measures enforced. The subject is one well worthy the attention of health authorities in this country, where, as in England, it appears impossible effectually to stamp out smallpox.

A Directory of Institutions Dealing with Tuberculosis.—We have frequently given warning of the difficulties encountered by physicians and by patients as regards the treatment of tuberculosis. Wrong advice or no advice is often given, and a large company of sharpers has arisen to fleece the unwary. To meet the need *Charities* has compiled a Directory¹ of institutions and societies dealing with tuberculosis in the United States and Canada, which should be in the library of every physician. It contains:

A description of a hundred or more hospitals and sanatoriums, especially for the treatment of tuberculosis, giving exact location terms, size, and other significant details, and many views. A similar description of special dispensaries. An account of attempts which are being made in hospitals for the insane and prisons to provide special care for the tuberculous. A summary of the measures for the control of tuberculosis which are now taken by the Boards of Health in the cities of over 50,000 inhabitants. Statements of the methods of work and the plans of the 30 societies for the prevention of tuberculosis. Concise, authoritative statements, by specialists, in regard to the essential features in each of the different classes of work included in the Directory. Among the contributors are: Herman M. Biggs, M.D., Lilian Brandt, Edward T. Devine, Lawrence F. Flick, M.D., A. E. Macdonald, M.D., Edward O. Otis, M.D., J. B. Ramson, M.D., E. L. Trudeau, M.D.

The Christian Hospital fraud, of Chicago, the details of which are familiar to our readers, has received a merited rebuke at the hands of Judge Holdom. The wrong done Dr. Murphy and others by the illegal use of their names as consultants, etc., is made clear. As bearing on the more general question, Judge Holdom said:

Aside from Dr. Murphy, the public have a right to be protected, and if these things can be done, it seems to me that the law would be lacking in one of its great attributes if it was impotent to remedy so great a wrong. Can a man's professional reputation be slandered and outraged and the law afford no adequate relief? If there be a remedy—and surely there is—and the injury be irreparable at common law, is a court of equity without power to grant relief? I doubt not its beneficent arm will be outstretched to stay the hand that smites and shield the object of the assault from further harm. I base this

¹ Practitioner, January, 1905.

² Public Health, January, 1905.

¹ Price \$1.00; *Charities*, 105 E. Twenty-second street, New York City.

conclusion on the law on broader grounds than taken by counsel for respondents—that is, aside from the invasion of the rights of Dr. Murphy—on the broad humanitarian ground that the sick and afflicted will be protected from being deceived and misled, and perchance be lured to their death by the false representations that at the Christian Hospital they will find, not Dr. Wood, but Dr. Murphy, and other men of his caliber to minister to their diseased and afflicted bodies. Such charlatans as Dr. Wood, and such conglomerate affiliation of quackery and baser schools of medicine to be found in practice at the Christian Hospital, will not only be condemned, but restrained by law from pirating on the public when fraud and deceit are the alluring factors—and the court is asked to do so.

I will fine the Christian Hospital \$250, and I will fine Dr. Wood \$100, and sentence him to 10 days' imprisonment in the county jail, and it is so ordered.

Cancer Curing Hindered by Law.—A new instance of the old story of benefactors (?) who fairly itch to help suffering humanity, for a price, is at hand. This extract from a letter to the Secretary of the State Board of Medical Examiners of Iowa¹ is self-explanatory:

—, Iowa, Dec. 1, 1904.

Dr. Kennedy, Des Moines, Iowa.

Kind Sir:—I beg your pardon coming to you with trouble. I have through my past cured in 27 cases of what our doctors call cancer and no doubt they were cancers. At first I applied the paste myself (but not in the last two years), as I found out that it was against the State law. Now for the last two years I have not applied any paste on any cancer, but simply give the paste to the poor sufferers without any price, and still I was told that I was violating the State law by giving it away. Am I violating the State law, Mr. Kennedy? It is so hard to say, no, I will not help you, when the poor patients come to me for help; and if I help them then I am violating the State law, and if I do not help them, I am violating the law of God. What must I do? Can I get a permit from you to help them? Then I will help the poor sufferers free of charge. They come sometimes and cry like children for the want of help. How is it, Mr. Kennedy? Could I get a permit from the State Board of Health to help these poor suffering patients? I will not treat anything but cancer if I get permission to help them. Kindly, Mr. Kennedy, if you can lawfully do it for the poor humanity's sake, give me permission to help them. I do not use any drugs. I make my salve out of plants and roots. I have used it over 10 years. I have cured a large number. . . .

But who ever heard of such an individual adopting the course suggested in the reply of the secretary?

Dec. 3, 1904.

Mr. —, —, Iowa.

Dear Sir:—I have your letter of December 1, and have carefully read and considered its contents. While it is not in the power of this Board to issue a permit to you to recommend or use or give away your salve for the treatment of cancer, yet I think I can make a proposition that ought to commend itself to you in the way of relieving your conscience for withholding from suffering humanity a remedy that will restore them to life and health.

You say you are 45 years of age. You will hardly live more than 35 or 40 years longer and be able to help suffering humanity even if we gave you the permit. There are in the city of — quite a number of physicians, several of whom are younger than you. If you were to go to each one of them and describe your remedy and its method of preparation and application, they could help twenty persons where you help one. In addition to that, they would publish the remedy in the medical journals and thousands of physicians all over the country and other countries would be brought to the knowledge of its use and eternity would reveal the wonderful good done by you.

Some accident might happen to you in the near future that would deprive you of your reason or of your life and just think

what a fine opportunity for you to benefit suffering humanity would be lost. If you are really sincere in your efforts to benefit the poor patients that come crying to you and the thousands that cannot come, you will not hesitate long in complying with the suggestion made above. . . .

"Oh, Saviour Dear, We Cling to Thee: I Cure Fits."—The alliance of quack religion, quack science, and quack medicine has become a business to which the attention of all good citizens, including the United States postal authorities, needs to be persistently directed. A new phase is presented in a periodical, one of the worst we have seen, called *Word and Works*, edited by "Rev." Irl R. Hicks, and postmarked St. Louis. It is, of course, "entered as second-class matter," etc. The specialty of the Reverend Irl and of his irreligious contributors is the conjunction of the planets, or weather forecasting, plus the most disgustingly nauseating religious swash, plus the equally foul-smelling nostrum traffic. The reading notices and advertisements of absolute cures of every conceivable disease, are clumsily mixed with tirades against the United States weather bureau, laudations of the Reverend Irl's weather prophecies and almanacs, condemnations of temperance and praise of prohibition, and gushing appeals to Jesus and God in verse and prose. "The Keely Cure," "I Cure Fits," "Deafness Cured," "Gold Watches for \$3.75," "Free Eye-Books," "Mrs. Winslow's Soothing Syrup," "Doctor's Books and Medicines Free, Free," "Piles Cured," "Hair-balsams," "Charcoal Lozenges," "Rheumatism and all Diseases Cured," "Cataracts Cured," "Kidneys Cured," "Gold Spectacles," "Dr. Shoop's Restorative," and the rest, are mingled with "Inspiration," "The Word of God," "The Lord's Day," "Religious Training," in a way to call for protest and the law. This is the logical result of the action of the publishers of religious journals which do not exclude all "medical" advertisements.

Ancient Hygiene.—*Health* states that: Even at this late day, with the many statements of recent and wonderful alleged progress made in medicine and surgery, there is nothing really new under the sun. The diseases which beset the human frame in these days afflicted the world 2,000 years ago and more, and the learned doctors of that period treated them on the same general principles, if not with such full medical knowledge. The Old Testament is full of commands of great sanitary value, and they were an adaptation of the medical knowledge of Egypt, elaborated and developed. The law provided for personal cleanliness, the isolation of cases of infectious disease, and healthful diet. By prohibiting the use of blood as food, it held that there was a communicability of disease between cattle and men, as physicians even at this date are upholding against Dr. Koch of Berlin. The law forbade the eating of quadrupeds which did not divide the hoof and chew the cud, thus bespeaking digestive qualities, enjoined the fighting of infectious disease by fire, forbade the use of food of animals that had died a natural death, of carrion-eating birds and of fish without scales and fins. The sanitation and hygiene of the Bible is amplified and developed in the Talmud, which still gives hygienic law to the Jews. How complete is this conception of hygiene, physiology and medicine in this work of the pre-Christian era can be seen by a few of the diseases diagnosed in the Talmud 2,000 years before the present time, when physicians are still struggling with them; malignant throat trouble (probably diphtheria), jaundice, colic, nervous prostration, hydrophobia, gastritis, nosebleed, hemorrhage of the lungs, congestion of the brain, dropsy, malaria, ophthalmia, convulsions, tonsillitis, cancer, gout, earache, toothache and headache, and a thousand other ills. In one place the Talmud gives these five symptoms of rabies in a dog: Its mouth is continually open, its saliva flows freely, its ears dangle, its tail is held between its legs and it walks in by-paths. It is ordered that such a dog be destroyed by means of an arrow or a knife thrown at it. Personal contact with it must be shunned, because injury will be the result of contact; death, that of a bite.

¹ Iowa Health Bulletin, December, 1904.

BOOK REVIEWS

Mental Defectives, Their History, Treatment, and Training.—By MARTIN W. BARR, M.D. P. Blakiston's Son & Co., Philadelphia, 1904.

Dr. Barr has succeeded in presenting the important and always interesting subject of the mentally deficient in a highly efficient and accurate manner. His experience of 20 years has eminently fitted him to write a book on this subject. The chapter relating to the treatment of mental defectives is superior to any in the English language. The author has wisely made clear the fact that cure of the mentally deficient cannot be hoped for, and all that is possible will have been accomplished when the helpless are protected from the irresponsible and ignorant ones and the results of crime, and finally, when the family and State are protected from the evils of association and of certain increase. It is gratifying to learn that Dr. Barr has spoken clearly against the employment of craniectomy in the treatment of the feeble-minded. Asexualization in the unimprovable cases is advocated, the favorite forms being oophorectomy in the female and testectomy in the male. Vasectomy is harmless and almost painless, and may be substituted for the latter. The chapters on cretins and idiots deserve favorable criticism. Too much praise cannot be given to this excellent work, representing, as it does, the large amount of research, thought, and study on the part of its author. Credit is given to three of the author's "boys," who rendered much assistance in the mechanical preparation of the book. The type is clear, and the illustrations far above the average.

A Textbook of Histology.—By A. A. BOHM, M.D., and M. VON DAVIDOFF, M.D. Edited, with extensive additions, by G. CARL HUBER, M.D. Second edition, revised and enlarged. W. B. Saunders & Co., Philadelphia, New York and London.

The appearance of the second American edition of this standard work is a source of satisfaction to all who cannot use the book in the original. As a histology, it has become such a recognized authority that comment on this phase is entirely unnecessary. This edition has been thoroughly revised, and includes all the later contributions to our knowledge of the structure of tissues and organs. The histology of hemolymph-glands has been given a place. Methods of plastic reproduction have contributed to the explanatory part of the text. Maziarski's observations on the tubular systems of many important glands have been embodied, as are also the results of numerous reconstructions made in the University of Michigan. The text has been enlarged by 40 pages, and the illustrations increased from 351 to 377. References to the literature have been omitted. Forty pages are occupied by technic, including reconstruction by means of wax plates. The American editor is to be congratulated upon the success of the first edition and the appearance of the very much improved second edition. The publishers have made the book a very satisfactory one for laboratory use. Printed on thin paper, it is not bulky, and with rounded corners and flexible covers, it is exceedingly convenient to handle, and should prove most durable.

Progressive Medicine.—Edited by HOBART AMORY HARE, M.D., and H. R. M. LANDIS, M.D. Volume VI, No. 4. December 1, 1904. Lea Bros. & Co., Philadelphia and New York.

The concluding number of Volume VI contains 363 pages of text distributed in five departments. Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas, and Peritoneum, are reviewed by J. D. Steele. Anesthetics, Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics are considered by J. C. Bloodgood. Genitourinary Diseases and Diseases of the Kidneys are discussed respectively by W. T. Belfield and John Rose Bradford. The volume closes with a Practical Therapeutic Referendum, by H. R. M. Landis. The departments are all up to the usual high standard of this publication, the first two and the last leading in point of length. Bloodgood devotes 60 pages to the consideration of tumors, this forming one of the best features of the volume. Particular

attention is paid to warts and moles and their malignant changes. The frequency and dangers of such change cannot be brought too forcibly to the attention of physicians. The paper covered edition of this volume, with the reduced price, has been so satisfactory that we believe it should be continued in subsequent years.

Quantitative Chemical Analysis.—By J. C. OLSEN, A.M., Ph.D. D. Van Nostrand Company, 1904.

This book presents chemic analysis by gravimetric, electrolytic, volumetric, and gasometric methods. Seventy-two laboratory exercises are laid out through the course of the text. The book has been written especially for students, and their needs have been uppermost in the arrangement of the contents. Of the 513 pages, those parts most interesting to the physician are the determination of carbonic, boric, and phosphoric acids, acid and alkalimetry, and analysis of water, gas, oils, and fats. The paper and type are very good.

Medical Electricity.—By H. LEWIS JONES, A.M., M.D. Fourth edition, with illustrations. P. Blakiston's Son & Co., Philadelphia, 1904.

Dr. Jones' book is one of the best upon its subject that has yet been issued from the press. Its arrangement is clear, its language is concise, its directions are sufficiently full. We could have desired more extended discussions concerning the therapeutic advantages and disadvantages of the various methods of application, and more positive statements as to the author's own estimate of them. Notwithstanding this want, however, the book will prove extremely useful, because of its scientific tone and practicable trend.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Transactions of Maine Medical Association, Vol. XV., Part 1, 1904.—Stephen Berry, Printer, Portland.

Handbook of Physiology.—By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology, King's College, London. Nineteenth edition, with nearly 700 illustrations, including some colored plates. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$3.00 net.

A Philosophy of Therapeutics.—By ELDRIDGE C. PRICE, M.D. Nunn & Co., Baltimore, Md.

Syphilis and Gonorrhea.—By C. F. MARSHALL, Ch.B., B.Sc., Vict., F.R.C.S., Eng. Senior Assistant Surgeon to the Hospital for Diseases of the Skin, etc. Rebman, Limited, New York and London.

Mechanical Vibration and Its Therapeutic Application.—By M. L. H. ARNOLD SNOW, M.D., Professor of Mechanical Vibration Therapy in the New York School of Physical Therapeutics; associate editor of *Journal Advanced Therapeutics*, etc. The Scientific Authors' Publishing Co., New York City, 1904.

New Methods of Treatment.—By DR. LAUMONIER. Translated and edited from the second revised and enlarged French edition, by H. W. SYERS, M.A., M.D., Cantab. Physician Outpatient Department, Great Northern Central Hospital. W. T. Keener & Co., Chicago, 1904. Price, \$2.50 net.

The Art of Cross-Examination.—By FRANCIS L. WELLMAN, of the New York Bar. A new edition, revised with five additional chapters, including the cross-examinations of important witnesses in some celebrated cases. Bound in dark red cloth, with gilt tops, 8vo, \$2.50 net. The Macmillan Company, New York.

Practical Therapeutics. A Textbook of Practical Therapeutics; with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis.—By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. deSchweinitz, Edward Martin and Barton C. Hirst. New (10th) edition, much enlarged, thoroughly revised and largely rewritten. Octavo, 908 pages, with 113 engravings and four full-page colored plates. Cloth, \$4.00 net; leather, \$5.00 net; half morocco, \$5.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

Experimental Physiology. A Manual of Experimental Physiology.—By WINFIELD S. HALL, A.M., M.D., Ph.D., Professor of Physiology in the Northwestern University Medical School, Chicago. In one octavo volume of 245 pages, with 89 engravings and a colored plate. Cloth, \$2.75 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

Practical Dietetics with Reference to Diet in Disease.—By ALIDA FRANCES PATTEE, Graduate, Boston Normal School of Household Arts; Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City. Second edition, revised and enlarged. Published by the author, New York City.

A Laboratory Manual of Human Anatomy.—By LEWELLYS F. BARKER, M.B., (Tor.), Professor and Head of the Department of Anatomy in the University of Chicago and Rush Medical College. Assisted by Dean De Witt Lewis, A.B., M.D., and Daniel Gralsberry Revell, A.B., M.B., Instructor in Anatomy in the University of Chicago. Illustrated. J. B. Lippincott Company, Philadelphia and London, 1904. Price, \$5.00.

Poverty.—By ROBERT HUNTER. The Macmillan Company, New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

"Consumptives' Golden Rule."—"Don't give consumption to others; don't let others give it to you," is now being issued by the New York Committee on the Prevention of Tuberculosis with the printed matter on the two inside pages only, the covers being left blank for the insertion of the names of such committees as may wish to order this handy and useful little cardboard folder for their own local use.

Medical Profession in the Canadian Parliament.—It is stated that the medical profession is fairly well represented in the Senate of Canada, as well as in the Canadian House of Commons; there are 9 physicians in the former and 15 in the latter body. In the United States there are only 2, while there are none in the House of Representatives. France is still the country where medical men are the most in politics; in the Senate there are 39, and in the Chamber of Deputies there are 51. Many of them, however, like M. Combes, M. Clemenceau and M. de Lanessan are politicians first and doctors only to the extent of holding a diploma.

Miscellaneous.—The Cornell University Medical College will continue this year the courses instituted last season in lectures upon special subjects connected with general medicine and general surgery. Charles L. Gibson, Ellsworth Eliot, Jr., E. L. Keyes, Jr., will each give about six lectures on topics connected with general surgery. L. A. Conner, M. G. Schlapp, C. N. B. Camac, O. H. Schultze, will lecture on topics connected with general medicine. John McGaw Woodbury, the present commissioner of street cleaning, has promised to deliver several lectures upon municipal sanitation. These lectures are given to the third and fourth year students and have been found of great value in the elucidation of subjects in which the lecturer has demonstrated his proficiency. At the same time they are of value to the faculty who are thus able to obtain knowledge of the latest advancement made in the college laboratories.

Glazed Paper and the Eyesight.—Readers of books imported from England says an exchange, must frequently have noticed the light weight of the volumes, caused by the quality of the paper used, which is made from Esparto. The publishers seen were asked why such paper was not utilized more generally by the makers of books printed in America. Several reasons were given, the most conclusive, perhaps, being one which contended that after extensive experiments, made about eight years ago, it had been found that the reading public generally desired the ordinary glazed paper. The lighter Esparto paper, many readers complained, was hard on the eyes, which is true, because the surface is not filled in thoroughly. That is to say, it is like a table top or other piece of furniture which lacks the two or three coats of varnish which will make it not only better to look at, but more even. One publisher declared that difficulty had been experienced with the union printers, who declined to use the new material for their work, as it had not been approved by their organization.

Fighting Yellow Fever in the Canal Zone.—A detailed statement of the health conditions on the Isthmus of Panama is made in a recent report by Rear Admiral Walker, chairman of the Isthmian Canal Commission, from Governor Davis, of the canal zone. The report is dated at Ancon, January 17, and was sent prior to the cable report regarding yellow fever cases on the United States steamship Boston, which cases, however, it is pointed out by the commission, originated elsewhere than Panama. The report says that only 3 deaths from yellow fever have actually occurred there since this Government took charge; that a systematic fumigation of the entire city of Panama is now being made; that all yellow fever cases within Governor Davis's knowledge have originated in that city, and that with the increasing force of men now engaged in mosquito extermination work, Chief Sanitary Officer Gorgas, of the commission, confidently believes that all mosquitos capable of transmitting yellow fever will be destroyed within a month. Governor Davis adds: "That the disease is lurking here is quite evident; everything is being done that the sanitarians desire to do or have proposed to do to obliterate the disease."

EASTERN STATES.

A Bill to Regulate Expert Testimony.—A bill has been introduced into the State Senate for the regulation of expert testimony. The petition urges the necessity of legislation in respect to expert witnesses in the courts of the State of Massachusetts on the ground of expense to the State, of biased testimony, and of the unnecessary number of experts employed. The bill provides that expert witnesses shall not be paid amounts in excess of the ordinary witness fee unless the court awards a larger sum. The number of expert witnesses is also limited, except in special cases. Sporadic attempts have been made from time to time to improve the character of expert testimony, but hitherto without success. We are inclined, in general, to think that justice would be better subserved if the court had more choice in the selection of experts.—[*Boston Medical and Surgical Journal*].

NEW YORK.

State Board of Charities.—The annual report of the State Board of Charities contains recommendations for general legislation and for specific appropriations for the State charitable and reformatory institutions subject to the visitation and inspection of the State Board of Charities. The board renews the following recommendations for legislation: 1. That all the special appropriations to enlarge or improve the State institutions within the jurisdiction of the board be included in one bill, with such provisions as will insure in every instance the most careful and economic expenditure of the moneys appropriated, in exact accordance with the intentions of the Legislature. 2. That the House of Refuge on Randall's Island be reorganized as a State institution with managers appointed by the governor and confirmed by the Senate. The board also recommends that the appointment of employees at this institution be made in accordance with the rules of the State Civil Service, if practicable. 3. That the State Custodial Asylum for Feeble-Minded Women at Newark and the Rome State Custodial Asylum at Rome be enlarged so as to enable them to receive all the feeble-minded and idiotic persons now retained in almshouses contrary to the provisions of the Poor law and the Penal Code, or provided for in private institutions at greatly enlarged cost to the various counties, cities, and towns of the State, and the adult feeble-minded now improperly retained at the Syracuse State Institutions for Feeble-Minded Children.

In Opposition to Football.—Professor Burt G. Wilder, of Cornell University, who was strongly opposed to intercollegiate football games and in favor of intracollegiate football, is quoted with the following statement: Some day the national sense of humor will vie with mortification over the record that our universities were once known most widely through the prowess and misdeeds of a few score football champions. For the most part those men were intended by nature and environment for simple and useful lives as students and citizens. They were endowed with the strength and activity that daily moderate exercise would maintain as the most perfect basis for mental work. Yet they were persuaded that the honor of the university called upon them to be excused from constant attendance and regular duties as if in the public service; to be suspected as to their eligibility; fed at double rates; trained to the verge of "staleness;" portrayed more often than college presidents; wagered upon like race-horses; transported like millionaires, panoplied like medieval knights; bathed and rubbed like cripples; attended by surgeons like duellists; nay, if experts are to be credited, occasionally disabled by methods as unfair and cowardly as those of the savage and the assassin. The university that shall first restrict football to its own members and grounds and abolish gate receipts, may lose some income and a few nominal students; but posterity will award it honor higher than for any other corporate achievement.

PHILADELPHIA, PENNSYLVANIA, ETC.

Smallpox.—In Lajose, Clearfield County, fifty cases of smallpox are reported from along the Pennsylvania and Northwestern Railroad. Schools and churches are closed. The epidemic has been raging several weeks, a number of deaths occurring. The contagion spread to Figart, Irvona, Westover, Newtonburg and Berwindale.

Board of Health Asks for Appropriation.—The State Board of Health and Vital Statistics has appealed to the Legislature for an appropriation of \$20,000 to aid in carrying on the work of the board during the next two years. It is proposed that this shall include protection of water-supplies, as well as the establishment of a laboratory of hygiene. For these latter purposes \$6,000 and \$8,000, respectively, have been asked, while for scientific and laboratory investigations and analyses \$5,000 is wanted.

Cancer Annex Opened.—The newly erected cancer annex for men at the Philadelphia Home for Incurables, at Forty-eighth street and Woodland avenue, has been dedicated. The annex cost \$60,000. It was begun last May and was completed but recently. The building is a three-story structure of brick, and has accommodations for 25 patients. Especial care was taken in the construction to prevent contagion. The floors are all of tile and the doors are without mouldings. Only incurable patients will be taken at the infirmary.

No More Pure Drugs?—Prof. J. P. Remington, one of the editors of the United States Pharmacopeia is quoted as asserting that drugs 100% pure would be a thing of the past in this country with the issuance of the forthcoming publication. He says: "We shall recommend in this publication that pure drugs are not absolutely necessary. For instance, sulfate of quinin 99% pure is just as good and effective as one absolutely pure, and it does not make any difference what that other 1% is, so long as it is not injurious. Now that it is recognized that chemicals need not be chemically pure we intend to introduce harmless foreign substances."

Hospitals Must Have Free Beds.—The Appropriations Committee of the House has been organized. The chairman submitted a form, which will be sent to every institution, mak-

ing inquiries as to the number of inmates, their treatment, and if compensation is exacted for their care. The chairman expressed himself as being opposed to giving an appropriation to any hospital that did not maintain free beds for poor, and said the amount of the appropriation should be governed by the number of free beds thus maintained. This expression is generally favored by the committeemen. It was agreed that applicants for appropriations for hospitals should be pledged to provide free beds if the institutions they represent have none at present.

Aid Asked for the Tuberculous.—In the plea made before the Legislature for a half million dollar appropriation to aid in the fight against tuberculosis in the State of Pennsylvania, the officials of the Public Health Department of Philadelphia state that in Philadelphia, during 1904, of a total of 25,972 deaths from all causes, 3,107 were from tuberculosis. Since 1890 there were reported in Philadelphia 40,718 deaths from tuberculosis which would have been curable if treatment had been given in incipient stages. Since 1862 the aggregate is estimated at 107,904. On this basis it is further estimated that there is a tuberculous population in the city of 15,000 and in the State of 70,000. The bed capacity of institutions in the State for the care of the tuberculous is reported to be 733, with an additional 250 projected. Thoroughly to care for all the tuberculous, it is declared that there should be room in sanatoriums for between 20,000 and 50,000.

Miscellaneous.—**Philadelphia: Medical Notes and Queries** is the title of a small publication devoted to the interests of the medical profession. It is edited by Dr. Henry W. Cattell, and published in Philadelphia. It is to be issued monthly, the first number having appeared in January, 1905. The editor states it is hoped by this publication to further the popularization of the use of the laboratory by general practitioners, supplying them with methods that can be employed with such material and time as are at the command of all. It will also furnish the advanced investigator in the most expensively equipped laboratory with the latest results of current laboratory work, both at home and abroad.—Beginning with next October the University of Pennsylvania will include in the curriculum of the medical department a course in public health. The course will include sanitary engineering, sanitary legislation, inspection of meat, milk and other animal products, the sanitary engineering of buildings, social and vital statistics in the United States, practical methods used in sanitary work, general hygiene, personal hygiene.

SOUTHERN STATES.

Mexico Free from Yellow Fever.—News from Mexico City, under date of January 25, says that Dr. Liceaga, president of the Superior Board of Health, states that, as a result of the sanitary campaign initiated by the Government against yellow fever, there is not now a single case in the country.

Tri-State Medical Association.—The next session of the Tri-State Medical Association of Virginia and the Carolinas will be held in Greensboro, N. C., February 22 and 23, 1905. This association was organized seven years ago with the view of bringing into closer relations the profession of Virginia and the Carolinas. The success it has attained is attested by its phenomenal growth, not only in point of membership, but in the esteem of the profession as a whole. Another evidence of its success is the large and enthusiastic attendance as well as the character of the papers read at its last meeting held in Danville, Va., a year ago.

Legislature Invoked to Combat Doctors' Boycott.—It is reported that some time ago the physicians of Monroe, N. C., organized and got up a "blacklist." All who had refused to pay doctors' bills were put on the list and an agreement was entered into not to visit any of them until the account was settled. The doctors have stuck to their agreement regardless of the consequences, and the Legislature has been called on for relief. A bill has been introduced compelling a physician to attend the sick when money is tendered for his services, if the physician has no other reason for refusing to answer the call than the blacklist agreement.

CANADA.

Typhoid Fever in Winnipeg.—The report of the Provincial Health Board of Winnipeg has been made, and the report states that typhoid fever is not often contracted directly from one sick with the disease, but usually from the use of food or water contaminated by the excretions of diseased persons. House flies are also mediums of spreading the disease. The organisms of typhoid are not always destroyed by freezing, but are by boiling, and consequently milk and water suspected should be boiled. Reference is made to the report of the commission of the board to inquire into the causes of the prevalence of the disease in Winnipeg, and the report summarizes the recommendation of the commission: 1. Enforced sewer connection and the use of city water in all dwellings, streets provided with water mains and sewers. 2. The abolition of box closets, and the substitution of galvanized pail closets where the sewer connection is not possible, with the liberal use of some efficient disinfectant. 3. The abolition of all public wells on streets. 4. Increase of scavenger force. 5. The frequent flushing of sewers under adequate water pressure.

FOREIGN NEWS AND NOTES

GENERAL.

Plague in India.—With the advance of the cold weather, plague is again growing worse in Upper India. For the week ending December 3 the United Provinces had 4,425 deaths, an increase of 1,000 on the total of the previous week; the Punjab, 2,446, an increase of 400; Mysore, 1,157, an increase of nearly 600; Hyderabad State, 768, an increase of 200. In the Bombay Presidency there were 6,770 deaths, an increase of 300. Elsewhere throughout India the disease remains about as before.—[*Public Health Reports.*]

The Place of Pathologic Anatomy.—Professor Orth, of Berlin, in a recent address delivered before the Kaiser Wilhelm's Academy, emphasized the importance of pathologic anatomy for modern medical science. He stated that our knowledge both of therapeutics and the etiology of disease is based, to a large extent, upon anatomic and histologic data, and further, that even in the class of infectious diseases now known to be caused by bacterial agents the more modern science of bacteriology is not complete in itself, but requires to be supplemented by the work of morbid histologists.

Cholera in Turkey.—According to *Public Health and Marine-Hospital Service Reports*, in all Mesopotamia there were reported 72 cases and 43 deaths from Asiatic cholera. Of these 2 cases and 1 death were at Bassora and 1 case and 1 death at Bagdad. Bulletin No. 47, December 5, 1904, shows an increase in the epidemic. There were reported 313 cases and 230 deaths. Of these, 70 cases and 36 deaths were at Sulemanieh, 18 cases and 5 deaths at Bagdad, 4 cases and 1 death at Bassora, 18 cases and 18 deaths at Deir Lor, 51 cases and 36 deaths at Revenduz, 82 cases and 69 deaths at Rania, and 29 cases and 24 deaths at Mamuretul-Hamidieh in the Mossul district. It appears that the disease is reviving in the cities of Bassora and Bagdad, the former of which was free of cholera from August 19, and the latter from the early part of November.

OBITUARIES.

Edward Linzee Cunningham, aged 94, January 29, at his home in Newport, R. I. Dr. Cunningham was the oldest graduate of the Harvard Medical School and the second oldest graduate of Harvard College. There were 59 members in his class at Harvard, that of 1829, including Oliver Wendell Holmes, James Freeman Clark, William Henry Channing, Charles Storow, and others. His graduation in medicine occurred in 1832. He had practised but little and having ample means he devoted his attention to literature.

Jos. A. O'Neill. Word was received in Washington, on January 25, from General Corbin, commander of the Philippines Division, that Contract Surgeon Jos. A. O'Neill was killed at San Francisco de Malabon, on January 24, in an attack by Ladrone. His body will be sent to the United States by transport. Dr. O'Neill was a resident of New York City and was appointed contract surgeon in August, 1900, his entire service having been in the Philippines.

H. B. McConnell, aged 34, January 25, at his home in W. Somerville, Mass. He was a graduate of McGill College, Montreal, and of Trinity College, Toronto, but had practised medicine in Boston for nearly ten years. He was a member of the Massachusetts Society of Physicians and Surgeons, and was at one time house physician to the Massachusetts General Hospital.

C. C. Ellis, aged 57, January 25, at his home in Somerville, Mass., after a two weeks' illness, from pneumonia. He was a graduate of the medical department of the University of Vermont in 1867, practised medicine for a number of years at Nashua, N. H., moving to Somerville some fifteen years ago. He was a prominent member of the Odd Fellows fraternity.

Emmet Perdue, January 11, near Richmond, Mo. Death was caused by a gunshot wound received in the back of the head. He was a graduate of Marion-Sims College of Medicine, St. Louis, in 1896, and was surgeon to the North American Coffee Company and Carbon Lumber Company, Carbon County, Wyoming.

Charles H. Norred, January 11, at the Landour Hotel, Minn., after a surgical operation. He was a graduate of the St. Louis College of Physicians and Surgeons in 1865, and Jefferson Medical College in 1866. He was a surgeon in the Federal service during the Civil war.

Duncan Reid, aged 53, January 11, at his home in Hampton, Ia. He was a graduate of Rush Medical College, Chicago, in 1878; a member of the American Medical Association. He served for two years as a medical missionary on the west coast of Africa.

Peter B. M. Miller, aged 69, December 2, at his home in Seattle, Wash., from cancer of the mouth. He was a graduate of the Royal College of Surgeons, Edinburgh, Scotland, in 1858, and was a surgeon in the British army in India for ten years.

William Aills, aged 80, January 14, at his home in Steencreek, Rankin County, Miss.; a graduate of Tulane University medical department, New Orleans, in 1853; surgeon in the Confederate service during the Civil war.

Henry Boynton, aged 81, January 30, at his home in Woodstock, Vt. He was a surgeon in the Federal service during the Civil war, but in later years retired from the practice of medicine, devoting most of his time to literature.

Franklin Byington, aged 66, January 14, at his home in Charleston, W. Va.; a graduate of the University of Georgetown, Washington, D. C., in 1853, and a surgeon in the Confederate service during the Civil war.

R. M. Riddell, aged 38, January 22, at his home in Winnipeg, Canada. He was a graduate of the Manitoba Medical College, and was one of the most popular physicians of Winnipeg.

Stephen N. Switzer, aged 56, January 7, at his home in Bradford, N. Y. He was a graduate of the University of Vermont medical department, Burlington, in 1880.

Wm. J. Gautier, aged 79, January 13, from heart disease, at his home in Tuscooke, Ala.; a graduate of the University of Pennsylvania medical department in 1850.

George W. Harrison, aged 55, January 12, of Ashland, Wis., at Grand Rapids, Mich., from heart disease. A graduate of Rush Medical College, Chicago, in 1881.

Charles E. Oatis, aged 81, January 6, at his home in Hazelhurst, Miss.; a graduate of Transylvania University medical department, Lexington, Ky., in 1846.

William H. Ensminger, aged 61, January 17, at his home in Chicago, from cerebral hemorrhage; a graduate of Jefferson Medical College in 1871.

Henry K. McComb, aged 50, January 10, from nephritis, at his home in Shawano, Wis. He was a graduate of Rush Medical College in 1881.

Daniel O. Polin, aged 75, January 14, at his home in Springfield, Ky.; a graduate of the medical department of the St. Louis University in 1871.

Robert B. Dupree, aged 54, January 11, at his home in Malin, Tex.; a graduate of Bellevue Hospital Medical College, New York City, in 1874.

John R. Howes, aged 56, January 12, of Los Comas, N. M., at El Paso, Tex.; a graduate of the Medical College of Ohio, Cincinnati, in 1879.

T. M. Ward, one of the oldest and most highly respected physicians of Madison Co., Miss., January 19, at his home.

Michael I. Kelly, aged 84, January 4, at his home in Morrison, Ill.; a graduate of Rush Medical College.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 25, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Colorado:			
	Garfield Co. Dec. 1-31	11	
	Lake Co. Dec. 1-31	5	
	Larimer Co. Dec. 1-31	18	
	Las Animas Dec. 1-31	1	
	Weld Co. Dec. 1-31	1	
District of Columbia:	Washington Jan. 8-21	4	
Florida:	Jacksonville Jan. 8-14	1	
Illinois:	Chicago Jan. 15-21	18	1
Louisiana:	New Orleans Jan. 15-21	13	
		Four imported	
Michigan:	Detroit Jan. 15-21	2	
Missouri:	St. Louis Jan. 15-21	24	1
Tennessee:	Memphis Jan. 15-21	10	
		Three imported	
	Nashville Jan. 15-21	3	
Wisconsin:	Milwaukee Jan. 15-21	6	
SMALLPOX—FOREIGN.			
Austria-Hungary:	Prague Dec. 25-31	5	
Brazil:	Pernambuco Dec. 2-15	78	85
	Rio de Janeiro Dec. 26-Jan. 1	73	23
France:	Paris Jan. 1-7	10	1
Great Britain:	Dundee Dec. 25-31	3	
	Leeds Jan. 1-7	4	
	London Jan. 1-7	1	
	Manchester Jan. 1-7	1	
	Newcastle-on-Tyne Jan. 1-7	4	
	Nottingham Jan. 1-7	1	
India:	Karachi Dec. 17-25	2	
Italy:	Catania Dec. 30-Jan. 5	1	4
Peru:	Callao Dec. 17	1	
	From S. S. Loa Valparaiso via immediate ports		
Russia:	Moscow Dec. 8-14	2	1
	Odessa Dec. 25-31	1	
	St. Petersburg Dec. 25-31	3	3
Straits Settlements:	Singapore Dec. 4-10	2	
Turkey:	Constantinople Dec. 26-Jan. 1	24	
	Smyrna Nov. 20-27	1	
Venezuela:	Macuto (vicinity of) Jan. 1-7	15	
YELLOW FEVER.			
Brazil:	Rio de Janeiro Dec. 26-Jan. 1	1	
Cuba:	Havana Jan. 10	1	
	From S. S. Dora from Laguayra and Colon		

Panama:	Panama:	Jan. 1-15	5	1
Venezuela:	Caracas	Dec. 17-Jan. 7	1	
	Laguayra (vicinity) Jan. 1-7		6	

CHOLERA.

Russian Empire:	Astrakan Gov. Nov. 23-29	6	
	Baku Gov. Nov. 23-Dec. 7	64	
	Erivan Gov. Nov. 23-Dec. 7	502	238
	Mamara Gov. Nov. 23-Dec. 7	32	
	Saratov Gov. Nov. 23-Dec. 7	10	19
	Telissavetpol Gov. Nov. 23-Dec. 7	68	
Trans-Caspian Territory.	Serachs Province Nov. 23-Dec. 7	47	27
	Uralsk Dec. 28	Epidemic	
Turkey (General):	..... Nov. 28-Dec. 12	396	187

PLAGUE.

Arabia:	Crater (Hospital) Dec. 25-31	41	33
	Maalla Dec. 25-31	2	2
	Hedjuff (Hospital) Dec. 25-31	2	2
	Alia Islands Dec. 25-31	5	2
Argentina:	Salta State Dec. 14	1	
Brazil:	Rio de Janeiro Dec. 26-Jan. 1	20	11
Cape Colony:	Port Elizabeth Dec. 4-10	2	
Chili:	Arica Dec. 1	Present	
Formosa:	..... Dec. 5-11	44	35
India:	Karachi Dec. 19-25	54	51
Peru:	Eten Nov. 1-Dec. 11	13	
	Lambayeque Nov.-Dec. 11	13	
	Lima Nov. 16-Dec. 11	14	
	Pacasmayo Dec. 11	Present	

Changes in the Medical Corps of the U. S. Army for the week ended January 28, 1905:

BRECHEMIN, First Lieutenant **LOUIS, JR.**, assistant surgeon, is granted leave for one month, with permission to apply for an extension of one month.

WYTHE, STEPHEN, contract surgeon, having reported from leave, will report at Fort Baker for duty at that post.

GUITTARD, ALWIN M., contract surgeon, having reported from leave will report at depot of recruits and casuals, Angel Island, Cal., for temporary duty at that station until January 31, on which date he will report to the commanding officer, Twenty-first Infantry, infantry cantonment, Presidio of San Francisco, for duty with that regiment en route to the Philippine Islands.

FORD, Captain CLYDE S., assistant surgeon, will proceed from Fort Barrancas to Ormond, Fla., for the purpose of conferring with manufacturers concerning the plans for a type motor-ambulance, and upon the completion of this duty will return to his proper station.

BROWN, POLK D., contract surgeon, will proceed to Dast, Ambos Camarines, for duty, relieving Contract Surgeon Leighton R. Cornman, who will proceed to Cuartel de Espana, Manila, for duty.

TIGNOR, EDWIN P., contract dental surgeon, will proceed to San Mateo, Rizal, for duty.

SORBER, ORD M., contract dental surgeon, will proceed to Camp McGrath, Batangas, for duty.

PURVIANCE, Major WILLIAM E., surgeon, will proceed to Camp Jossman, Guimaras, P. I., for duty.

ARBAUD, FRANK E., contract surgeon, will proceed to San Mateo, Rizal, for duty, relieving First Lieutenant Will L. Pyles, assistant surgeon, who will proceed to Camp Wilhelm, Tayabas, for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended January 28, 1905:

HENNEBERGER, L. G., medical inspector, detached from the Olympia and ordered home to wait orders—January 20.

GROVE, W. B., surgeon, ordered to the Naval Hospital, Chelsea, Mass., January 30—January 20.

WILSON, G. B., surgeon, detached from the Naval Hospital, Chelsea, Mass., and ordered to the Colorado—January 20.

STEELE, JOHN M., surgeon, detached from the Colorado and ordered to the Olympia—January 20.

ODELL, H. E., passed assistant surgeon, ordered to the Naval Hospital, N. Y.—January 20.

TAYLOR, J. L., assistant surgeon, appointed assistant surgeon, with rank of lieutenant (J. G.) from December 19, 1904—January 20.

CRANDALL, R. P., surgeon, detached from the New Orleans and ordered home to wait orders—January 23.

GEIGER, A. J., assistant surgeon, detached from the Prairie and ordered to the Naval Station, Port Royal, S. C., for temporary duty—January 23.

CURL, H. G., passed assistant surgeon, detached from duty with the Isthmian Canal Commission on the Isthmus of Panama and ordered to the Boston—January 26.

GUTHRIE, J. A., passed assistant surgeon, ordered to the Dixie, sailing from New York, N. Y., on or about February 4—January 26.

LEYS, J. F., passed assistant surgeon, detached from the Naval Station, Guam, L. I., and ordered home to wait orders via Solace—January 26.

STAPP, JACOB, assistant surgeon, ordered to the Constellation and to additional duty at the Naval Training Station, Newport, R. I.—January 26.

ELY, G. F., assistant surgeon, detached from the Naval Academy and ordered to duty with the marine detachment on the Isthmus of Panama, sailing from New York, N. Y., January 31—January 26.

BAKER, W. H., assistant surgeon, detached from the Brooklyn and ordered to the Naval Hospital, San Juan, P. R.—January 26.

Changes in the Public Health and Marine-Hospital Service for the week ended January 25, 1905:

EARLE, B. H., assistant surgeon, granted leave of absence for three days from January 21, 1905—January 21, 1905. Granted extension of leave of absence for four days from January 25—January 25, 1905.

FOSTER, S. B., acting assistant surgeon, granted leave of absence for twelve days from January 24—January 23, 1905.

GOODMAN, F. S., pharmacist, granted leave of absence for seven days from January 24—January 23, 1905.

SOCIETY REPORTS

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-second Annual Meeting, Held at Havana, Cuba,
January 9, 10, 11, 12 and 13, 1905.

[Specially reported for *American Medicine*.]

Officers.—The following officers were elected for the ensuing year: President, F. F. Westbrook, Minneapolis, Minnesota; first vice-president, Juan Guiteras, Havana, Cuba; second vice-president, F. Lopez, Mexico City, Mexico; third vice-president, George MacDonald, Brandon, Manitoba; executive council, Marcus Haas, Memphis, Tenn.; C. V. Chapin, Providence, R. I., and Wm. C. Chapman, Toledo, Ohio; secretary, Chas. O. Probst, Columbus, Ohio, reelected; treasurer, Frank W. Wright, New Haven, Conn., reelected.

The Association met at the Athenaeum Club, under the presidency of Carlos J. Finlay, of Havana.

Following the transaction of routine business, such as the election of over a hundred new members, etc., the reading of papers was begun.

Purification of the St. Louis Water-supply by Using Ferrous Sulfate and Calcium Hydroxid as a Coagulant, Followed by Plain Sedimentation.—This paper was read by C. A. SNODGRASS (St. Louis, Missouri) and was of particular interest, for the reason that it set forth a simple, practical, and inexpensive method of handling large quantities of surface water. It called attention to the fact that from the year 1832, the time at which the first water works system of St. Louis was installed, until 1904, the water-supply of St. Louis had been unsatisfactory, and that in a few months' time a complete transformation of the quality of the water had been secured. The comparative cost with other proposed methods was most striking. One of the proposed methods called for an original outlay of \$31,000,000; another \$2,700,000, while the present plant required only \$10,000 for its construction. This plan of operation was shown to cost \$4.50 less per million gallons than any other proposed plan. The exact and extensive chemie and bacteriologic data added to the physical properties proved conclusively that a water of a high degree of potability was being secured. The removal of suspended matter was shown to average 96.9%, while the bacterial removal averaged 95% in many weekly analyses, showing an efficiency of 99%. Mineral analysis showed that there was nothing left in the water that could be inimical to health. Deathrate from typhoid fever during the last year had been materially lowered, but owing to the limited time of operation of the present system, no deductions from this point of view were insisted on. Reports from engineers and manufacturers showed that the treatment given the St. Louis water-supply was highly satisfactory to their interests. It was the opinion of the writer that little or nothing would be gained by adding mechanical filtration to this system. Attention was called to the difficulties which were unavoidable in the institution of this plan into the previously existing plant and it was claimed that with contemplated changes of a minor character the expense of operation would still be lowered and the efficiency increased.

Copper Sulfate Method for Removal of Germs from Water.—F. S. HOLLIS (New Haven, Conn.) contributed a paper in which he described a practical test of the method for the removal of germs from water-supplies.

Report on Purification and Preservation of Water-supplies.—GEO. W. FULLER (New York) presented the report of the Committee on Purification and Preservation of Water-supplies. He stated that the principle of the use of sulfate of copper in treating water-supplies was not a new one, as it has been used for thousands of years. With reference to filtration, he said the number of cities in the United States, with a population of 25,000, now using the filtration plan, was about 8%, those which had filters under construction 11%, those in which filters had been authorized 20%, and those in which filters were being considered as necessary 31%. Statistics and arguments were advanced in favor of filtration as a method of purifying water-supplies of cities.

Discussion.—FRANK WARNER (Columbus, Ohio) stated that in considering the improvement of any public water-supply, more attention should be given to the better protection of the watershed. This feature was either neglected or overlooked in connection with modern purification plants. This was especially true of pollution near the purification works, and the water should be delivered to the purification plant in as pure condition as possible before purification. H. W. CLARK (Boston) said that since the introduction of filtration, at Lawrence, Mass., the city had increased in population from 45,000 to 75,000, and the percentage of deaths from typhoid fever had been materially reduced. ROBERT S. WESTON (Boston) stated that other questions of purification of water must be settled before any one method could be universally used.

Disinfection and Disinfectants.—At the afternoon session the report of the Committee on Disinfection and Disinfectants was read by Professor F. C. ROBINSON, of Brunswick, Maine. The report was a review of the more important literature on the subject during the past year, especially in the foreign journals. As to experiments on disinfecting railway cars by

formaldehyd, the results showed that in case of passenger cars it was practically impossible to completely sterilize all parts by the vapor of formalin, but still the experimenters think that it is the most practical thing to employ for that purpose. They recommend 1,000 cc. of the liquid formalin to each car, but of course the cars are much smaller than those in the United States. As to chemie methods for sterilizing drinking water, V. B. Nesfield recommends the use of tablets made from a grain and a half of bleaching powder and a half grain of sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes—or better—ten. He removes the taste of chlorin by adding a tablet of sodium sulfite. He claims that by such use the most foul river water can be made free from disease germs and palatable. With regard to the disinfection of books, the report called attention to the danger of the spread of infectious diseases through library and school-books. It was recommended that the danger should be met as far as possible by notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed, and in addition submitting books much used to the action of formaldehyd vapor once in a while. Remarkable results had followed the occasional use of weak solutions of formaldehyd on the floors of schoolhouses—solutions so weak that they gave no disagreeable odor. Infectious colds and other dust-borne diseases were much lessened among the scholars. The committee believe that the occasional use of such solutions on floors and surfaces in dwelling houses as well as public buildings would do a great deal toward improving public health.

The Use of Copper Sulfate Alone or in Combination with Lime for the Destruction of Mosquito Larvas, as a Deodorant and as a Disinfectant.—A. H. DORR (New York) said his investigation embraced the following points: (1) The use of copper alone or in combination with lime for the destruction of mosquito larvas; (2) as a deodorant; (3) as a disinfectant. In summing up as to the value of copper alone and in combination with lime, as the result of his experimental work, he stated that in the destruction of mosquito larvas and as a deodorant, the use of copper in combination with lime was more effective than when used alone. That this mixture destroyed mosquito larvas by rapidly removing from the water in which they were contained, the organic matter or nourishment upon which they depended for life, and that this result was not due to a toxic effect produced by the copper or lime. Therefore, the range of usefulness of these agents, either alone or in combination in the destruction of mosquito larvas was limited. As to copper and lime as a deodorant, he believed it to be the most valuable and practical agent we possessed at present for this purpose. Its action as a deodorant was rapid and permanent. It was practically harmless, cheap and easily made, and seemed to comply with the requirements of a typical deodorant. Its range of usefulness was extensive, as it could be employed equally well for deodorizing solids or fluids. Little could be said regarding the germicidal value of copper at the present time.

The Disinfection of School Books.—WALTER D. GREENE (Buffalo, N. Y.) stated that the examination of the public school books early in 1902 revealed the fact that they were filthy, especially those used by the lower grades. These books were furnished gratuitously by the city, and consequently there existed a tendency to use them until they were literally in pieces—a period covering several years. It was thought that these filthy books, worn and handled by so many diminutive individuals, might be, and probably were, a possible source of contagion, and it was decided to disinfect them. The books were placed on their edges, with covers widely separated, upon tables and shelves in tightly sealed rooms. Formaldehyd gas was liberated in the room, 6 ounces of a comparatively fresh commercial formalin being used for every 1,000 cubic feet of air space, the vaporization being induced by the use of wood alcohol being burnt in a receptacle containing the formalin. Bacteriologic examinations were made of the soiled leaves of books both before and after disinfection, and it was found that about 85% of all organisms were killed. For the three years immediately preceding this school-book disinfection—that is, 1899, 1900, and 1901—the average number of cases of scarlet fever reported to the health department by physicians in Buffalo was 875 yearly, while the average yearly deaths for the same time was 36. For the three years following such disinfection, the average number of cases reported yearly was 528, and the number of deaths yearly for the same time was 18. He hoped the results of these investigations would stimulate Health Boards and health officers to disinfect the school books of their respective municipalities.

The Sources of Infection.—CHARLES V. CHAPIN (Providence, R. I.), after pointing out various sources of infection, directed attention to isolation and disinfection. He said that it was perfectly plain if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, but it would be exterminated. If we could only control half, a quarter, or a tenth of the foci of infection, it was equally clear that the disease would never be exterminated, and it was not even certain that it would diminish. The relation of probable success to the efforts made must decide the extent of those efforts. It was the writer's opinion that for most of the diseases, and for most localities, restrictive

measures were either carried too far, or were not carried far enough.

The Actual Sanitary Conditions of Havana, and the Further Requirements for Their Improvement.—ERASTUS WILSON (Havana) said that the prevailing annual mortality in the city of Havana previous to American intervention—1898 to 1902—approximated 40 per 1,000. The general cleaning up of public places, and rigid house to house inspection, and abatement of unsanitary domestic conditions, together with filling the puddle holes and irregularities in the macadamized streets, with the prohibiting of the ejection of domestic wastes into the byways, obtained immediate and notable reduction in the mortality rate in the city. The continuation of the sanitary measures introduced by that intervention, and the continued improvements of the pavements of streets, had reduced the type of mortality and morbidity to about 50% of its former rate, beside beautifying the city and making it infinitely more attractive for residents who were interested in health and general culture. The author called attention to a further requirement of sanitary science, which was radical and indispensable, namely, a modern system of sewers of proper section, regularly graduated in size and declivity from their incipience to outfall, impermeable throughout, and connected with the closets of every house by lead-jointed, cast-iron pipes, uniting them to the sewer outside the domicile. Following Dr. Wilson's paper, this resolution was offered and adopted:

Resolved, That the Association congratulates the civic authorities, the physicians, and the people of Havana in general, upon the gratifying improvement made in its sanitary condition, and especially upon their work in freeing their beautiful city from any danger from that once dreaded scourge—yellow fever—by their persistent and skilful campaign against the yellow fever mosquito. We are especially gratified, also, that they do not propose to rest contented with what has been done, great as it is, but have already planned other sanitary improvements of great importance, including an efficient system of sewerage, which we wish them Godspeed in carrying out at the earliest practicable moment.

Addresses of Welcome were delivered by Dr. Cancio, Secretary of Public Instruction to President Palma, representing the Cuban government, and by Lincoln de Zayas, representing the medical profession of Havana.

President's Address.—The President, Carlos J. Finlay, after thanking the Association for the great honor that had been conferred upon him in electing him president, referred to the first Havana yellow fever commission, which was established a quarter of a century ago, and came from Washington to prepare the ground upon which a common enemy would be subsequently challenged and decisive battles fought. This enemy was the yellow fever. So well did this commission accomplish its object, that he could readily trace back to its immediate influence the discoveries which led the way to ultimate success. After referring to the deaths of several prominent members that had occurred during the year, he stated that the sanitary experience in Cuba during the last 12 months, both with regard to yellow fever and to smallpox, had been somewhat more eventful and at the same time more instructive than in the preceding two years. In the district of Havana, notwithstanding the admission of imported cases of yellow fever from foreign ports, not a single case, originating on the island had been recorded. With the experimental proofs that they now possess that fomites *per se* were incapable of transmitting the disease, the inevitable conclusion must be that in the cases he mentioned infected mosquitos had been conveyed upon floating bodies by the ebb tide. The fight against tuberculosis must be maintained at all costs, as the most important factor in mortuary statistics of large towns, almost all over the world. The study of causes and prevention of infant mortality was one which affected Cuba not only with reference to infantile enteritis, but also with regard to tetanus neonatorum, the occurrence of which was coupled with unpardonable ignorance or neglect both on the part of parents and of the attendants at the birth of children. The control of milk supplies in large cities was closely connected with infantile mortality, for the methods best calculated to carry the former into effect should undoubtedly lessen the latter. Finally, the subject of sanitary agreement between adjoining nations had become of paramount importance since the recent advance made in our knowledge of the etiology of certain quarantinable diseases, of yellow fever in particular. Hence the advisability, that European nations holding possessions in the American yellow fever zone, be represented at the meetings of the Association.

BENJAMIN LEE (Philadelphia) read a tribute to Carlos J. Finlay for his distinguished services to science and humanity in the discovery of the mode of propagation of yellow fever.

Bacillus Tuberculosis in Man and Animals.—In the absence of M. P. Ravenel, chairman of this committee, the report was read by V. C. MOORE. Since the last meeting, several important pieces of work had been reported. These were detailed in the report. The committee carefully compared the disease set up in the bovine animal by material of bovine origin, and so far it had found the one, both in its broad general features and in its wider histologic details, to be identical with the other. It had so far failed to discover any character by which it could distinguish one from the other; and its records contained accounts of the postmortem examinations of bovine animals infected with tuberculous material of human origin,

which might be used as typic descriptions of ordinary bovine tuberculosis. At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, a third instance of infection with the bovine bacillus had been found. The patient was a child not quite two years old, who had been nourished the greater part of its short life on cow's milk, bought from the most convenient store. It developed a large abdominal tumor, which proved on autopsy to be a tuberculous newgrowth, involving the mesenteric glands and intestine. The lungs were not involved. Cultures were obtained from this tumor, which had the cultural and microscopic characteristics of the bovine bacillus, and proved fatal to a calf, weighing 211 pounds, in 35 days. The committee did not yet feel able to say with what frequency bovine infection of man took place, but it was evidently not a rare occurrence. The committee considered that the evidence going to show that such infection did take place, was absolutely conclusive, and that it not only justified, but made imperative, the passage of stringent laws by municipal and State authorities for the suppression of tuberculosis in cattle, and the prohibition of the sale of meat and milk from tuberculous animals.

JESUS E. MONJARAS (Mexico City) contributed a paper entitled, **Measures Proposed in the Struggle against Tuberculosis.**

The secretary read the report of the committee on tuberculosis, in the absence of its chairman, Lawrence F. Flick, of Philadelphia.

Report of the Committee on Tuberculosis.—The practical measures recommended years ago had since been tested in part, and so far as tested had been found of use. These recommendations were: 1. The notification and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage. 2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record. 3. The establishment of special hospitals for the treatment of tuberculosis. 4. The organization of societies for the prevention of tuberculosis. 5. Government inspection of dairies and slaughter houses and the extermination of tuberculosis among dairy cattle. 6. Appropriate legislation against spitting into places where the sputum is likely to infect others and against the sale or donation of objects which have been in use by the tuberculous unless they have been thoroughly disinfected. 7. Compulsory disinfection of hotel rooms, sleeping car berths, and steamer cabins, which have been occupied by the tuberculous before other persons are allowed to occupy them.

In addition to the specific recommendations here given, the committee urged upon the public the importance of better housing of the poor in their places of abode and in their places of occupation; better control of the food supply at large, and more definite instructions in the schools and on the platform of diet for the working people. The home and workshop were really the centers from which the disease was distributed, and they at the same time were strong predisposing causes of the disease by reason of their unhealthiness. Bad and adulterated food and improper selection of food by the individual were also strong predisposing causes by lowering vitality. The committee suggested that every member act as a committee of one in his own home to help organize a campaign against this disease.

Discussion.—WALTER D. GREENE (Buffalo, N. Y.) said that tuberculosis was a subject of vital interest, inasmuch as a tenth of all deaths occurred from this disease. There were two things of special interest in combatting this disease, one of which was the notification of cases, and the other thorough disinfection of houses in which the disease had occurred. In the city of Buffalo every house in which a case of tuberculosis had developed was thoroughly disinfected. This had been the practice in that city for the last five years. A card index was of vital importance in keeping track of cases of the disease. The people should be educated in regard to the prevention and control of the disease. Pamphlets giving directions how to keep from getting the disease were printed in Buffalo in the German, English, Polish and Italian languages. Directions were also given as to what to do when people contracted the disease. FRANK WARNER (Columbus, Ohio) said the reporting of cases of tuberculosis was an important factor in the prevention of the disease, but it was only the first step. This should be followed with literature placed in the hands of families in which the disease had developed. Information regarding the disease should also be published and put into the hands of men working in stores and shops. Articles relating to the disease should be published in the daily newspapers for the edification of the public. He pointed out the importance of educating the people through the press and other agencies. The disinfection of houses after deaths had occurred was of great importance in order to destroy the germs of the disease. Testing for tuberculosis in cattle by tuberculin had proved a very important thing. At the Ohio State University there was an agricultural and dairy department, so that every cow was constantly tested with tuberculin for tuberculosis, and whenever the disease was found in a cow, that animal was withdrawn from the herd. R. H. LEWIS (Raleigh, N. C.) endorsed the position taken by the previous speaker. In his State pamphlets concerning the disease and its prevention were placed in the hands of superintendents of public instruction and of school teachers for distribution. The active cooperation of the family doctor should be enlisted. MARCUS HAAS (Memphis, Tenn.) agreed with the speakers in regard to educating the public as to the prevention and control of the disease. Negroes in the South

were more susceptible to the disease than whites. He referred to the thorough system of dairy and milk inspection in Memphis, saying that gratifying results had been obtained by it. W. C. CHAPMAN (Toledo, Ohio) said that sanitarians should not demand too much of the physician, for in doing so they would undo the benefit which they might otherwise receive. Physicians were reluctant in reporting cases of tuberculosis to city health departments on account of the protests of families in which the disease had developed. MANUEL S. IGLESIA (Vera Cruz, Mex.) described the present hygienic conditions of that city, and expressed the hope that at no distant day this port would be one of the healthiest to be found. ARISTIDES AGRAMONTE (Havana) pointed out in an interesting and scholarly paper the practical utility of a medical board to aid local sanitary authorities in the investigation of infectious disease.

Control of the Milk Supply in Large Cities.—WM. H. PARK (New York City), chairman of a committee, read a report on this subject. The topic was divided under three heads: (1) The proper conditions at the farms; (2) proper conditions during transportation of the milk; and (3) proper conditions at the delivery station and in the care of the milk in the homes. Until recently the conditions at the farms had been largely overlooked by the health officers of great cities, on account of the practical difficulties and the expense. The Milk Commission appointed by the Medical Society of the County of New York had undertaken to assist both the consumer and producer by fixing a standard of cleanliness and quality to which it would certify, and by giving information concerning measures needful for obtaining that degree of purity. The most practical standard for the estimation of cleanliness in the handling and care of milk was its relative freedom from germs or bacteria. Milk must not be sold as certified more than 24 hours after its arrival in New York City. The report discussed the duties and requirements of dealers in milk, the barnyard, the stable, the condition of the cows, the milkers, helpers other than milkers, small animals, the milk itself, the utensils for holding milk, as well as the examination of the milk and dairy inspection.

GONZALO AROSTEGUI (Havana) discussed the importance of good quality and careful distribution of the milk supply.

[To be continued.]

PAN-AMERICAN MEDICAL CONGRESS.

[Specially reported for *American Medicine*.]

The fourth meeting of this Congress was opened January 3, 1905, by President Amador, of the republic of Panama. The formal opening, however, took place in the evening at the National Theater.

President Amador was introduced by Dr. Julio Icaza. President Amador thanked the congress for the distinguished honor that had been conferred upon him in being selected to preside over the deliberations of the meeting, which included among its members so many illustrious colleagues. He expressed the hope that great benefit would result from the papers that were to be read. With these few remarks he declared the fourth Pan-American Medical Congress open for scientific work.

Remarks by John F. Wallace.—The chief engineer of the Isthmian Canal Commission, Mr. John F. Wallace, was introduced, and, among other things, said it was unnecessary to dwell on the 500 years since the canal's early and original conception. It was also unnecessary to dwell upon the progress which had been made so far under the grants and franchises to attempt its construction. He called attention to the fact that the first real proposition to construct the canal emanated from America, and while the results of the French companies were failures, this work simply laid the foundation of its future construction. It would seem fair, then, that the Americans should have another trial, and it was the hope of all that it would be the last. It was a difficult matter when one passed over the line of the canal today to realize the extent of the work done and the enormous amount of machinery purchased by the old and new French companies. It was only by a study of the situation on the isthmus of what had been accomplished that one could realize how much the work that had been begun before should contribute to the present success. The former operations on the canal had pointed out what to do and what not to do. The original idea of M. De Lesseps was a sea-level canal. The reason why this project was abandoned was not one of engineering difficulty, but entirely for a different cause. His plans were changed simply because he did not have the means to put them into execution, not because he discovered anything impracticable in the undertaking from an engineering standpoint. In following in his footsteps, or, rather, in picking up the enterprise, the Americans had commenced at the opposite end of the problem, and all the plans that had been accomplished, the estimates that had been made as to the time and progress, were based on the reports of the former commission from the United States to investigate this question. In making a comparison of the Nicaragua route, with an elevation of 190 feet above the sea-level, he desired to make a fair comparison with the Panama route. It was proposed to create a canal with an elevation of the same height, and it was also proposed to create an artificial lake, and create

the same conditions, as nearly as possible, as existed at Nicaragua. The construction of the Panama Canal was one of the problems of the new world. There was hardly any branch of the civil engineering profession that would not have to be called upon to assist in the problem. The construction of the canal might be divided into three parts: 1. The sewerage proposition, which was the excavation by ditches of the sea-level portions of the canal. 2. Excavation for a short distance where the material might be excavated and wasted immediately adjacent to the canal. 3. A type of construction which was peculiar to Panama, and that was what might be called the Culebra problem. This problem not only involved the excavation of 50,000,000 to 100,000,000 cubic yards of material, depending upon the character of the canal, but it consisted in the transportation and disposal of that material over a distance of 10 to 12 or 15 miles away. The Culebra problem was the controlling factor to be considered, both as to time, cost and difficulty. The time in which the Culebra cut can be excavated, was the determining factor as to the time required for the construction of the canal. After referring to the labor problem and the difficulties connected with it, Mr. Wallace spoke of the problem of sanitation and the care and health of the employees who were to be brought there for constructing the canal. This matter was in the hands of Gorgas, and he would like to say that the success of this work and the ability to bring men there, would largely be due to his efforts and the support he received.

Sanitary Conditions as Encountered in Cuba and Panama, and What is Being Done to Render the Canal Zone Healthy.—This was the title of an address delivered by W. C. Gorgas, chief sanitary officer of the Isthmian Canal Commission. He explained the sanitary conditions in Cuba, and stated that for two centuries the United States had been scourged with yellow fever often imported from Havana. When the United States occupied Cuba there was a perfectly cast-iron commercial quarantine against the West Indies in all gulf ports during every summer. Still worse was it if yellow fever broke out in the United States. To get rid of yellow fever in Havana meant that it would cease to menace the Southern States, so that the sanitation of the Republic of Cuba meant really the sanitation of Havana. For two years, therefore, Havana was cleaned industriously, for the reason it was thought that filth was the cause of yellow fever. Conditions changed, however, when the decision was reached that *Stegomyia fasciata* was the cause of yellow fever. This theory was advocated by Dr. Carlos J. Finlay, of Havana, 20 years ago. The first practical effort to suppress yellow fever was made as inoculation tests and not as efforts to destroy the mosquito; but some fatal cases which occurred after inoculation stopped all enthusiasm in that direction, and then it was decided to attempt to destroy the mosquito. This met with unexpected and remarkable success. In less than a year Havana was entirely free from yellow fever, and since September, 1901, not a single case had occurred in that city. The United States came to Panama to build the canal, and the work of the Sanitary Department was to preserve health while doing so. In all previous efforts the history of the canal had been darkened by great loss of life. Malaria and yellow fever were the canal's worst enemies. But the yellow fever problem here was really not so difficult as it was in Havana, and the result seemed equally as promising. Continuing, Gorgas said: "We know more about yellow fever now than we ever did at Havana; we are pretty certain to be able to eliminate that disease; but malaria is seen under very different conditions from what it was in Havana. Malaria in a big city is chiefly a disease of the suburbs; malaria along with yellow fever was eliminated from Havana by the destruction of the breeding-places of the mosquito, but on the isthmus conditions are different. Here there are twenty-odd villages with 12,000 people scattered over nearly fifty miles; 70% of these have been found to have the malarial organism in the blood; probably a larger percentage would be found were the examinations to be extended over a greater period of time. Moreover, the parasite is not that of simple malarial fever, but the one which breeds the pernicious Chagres fever, of a much severer type, the estivo-autumnal parasite. The plan adopted along the canal is to eliminate the breeding-places by superficial drainage. Much headway has already been made. For instance, at Ancon, the hospital is entirely free from the malarial mosquito. Dispensaries are being established, and all canal people are encouraged to use quinin. These are the two methods employed for destroying the malarial mosquito. Four-fifths of the money appropriated for sanitary matters now goes for the care of the sick for the commission has determined to take charge of all of those sick within the zone. There is now under way a hospital of 100 beds at Taboga; at Ancon, under Major La Garde, U. S. A. There will be hospital accommodations for about 500; at Miraflores there will be hospital accommodations for 100 chronic patients, including insane and lepers; at Colon, a hospital with 500 beds is expected. At Culebra, Gorgona, Bohio, small hospitals will be erected. At Ancon there is a good general laboratory in which are working Drs. Herrick and Kendall, both Johns Hopkins men." Dr. Gorgas promised rapid advances, and he was sure that the expectations for complete control of conditions would soon be realized.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE DISCOVERY OF SUBNORMAL ACCOMMODATION IN THE YOUNG.

To the Editor of *American Medicine*:—It has now become a common observation that "there is nothing new under the sun." Old discoveries are being constantly rediscovered, often several times, and with no knowledge of the existence of the previous ones. This is largely due to the insufferable amount of medical literature whereby it becomes impossible for late students, especially if busy practitioners, to "read up" and to find the references to previous work. Much of our literature has misleading titles, much is not properly indexed in catalogs and epitomes, and worse than all is the neglect of literary research work on the part of the authors of textbooks. It is astonishing to find how far behind even these most authoritative textbooks are in the matter of summarizing the literature and discoveries of previous workers. Important matters are wholly neglected, the echoings of older books repeated as if by rote, and in many respects the book is a generation old before it is issued from the press as an epitome of the latest science. And all this despite the existence of yearbooks and periodical summaries of progress of a score of kinds and publishing firms. Thus the individual discoverer, in almost unavoidable ignorance of what has already been done, goes on working out anew the old problems and rediscovering old truths. But there are some compensations, of course, for this unfortunate tendency. Each rediscoverer approaches the subject from a somewhat new, or at least individual point of view, and there is thus a peculiar emphasis and light thrown upon the problem. There is also the satisfaction of a confirmation of the truth in value far outweighing all the personal aspects, the claims for "priority," etc. Those whose minds are fervently interested in the scientific or therapeutic truths are glad of the confirmation by previous delvers, and happy to give credit to earlier students.

There is still another aspect which may not be forgotten: All early discoveries are usually in the beginning partial, and have been led up to by hints, suggestions, incidental phasings of yet earlier workers, so that a too exclusive or decided claim of priority on the part of one may not be valid. Not only, for instance, should Wallace also be honored for the discovery of the principles now called Darwinian, but Lamarck's dues are daily gaining recognition, and many others had previously suggested and dimly recognized or stated the fundamental verities of the evolution or developmental processes of nature.

And lastly should be noted the truth that the method of presentation, the confirmatory evidence, the proper placing, the significance as regards practise and future correlations and extensions may warrant the giving to a later discoverer as much honor as to an earlier one. One illustration of all this has lately come to my knowledge: In 1869 was published an article by Dr. H. Kaiser, in the *Archives of Ophthalmology*, on "Binocular Vision," in which incidentally he advanced the theory of dextrocrucularity, offering some excellent proofs of it, and giving the name of "the prevailing eye," to what later I called "the dominant eye." In *Ophthalmology*, for January, 1905, there is an abstract of an article by Majewsky, published in 1903, in which Kaiser's theory is independently restated, and his argument and illustrations essentially repeated. Neither Majewsky, his abstractor, or the editor of *Ophthalmology* were evidently aware of Kaiser's work of 34 or more years ago. I have published several articles on the subject in 1904, also ignorant of the studies of Kaiser and of Majewsky. Kaiser's article could only be indexed and cataloged under a title which would not suggest the thought of dextrocrucularity, and Majewsky's work was published in an obscure Polish periodical.

A second illustration occurs in reference to my article published in *American Medicine*, January 21, 1905, concerning "Subnormal Accommodation and Premature Presbyopia." So far as I can learn the credit of the first clear statement of the principle is due to Dr. Samuel Theobald, of Baltimore, Md., published in the *Transactions of the American Ophthalmological Society*, in 1891.¹ But in the *Ophthalmic Record* of April,

1899, Dr. J. G. Huizinga, of Grand Rapids, Mich., under the title, "Necessity for Knowing the Range of Accommodation," not aware of Dr. Theobald's study, published an article which shows from a somewhat different point of view the essential truth of Dr. Theobald's contention. So far as I can judge, the road-opening labor of Dr. Theobald and the excellent paper of Dr. Huizinga have had little or no practical results in the actual clinical work of most oculists. When I think of the numerous patients under my own care in the past whom my ignorance of this relief-bringing measure has not cured of their grievous sufferings, I am heartily ashamed of myself.

Respectfully,

Philadelphia, January 28, 1905.

GEORGE M. GOULD.

THE STATUS OF THE HEALTH INSPECTOR.

BY

WM. EGBERT ROBERTSON, M.D.,
of Philadelphia.

To the Editor of *American Medicine*:—Some time ago, in discussing with Dr. Abbott, the president of our Health Bureau, the status of the health inspector, I suggested that two and possibly three factors were necessary before this official would receive the respect and esteem due the position from the profession and the community. These were: (1) To divorce the department from politics; (2) to require on the part of the candidates, special qualifications similar to those demanded by the British Health Department, and possibly (3) to pay a salary commensurate with the work done, not allowing inspectors to practise medicine, thus removing them from competition with the family physician, thereby saving possible friction. I further expressed to him the hope that some institution would consider this matter with the view to establishing a department for the training of health inspectors. Whether this bore fruition or not, the announcement contained in the latest number of *Old Penn.*, that the University of Pennsylvania has decided upon a course of instruction in public health to be instituted by the medical department, October 1 of this year, is a source of gratification. Dr. Abbott could not have foreseen how promptly such a course would be possible; though he said my views were ideal, he felt that for some time at least they must be visionary. That the betterment of the service will inevitably follow the raising of the status of the incumbents cannot be gainsaid. Perhaps it is a little doctrinaire to hope for the separation from politics of the Health Bureau, but with this will doubtless come the third proposition mentioned.

OPERATIVE TECHNIC IN STONE IN THE URETER.

BY

BENJAMIN R. SCHENCK, M.D.,
of Detroit, Mich.

To the Editor of *American Medicine*:—In your issue of December 3, 1904, appears an article on "Operative Technic in Stone in the Ureter," in which the author says: "I made a free suprapubic opening into the bladder and found this viscus absolutely free of any foreign body. On having an assistant elevate the floor of the bladder through the rectum, I found the left ureter *very slightly patulous*, and by *insinuating the point of my finger* through the meatus, I discovered a stone of very large size for this location." (Italics mine.) I think the technic employed in the extraction of this stone is unique, and suggests a new approach to and practical method of invading the distal extremity of the ureter for the release of calculi, not hitherto described. There are reported in the literature several (at least four) cases in which a stone has been removed from the ureter through a suprapubic incision into the bladder. They are the cases of: (1) Helferich¹; (2) Pitt,² reported by Morgan; (3) Bishop³; and (4) Emmet,⁴ also relates a case of transvesical removal of an ureteral stone, but does not state whether the incision was vaginal or suprapubic. It was probably the former, but the principle is the same.

¹ Arch. f. klin. Chir., 1894, Bd. xlviii, s. 875.

² The Lancet, 1898, i, p. 560.

³ Edin. Med. Jour., 1899, p. 47.

⁴ "Principles and Practice of Gynecology," p. 796.

ORIGINAL ARTICLES

THE HISTORY AND DEVELOPMENT OF SURGERY DURING THE PAST CENTURY.¹

BY

FREDERIC S. DENNIS, M.D., F.R.C.S.,
of New York City.

Professor of Clinical Surgery, Medical Department, Cornell University, New York City; Attending Surgeon to Bellevue and St. Vincent's Hospitals; Consulting Surgeon to St. Joseph's Hospital and Montefiore Home; Ex-President American Surgical Association; Member German Congress of Surgeons, Berlin, and Clinical Society of London; New York Academy of Medicine.

(Continued from page 146.)

Blood analysis has had much to do with the development of surgery, and affords a most valuable diagnostic aid. Without this contribution from the science of hematology the development of surgery would never have reached its present state. This is not the place to enter upon any discussion of blood analysis except as it pertains to surgical diagnosis, by means of which the broad field of operative surgery has been enlarged. In speaking of blood analysis a reference only will be made to the influence it has upon operative surgery. Blood analysis makes certain the diagnosis in some surgical diseases, it aids in the diagnosis of other diseases, and it helps to diagnose a condition, where from unconsciousness, inability to speak, insanity, or malingering, a history is unattainable. The chief points to ascertain are the number of erythrocytes, the leukocytes, the ratio of one to the other, the number of blood plaques, and the ratio to each other, the size, form and contents of the blood cells, the amount of hemoglobin and of fibrin, the specific gravity of the blood, and the bacteria contained in it. The erythrocytes or red blood globules normally exist in the blood in the proportion of about 5,500,000 in a cubic millimeter. The term oligocythemia indicates a deficiency in the number of red blood globules, or a diminution of their relative proportion. The term poikilocytosis indicates an irregularity in the shape and size of the globules, and an increase in the red blood globules is called polycythemia. Now oligocythemia is observed in hemorrhages, anemia, etc. Polycythemia is observed in cases where there is a loss of fluid from the blood as in cholera, severe diarrhea, etc. The leukocytes or white blood globules normally exist in the blood in the proportion of about 7,500 in a cubic millimeter. An increase of 1,500 or more in the number of the white cells indicates a condition known as leukocytosis.

Now, a normal leukocytosis is observed in health after meals, during pregnancy, following violent exercise, a cold bath, and massage. An abnormal leukocytosis is observed in such diseases as erysipelas, osteomyelitis, suppuration, malignant tumors, and in pneumonia. The term leukemia indicates a permanent leukocytosis. In the differential diagnosis of surgical affections, blood analysis is of great assistance. For example, in shock from hemorrhage there is oligocythemia. In shock from concussion or compression of the brain, there is no decrease in red blood cells. In appendicitis and pus tubes, there is a leukocytosis, while in floating kidney, ovarian neuralgia, gallstones, renal and intestinal colic, it is absent.

In meningitis, in cerebral abscess and cerebral hemorrhage, there is leukocytosis, while in other intracranial lesions it is absent. In all forms of sepsis, leukocytosis is usually present. Blood plaques normally exist in the blood in the proportion of 200,000 cmm. to 500,000 cmm. In disease, the plaques are increased.

Hemoglobin normally exists in the blood in about 90%, and below 20% is the minimum in life. The rela-

tion of hemoglobin to the erythrocytes and the rapidity with which it regenerates after injuries, surgical operations, collapse and hemorrhages, enables the surgeon to determine the prognosis. Syphilis and cancer retard the regeneration of hemoglobin, while tuberculosis, curious to state, increases the regeneration. In operation for removal of cancer, for example, the amount and rapidity of regeneration of the hemoglobin enables the surgeon to determine whether complete removal of the malignant tumor has been accomplished, and whether the rapidity is sufficient to justify the conclusion that perfect health can be reinstated.

4. *The Improvement of Old and the Discovery of New Operations with Their Mortality.*—It is obvious that a consideration of this part of the subject can only embrace a cursory review of the field of operative surgery. No attempt will be made to describe in detail any operative procedure. A mere reference to the improvements in old operations, and the discovery of new operations will be made as affording tangible evidence of what surgery has accomplished for mankind. The operations that have been discovered and performed within the past 100 years will be mentioned, and an endeavor will be made to show to what extent the science of surgery has been a benefaction to the human race. In order to demonstrate this proposition, it is necessary to record the date of the first performance of each prominent operation, and then to show what result has been accomplished since its introduction. In this way an idea can be obtained of the value of each great operation, and the advance which each has made toward saving life. A review of this kind naturally is devoid of popular interest, but at the same time these important factors are worthy of record and study. In this way only can the true progress of surgery be measured, since the operations performed prior to the past century are insignificant and unimportant. It is only by a study of the operations of the past century that the magnitude and usefulness of modern surgery become impressive and apparent. If what has been accomplished during the nineteenth century be taken from the sum total of knowledge of surgery, nothing will be left to entitle surgery to a recognition among the sciences. The work accomplished with the century, however, as a study, entitles surgery to a prominent place among the sciences.

The important operations will be considered in the following order. Those belonging to the cranial, thoracic, and abdominal cavities, and finally those of a miscellaneous nature.

External to the cranial cavity, the operation for the cure of racemose arterial angioma, aneurysms of the scalp, sinus pericranii, dermoid cysts, sarcoma and carcinoma, are among the recent operations that indicate the extension of surgery in this department. The improvement in the technic of the operation for compound fractures of the skull, fractures of the base, encephalocele, and within the cranial cavity the operations for the relief of hydrocephalus, compression of the brain, ligation of the middle meningeal artery, are worthy of mention, as denoting the progress which surgery has made within recent years. Abscess of the brain has been recently treated with success. Delvoie cites 21 cases of trephining for acute cortical abscess, with 15 recoveries, and 33 operations for chronic deep-seated abscess, with 19 recoveries. In cerebral abscesses secondary to otitis media, Ropke reports 142 cases, 59 of which recovered, and 40% were permanently cured. Frontal abscesses of nasal origin have been operated upon with brilliant success. This life-saving operation which has resulted in cure, until recently hopeless, indicates the progress of surgery. In thrombosis of the intracranial sinuses with operation, results have been obtained. Thus Macewen had only 8 fatal cases in 28 cases of infective thrombosis, all of which would have died without surgical intervention. This is a remarkable showing for this new operation.

¹ Address before the International Congress of Arts and Science at St. Louis, September, 1904.

Intracranial tension has very recently become a new indication for operative interference. This operation affords relief in a class of cases that heretofore was fatal. This operation is a contribution of modern surgery, and is another milestone which marks the progress of the science of surgery. The recent advances in clinical medicine and clinical microscopy have opened up the heretofore unexplored field for operative interference. Cases of coma with no external injury of the skull have heretofore been treated by the expectant plan, with almost uniformly fatal results. Surgery owes much to these two departments of medicine for valuable knowledge upon a subject which is comparatively new, and which offers an additional field for operative work. Intracranial tension is a condition which a study of modern pathology has shown calls for surgical interference. Intracranial hemorrhage is one of the most frequent causes of intracranial pressure. It may also be caused by bone, pus, and foreign body. In order to clearly understand the theory of intracranial pressure, it is necessary to bear in mind two facts: 1. That the brain itself is incompressible; and (2) that the cranial cavity itself is incapable of expansion, therefore, the pressure of a clot of blood or a fragment of bone, or a collection of pus, or any foreign body, must be accommodated in the limited space in which the brain is lodged. If the foreign body is of sufficient size to fill the intracranial space by a twelfth, death results.

The treatment of intracranial tension is a new subject, and one which I have of late given special study. I am convinced that operative treatment is indicated in many of these cases. I have employed this measure with most gratifying success. The indications for operative interference are in some cases perfectly clear, while in others the phenomena present would not justify to serve so severe a measure. The greatest difficulty is to determine what the line of demarcation is between the cases that demand trephining or lumbar puncture, and those in which the plan of expectancy can be adopted.

These cases of intracranial tension can be divided into two classes as regards operative interference. The first class includes those in which intracranial tension is sufficient to produce profound coma. Operation will save patients included in the first class that uniformly died under the expectant plan of treatment. Operation will save the patients embraced in the second class when the symptoms are gradually increased in severity. In regard to the indications for operation to relieve intracranial tension in those cases included in the second class in which coma is not present, the problem is difficult of solution. I have been guided as to the operation by the condition of the patient after a study of the symptoms from hour to hour and from day to day. If the arterial pressure arises to a point and remains stationary, and the vasomotor system does not fail, even with a well-pronounced disturbance of the pneumogastric nerve, no operative procedure was practised, and recovery has taken place. In addition to the symptom of increase of arterial pressure, the blood count must be studied, the eye grounds examined, the urine tested, the reflexes studied, the disturbances of cranial nerves noted, and all other phenomena investigated. If the pressure is not daily increasing, and the leukocytosis not rising, the red blood cells not increasing, and the urine not becoming glycosuric, the hebétude not emerging into coma, and the cephalalgia not increasing, delay in operative interference is indicated. If all the above-mentioned symptoms from a stationary point begin to increase, operative interference is called for to save the patient's life. If on the other hand, from this stationary point all the symptoms show an improvement, operation can be deferred at least for the present, if not permanently.

The operation for relief of insanity is worthy of consideration. Surgery has accomplished great victories in the restoration of reason in the insane, when the lesion was due to traumatism. A little over 100 years ago the

management of the insane was most revolting and brutal. In Europe the treatment of the poor outcasts was a blot upon the civilization of the world. Imagine these poor wretched creatures consigned to dungeons and manacled by chains for years. In these dark prisons, the insane considered as demons, were kept in irons amid squalor and filth. It has been stated that the iron tether was so short that these poor unfortunate victims could not even stand upright and were held for years by chains riveted around the neck or waist. The humane treatment of these poor unfortunate people began about a century ago and great credit is due to neurologists who have rescued these sufferers by throwing aside their manacles, by restoring to them their liberty and by proffering them treatment. Men like Tuke and Pinel and Rush took the initiative in this great reformation. As soon as a rational, humane, kind treatment was instituted it became evident here and there that among these insane, epileptic demons as they were called, there were some who could be relieved and sometimes cured. Surgery has been employed for this purpose, and some of the results are almost miraculous.

In the course of the development of surgery, operations have been devised for the relief of insanity where the etiology was due to pelvic disease. In DaCosta's monograph it is mentioned that Hobbs operated on 116 cases of pelvic disease in the insane, with a mortality of the operation less than 2%, and recovery from the insanity in 51%, and great improvement in 7%. "In the group of noninflammatory troubles, tearing of the perineum, uterine displacements, tumors, etc., 25.5% regained mental health, and 31% improved."

In the surgery of the heart great progress has been made. Bimanual massage of this organ has been successfully resorted to by Cohen in a case of collapse following chloroform narcosis and during laparotomy. In a case described by him: "Artificial respiration for two minutes having no effect, he introduced his hand into the abdominal cavity, pushed along the anterior abdominal wall until the diaphragm was reached, and placing the hand, palm upward, in about the position the heart would normally be, that organ was freely grasped through intervening diaphragm. There was an entire absence of heart action. Placing the right hand over the precordial region, externally, he now plainly palpated the heart as it lay between his hands, and began rhythmic compression, using both hands, at a rate of about 60 a minute. After about 30 seconds a slight beat was felt by the left hand. The heart now began to beat slowly, gradually increasing in strength and rapidity until at the end of a minute the beats registered about 80, and respiration began to be partially reestablished. About two minutes after this respiration was normal, pulse 80, and shock being apparently recovered from, the anesthetic was changed to ether, and the operation finished in about 30 minutes, with recovery of patient."

For the relief of pericardial adhesions, a new operation has been devised by Peterson and Simon. This operation is analogous to Estlander's operation for pleuritic adhesions. The operation consisted in a resection of a portion of several ribs, and in some cases a part of the sternum. Murphy cites the fact that of 38 cases of stab wound of the heart, 90% were penetrating and only 19% were immediately fatal, thus leaving 81% of the cases amenable to surgical treatment. This new operation, the outgrowth of modern surgery, will afford a new field for this science to save human life in a class of cases heretofore fatal.

In addition to the surgery of the heart, there are many other operations of the chest that deserve mention as indicating the progress which surgery has made within the past century. In surgery of the chest the wounds of the pleura and lung have been successfully treated since the introduction of antiseptic surgery. Abscesses of the mediastinum, caries, and necrosis of the ribs and sternum, tumors of the chest wall, actinomycosis, and

other infective processes, removal of fluid from the pleural and pericardial cavities, are among the recognized operations of the day.

Wounds of the heart during the past century, and especially during the past 10 years, have been treated surgically with remarkable success. Stewart reports that Roberts, in 1881, suggested the propriety of suturing these wounds. Tillmann believed in the hopelessness of this procedure, yet in 1897 Rehn published the first successful case of cardiorrhaphy in man. Stewart likewise has operated with success, and he has collected 60 cases with the brilliant result of 38.3% of recoveries.

In the surgery of the lung advance has been made within the last quarter of a century. The diseases of the lung which have become amenable to surgical treatment are tumors, tuberculosis, abscess, gangrene, hydatid cysts, actinomycosis, and bronchiectasis. Murphy has collected 47 cases of tuberculosis; 26 patients were improved and 19 died; 8 cases of actinomycosis, in which the patients recovered; 96 operations for pulmonary abscess, with 80% of recoveries; 122 cases of pulmonary gangrene, with 66% of recoveries; 57 operations on bronchiectasis, with 60% of recoveries, but only half permanently cured; 79 cases of hydatid cysts of the lung, with about 90% of recoveries. In some 400 cases of pneumotomy collected from various sources by Murphy there have been about 300 recoveries, or about 75%. This is a most remarkable result in a department of surgery that has developed within a few years, and includes a class of cases that were formerly practically hopeless. Much credit is due to Murphy for his work as a pioneer in thoracic surgery. Perhaps one of the most interesting operations in connection with pulmonary surgery refers to tuberculosis of the lungs. In reference to excision of tuberculous foci, Whitacre has shown that in nearly 98% the operation is "impossible and irrational." In only 2% of the cases can surgery afford relief, and in these cases the foci are located in the apices of the lung. It is thus evident that there is little to be expected in the future as regards pulmonary surgery as it refers to tuberculosis, since careful investigation has demonstrated the fact that, as a rule, the tuberculous foci are not accessible to the surgeon. Before dismissing this subject the nitrogen compression method introduced by Murphy deserves recognition. The object of this method is to compress the diseased lung by gas, thereby restraining its movement to cause a mechanical obliteration of the cavity and the limitation of the already existing focus, to favor fibrosis, thereby closing in the avenues of dissemination to afford rest to the affected part in the same manner as a splint to a fractured bone. In certain judiciously selected cases this method is applicable.

In October, 1842, Sayre made a free incision in the chest in a case of empyema, and the patient made a good recovery. Forty-eight years ago Sayre raised the inquiry, "In the empyema of a tuberculous patient from the rupture of an abscess into the pleura would we not be justified in tapping as soon as discovered?" In 1850 Dr. Henry Bowditch suggested and practised paracentesis thoracis. Wyman, unaware of Bowditch's operation, performed the same operation. Warren Stone suggested the operation of thoracoplasty, which has been improved by Estlander, and after many years this operation has advanced to the stage of full acceptance by all surgeons. It is almost impossible to estimate the number of lives saved by this operation, but the number is very great, and this operation forms an enduring monument to the fame of American surgery.

Surgery of the stomach has claimed attention only for the past quarter of a century, for previous to that time it was practically unknown. The unsatisfactory state of the surgery of the stomach previous to 1875 is best illustrated by a reference to statistics. It has been shown that of 28 operations attempted upon the stomach, there were 28 deaths, or a mortality of 100%. From 1875 to

1884 improvement took place in that 163 operations were performed with 133 deaths, or nearly 82% mortality.

The reduction of the mortality of 100% to 82% was a gain in the right direction; but it left much to be desired. The rapid strides which scientific surgery has made in the operations upon the stomach forcibly illustrate what can be expected in the future in this department of surgery. There are at present about 12 recognized operations upon the stomach, and in 7 of these there is practically no mortality, while in the remaining 5 it has been reduced to about 25%. Keen predicts as technic improves the mortality in the most difficult operations ought not to be higher than 10%.

I should predict, from an examination of late statistics that even less than 10% has already been accomplished, and in the future the mortality will be still lower. Mayo has shown that in an investigation of over 900 operations upon the organs contained in the upper abdominal zone that there existed a relationship between gallbladder and ducts, the duodenum, the pancreas and stomach. In other words, that the continuity of tissue like the mucous membrane makes the disease of one organ a menace to the others. Mayo also believes that the duodenum, on account of its situation, acts as a buffer, and is involved secondarily in about an equal proportion of cases from gallbladder disease and gastric ulcer, in the same way Mayo pointed out that diseases of the pancreas were secondary to gallstone diseases.

Cardiospasm, in which there is difficulty in deglutition from a spasm of the muscles of the cardiac end of the stomach, forms a new indication for operation. It is comparable to pyloric obstruction, and the operation for the relief of cardiospasm is similar to that of pyloric stenosis. Mikulicz and others have performed this operation with brilliant results and effected a cure that could be obtained only by surgery.

Pyloric stenosis is another and new indication for operative interference to relieve the distressing symptoms so often disguised under the term of dyspepsia. In 1901 Roswell Park collected upward of 40 cases in which the patients were cured by surgery.

Gastroptosis is a prolapse of the stomach due to relaxation of the ligaments which support the organ. This condition gives rise to ordinary signs of dyspepsia accompanied by acute pain and later emaciation. Modern surgery in its evolution has devised an operation for the relief of this distressing and painful condition. The stomach is elevated and held in its anatomic position by shortening of the gastrohepatic and phrenic ligaments of the stomach. Thus the normal ligaments are shortened and the stomach held in its proper position without disturbing its mobility or function. In eight cases reported including four by Bier, seven patients were cured and one improved. This is a new operation of modern surgery calculated to relieve a distressing condition for which medical treatment was of no avail.

Dilation of the stomach has been operated upon with a view of relief of distressing symptoms to which it gives rise. The operation is called gastroplication and consists in reducing the capacity of the dilated stomach by tucking in folds of the stomach wall. It is a most satisfactory operation provided there is no pyloric obstruction present. The operation is safe and effects a permanent cure.

Exploration of the stomach has been resorted to successfully by Dennis to relieve hysterical vomiting. Hysteria, as is well known, gives rise to persistent and uncontrollable vomiting and in one case in which no relief could be obtained by medical means, a laparotomy was performed, the stomach drawn out and then returned into the peritoneal cavity. The psychic effect, or the mechanical stretching of the stomach itself resulted in cure.

Gastrotomy for the removal of foreign bodies in the stomach has been resorted to successfully during the past

25 years. The foreign bodies enter the stomach as a result of accident or are purposely swallowed as a livelihood, or on account of insanity. In preantiseptic days, Murphy reports 19 cases of gastrotomy, with 15 recoveries and 4 deaths, or a mortality of 21%. In antiseptic days, 71 patients were operated upon, with a mortality of 9%. This includes early and late cases and at the present time if the cases are seen early the mortality is very low. Thus, modern surgery has developed to such a state of perfection that the stomach can be opened and foreign bodies removed with almost a certainty of success.

Gastrotomy is an operation employed for the relief of stricture of the esophagus, either benign or malignant, or for certain lesions connected with the stomach itself. It has for its prime object the prevention of death by starvation.

In 1883, Le Fort compiled some statistics in 105 cases of gastrotomy, in which he showed that the mortality from 100% was reduced to 74.2%. In 1885, Zisas collected 162 cases of gastrotomy, with 113 or 69.7% of mortality. In 1886, Knis had 169 cases of gastrotomy, with a mortality of 66.6%. In 1887, Heydenreich collected 33 new cases of gastrotomies, with 19 deaths or 57% mortality. Since 1887, Guerin collected 121 cases of gastrotomy, with 43 deaths, or 35.5% mortality. Mayo has performed gastrotomy with a less death-rate than any mentioned. There can be no more beautiful illustration of the development of surgery than is demonstrated in this one operation, since formerly it was attended by a mortality of 100%, while today after about a quarter of a century the operation has by evolution achieved a record that is most remarkable, since the latest figures show the mortality to be less than 30%.

Mikulicz recently performed 10 gastrotomies for the relief of nonmalignant strictures of the esophagus, with only 7 deaths or a mortality of about 20%.

Dennis operated upon a case of impermeable stricture of the esophagus, caused by ulceration and cicatricial contraction by typhoid ulcers. This case is one of the two in which typhoid ulcers were situated in the esophagus. The patient is now living, seven years after the gastrotomy. His weight previous to the operation was less than 100 pounds, and today it is 184 pounds. He has not taken a mouthful of food except through the fistulous opening for seven years and is perfectly well nourished.

Gastric ulcer has become a recent indication for operation. It has been performed 184 times as collected by Mayo Robson up to 1900. These 184 cases do not include those for perforation or hemorrhage; 157 patients recovered, and 31 died, thus giving a mortality of 16.4%. In 1901 statistics show that in 25% of cases of gastric ulcer the patients died under medical treatment, and only 5% under surgical treatment, according to the latest statistics. Gastric ulcer is a pathologic condition which formerly was considered exclusively from a medical point of view. Today this disease in the stage of complication has been relegated to the domain of surgery. It has been during the past quarter of a century that progress has been made in the management of the serious complications, such as hemorrhage and perforation of this intractable disease. Under medical treatment, the mortality of gastric ulcer in hemorrhage or perforation was nearly 100%, while under surgical treatment this frightful mortality has been reduced by the Mayos to 5% in the benign ulcers and 18% in the malignant ulcers. The advance that surgery has made in this disease has been in the study of the mechanics of the stomach, rather than the chemistry. Medical treatment based on chemistry was of little avail. Gastric ulcer of the stomach affords a striking illustration of the progress of surgery within the past decade. In addition to the reduction of the mortality from nearly 100% by medical treatment, to about 5% by surgical treatment in the acute cases of hemorrhage and perforation to 23% in the chronic cases with malignancy, there has been eliminated

the danger of cancer engrafted upon an ulcer which at the beginning was benign.

Gastric hemorrhage is a condition which has been relieved through the mediation of modern surgery. These hemorrhages from the stomach are peculiar in that the smallest ulcer which can scarcely be recognized by the naked eye on postmortem appearances have given rise to fatal hemorrhage. Mayo reports five cases of acute perforation and hemorrhage with three deaths.

Cancer of the stomach was a uniformly fatal disease. Under medical treatment no patient ever recovered. Surgery has entered this domain, and already the beneficent results are beginning to be felt. It must be remembered that this invariably fatal disease involves, according to Haberland, 40% of all the cases of cancer that invade the human body. Here is the most important and serious problem with which surgery has been confronted. Mayo assigns three reasons why surgery has never until recently interested itself in this fatal disease: 1. A belief that cure cannot be accomplished. 2. That the mortality of radical operations is almost prohibitory. 3. That the diagnosis cannot be made until the case is hopeless. In regard to the first reason, Mayo cites the fact that McDonald found 43 cases of cancer of the stomach, in which a permanent cure was effected by operation. Murphy collected 189 cases, in which the operation was performed by several operators, with 5% permanent cures in cases of over three years' standing. In some of these cures the patients were operated upon more than two years, and hence would, by law of average, survive to bring the percentage up to 8%. Beside these recoveries, Krönlein has proved by his statistics that human life is prolonged 14 months over the unoperated cases. These facts are in striking contrast to the uniformly 100% mortality under medical treatment. The second reason why surgery has never generally entered the operative field for the relief of gastric cancer, was due to the high mortality of 60% which Billroth published. This mortality has been happily reduced to 10% by improvement in technic and by early operation. If the operation is performed before adhesions have formed, and by men thoroughly trained in this field of operative work, the mortality will soon be even less than 10%. Mayo has had 41 cases of excision of the stomach, with a mortality of 17%. Out of the total number, 13 were performed by an improved method, with only 1 death, or 7%, while in the last 11 cases of excision of the stomach there was not a death, or the mortality zero. The mortality has been reduced in Mayo's last series of 11 cases to zero, from 60%, as reported by Billroth. No other statistics can be adduced to show so emphatically what surgery has achieved within a period of time that has elapsed since the erection of this magnificent building in this wonderful exposition. This one fact alone is the grandest and most striking proof of the miraculous work which surgery has accomplished, and to Mayo is due the credit of leading the world in this new department of surgery, which may be said to be the highest, the final, the most triumphant monument of the contribution of surgery to the human race. Here, again, is another striking illustration of what surgery has achieved. It has reduced the mortality of an operation in cancer of the stomach from 60% to 10%, and in a limited number to zero, and with every prospect in the near future of even a mortality of less than 10% in a large series of cases.

The third reason why surgery has not invaded this field lies in the fact that the diagnosis cannot be made by medical means in time to effect a cure. Exploratory incision to find out is recommended by Mayo, and by this means an early operation can be performed that will be attended by small mortality as regards the operation itself, and a large percentage of cures as regards the disease itself. Cancer of the stomach, as a rule, is situated near the pylorus, just below the lesser curvature. Moynihan states that from this focus it spreads widely

through the submucosa, and rapidly toward the cardia, and slowly toward the pylorus. Until very recently no surgery has been done upon the stomach for cancer, for the reason that it was considered a hopeless disease. Murphy collected 189 cases in which radical operation was done, with 26 deaths. Of these, 17 patients survived three years, or about 8% of cures. This is a gain in the right direction, since all patients die without operation. This 8% of cures was reduced to 5% by a return of the disease after three years. Mikulicz in 100 cases had an average duration of life of 15 months. The patients had relief from suffering at least 15 months, and there did not follow that terrible suffering so characteristic of the inoperable cases of cancer of the stomach. The reason that the results are not better in cancer of the stomach is owing to delay in operation, and when that obstacle is overcome the results will be brilliant, compared with the gravity of the disease. Time permits of adhesions, and when the operation is resorted to before adhesions form, the mortality is very much lessened. Thus Haberkaut had a mortality of 72% in cases with adhesions, and only 27% without adhesions. Gastrectomy was done, as reported by Murphy, in Kappeler's clinic, with 26% mortality, Krönlein with 28% mortality, Kocher 29%, Roux 33%, and Mikulicz 37% mortality. Murphy has called attention to the prophylactic treatment of cancer. He believes in the removal of conditions which seem to be essential in the majority of cases to the development of the disease. Mikulicz has shown that 4% to 5% of the human race suffer from gastric ulcer, and that a fifth die as a result of the gastric ulcer. The other factor which largely influences the growth of cancer is the pyloric stenosis when the stomach cannot empty itself. The suggestion, therefore, is the removal of gastric ulcers by excision, and the relief of the pyloric obstruction by gastroenterostomy, and these prophylactic operations when performed early are attended with a comparatively small mortality, eliminates the possibility of cancer of the stomach arising from these two important and frequent causes.

Partial gastrectomy was twice performed by Langenbuch and published by him in 1894. In both cases seven-eighths of the stomach was removed. In 1898 Krönlein records all his own cases of partial excision of the stomach and Schlatter's case of complete excision. There were in all 24 cases, with 5 deaths, or a mortality of about 20%. Maydl, in 1899, reports 25 cases of cancer of the stomach, in which a partial gastrectomy was performed, with a mortality of 16%. Of the patients who recovered from the operation, 7 had recurrence very soon afterward, and the average duration of life was 11.7 months. In 1898 Kocher has reported 57 cases of resection of the pylorus, with 5 deaths, or a mortality of 8%. In the list there were 8 patients cured. Rydygier, in 1901, reported 25 partial gastrectomies, in which 8 patients recovered and 17 died, or a mortality of 68%. Czerny, in 1899, reports 29 partial gastrectomies, with 11 deaths, or a mortality of about 40%, and the average duration of life was 22 months. Morison reports 16 cases of partial gastrectomy, with 7 deaths, or a mortality of about 43%. Two of Morison's patients are still living. In one 6 years has elapsed, and in the other about 4 years. Mayo reports 48 cases of partial gastrectomy for pyloric cancer, with a mortality of 12.5%, and in the last 19 cases there was only 1 death.

Complete gastrectomy was first performed by Conner, of Cincinnati, in 1883. The patient died upon the operating table. Complete gastrectomy was performed by Schlatter in 1897. The patient lived 13½ months. Complete gastrectomy was next performed by Brigham in 1898. The patient recovered from the operation. Complete gastrectomy has been performed 12 times, as reported by Robson and Moynihan. Four died as result of the operation, or a mortality of 33%. These cases are too recent for a pronounced opinion as to the permanency of the cure.

Surgery of the liver forms a unique chapter in the development of the science. Operations upon the gallbladder and biliary ducts afford the most striking illustration of what modern surgery has achieved. Within the past 37 years this new operation has been performed with most gratifying results. It is a source of great national pride that this operation destined to relieve so much intense suffering and to save life itself was discovered in this country. To Bobbs of Indianapolis is due the great honor of the discovery of an operation which has accomplished these two beneficent results. In 1867, 37 years ago, Bobbs performed successfully the new operation of cholecystotomy and removed 50 gallstones by an incision into the gallbladder. This event marks an epoch in abdominal surgery that places this renowned Western surgeon upon a pedestal that commands homage and respect from the civilized world. Bobbs' first cholecystotomy was soon followed in 1868 by a second operation by another American surgeon, J. Marion Sims who removed 60 gallstones from the gallbladder. To Tait, however, who was at the time of his death the greatest authority on hepatic surgery, belongs the great credit of perfecting the technic of this operation. Excision of biliary calculi by incision into the umbilical vein was performed by Dr. John C. Warren of Boston within the century. Such in brief is the history of the operation, the development of which from its crude to its almost perfect technic, forms a remarkable chapter in surgery.

Gallstones with intestinal obstruction are attended under medical treatment, with a mortality of nearly 100%, while surgery has brought relief in a certain proportion of cases and with every encouraging prospect of a very great improvement. Courvoisier reports 125 cases, with a mortality of 44%. Schüller had 82 cases, with a mortality of 56%; Eve 28 cases, with a mortality of 40%; and Bannard 8 cases, with a mortality of 57%.

Cholecystotomy is an operation which consists in opening the gallbladder for the relief of various conditions. Cholecystitis or inflammation of the gallbladder is a disease that was formerly treated by medical means with little or no prospect of cure if septic infection was present. In those cases in which gangrene or pus or rupture has occurred, medical treatment is attended by death; but surgical treatment may effect a cure in a large percentage of cases. Cholecystotomy is one of the most gratifying operations in surgery, because it relieves suffering, effects a permanent cure, and is attended by the exceeding low mortality of less than 3%. The statistics of the operation of cholecystotomy varies greatly, owing to the special conditions for which the operation is performed. Mayo Robson states that when the operation is performed for simple disease, as gallstones, when malignant disease and jaundice with infective cholangitis are absent, the mortality in 281 cases was only 1.06%. If now the complicated cases are included, such as phlegmonous cholecystitis, gangrene of gallbladder, infective cholangitis with or without gallstones, the mortality is only 2.7%. If further the malignant cases be collected, in which cholecystotomy has been resorted to in the presence of cancer of the pancreas or bile ducts, the mortality of the operation itself in 22 cases was only 5.8%. As regards the recurrences, the statistics will be mentioned later. Mayo reports, in 1902, 227 cases of cholecystotomy for various simple conditions, chiefly for gallstones, with 6 deaths, or a mortality of 2.6%. The same operator reported, in 1903, 352 cholecystotomies for simple conditions, with 8 deaths or a mortality of 2.27%. For malignant disease the same surgeon reported, in 1902, 4 cholecystotomies, with 2 deaths or 50% mortality, and in 1903, 5 additional cases, with 3 deaths or 60% mortality. It is thus evident that cholecystotomy is attended by a high mortality when the operation is performed for cancer. It must be remembered, however, that the mortality is 100% under medical treatment. The mortality of 100% under medical treat-

ment will never be improved, while the 50% or 60% mortality under surgical treatment will be reduced as diagnosis and technic improve, and early operation is performed. Kehr, in 1896, reported 209 cholecystotomies upon 174 patients. In the simple cholecystotomies, the mortality was only 1%. In the complicated cases the mortality was 58.8%. In a later series Kehr reported 202 cholecystotomies with 32 deaths or a mortality of 16%. The higher mortality in this series is accounted for by the greater severity of the cases, which earlier did not submit to operation. In conservative cholecystotomies Kehr had 68 operations with three deaths, or a mortality of 4.4%. In 1902, Kehr again reported his statistics, which consisted of 720 operations for gallstones, with a mortality of 15%. In the simple cases of cholecystotomy the mortality was 2.1%, and in the complicated cases, including cancer, the mortality was 97%. Greig Smith reported 11 simple cholecystotomies with no mortality, and one complicated case with death or 12 cases in total, with a mortality of 8.33%. Lawson Tait reported 55 cases of cholecystotomy with three deaths, or a mortality of 5.4%.

Thus in cholecystotomy alone is an operation that has shown a steady improvement in its statistics. In no other operation is a greater contrast between the medical and surgical treatment of a disease at the present day.

Cholecystectomy is an operation which consists in excising the gallbladder in a manner somewhat similar to the removal of the appendix. Ferrier reported in 1901, 16 cases with 4 deaths, or a mortality of 25%. Courvoisier reported 47 cases with 12 deaths, or a mortality of 25%. Martig, in 1894, collected 87 cases of removal of the gallstones with 15 deaths, or a mortality of 17.2%. Mayo Robson reports 28 cases with 4 deaths, or a mortality of 14.2%. Mayo, in 1902, had 31 cases with 3 deaths, or a mortality of 9.6%, and in 1903 had 70 cases with 8 deaths or a mortality of 4.3%, and up to the present time he states that he has had 204 cases with a mortality of 4%. Kehr reported 21 cases with 1 death, and a mortality of 5%, and later another list with the mortality of 3%. Thus in cholecystectomy is another operation that has shown steady improvement in its statistics. This operation affords another illustration of the marked contrast between the medical and the surgical treatment, for in the former treatment no cure can be effected, while in the latter the percentage is very large.

Choledochotomy is an operation which consists of opening one of the biliary ducts and is a more formidable operation than opening the gallbladder. Ferrier, in 1893, reported 20 cases, with a mortality of 25%. Kehr, in 1896, reported 84 cases, with 31 deaths, or a mortality of 37.8%. In a later series his mortality was reduced to 12.5%. Mayo states that in 130 cases of benign series he had a mortality of 7.75%. Mayo Robson reported in 1901, 37 cases, with 4 deaths, or a mortality of 10%, and since 1901, 51 cases, with 1 death, or 1.9%, and later a consecutive series of 52 choledochotomies with no deaths. Choledochotomy is one of the most difficult operations in surgery, and the advance which surgery has made is shown by a reference to the great mortality of these cases for which this operation is performed, since under medical treatment suffering was not relieved and death often supervened, whereas under surgical treatment the mortality has been reduced even to 1.9%.

Cholecystenterotomy is a modern operation on the biliary passages, and consists in establishing a new communication between the gallbladder and the intestine. Murphy reported 23 cases by use of sutures, with 8 deaths, or a mortality of 34%; 21 cases by Murphy button, with no mortality, and 2 cases for malignant disease, with 2 deaths, or a mortality of 100%.

Cholecystoduodenotomy has been performed by Murphy's button in 67 nonmalignant cases with only 3 deaths, or a mortality of about 4%, and in 12 malignant cases by

Murphy, 10 died, or a mortality of 83.3%. Mayo performed cholecystoduodenotomy on 5 patients for chronic pancreatitis with no death, and 4 times for cancer with 1 death, or a mortality of 25%.

Pancreatic disease affords a field for the display of what modern surgery has achieved that astonishes the scientific world. Körte has computed the mortality of the operation for the cure of pancreatic cysts, and shows that Gussenbaur was the first to operate for the relief of this fatal disease. Previous to Gussenbaur's operation the mortality under medical treatment was 100%. In the 84 cases collected by Körte, five patients died as the immediate result of the operation, thus giving the low mortality of not quite 6%. This statement seems incredible and affords the most startling and unprecedented illustration which has no parallel in any other science. This operation has attracted great attention in the scientific world and its brilliant and unique record has been heralded throughout Christendom. Still more striking is another report of 15 cases of complete excision of the cyst of the pancreas with 13 recoveries or a mortality of about 13%, and in 7 additional cases the extirpation has been only partial since some of the cyst wall was so adherent to important structures that its removal was impossible and 4 of the patients died thus giving a mortality of 57% which in contrast to 100% mortality under medical treatment is a great advance though it is admitted that it is not what is expected since as technic improves, the operation will be brought perhaps nearly as low as simple ovariectomy in the future. In evacuation and drainage of the pancreatic cyst there have been collected by Takaysan 17 cases with one death or a mortality of not quite 6%. Mayo had 5 consecutive cases of chronic pancreatitis with recovery in each case, and 4 cases of cancer of the pancreas with 1 death or a mortality of 25%. Operations upon the pancreas afford another brilliant example of the achievements of surgery within the past few years. Mayo Robson and Moynihan, in 1902, reported 24 operations for the relief of chronic pancreatitis with 2 deaths and complete and perfect recovery in the 22 remaining cases. There is no more striking example of the progress which surgery has made than is afforded by this record. In cancer of the pancreas which is always fatal the operation has been attended by about 50% mortality, and in the other 50% the patients have survived a comparatively short period. This is an operation that surgery in the future will have a better showing just as soon as the methods of diagnosis are improved so as to operate in the early stages of the disease. Mayo has had 37 cases of pancreatic disease with 2 deaths or a mortality of about 5%.

Surgery of the spleen offers an illustration of the progress which surgery has made during the past century. The cases of major operations upon the spleen are too few to make any extensive and reliable statistics. The prognosis which is most marked and which interests us in connection with the subject of this address, shows improvement each year. Thus Murphy shows that in 1890, in the operated cases, the mortality was 70%. In 1897 the mortality was 37%. In 1899 the mortality was 26%. These figures are unsatisfactory, except to point out that in this new department of surgery great advance is made each year. Fevrier grouped under four heads the surgical conditions in the spleen that call for operative interference. They are traumatism, abscess, tumors and displacements. As these conditions were nearly all fatal without surgical intervention, it is interesting to inquire what surgery has accomplished in this new field. Fevrier collected 56 cases of rupture of the spleen, in which splenectomy was performed 46 times, with 23 recoveries, thus giving a mortality of 50%. There were 8 cases of stab and gunshot wounds, with 3 deaths, or a mortality of 30%. Abscesses and hydatid cysts have called for operative interference, but there are no reliable statistics on the results. Malarial splenomegaly was operated upon 117 times, with 31 deaths, or a

mortality of 26%. Displacements of the spleen have been operated upon by splenectomy and by splenopexy. Cases of extirpation of a movable spleen have been collected by Stierlin, who shows that the mortality is now only 6.25%. Splenectomy in echinococcus of the spleen, according to Bessel-Hagen, previous to 1890, was attended with a mortality of 60%, and from 1891 to 1900, the mortality was reduced to 10%.

[To be continued.]

SOME FURTHER EXPERIMENTS UPON RECTAL ALIMENTATION.

BY

DAVID L. EDSALL, M.D.,

AND

CASPAR W. MILLER, M.D.,

of Philadelphia.

From the William Pepper Laboratory of Clinical Medicine, Phoebe A. Hearst Foundation.

In some previous contributions to this subject, in which we published the results of our own work and reviewed the literature, we emphasized the fact that reliable experiments on the absorption of nutritive enemata have, in the majority of instances, demonstrated that food administered in this way is very poorly absorbed, as compared with the results when food is taken in the normal manner, namely, by the mouth. The bulk that can be given by rectum is also small. Hence, the patient ordinarily obtains an extremely insufficient amount of food. As we have previously stated, we believe that in most cases the greatest value of rectal alimentation consists in furnishing fluid to the tissues. Patients occasionally appear to receive a good deal of nutriment in this way; but this is certainly the exception, rather than the rule.

The form of food that is apparently most imperfectly absorbed is fat—a most unfortunate fact, because a given weight of fat provides the organism with more than twice as much energy as does an equal amount of either proteid or carbohydrate. If even a moderate quantity of fat could be absorbed from the lower bowel and utilized by the tissues, a result of great importance in rectal alimentation would be thus obtained, owing to the high food value of fats. It seemed to us, therefore, to be worth while to attempt to find some method of artificially preparing fats so that a greater degree of absorption might be secured.

With this purpose in view, we carried out experiments upon two different lines. 1. We tried to provide our fats in the form of a soap that would be easily prepared and administered, and to investigate its absorption when given by rectum. 2. We searched for a good emulsion of fat that would remain emulsified after its introduction into the bowel, and determined the extent to which it was absorbed.

The experiments with soap were undertaken on account of the insistent claim of Pflüger that practically all the fat taken into the digestive tract is split and is absorbed chiefly in the form of soap. It is not necessary to discuss the literature of this question or to attempt to determine here whether the evidence favors this view or that of Munk and his followers who believe that much of the fat is absorbed in emulsion, without being split. If, however, Pflüger should be right, and most, or even a large part, of the fat were split before absorption, it would be essential to provide for this splitting and soap formation in administering fats per rectum; and the customary method of administering native fats would, of course, be quite irrational, even though these were well emulsified. The possibility of administering soap for nutritive purposes by the lower bowel had, we think, never been investigated, and for this reason we undertook our observations. It also seemed that the method might

yield some points of interest in relation to the theoretic side of the discussion between the Pflüger and the Munk schools.

The experiments with emulsions of fat were undertaken because the emulsions usually administered (milk and egg yolk), while, of course, excellent natural emulsions, are so entangled with a mass of easily coagulated proteid that they do not remain emulsions in the bowel for any considerable length of time. Much of the proteid, particularly that of milk, soon coagulates, carrying with it the fat, entangled in large clumps, in such form that it is practically impossible for it to be absorbed without further digestion. The emulsion used by us was chosen for the purpose of overcoming this difficulty. As we shall note later, it apparently did so; although it was not very satisfactorily absorbed.

In the experiments with soap, it was our purpose to secure a good quality of soap that would readily go into solution, and would contain no appreciable amount of free alkali; for the latter would, of course, irritate the bowel. If our method was to have any practical value, it was necessary to adopt some means of preparing this soap that would permit of its being readily made under the conditions met in practice, and by persons without skill in chemic manipulations. After trying a variety of methods, we adopted the following:

A stock solution containing 500 gm. of sodium hydrate in 1,000 cc. of water was made; also a saturated solution of commercial sodium chlorid. The soap was made from oleic acid, as follows: 50 cc. of the sodium hydrate solution was taken and 100 cc. of water was mixed with it, this, of course, producing some warmth. To this, small portions at a time, and with vigorous stirring, was at once added 50 cc. of the oleic acid. The stirring was continued for one or two minutes. The soap produced was yellowish or brownish-yellow, and somewhat pasty, though capable of being well subdivided if energetically stirred. Directly after the stirring the fluid was decanted, and several hundred cubic centimeters of the sodium chlorid solution was added. The mixture was again thoroughly stirred, any clumps being broken up. During the course of this stirring the soap changed in character, losing its stickiness, and becoming finely granular and lighter in color, these changes being due to the partial abstraction of water by the salt solution. The salt solution was then decanted, and a fresh quantity of it was added, and the process was repeated. The fluid was again decanted; and a third washing was carried out. The soap was then washed once with half saturated sodium chlorid and drained as thoroughly as possible to free it of the sodium chlorid. It was then placed in a beaker and its bulk increased to 200 cc. with warm, distilled water.

A considerable portion of the soap at once went into solution, and the whole mass could be readily injected through a Davidson syringe. The entire course of the preparation of the soap took only about a half hour, and could be readily carried out by any one. The soap thus prepared was injected into a series of three dogs. The results of these injections, which were on the whole unsatisfactory, will be briefly mentioned.

In the experiments on dogs the soap was prepared as already stated, but after the sodium chlorid solution had been drawn off, and before water had been added, the whole mass was weighed, and a small portion (about 2 gm.) was taken to determine the amount of oleic acid present, using the following method, which may be rapidly carried out and is fairly accurate:

The portion used for the determination was weighed and placed in a small beaker. About 20 cc. of water was added, and then a small quantity of strong hydrochloric acid. The beaker was then placed in a boiling water bath until its contents were entirely decomposed (an hour and a half to two hours). The fatty acid was then found floating on top of a slightly opalescent liquid. The contents of the beaker were then allowed to cool and poured into a 50-cc. buret with a glass cock. The beaker was well washed out with small portions of ether, the washings being also poured into the buret. More ether was added, until the buret was filled to near the top. The buret was then corked and repeatedly inverted, until the ether had taken up all the fat, this being shown by the entire absence of opalescence in the underlying fluid. The buret was then allowed to stand vertically for a few minutes, until the separation of the watery fluid from the ether was completed. The volume of the ether solution was read off, and all the aqueous solution was then run out, as well as a little of the ether solution, to wash out the cock. A

known quantity (about 10 cc.) of the ether solution was then drawn out into a platinum dish. The ether was evaporated, and the contents of the dish dried at 100° C. and weighed. From the weight so obtained the amount present in the whole solution originally contained in the buret was computed.

With each of the dogs, soap solutions were made up as already described, and their bulk increased to 200 cc. with warm water. A third of this amount was given at each injection, two injections being given daily; one at about 10.30 a.m., and the other at about 5.30 p.m. The average amount of moist soap contained in the total 200 cc. of mixture was about 80 gm., and the average amount of oleic acid about 30 gm. Hence, in the individual injections, containing a third of the total, the dogs received 25 gm. to 30 gm. of the moist soap, and about 10 gm. of actual oleic acid.

The first animal was purged freely before the beginning of the experiment, and then starved for a day. After this, for six days, or until the completion of the experiment, he received nothing but rectal enemas of soap. The total amount of oleic acid that the dog had in this time was 108.98 gm. On the last three days of the experiment he was weighed, and was found to have lost in this time 681 gm.

The bowel movements during this time were saved. There were six of these during the period of the experiment. The first occurred on the second day of the experiment; it weighed 71.7 gm., and was firm and of normal appearance. The second occurred the same day; it was small and of pasty consistency, and weighed 18.2 gm. The third occurred on the fifth day of the experiment; it was small, hard, and well formed. The fourth occurred on the following day; it was well formed. The other two were very small, and occurred at the end of the experiment; they were of rather pasty consistency.

The feces were collected on the water bath. Hydrochloric acid was added and the whole mass was evaporated to dryness. The dry residue was weighed; and small weighed portions were boiled on the water bath with hydrochloric acid, dried, and extracted in the Soxhlet apparatus. The total fatty acid recovered weighed 5.56 gm.

This was, then, apparently only 5.1% of the total amount given; so the absorption in this instance seemed to have been remarkably good, fully equaling the absorption of fats when given by the mouth and, indeed, exceeding the ordinary absorption. During the course of the experiment the animal showed no evidence of irritation of the bowel, and seemed to be in entirely normal condition.

These results, however, we are obliged to consider more than questionable; because in two experiments carried out shortly afterward on other dogs, the soap solution evidently produced irritation of the bowel, the bowel movements were so frequent and large that there seemed to be very little absorption of the soap, and the results were obviously so unsatisfactory that these experiments were abandoned without completing the figures for the absorption. We also found at this time that the janitor, contrary to orders, had been occasionally cleaning the cages of these dogs. He had perhaps done the same with the first animal, although he denied this. It is possible that the first dog had actually absorbed the soap extremely well, and we saw no evidence of irritation as the result of its use. The results in the other two animals, however, were such as to make us conclude that it is not practicable to use the soap solution that we prepared, in attempting to nourish human beings by rectum; for it is probably too irritating to the bowel, and it was evidently poorly absorbed by most of the dogs. Whether the poor absorption was due chiefly to the irritation or to the nature of the substance, we cannot state.

This side of our investigations was then abandoned, as we were unable, after repeated attempts, to find any other method of making a soap that could be readily prepared for clinical purposes or would be unirritating.

The latter point is the one that is most difficult to overcome. With the soap solution mentioned, and with all others that we tried, as the soap goes more completely into solution, the reaction of the mixture becomes more and more alkaline—a result partly, perhaps, of the setting free of the alkali that has been mechanically entangled in the small portions of soap; but partly, also, as the result of dissociation. The latter point cannot be overcome, and we now see no method by

which it will be practicable to study the absorption of large quantities of soap from the lower bowel, without running the risk of producing so much irritation of the bowel as to interfere with the accuracy of the experiment. This would likewise interfere with the use of soap for the nourishment of human subjects. As to the question at issue between the Munk and the Pflüger schools, our observations furnish no satisfactory evidence bearing upon either side.

We pursued the question somewhat further however, by tying off two loops of small intestine in a dog; introducing into one loop egg albumin and egg yolk, the two being thoroughly beaten up together. Into the other loop the same emulsion was introduced, some of our soap having, however, been thoroughly incorporated with it. The dog was killed after 18 hours. In the loop containing only the egg, the absorption had been practically completed; in the other, there had evidently been irritation of the mucous membrane, a good deal of mucus being present, and the membrane being considerably injected. Little, if any, of the soap-egg mixture had been absorbed, although the exact amount absorbed was not determined.

Our observations on the absorption of artificial fat emulsions were undertaken, as previously stated, because natural emulsions are in large part quickly destroyed in the intestine; chiefly on account of the coagulation of the proteid. Hamburger has reported some experiments with dogs, using an emulsion made with soap, and introducing this emulsion into loops of intestine. He claims that the absorption of the fat, when emulsified with soap, was extremely good. We wished to avoid using soap, as our previous work made it seem likely that it would at least irritate the intestine and perhaps cause the expulsion of the enemas. We therefore made emulsions after the method devised by Moore and Rockwood, emulsifying the fat in a solution of alkali albumin. We first tested the method by taking white of egg, adding an equal volume of 0.5% sodium bicarbonate solution, warming on a water bath, and then adding the fat to this and shaking vigorously. We were readily able to confirm the statements of Moore and Rockwood that oils emulsified in this way remain in excellent emulsion for many days at least.

Owing to the readiness with which good butter fat is digested and absorbed, we at first attempted to make an emulsion of melted butter fat, but found that this preparation remains emulsified for but a short time at most. We carried out an intestinal-loop experiment with this emulsion of butter fat in alkali albumin, however, introducing into the large intestine of a dog 27.4 gm. of the emulsion, after having tied off the intestine at the ileocecal valve and at the rectum.

The emulsion was analyzed for fat by drying a weighed portion on sand in an evaporating dish, rubbing it in a mortar, and then extracting in the Soxhlet apparatus. For proteid, it was analyzed by Kjeldahl nitrogen estimations.

The dog was killed eight hours after the introduction of the emulsion, and the loop of intestine was then found to contain a large amount of fairly dry substance, of the same appearance as that introduced, except for the dryness and a somewhat darker color. There appeared to be quite as much solid material as had been introduced. The greater portion of this was expressed through one end of the loop, and the bowel was then well washed with warm water. The washings and the substance expressed were mixed, and portions were taken for Kjeldahl estimations, and the remainder for fat estimations.

It was found that we had introduced: Of fat, 6.386 gm.; of proteid, 1.107 gm.

We recovered: Of fat, 4.331 gm.; of proteid, 1.112 gm. Of the fat, therefore, there had been absorbed 2.055 gm., or 32.17%; while there was no evidence of the absorption of any proteid, the amount recovered being even a little larger than that introduced—evidently

owing to the excretion of nitrogenous material into the intestinal lumen. The absorption of fat, however, was not wholly unsatisfactory.

We then made some observations with an emulsion made with alkali albumin and oil. The most readily available inexpensive neutral oils are olive oil and cod-liver oil. We chose the latter because olive oil seems clinically to have more tendency to act as a laxative, and we wished to avoid this effect. The absorption of the codliver oil was investigated in an intestinal-loop experiment in a dog, and it was also given to a human subject.

In our daily work the emulsion was made by taking the whites of nine eggs and an equal volume of 0.5% sodium bicarbonate solution, heating on the water bath, adding 100 cc. of codliver oil, and shaking thoroughly for about five minutes. The preparation so made remains in excellent emulsion for many days at room temperature.

In the experiment on the dog, we tied off a loop of the lower part of the jejunum, and in the same animal, a loop consisting of the entire lower bowel, except the rectum. Into the loop of small intestine, we introduced 10 cc. of emulsion; into that in the large gut, 5 cc. of emulsion. The operation was done at midday, and the dog was killed at the same time the day following, that is, after 24 hours.

The fat in the emulsion introduced was determined by drying two portions of 5 cc. each on kaolin for 24 hours, rubbing up the mass with sodium sulfate, and, after another 24 hours, extracting in the Soxhlet apparatus. The results of these estimations were as follows: 1. 2.276. 2. 2.294. Average, 2.285 gm. The nitrogen was determined by the Kjeldahl method, in two portions, of 5 cc. each. The results for these were: (1) 0.0344 gm. (2) 0.0336 gm. Average, 0.340 gm.

The fat and nitrogen in the mass recovered from the two loops in the intestine were determined—the nitrogen by Kjeldahl estimations, and the fat by drying on sand, grinding in a mortar, and extracting in the Soxhlet apparatus. The amount of fat and proteid introduced into the two loops of intestine was as follows:

Into the small intestine: of fat . 4.570 gm.; of proteid . 0.680 gm.
Into the large intestine: " " . 2.285 gm.; " " . 0.340 gm.

The amount recovered was as follows:

From the small intestine: of fat, 2.884 gm.; of proteid, 0.238 gm.
From the large intestine: " " . 0.844 gm.; " " . 0.392 gm.

The absorption of fat from the small intestine, therefore, was indifferent; strange to say, it was much better from the large intestine. This, however, may have been due to the fact that the small intestine showed much irritation, containing a good deal of mucus, and exhibiting a considerable amount of injection. The very poor figures for proteid in the large intestine are, perhaps, due to the excessive amount of mucus found in the loop.

So far as our experiment goes, therefore, the figures for fat, with the lower bowel, are favorable; but the conditions in intestinal-loop experiments are so entirely abnormal that they do not seem to us to offer any real indications of the results that would be secured by introducing food into the normal intestine. Hence, the results in the following experiment while not extremely favorable, we consider to provide a much more satisfactory demonstration of the actual absorption per rectum that may be expected from artificial emulsions of fat made by the method that we employed.

The patient upon whom our observations were carried out, was a woman of 26, with persistent hysteric vomiting which had responded to no treatment. She was put on rectal alimentation in order to control the vomiting, nothing but the emulsion previously described being used. Salts were first administered, and she was well purged; then a cleansing enema was given. Every eight hours thereafter, we gave a third of an emulsion made as previously described, namely, with the whites of nine eggs, an equal volume of 0.5% sodium bicarbonate solution, and 100 cc. of codliver oil. This was continued for two days.

The bowel movements following the cleansing enemas were discarded during this time. Then for seven days the movements (which did not occur spontaneously, but were produced by cleansing enemas) were collected in an evaporating dish, small portions of sulfuric acid being added, and the whole evaporated until water-free. The movements evidently contained a large amount of fat, but they afforded an excellent demonstration of the persistence of the emulsion; as the contents of the lower bowel, when washed out nearly eight hours after the administration of the emulsion, showed practically no free oil, all the oil present being in milky emulsion.

The urine of each day was likewise saved, and its nitrogen determined.

During the seven days throughout which the absorption was determined, then, the woman received 157.74 gm. of proteid, or 29.024 gm. of nitrogen. Of fat she received 700 cc. (of codliver oil), or 644 gm.

When freed of water, the feces contained so much oil that their consistency was syrupy. It was impossible, by ordinary methods, to carry out accurate fat and nitrogen estimations, of this mass; for, while most of it was syrupy, it contained a great many lumpy masses, and we could find no way of making it homogeneous. We therefore undertook the following somewhat laborious procedure:

The mass was extracted three times with alcohol, and was then filtered. The residue on the filter was well washed with ether, the ether being allowed to flow into the alcoholic extract. After draining, the residue was extracted twice with ether. The ethereal and alcoholic extracts were collected separately. The extraction was carried out on a large filter, under suction, and took several days. The residue was finally dried on the water bath, and ground, and the amounts of nitrogen and fat in this determined.

The fat in the ethereal extract was determined by running an eighth of the whole extract into a platinum dish, evaporating, drying, and weighing. It was free from nitrogen. The alcoholic extract was evaporated into a moderately thick syrup, and was well stirred, and portions were taken for fat extraction and for nitrogen estimations. A considerable amount of precipitate formed in the alcoholic extract before work with it had been begun. This was removed by decanting, and dissolved in water. It appeared to be resinous; and, since it was soluble in water and had separated from the alcohol-ether solution, it was assumed to be free from fat. The nitrogen in it, was estimated.

The results of these various estimations were as follows:

For fat:

In the dried feces	79.98 gm.
In the ether extract	35.70 gm.
In the alcoholic extract	339.79 gm.
Total	455.47 gm.

For nitrogen:

In the dried feces	17.881 gm.
In the alcoholic extract	1.259 gm.
In the resinous mass	1.334 gm.
Total	20.474 gm.

The patient therefore received 644 gm. of fat and excreted 455.47 gm., and hence absorbed 188.53 gm. in seven days, or 26.939 gm. per day, or 29.27% of the amount given. Of nitrogen she received 29.024 gm., and excreted in the feces 20.474 gm., and hence absorbed 8.55 gm. in seven days, or 1.221 gm. per day or 29.11% of the amount given.

The amount of nitrogen absorbed is much less than that excreted by persons who are on an extremely restricted and insufficient diet, and even much less than that usually excreted by those who are starving. It was, evidently, much too small an amount to prevent tissue loss. The quantity of fat absorbed was, however, fairly considerable, and was somewhat more than we found in the cases that we studied previously that were on predigested milk and eggs. The amount of fat absorbed was indeed larger than is thought possible by many students of this question. This furnishes some justification for the belief that the use of an emulsion that will not readily be destroyed in the bowel will result in a larger absorption of fat than will the use of milk and eggs, even when these are predigested.

Our results in this experiment offer some encouragement, therefore, for further attempts to improve the methods of preparation of nutritive enemas. At the same time it is evident that the amount of fat absorbed by this patient was, of itself, far too little to furnish the amount of energy necessary for even a person absolutely at rest; and if this method, or one developed from it, is to have any clinical value it will be necessary to devise some means of adding a considerable amount of carbohydrate in a form that will be capable of being absorbed in fair quantity, and also of adding proteid in a form capable of being absorbed in amounts sufficient to repair tissue waste. These are difficult practical problems. Our results with the oil emulsion, as detailed, while better than with predigested milk and eggs, were

not very decidedly better, and an improvement upon them is very much to be desired. As to the carbohydrates, Reach's observation that dextrins are well absorbed, may prove to be of value, though the amount of dextrin that can be used will almost necessarily be too small to make up the deficit that will exist even with fairly good fat absorption. It seems, from our own previous observations and from a study of the literature, to be improbable that any proteid preparations that are available are capable of absorption from the lower bowel in amounts greater than 25 gm. daily, and usually the quantity will certainly be less than this.

On the whole, it seems possible that methods of preparation of nutritive enemas may be devised which will permit of the absorption of a total amount of food having a daily value in calories of 500 to 700. This would, in view of the more recent observations on minimal metabolic equilibrium, particularly those of Chittenden, be sufficient in some cases to prevent loss of weight, for a considerable time at any rate. Whether this means maintenance of normal nutrition is, we believe, still doubtful; and at any rate, as we have previously shown, nutritive enemas, as at present given, are almost certainly rarely absorbed as well as this, and usually very much less well.

The functions at present served in most cases by nutritive enemas are, we believe, as follows: First and most important, to provide fluids and various inorganic salts for the tissues. 2. To provide perhaps a third to a sixth of the requisite amount of food. 3. To prevent the anxiety of friends and patient that would be produced by giving no food.

Whether the function of providing actual food will ever be increased, by improved methods of preparing or administering rectal enemas, to the point where it will be possible to prevent tissue loss in a large proportion of cases, even in emaciated patients who are absolutely at rest, we consider very doubtful.

Certainly those occasional cases in which nutrition seems to be well sustained or improved during the use of exclusive rectal alimentation cannot properly be used as examples of what one should frequently expect when using the methods now in vogue; nor are they even ideals which it will be generally possible to reach by improved methods. They are at present very exceptional, and they are likely to remain exceptional. It seems to us, as previously stated by one of us, that these unusual cases are probably due most commonly to reverse transport of the enemas past the ileocecal valve into the small intestine and their absorption there as under natural conditions; not to exceptionally satisfactory absorption in the lower bowel. This view has been very emphatically opposed by a number of prominent writers, who deny the possibility of the occurrence of true antiperistalsis. That, however, actual antiperistaltic transport of large quantities of substances past the ileocecal valve does at times occur in human subjects is, we believe, certainly demonstrated by cases previously referred to as well as by the cases since mentioned by Rolleston, in the American edition of the Nothnagel volume on Diseases of the Intestines; and experimental demonstration of the possibility that antiperistalsis may result from the use of rectal enemas has been clearly given by Loewi, who was able both to see active antiperistalsis and to demonstrate in the small intestine considerable amounts of substances that had been introduced into the lower bowel, while lesser amounts were found even in the stomach and esophagus.

Institution for the Study of Cancer.—An exchange states that a private citizen has placed in the hands of the government of the Grand Duchy of Baden a sum of \$60,000 toward the foundation at Heidelberg of an institute for the study of cancer. The government has given a site for the purpose in the immediate neighborhood of the University Hospital, and has promised a grant for the maintenance of the institute.

THE DIAGNOSIS OF TUBERCULOUS CAVITIES IN THE LUNG.¹

BY

HERMAN B. ALLYN, M.D.,
of Philadelphia.

Instructor in Clinical Medicine, University of Pennsylvania; Clinical Professor of Medicine, Woman's Medical College; Physician to the Philadelphia General Hospital.

Dr. J. Kingston Fowler, in 1888, pointed out the portions of the lungs first to be affected in tuberculosis, and the line of march commonly taken by the disease. He believes the primary site is an inch to an inch and a half below the summit of the lung, and rather nearer to its posterior and external borders. Lesions in this situation tend to spread backward, possibly from inhalation of the virus while the patient is lying down. This line of extension explains why early evidences of tuberculosis may be found in the supraspinous fossas when the physical signs beneath the clavicles are of doubtful import. From this primary focus, which in front corresponds either to the supraclavicular fossa or to a spot immediately below the center of the clavicle, the lesions often spread downwards along the anterior aspect of the upper lobe, about three-fourths of an inch within its margin, frequently occurring in scattered nodules. A second and less usual site, he said, corresponds on the chest wall with the first and second interspaces below the outer third of the clavicle. The progress of the disease is downward, but it rarely penetrates the interlobar septum, only five times in 152 consecutive cases examined post-mortem by Ewart.

In the lower lobe the early deposits are about opposite to the fifth dorsal spine and along the interlobar septum, which is roughly marked by the vertebral border of the scapula when the hand is placed upon the spine of the opposite scapula, and the elbow raised to the level of the shoulder. The opposite lung may be affected with symmetric lesions of later occurrence, or disease may be found close to the interlobar septum corresponding on the chest wall to the upper part of the axilla.

The portions of the lung first to be attacked are of importance in the present discussion, because cavities usually form first where the lesion is oldest. While Dr. Fowler's statement may be accepted as expressing the usual beginning and line of march of the disease, it should be mentioned that one sometimes finds the first evidences of the disease in the fringes of the lung, which border the sternum, in the first, second, and third interspaces, or high up in the axilla, or in the lappet of lung which covers the heart.

Ewart² gives the following figures, showing the location of cavities:

At the apices	282 instances.
In dorsoaxillary region	227 "
In mammary region	189 "
In sternal region	61 "
At base	32 "

Clinically, one finds cavities most frequently anteriorly from the apex of the lung to the third interspace; posteriorly, in the supraspinous fossa, between the scapulas and the spine or beneath the scapula, next high up in the axilla, and least frequently at the base. Probably cavities must have reached the size of a walnut before they give distinct physical signs.

In the diagnosis of cavities from tuberculous disease of the lung the history of the patient may be of some service, especially bearing upon the duration of the disease and the quantity and character of the expectoration. While tuberculosis of the lungs spreads much more rapidly in some persons than in others, in the great majority of cases by the time cavities have formed the disease has lasted at least several months, and in many

¹ Read before the College of Physicians of Philadelphia, December 7, 1904.

² Croonian Lectures, 1882.

cases more than a year. It is especially in the slowly progressing chronic cases that cavities ultimately form. In acute pulmonary tuberculosis and in the pneumonic forms death usually occurs before softening has progressed far enough to result in excavation. Moreover, when cavities exist, expectoration is more profuse, especially in the mornings, or after a change of posture, and is often nummular. I have frequently seen a patient with a cavity at the apex of the lung lie curled up on the affected side. This posture was evidently assumed in order to avoid the distressing cough caused by constant leakage from the cavity into the communicating bronchial tubes. Of course, after the cavity had become filled with pus, coughing would occur in spite of posture; but change of posture to the opposite side, or sitting up to take food, might result in hard spells of coughing with profuse expectoration. In other cases, in which the cavity is relatively dry, the patient may lie preferably on the opposite side. The cough is often exhausting, followed by much dyspnea, and the sputum not so profuse.

But aside from the duration of the disease and the character of the expectoration, which after all can only excite suspicion as to the existence of a cavity, the statements of the patient are not of much value in diagnosis. Precise information can be gleaned from the physical signs alone.

Before speaking of the information furnished by the different methods of physical exploration, I wish to insist upon the importance of (1) a thorough examination, and (2) upon the importance of following an orderly progression in developing the physical signs. A thorough examination cannot be made without inspection of the chest, and oftentimes not without inspection of the entire chest uncovered. In women, from motives of delicacy, it is usually best not to bare the entire chest at one time; but even in them in every case in which inspection of the anterior portion of the chest alone leaves the condition obscure, inspection of the posterior and axillary portions can be carried out separately by arranging the clothing so as to cover the parts already examined.

By following an orderly progression, I mean that after the patient's history has been obtained by patient inquiry, examination should proceed by first obtaining all the information possible by a careful and systematic inspection of the chest, and that inspection should be followed by palpation, percussion and auscultation in the order named. Most of the mistakes in diagnosis of chest conditions result from failure to follow patiently a good method, rather than from lack of knowledge; the examiner without looking at the chest, or with only a hasty glance, proceeds at once to percuss and auscult, and speedily reaches a conclusion, which may be correct, but is very likely to be at least quite incomplete. The foregoing method is the one I have endeavored to school myself into following. It has given good results. It is applicable to acute and chronic conditions of the lungs, and for the matter of that, to the body in general. There is nothing novel in it unless it be insistence upon the importance of inspection.

Taking up the methods of examination then in the prescribed order, the first is:

Inspection.—It is surprising how much information can be obtained by a careful and systematic ocular examination of the chest. The first essential is a good light. If the patient is lying in bed with one side toward the window, the opposite side will be somewhat in shadow. This position may be unavoidable, but should be remembered in estimating the amount of expansion. When the patient is lying down the examiner must be careful to see that he is lying perfectly flat, without having a shoulder or hip raised above the level of its fellow. If this precaution is not taken, no reliable results from inspection can be had. The best posture is a sitting one, with the face toward the source of light. The patient

should sit erect, with the arms hanging loosely by his sides. He must not lean to one side or the other. The general size and shape of the chest are not of much importance in the present discussion, because tuberculosis attacks all kinds of chests, and is, of course, more frequently found in normally shaped chests, because the normal type predominates. When tuberculosis has progressed to the stage of cavity formation, there is always loss of flesh, and not infrequently extreme emaciation; sometimes as much as 40 or 50 pounds have been lost before the patient is seen. As the result of this loss of flesh, the cheeks and temples are hollow, the neck thin, the ears prominent, the clavicles, ribs, and scapulas appear to project, and there are depressions in the fossas above and beneath the clavicles, and above the scapulas. The fingers are often clubbed. Expansion is usually defective on both sides. To see a difference in expansion often requires close inspection under favorable conditions. The best posture for the patient is a sitting one with the light falling equally on the two sides, and the examiner either standing behind the patient and looking over his shoulders, or standing to one side with the eye nearly on a level with the surface of the chest. It is true, one can often see deficient expansion when standing directly in front of the patient, but this is not the best position, and results obtained by it are not to be relied on. Inspection should first be carried out while the patient is breathing quietly, and then he should be asked to take deeper breaths. The region from the nipple to the clavicle is the one where cavities are to be expected, and therefore it should receive particular attention. Deficient expansion in this region is highly significant of disease, for almost always the side that expands less is the diseased side, or is the more diseased if both are affected.¹ There will often be noticed, too, a little less fulness or roundness—some flattening in fact, where the expansion was diminished. This is often seen better in the second or third interspace toward the sternum rather than just beneath the clavicle. The second interspace often appears wider and deeper than its fellow of the other side. Moreover, the shoulder on the affected side often droops a little; and if the examiner stands behind the patient he will be struck by the lessened up-and-down movement of the shoulder, and lessened motion of the scapula. The supraspinous fossa of the more diseased side often shows distinct depression compared with its fellow.

Sometimes the entire side, anteriorly and posteriorly, shows defective expansion; generally the deficiency in expansion is limited to the apex. In some cases, also, expansion on the affected side may be noticed to be delayed, to lag behind in point of time that of the sound side. In only one out of 24 cases examined by Sibson with his chest measurer, was the expansion greater on the side having a cavity.

Wilson Fox says, apparently on the authority of Walshe, that occasionally a large cavity with thin walls may even cause a slight local bulging, and under these circumstances the expansion may even improve. Fox adds that in some cases also, expansion is greater over a cavity than over a consolidation. This might be the case if in the consolidation the bronchial tubes were occluded, or the lung covered with a thickened pleura. I have seen bulging occur over a cavity, in the act of coughing; and when the cavity is near the anterior surface of the chest and covered with a very thin wall, the overlying interspace may be seen to flap in and out in respiration. Sibson mentions the fact that some slight recession may be occasionally observed at the commencement of inspiration.

Of course, it goes without saying that obstruction of

¹ Since writing the foregoing, I have seen a patient with deficient expansion of the left side and a cavity at the right apex, the physical signs of which were especially marked in the supraspinous fossa. Possibly in this case there had been an old pleurisy on the left side, and then, after a considerable interval, disease began at the right apex and progressed rapidly.

the bronchial tubes and feeble respiratory effort will diminish expansion in a cavity as in any chest condition. But there is rarely complete absence of motion, although the degree of motion is almost invariably less than on the other side, even though that, as is indeed very commonly the case, shows disease at the apex in the stage of consolidation.

Sibson¹ says: "Although the cavity has, over its center, almost always an inspiratory movement, yet at its margins I have often found the motion abolished, and even reversed. The fourth costal cartilage is often over a consolidated portion of lung, which forms the walls of the cavity. The fourth costal cartilages receded either at the beginning or during the whole of an inspiration in 14 out of 22 cases. The fourth cartilages receded in 6 out of 10 cases on the right side, and in 8 out of 12 cases on the left. Of 39 cases of cavities in one lung, there were 11 in which the upper end of the sternum fell in at the beginning of inspiration. In many cases, both around and over the cavity, the thoracic wall stands still just at the beginning of an inspiration. The lower end of the sternum, and the adjoining sixth cartilage on the affected side, recede either at the beginning of inspiration or throughout, in about half the cases. Here, the falling in is due to the elongation of the affected lung through the action of the diaphragm, and its consequent collapse. If there be diminished motion during tranquil breathing, without any morbid cause, the difference in motion will usually disappear during a deep inspiration."

Sibson further says: "From these observations we may conclude that wherever and whenever an extensive cavity exists in the lung, the respiratory movements are restrained over that cavity, but not obliterated; that the respiratory movement is greater over the center than over the circumference of the cavity, and that, immediately over the circumference, the ribs or sternum often recede, either during the whole inspiration, or, which is more usual, only at the beginning of it. The firm, tendinous, pleuritic adhesions that surround the lungs in the advanced state of tuberculous disease have more restraining influence over the movements than the disease itself has."

Palpation.—Palpation is less valuable than inspection as a method of diagnosis in cavities in the lung, yet it gives useful information. When the light is defective or the patient lies in such a way that one side is in shadow, the examiner's hands may be applied to corresponding portions of the chest and, when the patient is asked to take deep breaths, a difference in expansion is detected by the lessened motion transmitted to one hand. This is a useful measure. Many persons will appreciate much better a motion that is felt than one which is only seen. The fremitus is generally distinctly increased when the cavity is empty, but if there be much fluid in the cavity it may be nearly absent. It is rarely as intense as that over consolidation. Sometimes there is very little difference in fremitus on the two sides, partly due to feeble vocal efforts by the patient, and partly to obstruction of the bronchial tubes leading to the cavity. If the patient have a chronic laryngitis no fremitus may be obtainable.

Percussion.—Percussion must be practised with extreme care, and with the ears keenly alert for slight changes in sound, particularly in pitch and quality, or the results will be either negative or positively misleading. The note obtained over a superficial cavity sometimes resembles very closely normal pulmonary resonance. But on listening intently one discovers that it has less volume than the former, while it has a higher pitch and lacks vesicular quality. All resonance which is nonvesicular in quality, Flint classes as tympanitic resonance. Hence the note I am describing would be

classed as tympanitic; but it often lacks metallic or musical quality. To my ear it is a muffled sound, without recognizable quality. It seems to be the same sound that West describes as "boxy," and Musser and others have spoken of as "wooden tympany." This sound is not characteristic of cavity, however, for it may be heard in pneumothorax and over the upper lobe of the lung in pneumonic consolidation, and above the level of a pleural effusion. In most cases, however, the percussion note over a cavity is either dull or appears so at first. I find that students set to examine a patient with a tuberculous cavity at the apex nearly always report that there is dullness or flatness on percussion. The reason for this is, that the percussion note is so high-pitched, so small in volume, and short in duration, that it is indistinguishable from dullness, unless the quality of the sound is observed. The quality of the sound is tympanitic; that is to say, there is a slight musical or metallic intonation imparted to it. The tympanitic quality is usually faint, and may not be heard at all unless the patient be instructed to keep his mouth open while percussion is made. Forceful percussion is generally unnecessary, but the pleximeter finger should be applied firmly and struck a sudden, sharp blow. Flint advises that the examiner's ear should be brought into close proximity to the patient's open mouth during percussion; or, what is still better, that the pectoral end of a binaural stethoscope should be brought close to the patient's mouth, when the tympanitic sounds may be appreciated. It is only fair to say that even with these precautions no tympanitic or amphoric quality may be detected. In such cases either the cavity, if superficial, is filled with morbid, fluid contents, or the bronchial tube leading to it is stopped up, or the cavity is more remote from the surface and is surrounded by consolidated lung which gives its character to the percussion note. West thinks the percussion note is hardly ever tympanitic; but I am sure that when percussion is made with varying force, with the mouth open and closed, at the end of a held inspiration, and in varying postures of the patient, a tympanitic note will often be obtained. But I have found it present one day and absent the next, probably owing to changed conditions within the cavity, particularly its being filled with fluid contents sometimes and relatively empty at other times. This very changeability in percussion note is suggestive of a cavity.

Two varieties of tympanitic resonance, the cracked metal or cracked pot sound, and amphoric resonance, are, as Flint says, quite distinctive of pulmonary cavity if found within a circumscribed space. But they are not pathognomonic. The cracked pot sound may be developed over consolidated lung, especially when the latter is overlaid with relaxed lung tissue. West says it may be found even over a pleuritic effusion. He says the best example of it he ever saw occurred over an enlarged heart when the lung was perfectly healthy.

The cracked metal sound is developed over large-sized cavities near the surface and communicating with a patulous bronchial tube. It is best developed by fairly strong percussion, the striking fingers being allowed to linger longer on the pleximeter finger than in ordinary percussion; moreover, the patient's mouth should be open, and percussion should be made while he is inspiring.

Amphoric resonance is obtained over smooth-walled cavities which are empty and are surrounded by rigid noncollapsible walls.

Respiratory Change of Note.—Friedreich has called attention to the heightened pitch of the percussion note during inspiration. It may cease to be tympanitic if the tension becomes very great. Wintrich's change of note consists in the note becoming higher in pitch when the mouth is open, and lower when the mouth is shut. According to Gerhardt's change of note, the pitch would be higher when the patient is sitting or standing than when he is lying down.

¹ On the Movements of Respiration in Disease and on the Use of a Chest Measurer. By Francis Sibson, Med. Chir. Trans., Vol. xxxi, London, 1848.

Auscultation.—Auscultation furnishes us with some of our most characteristic signs of cavity. The voice sounds are usually transmitted with increased intensity; they may have a hollow sound or exhibit amphoric quality. Flint declares, that while the vibrations may be very intense, they do not present the characters of bronchophony, namely, concentration, elevation of pitch, and nearness to the ear. These characters denote solidification of the lung. If the word pectoriloquy is limited to mean syllabic reproduction of sounds, so that the ear applied to the chest may hear not only the vibrations, but distinguish the syllables and words spoken, it must be a very rare sign. I have listened to a great many lungs and do not recollect that I ever heard it but once. I do not think most examiners make any distinction between the reproduction of sounds with increased intensity on the one hand, and bronchophony and pectoriloquy on the other. Flint says: "Articulate words may be conducted by solidified lung as well as if not better than by the air in a cavity. There is, however, a cavernous pectoriloquy easily distinguished from that which denotes that solidified lung is the conducting medium. If the latter be the case, the pectoriloquy is associated with the characters of bronchophony; we may distinguish this as bronchophonic pectoriloquy. If the speech be transmitted solely through a cavity, the bronchophonic characters are wanting. Then the pectoriloquy is truly cavernous. This distinction I suppose to be original; I have for many years been accustomed to teach and illustrate it clinically."

C. J. B. Williams speaks of a snuffing, blowing, or tinkling character to the voice sounds transmitted through a cavity. The sound is, he says, "like that produced on speaking at the orifice of the tube of a pan-pipe, the pipe of a large key, a shell, or any such hollow body. This accompaniment is sometimes heard when the pectoriloquy or the transmission of the articulate voice is very imperfect; but we have found it to be more distinctive of a cavity than the loudest vocal sound without it."

Probably most persons use the word pectoriloquy to cover the reproduction of spoken sounds, with increased intensity and nearness to the ear; and some add to this, that the sound has a hollow quality. But the actual hearing of articulate speech, by applying the ear over the cavity, must occur very rarely. In most instances, I suspect that we know what the patient is saying, and so think we can distinguish the words, or else we hear them through the air outside the chest.

It has seemed to me that the whispered voice sounds were oftener transmitted with increased intensity through a cavity than through solidified lung, though, of course, they may be heard through either medium. One would expect the whispered voice sounds to have lower pitch when heard over a cavity than when heard through solidified lung. Sometimes they are heard with rather startling clearness in contrast with ordinary speech, and with the fremitus, which may have been defective. This so-called whispering pectoriloquy I regard as one of the most constant signs of cavity. In fact, the cavity may be mapped out by the area over which whispering pectoriloquy is heard.

The breath sounds over cavities are often of greater importance than the voice sounds. They are cavernous and amphoric breathing, and rales.

Cavernous breathing is a low pitched blowing sound, without definite quality, with expiration lower pitched than inspiration, and both sounds variable in length. Its chief distinctions are its low pitch, and the absence of vesicular, tubular or amphoric quality. It is heard over superficial cavities with flaccid walls. In my experience, this sound is rarely heard pure; almost always it is mixed with a tubular sound, denoting consolidation, or has joined with it a faint amphoric quality. This admixture of sound is the natural result of the physical conditions which exist around the cavity.

Often the cavity is surrounded on all sides by consolidated lung, which imparts a tubular quality and high pitch to the breath sounds. Sometimes the inspiratory sound is cavernous and the expiratory tubular, or vice versa. Or, again, there are often a number of small cavities, communicating or not, some of which have flaccid walls and some rigid; hence, we have a sound which is higher in pitch than pure cavernous breathing, and has a faint amphoric quality, particularly on expiration.

When the cavity is large and its walls are rigid, amphoric breathing is heard. Flint says that an amphoric sound if distinct, be it never so slight, always denotes pulmonary cavity, provided pneumothorax be excluded. The sound is analogous to that heard over a football when some one is forcing air into it after it is already full of air. It is a high-pitched sound of metallic quality.

Laennec has mentioned two cases of cavity in the lung, in which metallic tinkling was heard in speaking and coughing; and Stokes,¹ who refers to this observation, himself has met with three cases. In all there were communicating cavities.

Osler refers to a curiously sharp, hissing sound, as if the air was passing from a narrow opening into a wide space. When the cavity is very large and contains thin fluid, a succussion sound may be obtained when the patient is abruptly shaken. In the rare cases, in which a whole lung is excavated, leaving only a thin shell of lung or a thickened pleura, the coin sound may be heard.

The rales which are heard over a cavity that contains fluid are numerous, moist, and variable in size. Perhaps a listener is most impressed by hearing so many rales of a size varying from large to small, but all, or nearly all, moist. One hears moist, subcrepitant rales, mucous rales, bubbling and gurgling rales. They are often heard both in inspiration and in expiration. In addition, there may be squeaking sounds, resembling sibilant rales, and rubbing sounds, which are probably pleural frictions. I have heard a high-pitched, clicking sound, simulating that heard in a telephone receiver on metallic circuit, when the current is opened and closed. It was heard in inspiration and in expiration. But the lung sound is not quite so metallic as the telephone sound. Moreover, the various rales described may have amphoric quality, and even be accompanied by an amphoric echo. After coughing, the rales often become resonating. The heart sounds may be reproduced in the cavity and have amphoric quality; or blowing murmurs of cardiac origin may be heard.

Sputum.—The characteristic sputum of the pulmonary cavity consists of globular, purulent masses, having an irregular or fissured surface, and sinking in water, or if mixed with mucous shreds, floating on the surface; usually there is more or less mucopus also, from the bronchial tubes, and at times a thin pus. The sputum must contain tubercle bacilli to make us certain of the diagnosis. Generally elastic fibers can also be found in the sputum.

Röntgen-ray Examination.—I have had no personal experience with röntgen-ray examinations. Francis H. Williams² says: "Cavities, if empty, would appear as light areas if the surroundings are suitable. That is to say, the recognition of a cavity depends to a considerable extent upon its size, as compared with the thickness of the encompassing dense lung—small cavities in a dense tuberculous process would not be perceived."

Cardiopulmonary Signs.—A cavity at the apex of the left lung may result in contraction and the drawing up of the heart, or sometimes its displacement outward. Occasionally when this happens a systolic murmur is heard in the second and third left interspaces. The

¹ William Stokes: *A Treatise on the Diagnosis and Treatment of Diseases of the Chest*. Philadelphia, A. Waldie, 1887.

² *The Röntgen Rays in Medicine and Surgery*. The Macmillan Co. New York, 1902.

cause may be a kinking of the pulmonary artery. But, of course, there may be conjoined diseases of the heart and a cavity in the lung. I have such a patient under observation now. There is a marked double mitral murmur and a systolic aortic murmur, and a cavity at the left apex. The aortic murmur was present before tuberculosis developed, and the heart is not displaced.

To sum up, our most trustworthy signs of tuberculous cavity in the lung are to be found in deficient expansion and flattening of the chest wall over the cavity; in a percussion note which is often a high-pitched tympany, especially if percussion is made with the mouth open, but which may be only a muffled sound, or a dull or flat sound; in pectoriloquy (so-called), particularly whispering pectoriloquy; in breath sounds which are cavernous, tubulo-cavernous, tubulo-amphoric, or amphoric; and in a multiplicity of rales, chiefly moist rales, which after coughing may have resonating quality.

The following cases illustrate the conditions found in examining patients with tuberculous cavities in the lung.

A. H., aged 48, black, was admitted to the Philadelphia Hospital, August 17, 1904. She complained of cough, dyspnea, expectoration, loss of flesh and of strength, and night sweats. The patient's father was dead of heart disease, her mother was living and well. One sister was living and well, but another living sister had pulmonary tuberculosis. The patient had the ordinary diseases of childhood, but has otherwise enjoyed comparatively good health. She had hemiplegia three years ago in this hospital. She admits moderate use of alcohol.

The general examination of the patient showed a much emaciated colored woman, markedly dyspneic, with cough and much expectoration. The pupils were equal and responded quickly to light and accommodation. The tongue was moist, red, teeth marked along the edges. The pulses were equal, rapid, of moderate tension and compressible. The arteries were slightly thickened. Inspection of the chest showed marked emaciation with deep depressions above and below the clavicles and conspicuous ribs. There was diminished expansion on both sides, but less on the right side, and some flattening of the upper portion of the right side anteriorly. On palpation vocal fremitus was increased on the right side. The percussion note on the right side was short and high pitched, with slight metallic quality which did not change when the mouth was opened. Auscultation disclosed increase of vocal resonance. The whispered voice sounds were especially distinct. The breath sounds were obscured by an abundance of rales of all kinds, mostly large, moist or bubbling rales, which on coughing had resonating quality. The inspiratory sound when heard was short and high pitched; the expiratory sound was lengthened, higher in pitch than the inspiratory, while both had amphoric quality. Posteriorly below the angle of the scapula, the percussion note was dull instead of high pitched tympanic. The vocal resonance and fremitus over this area were increased, and the breath sounds tubular but obscured by a greater number of sibilant and sonorous as well as mucous rales. Just above and immediately below the clavicle, tympany on percussion is very clear. The voice sounds have amphoric quality on the right side. Among the rales are numerous squeaking sounds which might have been pleural frictions.

On the left side the percussion note was hyperresonant, with slight dullness over the clavicle and in the suprascapular fossa. Anteriorly vocal resonance and fremitus are less than on the right side. Posteriorly the fremitus is a little more distinct on the left side. There was some tenderness on percussion on the left side. There was marked retraction of interspaces on the left side posteriorly, less in the right midaxillary line. The breath sounds on the left side show rough, rather short inspiration, and prolonged, very faint but bronchial expiration. The prolonged expiration is almost cavernous beneath the left scapula posteriorly.

There was some edema of hands, legs, and face; almost no change in the finger ends. The patient had a hectic temperature, ranging from 97° to 102°, a pulse-rate ranging from 85 to 130, while the respirations varied from 35 to 55 per minute. The urine was of low specific gravity, 1.010, contained a small amount of albumin, and some hyaline casts. The bowels were loose, the stools numbering two to four in 24 hours. The sputum contained tubercle bacilli.

The patient died September 11, 1904. An autopsy was held the following day. The pathologic diagnosis was chronic bilateral adherent pleurisy; fibroid myocarditis; pulmonary tuberculosis with cavity formation; chronic diffuse nephritis; atheroma of the aorta; tuberculous ulceration of the intestines.

Passing over the other organs, the condition of which is sufficiently indicated in the pathologic diagnosis, the state of the lungs was reported by the pathologist, Dr. Funke, as follows:

Left lung crepitates throughout, save lower portion of lower

lobe, which is irregular in outline, measures 4 in. by 6 in. in diameter, is firm, cuts readily, section sinks in water. The cut surfaces are not refractive; scattered over them are large gray points, 4 mm. by 8 mm. in diameter, circumscribed round or oval, denser at the periphery than at the center, and resembling caseation necrosis. The cut surfaces of the remainder of the lung are pinkish-gray in color, with black markings, and they are covered with pinkish frothy fluid. The right lung is bluish-black in color, does not crepitate, cuts readily, and cut surfaces are grayish-black. There is a cavity at the apex, 4 cm. by 10 cm. in diameter, containing grayish-white substances (caseous). The walls are irregular and made up of caseous substance, and into this cavity many small similar ones open. The lower portion of the upper and lower lobe has many cavities, varying from 4 mm. to 1 cm. in diameter, and of similar structure to that at apex. There are also grayish-white circumscribed areas, firm, 1 cm. to 1.5 cm. in diameter, firm at the periphery, soft at center, composed of a substance simulating caseation.

The postmortem findings in this case account very satisfactorily for the physical signs. The notes, however, do not state what was the fact, that the walls of the main cavity at the apex were firm.

W. E. L., white, aged 62, driver, was admitted August 21, 1904. He complained of cough, dyspnea, expectoration, loss of flesh and strength, night sweats, and pain in the chest.

The patient's father had died of pulmonary tuberculosis, his mother of bronchitis. He had two sisters living and well, one brother killed in war, and one sister died of pulmonary tuberculosis. The patient had had the ordinary diseases of childhood, and gonorrhea many times. He was given to excessive use of alcohol and tobacco.

He had been ailing for 15 months. The pupils were equal, dilated, responded to light and distance. The tongue was dry, heavily coated, tremulous. The pulses were equal, of high tension, full, regular, compressible, the arteries thickened.

The patient was much emaciated and said he had lost 40 pounds. The clavicles were prominent, the scapulae winged, the right shoulder was lower than the left. Posteriorly, the right side seemed shrunken. Right suprasternal fossa was deeper than the left and the right lung anteriorly, especially at the apex, expands less than left, and as compared with the left there is very slight flattening beneath the clavicles. Vocal fremitus and resonance are increased on the right side down to third rib, and the whispered voice sounds are reproduced with even greater clearness than the ordinary voice. Above the clavicle, over and beneath the clavicle, the percussion note is tympanic, especially just beneath it at its middle portion. The musical quality comes out much better with mouth open. Pitch of the note is very high, almost, if not quite so high as that of dullness or flatness. The breath sounds are amphoric down to third rib, anteriorly. After coughing there are high-pitched crackling rales, somewhat resonating. Below the third rib the percussion note is somewhat hyperresonant. Inspiration is slightly bronchial. No change in vocal resonance or fremitus, and only occasional rales. Percussion note above left clavicle is dull, and slightly dull beneath left clavicle. The breath sounds were feeble, and after coughing on deep inspiration there were a few crackling rales.

The temperature was normal from admission, except on August 23 and 24, when it rose to 100°, and then fell afterward to normal and continued so until death. The sputum contained tubercle bacilli.

F. T., white, aged 22, a native of Japan; sailor; was admitted September 12, 1904. The patient complained of cough, dyspnea, expectoration, loss of flesh and strength. His father and mother are living and well; two sisters are living and well; three brothers are dead, causes unobtainable; also past medical history unobtainable.

The patient is a poorly nourished young Japanese, who has been complaining for about a month and a half. The tongue is moist and slightly coated. The pulse is regular, of good volume, compressible.

When examined September 16, the chest was moderately emaciated, the left clavicle more prominent than the right. Expansion was diminished over the left lung. Breathing was almost altogether abdominal. Fremitus increased on right, diminished on left side. The left apex, above the clavicle, and to a less extent below, has percussion note impaired, high pitched with slight tympanic quality beneath outer portion of clavicle. From second rib down percussion note is hyperresonant. There is bronchophony on the right side above the clavicle, and down to second rib. The whispered voice sounds are especially well reproduced and have an amphoric quality. Breath sounds above and below clavicle are amphoric. After coughing the rales have a resonating character. When in the upright position on looking over shoulders, the upper part of right lung seems to move less than left. Posteriorly the right lung is dull from apex to base, fremitus is feeble. Voice sounds have a slight egophonic character. Breath sounds are feeble, bronchial in character, with numerous high-pitched crackling rales. Breath sounds beneath left clavicle are somewhat roughened. The pupils are equal, they react to light and to accommodation. The tongue is red and moist; the pulses are equal, regular, rapid, of high tension; arteries thickened. The heart sounds regular, rapid, strong, no murmurs. The temperature has ranged between 97° and 99° since admission.

DIET AFTER THE AGE OF ONE YEAR.¹

BY

J. P. CROZER GRIFFITH, M.D.,

of Philadelphia.

Clinical Professor of Diseases of Children, University of Pennsylvania, Phila.

The problems of feeding after the age of one year, though not as a rule so perplexing as those before this period, are still many and varied. We are, perhaps, prone to ignore this fact and to give less attention to the matter than it deserves, leaving the question of diet entirely in the mother's hands. Yet it too often happens that through her errors, or our own, the weaned child—to paraphrase the words of the prophet Isaiah—is left playing over the cockatrice's den, and is in just as great danger as the sucking child that is putting his hand on the hole of the asp. The millenium which the prophet was describing is far from having come.

These thoughts bring us naturally to the first step toward the feeding of the second year, viz., weaning. Circumstances often arise which necessitate the taking of the child from the breast, and the placing of it upon the bottle early in the first year of life. This is not what we have in mind by the term "weaning," but rather the accustoming of an infant, whether on the breast or on a bottle substitute to another kind of diet. I shall speak as though the child was still on the breast, and in all that I shall say about diet, it is to be remembered that healthy children alone are under consideration.

Weaning takes place normally at from the age of 10 to 12 months. It should, when possible, always be accomplished gradually. The refusal of an infant to take the bottle after repeated efforts have been made to feed in this way may necessitate the total withdrawal of the breast, in order that hunger may compel the child to adapt itself to the new method. The trouble will not arise if the baby has been taught early in life to suck water daily from a bottle. At first but one bottle of food is to be given daily. The strength of the mixture is an important matter, inasmuch as a new substance, cows' milk, is to be employed. We should always give at first a mixture decidedly weaker than normal human milk. In a day or two this may be further increased in strength, and the process continued until a food as strong as, or in the matter of the proteids, somewhat stronger than human milk can be taken and well digested. This point having been gained, two bottles are given daily in place of an equal number of breast feedings, and so on until the breast milk is entirely replaced. This process has lasted in all about two or three weeks. The child should be weighed systematically twice a week during the weaning, in order that no undiscovered loss of weight takes place. It is generally the case that infants at this age require a proteid percentage decidedly greater than the 1% to 1.5% present in human milk. This percentage should therefore have been gradually increased as the breast milk was withdrawn in order that a gain in weight of three or four ounces a week may have been continued.

The infant being now entirely on bottle food, the sugar is gradually decreased in amount, and the proteid continually increased until at the age of one year a food is given which contains about 4% of fat, 4.5% to 5% of sugar, and about 3% of proteids; that is to say, the child is taking milk nearly undiluted—not alderney—to which is added little if any water, and possibly a very small amount of cream. In many cases there is no necessity of diluting the milk at all. This depends upon the digestive power of the child. It is important, however, only to remember that not every child can take whole milk at the age of a year.

Well before the age of one year the infant is entirely capable of digesting starch. Indeed, even in the early months there is some amylolytic power. Healthy infants

on the mother's breast do not, however, need starch, and this is likewise true of those on the bottle. It is beyond the province of these remarks to speak of the circumstances under which starch should be given earlier in life, but when the age of 10 months has been reached, and the weaning process has been commenced, the question as to the propriety of adding some amylaceous preparation to the bottle naturally arises. My belief is that it is well to make this addition, if for no other reason than that of accustoming the child to the food which will soon form one of the staples of its diet. The addition, however, should not as a rule be made until the child has become well used to its cows' milk mixture, and has given up the breast entirely. As the food by this time contains but a small amount of water added as a diluent, a concentrated amylaceous substance should be used, such as barley jelly or arrowroot jelly. The proportion of two rounded tablespoonfuls of barley flour or arrowroot to a pint of water cooked in a double boiler for 10 minutes or 15 minutes makes the proper strength. This may be added to the food in the proportion first of one, and later of several teaspoonfuls to each bottle. The addition should be made, however, while the cereal substance is still hot, as, should it jelly, solution becomes tedious and difficult unless the bottle food is boiled.

The number of feedings during this period has been reduced from 3 hours to 3½ hours or 4 hours, depending upon the requirements and habits of the child. The amount of nourishment should be from 8 ounces to 10 ounces at a feeding.

DIET IN THE SECOND YEAR.

We are now ready to consider briefly the proper diet in the second year of life. By the age of one year the child may well be taught to eat some form of porridge from a spoon. This may be given for its dinner, in addition to milk from a cup. If the bottle is still employed, the porridge should be given first, since no child will stop its bottle food until it is satisfied or the vessel is emptied, by which time, hunger being appeased, the porridge may be refused. The porridge may consist of such foods as hominy grits, arrowroot, farina, wheaten grits, wheatena, and other wheat preparations. Whatever form is employed, it should be very thoroughly cooked. Oatmeal should not, in my opinion, be among the first porridges given. Although very nutritious, it is often not well borne at this early age. All these foods should be seasoned with salt in the cooking. There are numbers of breakfast foods on the market which are extremely serviceable at this time of life. Most of them are good, and it would be invidious to enumerate some and not others. Bread and milk or milk toast may take the place of porridge at times. We have also on the market the various malted breakfast foods now so popular. There is no objection to these, unless given for too long a period. We should not, however, give invariably such predigested foods, lest the development of the child's own digestive power be interfered with by lack of demand made upon it.

The breakfast food may have milk poured over it, and be sweetened slightly with cane sugar, if necessary.

After the child has grown well accustomed to its porridge meal at midday, this may be shifted to breakfast, and a dinner given of boiled rice, bread or macaroni, moistened with expressed beef-juice, or with beef gravy free from fat. Always a glass of milk is given in addition. The child has by this time reached the age of 13 or 14 months. Now, or a little later, the giving of eggs may be tried in many instances, remembering, however, that many children tolerate eggs very badly. Milk from the bottle or glass is still given in the middle of the morning before the nap, and the supper consists of milk, or a bowl of bread and milk. The 10 o'clock bottle may still be given, or not, and only if the child awakens for it.

Very soon the addition of some plain dessert is in

¹Read before the Camden District Medical Society, December, 1904.

order, such as rice pudding without raisins, tapioca, sago, junket, etc. The question arises about the use of fruit. Even in the first year the administration of orange juice is often of benefit, and after this year has passed, a small quantity of cooked fruit is useful, one of the best sorts being apple.

The following table gives a dietary suitable for the age of from 1 year to 18 months, always remembering that the infant does not begin with the full list, but grows accustomed to it gradually:

DIET FROM 1 YEAR TO 18 MONTHS.

BREAKFAST (6 to 7 a.m.).—1. A glass of milk with stale bread broken in it, or one of the numerous good breakfast foods on the market, 2. Oatmeal, arrowroot, wheaten grits, farina, hominy grits, etc., made into a porridge and well cooked, and with the milk mixture in use poured over it. 3. A soft-boiled or poached egg with bread broken in it, and a glass of milk.

SECOND MEAL (10 a.m.).—A glass of milk.

DINNER (1.30 to 2 p.m.).—1. Bread moistened with dish gravy (no fat), beef-tea, or beef-juice; a glass of milk. 2. Rice or grits moistened in the same way; a glass of milk. 3. A soft-boiled egg and stale bread thinly buttered; a glass of milk.

Rice, sago, or tapioca pudding, or junket, in small quantities as dessert with any of these diets.

FOURTH MEAL (5 p.m.).—A glass of milk or some bread and milk.

FIFTH MEAL (9 to 10 p.m.).—A glass of milk.

When the infant has reached the age of 18 months, the diet may be extended somewhat. Finely-minced beef, mutton or chicken may now be given for dinner, and mashed baked potato may be added to the amylaceous foods. I have been for years impressed with the fact that potato starch is not one of the most digestible, and that it is better not to give it until this period. Even now many children do not digest it well. The following is a diet list suitable for this period:

DIET FROM 18 MONTHS TO 2 YEARS.

BREAKFAST (7 a.m.).—1. A glass of milk with a slice of bread and butter or a soda. 2. Graham, oatmeal, or similar unsweetened biscuit. 2. A soft-boiled egg with bread and butter and a glass of milk. 3. Porridge, as described in the previous list.

SECOND MEAL (10 a.m.).—1. Bread broken in milk. 2. Bread and butter or a soda or other biscuit with a glass of milk.

DINNER (2 p.m.).—1. Boiled rice or a baked potato, mashed and moistened with dish gravy or beef-juice; a glass of milk. 2. Mutton or chicken broth with barley or rice in it; some bread and butter, and some sago or rice pudding made with milk. 3. A small portion of minced white meat of chicken or turkey, or rare roast beef, beefsteak, lamb, mutton or fish; bread and butter; a glass of milk.

FOURTH MEAL (5 p.m.).—1. Bread and milk. 2. Bread and butter and a glass of milk.

DIET AFTER THE SECOND YEAR.

By the age of 2 years the method of feeding is not altered very greatly. The following list shows the diet which may well be given after 2 years of age:

DIET FROM 2 TO 3 YEARS.

BREAKFAST (7 to 8 a.m.).—1. A small portion of beefsteak, with oatmeal, hominy grits, wheaten grits, corn meal, or other cereal porridge with plenty of milk. 2. A soft-boiled egg, bread and butter and a glass of milk.

SECOND MEAL (11 a.m.).—1. A glass of milk with bread and butter, or with a soda or other biscuit. 2. Bread and milk. 3. Chicken or mutton broth.

DINNER (2 p.m.).—Roasted fowl, mutton, or beef cut fine; mashed baked potato with butter or dish gravy on it; bread and butter. As dessert, tapioca, sago, or rice pudding, junket, or a small quantity of raspberries, peaches, grapes without seeds, orange juice, or of stewed apples or prunes.

SUPPER (6 p.m.).—1. Bread and butter. 2. Milk with soda or similar biscuit, or with bread and butter.

The three later meals, it will be observed, remain much as before. A difference of opinion exists among physicians as to the giving of meat at breakfast time. In my opinion, the healthy child can well have meat at times for breakfast as well as for dinner, though not necessarily every day. Possibly a soft-boiled egg on one day, and a little beefsteak or chop on another, may alternate for the sake of varying the diet. Many children cannot tolerate meat so frequently, as shown by high-colored urine, the production of eczema, and other evidences of a too great supply of highly nitrogenized food. For these the diet must be suitably altered. But in my experience, by far the greatest cause of indigestion in children from the age of 2 years onward, is the giving of too large a quantity of starchy food. The restless sleep, distended abdomen, irregular appetite and bowels and other wellknown evidences of chronic gastrointes-

tinal catarrh, are due, I am sure, to the giving of an excessive amount of starch or sugar.

After the age of three years the diet approaches more closely to that suitable for adults, care being taken only to avoid certain articles of food as improper, and to try others with caution. Idiosyncrasies, of course, exist, and many a child cannot tolerate what the average normal child can be expected to take without difficulty. The following list is a guide to the foods which may or may not be given at this age:

DIET AFTER THREE YEARS.

FOODS PERMITTED.

MEATS.—Broiled beefsteak, lamb chops, and chicken; broiled liver; roasted or boiled beef, mutton, lamb, chicken, and turkey; broiled or boiled fish; raw or stewed oysters.

EGGS.—Soft-boiled, poached, scrambled, omelet.

CEREALS.—Light and not too fresh wheaten and Graham bread, toast, zwieback; plain unsweetened biscuit, as oatmeal, Graham, soda, water, etc.; hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni, etc.

SOUPS.—Plain soup and broth of nearly any kind.

VEGETABLES.—White potatoes, boiled onions, spinach, peas, asparagus except the hard parts, string and other beans, safsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago, etc.

FRUITS.—Nearly all if stewed and sweetened; of raw fruits, peaches are one of the best; pears, well-ripened and fresh raspberries, strawberries, blackberries, grapes without the skin and seeds, oranges.

DESSERTS.—Light puddings, as rice pudding without raisins, bread pudding, etc., plain custards, wine jelly, ice cream, junket.

FOODS TO BE TAKEN WITH CAUTION.

Kidney, muffins, hot rolls, sweet potatoes, baked beans, squash, turnips, parsnips, carrots, egg-plant, stewed tomatoes, green corn, cherries, plums, apples, huckleberries, gooseberries, currants.

FOODS TO BE AVOIDED.

Fried food of any kind; griddle cakes; pork; sausage; highly-seasoned food; pastry; all heavy, doughy, or very sweet puddings; unripe, sour, or wilted fruit; bananas, pineapples, cucumbers, raw celery, raw tomatoes, cabbage, cauliflower, nuts, candies, preserved fruits, jams, tea, coffee, alcoholic beverages.

There are a few points regarding the diet during early life after the age of one year, to which I wish to refer separately and more particularly. First, as to the continued use of milk; it is most important that this remain the chief article of diet throughout early childhood. This is easily managed, if the mother uses proper discretion in the matter, and does not allow the child so to fill itself with other things that milk is refused. Children who have learned not to take milk are exceedingly difficult to feed when sickness arises.

Next, as to the giving of broths. Their employment enables us to make a serviceable variation in the food given. It must be remembered, however, that the nutriment obtained from them depends almost, if not entirely, upon the cereal addition with which they are thickened. When the nutrition of the child is not quite what it should be, these broths may very well be supplanted entirely by stronger nourishment. Then, too, broths and soups are quite "filling," as the phrase goes, and I have known somewhat older children, whose dinner commenced with soup, eat this and refuse nearly all the remainder of the meal. In such cases no soup should be allowed.

Another important matter is the guarding against a too great caution on the part of the mother. It is true that probably the majority of mothers show too little caution, and are anxious to try the children with new foods, erring on the side of giving them a "taste of table food," and taking an increased pride in each new article that the child attempts to eat. This is a fault which we all recognize, and are ready to combat. Yet it not seldom happens that the careful mother hesitates too long in passing from the food of the first to that of the second year. I am repeatedly seeing cases of this nature. On my return from a rather long summer vacation, I was for a time kept busy with infants who had fallen behind in weight, strength, and general health because the mothers, conscious only that the digestion had been good, had feared to make any addition to the diet.

It is of frequent observation that many children after the age of a year are fed far too frequently. The mother,

anxious to advance the child's growth in every possible way, believes she will accomplish it in this manner. Generally the reverse results. It needs often a great deal of careful planning by the physician, with rearrangement of the child's whole method of life, to correct this fault. Rules must vary with the individual case, but in general the frequency of feeding as I have given it in the tables will produce satisfactory result. As to the exact hour for meals, two important factors are to be considered: 1. The habits of the child, *i. e.*, the hour when it wakes, the time it goes to bed, the hour of the morning nap, etc. 2. The general life of the household. No healthy child should dominate absolutely the whole family life, and the hours for its meals must often be made to accord with this. This is true only, of course, within certain limits, the health of the child not being permitted to be injured in any way.

The relation of the advancement of dentition to the nature of the food is another matter of which I wish to say a word or two. Ordinarily physicians are in the habit of assuming the existence of such a relationship, and of acting upon it. Thus meat is not usually given until the age of about 18 months or more, at which time the child has sufficient teeth to chew it well. Yet consideration will convince us that no child of this age really masticates well, and the food, no matter what it may be, must be prepared with this fact in view. It may readily happen that a child, through rickets or other cause, has not acquired the teeth normal for its age, and yet that it might particularly need a stronger and more stimulating diet. In my opinion it is the age of the child, its needs, and its development in other respects which are to be viewed as the criterion in determining the diet, rather than the number of teeth which have erupted.

There are one or two other matters to which I wish to refer, and that with the greatest brevity. First, no candies, cakes, or other such articles should be given. This applies to the whole of infancy and early childhood. In fact, no food whatever should be allowed between meals. Generally the asking for such by the child is only a matter of habit. Should there clearly be real hunger, a small glass of milk may be given at times, but even this is to be discouraged as a custom. The second matter is that during the prevalence of very hot weather the diet in infancy and early childhood should be reduced greatly in variety, and even in amount. The child of 2 years had better be put temporarily on the diet of a child of 1 year. Illness may often be avoided by following this plan.

ACUTE POSTOPERATIVE THYROIDISM: REPORT OF A CASE. RECOVERY.*

BY

S. EDWARD SANDERSON, M.D.,
of Detroit, Mich.

Acute thyroidism, spoken of as acute thyroid poisoning, closely resembles acute exophthalmic goiter. It remains to be proved whether the two are not identical. A consideration of exophthalmic goiter naturally prefaces, therefore, a study of acute thyroidism.

Exophthalmic goiter was recognized as early as 1761, when Morgagni mentioned it in his writings; Parry speaks of it in 1786; other observers noted it at other and later times, but credit is given to Graves, who published the first ample description of the disease, recognizing it as a pathologic entity. A more complete description came from Basedow in 1840. Flagani, of Italy, also gave an early and exact description. The disease is known, therefore, under a multiplicity of names, the Germans preferring to call it "Basedow's disease;" the English and French, "Graves' disease;"

the Italians, "Morbo Di Flagani," after their own countryman. In America we are cosmopolitan and find use for most of the names, possibly preferring to call it by the name most descriptive of the clinical picture, "exophthalmic goiter." Omitting the symptomatology, I will call attention to the fact that the pathogenesis of the disease has been the subject of much conjecture, much experimental work and observation, and considerable discussion. The matter is still undecided, though many theories have been advanced. These may be spoken of as follows: 1. A dyscrasia of the blood. 2. A neurosis of the heart. 3. An alteration of the sympathetic system. 4. A lesion of the medulla oblongata. 5. Primary disease of the thyroid gland. 6. Disease originating in the parathyroids.

During the early days of its recognition the anemia and chlorosis, which were observed in almost all patients, were thought to bear a causative relationship to the disease and were not recognized as merely associated conditions. This theory of a dyscrasia of the blood was soon abandoned. When Graves first wrote of it he believed the underlying cause to be a cardiac disorder.

Derangement of the sympathetic nervous system was early recognized as an etiologic factor and undue prominence given to it, especially as section of the cervical sympathetic, as recommended and practised by Joublay and Jonnesco, gave a goodly percentage of cures.

Within the last ten years, however, research and experiment have drawn attention to the thyroid gland as the causative factor. Still later attention has been drawn to the parathyroid as possibly being causative of the alteration in the thyroid.

In an editorial in the *Journal of the American Medical Association*,¹ appears the following: "Formerly the generally accepted notion in regard to it was that it was a disorder of the sympathetic system and the vagus, probably connected with some lesion in the medulla." It is stated that the condition was coming to be considered as an autointoxication from the thyroid. Five years later² an editorial in the same journal states "the only reasonable conclusion to arrive at from the available evidence is that exophthalmic goiter is a constitutional thyroid intoxication expending its force especially on the sympathetic nervous system and medulla oblongata."

In a recent paper Dr. Leo Breisacher, of Detroit, Mich., says³: "In 1890, at a time when little or nothing was known of the chemic constitution of the thyroid gland, and when we were unaware that it possessed any particular therapeutic action, the writer offered the first experimental proof that the thyroid gland was in some way concerned in the general metabolism of the organism." Prof. E. Gley, of Paris, France, writing in 1901,⁴ claims to have published his researches in 1891, 1892, 1893; these proved the importance of the glandules annexed to the thyroid, the parathyroids. In the same year, 1901, Walter Edmunds, F.R.C.S., of England,⁵ demonstrated that removal of the parathyroid and thyroid glands, experimentally in dogs, produced a demonstrable lesion in the central nervous system, similar to that found in acute toxic states. He found also that removal of the parathyroids produced the acute symptoms. He believes that whether the anatomic disturbance is chiefly in the nervous system or elsewhere, "the main disturbance is originally of a chemic nature." In the next year, 1902, Coronedi and Marchetti, of Florence, Italy,⁷ published some of their experiments upon the thyroids and parathyroids. In dogs experimentally deprived of these glands, iodine and bromine fed to them artificially overcame, more or less, the strumipriva symptoms, tending to show the importance of these glands in maintaining the chemic equilibrium of the organism.

In the same year, Tedeschi, another Italian observer,^{8,9,10} demonstrated: 1. That injury to the restiform body in dogs and rabbits produced artificially the classic

* Read by title before the Section on Surgery of the Michigan State Medical Society, at Grand Rapids, Mich., May 27, 1904.

symptoms of exophthalmic goiter. 2. In animals thus affected in whom the symptoms have diminished or disappeared they can be reawakened in part by hyperthyroidation. 3. In animals from whom the thyroid has been removed, lesions of the restiform body do not produce exophthalmic goiter. 4. In animals in whom the exophthalmic syndrome has just been produced by loss of the restiform body, removal of the thyroid diminishes or completely banishes the greater part of all symptoms.

Other experimenters and observers have been at work in this field, but these mentioned seem to have brought forth what most materially aids in evolving the true theory of the pathogenesis of exophthalmic goiter.

Although today all do not hold to the same theory, yet that which is most generally accepted is set forth in an editorial appearing in the *Journal of the American Medical Association*.¹¹ After reviewing all the theories, it says: "The symptoms of exophthalmic goiter are essentially of nervous origin, and it must be inferred that they are brought about by the action of certain substances which find their way into the circulation as a result of the deranged function of the thyroid gland." It refers to the work and writings of Walter Edmunds, spoken of before, giving his conclusions due credit and assuming the possibility of this alteration in the thyroid being due in turn to a derangement of the parathyroids.

The term "thyroidism" or "thyroidismus" has found a place in the literature and applies to a well-recognized condition noted by most observers. It is supposed to be due, as its name would imply, to a systemic poisoning incident to an alteration of the thyroid secretion or an overabsorption. This condition, as mentioned at the outset, closely resembles acute exophthalmic goiter. It is found most often following operations for goiter and is considered one of the grave dangers in these operations (Ballin¹²). Cases of this kind are comparatively common (Kocher¹³ and others¹⁴). Some cases are reported following nervous shock of various kinds and are classed as cases of acute exophthalmic goiter.

Arneill,¹⁵ of Ann Arbor, Mich., in 1900 collected the cases found in the literature up to that date. Of the class which for convenience I have called "acute postoperative thyroidism," very few have been reported. I shall mention all I have found in a review of the literature.

In 1894, Patterson,¹⁶ of England, reports the case of a girl in whom he did tonsillotomy under chloroform. Two weeks later acute Graves' disease made its appearance, from which the patient died.

In 1900, Rehn¹⁷ reported a case in his own practice in which he did ovariectomy, the patient dying from acute thyroidism. She was known to have been suffering from exophthalmic goiter at the time of the operation.

In 1901, Harris,¹⁸ of England, in a paper "On Operating on the Subjects of Exophthalmic Goiter," reported a case in which he did an urgent operation on the breast in a patient with full-marked symptoms of exophthalmic goiter. Acute symptoms developed immediately, and the patient died in 68 hours.

In 1902, Campbell,¹⁹ of England, reported the case of a girl for whom he extracted a tooth, using cocaine anesthesia. Immediately after she called his attention to enlargement of the thyroid, which she said she had noticed a few days before. No other symptoms were present. Three weeks later he was called to the house to extract more teeth for her, which he did, again using cocaine. She returned to her work for that day and the next. On the third day he was called to see her again. She was suffering from acute symptoms of Graves' disease, and died six weeks later.

In 1904, Wells,²⁰ of New York, reported a case under the title "Acute Thyroidism following Curetage." The patient presented for many years a slight enlargement of the right lobe of the thyroid. At the time of operation she had a rapid, excitable pulse, slight tremor, but

no exophthalmos. Under the anesthetic, chloroform changed to ether, the pulse-rate was observed to increase. Six hours later the patient was flushed, tremulous, nervous, and had a pulse of 130, with temperature of 100.5° F. The condition of the patient continued to increase in gravity, until from the fifteenth to the twenty-fourth day it was believed death would occur at any time. From that time on, however, improvement marked her condition, until finally she was as well as before the operation.

Beside these five cases which I have cited from the literature, I desire to report one occurring in my own practice:

Miss A. B., aged 20, a telephone operator, came to my office July 13, 1903, giving a history of impaired health for two or three years, with an attack of suppurative appendicitis nine months previously. At that time she underwent an operation, vaginal drainage; recovery was rapid. Following this, normal health was not again regained, in fact, she grew worse, her chief complaint being pain and distress in the right side, especially marked when she attempted to reach far, as she was obliged to do often at her work. Family history, as obtained from her, was negative. Her own health had been good during childhood. Menses began at 18, were irregular, but with no pain.

Examination.—Patient is a blond, weight 128 pounds, height 5 feet 3 inches. Pulse rapid (100?). Patient is somewhat nervous, blushing easily and profusely. Vagina was small, no hair on the pubes. The skin over the abdomen and over part of the rest of the body showed some discoloration, especially marked at the waist line. On one side this discoloration consisted of a general bronzing, while on the other it was in freckles and patches of various sizes; one or two large areas of leukoderma were also to be seen. Physical examination confirmed the diagnosis of chronic appendicitis, with the possibility of some pelvic complication.

She went to the hospital and underwent operation July 23, 1903. Through a median incision I found the omentum redundant and adherent in the pelvis, with adhesions about the appendix, but no pus. I broke up the adhesions, removed the appendix and three or four inches of the redundant omentum.

At the time of beginning the anesthetic, it was noted that the pulse was very rapid (168). This I attributed to nervousness, looking for an abatement as soon as the patient should come thoroughly under the anesthetic. The rate, however, did not materially lessen. The anesthetic (chloroform) was changed to ether, with no perceptible difference. It was noted, also, while she was taking the anesthetic, that there was some engorgement or enlargement of the thyroid gland. She was in the operating-room about two hours. During this time she was given digitalin, .6 mg. ($\frac{1}{100}$ gr.) hypodermically, twice, and strychnin sulfate, 2 mg. ($\frac{1}{30}$ gr.) three times.

About noon the patient was returned to her bed. Her pulse was 168, temperature 102° F. Her condition was grave, and she continued to grow worse. She suffered little or no pain, requiring very little anodyne, while her mind was quite clear and happy. A little delirium was manifested on the fourth day. The disturbance to the circulatory system was of an extreme degree. The heart was working not only at a very rapid rate, but with a tremendous force, so much so that it could be distinctly heard at the foot of the bed (on the second day) while the entire body was flushed and bathed in perspiration.

The temperature, at no time an alarming feature, did not remain for any length of time constant at any one point, nor were its variations regular. For three days it varied most of the time between 101° and 102.4°. For two more days it remained between 100° and 101° for most of the time, at times, however, dropping lower. From that time it varied between normal and slightly above, at no time seeming to bear any special relation to the pulse-rate, except that as the condition improved both pulse and temperature improved, while the highest temperature was generally near the time when the pulse-rate was the highest.

For the first 30 hours the pulse-rate increased in rapidity, at one time on the second day being observed at 220, though for the most of the time it was at or near 170. I observed this rate of 220 myself and it is therefore authentic. This rapid rate was not hard to count, because of the nature of the pulse, high tension with a high wave, each pulse-beat could be separately felt and therefore counted.

The kidneys were overactive, 90 ounces being recorded for the first 24 hours, all voluntary.

The normal functions of the stomach and bowels seemed to be little interfered with; she vomited twice on July 23 and several times on July 25; there was a slight diarrhea noted on July 25.

Digitalis was used at first both per enema, with normal saline and hypodermically in the form of digitalin, in conjunction with strychnin. The strychnin was given not for the immediate condition, but to combat the possibility of heart collapse coming on suddenly. At the time when she was at her worst, fluid extract of cactus grandiflorus was given to her in .6 cc. (10 m.) doses every four hours. This she continued to

get for many days. At this time improvement began and continued uninterruptedly, how much of this being due to the drug I am unable to say. Exophthalmos was noted early.

The flushing spoken of gradually lessened, leaving marked increase in the discoloration of the skin, which at this time was noticed over the entire body. The areas of leukoderma remained unchanged.

The abdominal wound healed by primary union. No other complications arose from the operation. Fearing, however, the possibility of some deep pus infection, I called Dr. T. A. McGraw in consultation about the tenth day. Dr. C. W. Hitchcock, of this city, saw her in consultation on the third day. He concurred with me in my diagnosis, and advised the continuance of the cactus grandiflorus as already begun.

The patient left the hospital on August 19, 1903, four weeks from the time of operation, feeling better than when she had entered, but still in a weakened condition; weight, 96 pounds; pulse running about 100, temperature near normal. She was easily fatigued, and very nervous; eyes were prominent and skin discoloration very marked.

Improvement continued uninterruptedly. For three months she was kept taking cactus grandiflorus and electricity was given as soon as she could come to my office, which was after a month at home. The form used was galvanism to the cervical region and over the thyroid gland; this was continued three times a week for two months.

At the present writing (May 20, 1904) she presents practically the same clinical picture she did at the time of leaving the hospital, though feeling much stronger, and being much heavier having gained 30 pounds in weight. She works eight hours every day, except Sundays and holidays, and walks more than a mile to and from work.

This case contains much food for thought and discussion. In conclusion I would say: 1. Acute postoperative thyroidism is very rare. Few cases are reported. Many possibly are unrecognized. 2. All the cases cited proved fatal, except my own and one other. 3. The use of cactus grandiflorus never before recommended in cases of this or like nature seemed to be a great aid in bringing about a favorable termination. 4. The peculiar pigmentation, following the turgescence and being different on the two halves of the body, is of interest. 5. A pulse of over 200 can be counted in thyroidism, because of the nature of the pulse. 6. When this patient presented herself at my office for the first time, I carefully examined her to note all deviations from the normal of health. The most urgent trouble seemed to be the chronic appendicitis. I cannot say at this time that she was then suffering from exophthalmic goiter—at any rate, as such it was overlooked. Her pulse was rapid, but not more so than we often find in patients having appendicitis, or in patients who are nervous. The pigmentation of the skin attracted my attention especially. I could not satisfy myself as to its origin or cause, but considered it of no special moment in reference to her need of an operation, or in regard to her being in a condition to undergo the operation. She had already undergone one operation a few months before. I felt it was safe for her to undergo another, especially as the operation was necessary. This leads one to moralize on the fact that most of us are too much diverted by a multiplicity of cases, conditions, and cares to do more than what we feel lies most urgently at our hand. 7. Acute postoperative thyroidism is an exceedingly grave complication, therefore, in patients calling for operative care, we should ever be on our guard to recognize the presence of the condition which if lighted up will produce acute thyroidism. The symptoms of this condition most likely to be seen are (a) rapid pulse, (b) enlarged thyroid, (c) nervousness, (d) a marked tendency to blush, (e) prominence of the eyes, with (f) pigmentation or other alteration of the skin.

BIBLIOGRAPHY.

- ¹ Journal A. M. A., September 7, 1895, Vol. xxv, p. 419.
- ² Journal A. M. A., May 5, 1900, Vol. xxxiv, p. 1137.
- ³ Breisacher, Archiv. f. Anat. u. Physiol., 1890.
- ⁴ Breisacher, Journal A. M. A., February 28, 1903.
- ⁵ Gley, Brit. Med. Journal, September 21, 1901, p. 771.
- ⁶ Edmunds, Brit. Med. Journal, September 21, 1901, p. 778.
- ⁷ Coronedi and Marchetti, Review Jour. A. M. A., Vol. xxxix, p. 664.
- ⁸ Tedeschi, Review Jour. A. M. A., Vol. xxxix, p. 345.
- ⁹ Tedeschi, Review Jour. A. M. A., Vol. xxxix, p. 664.
- ¹⁰ Tedeschi, Review Jour. A. M. A., Vol. xxxviii, p. 1193.
- ¹¹ Journal A. M. A., December 21, 1901, Vol. xxxvii, p. 1681.
- ¹² Ballin, Detroit Med. Jour., November, 1903.
- ¹³ Kocher, Mittheilungen a. d. Grenzgebiete (1902).

¹⁴ Curtis, Annals of Surgery, August, 1903, Vol. xxxviii, 2.

¹⁵ Arnell, Journal A. M. A., October 6, 1900, Vol. xxxv, p. 880.

¹⁶ Patterson, British Lancet, 1894, i, p. 1370.

¹⁷ Rehn, Mitth. a. d. Grenzgebiete, vii (1900).

¹⁸ Campbell, Brit. Med. Jour., March 15, 1902, p. 642.

¹⁹ Harris, Brit. Med. Jour., May 4, 1901, p. 1076.

²⁰ Wells, Physician and Surgeon, March, 1904, Vol. xxvi, p. 124.

FIBROLIPOMATOUS TUMOR OF THE PHARYNX AND LARYNX.¹

BY

E. FLETCHER INGALS, M.D.,

of Chicago.

The patient, S. W., a man aged 28, came to me February 9, 1899, complaining of difficulty in breathing, speaking, and swallowing. He stated that five years previously he had noticed a little difficulty in breathing at night; later that his speech became muffled, and that two years later he began to have some difficulty in swallowing, though there had been no pain on deglutition. In the fall of 1896 the growth had been cauterized by the electrocautery, and various efforts had been made with a snare and scissors to accomplish its reduction, but only very small pieces had been removed, although this, he thought, gave him a little relief for some months. He afterward grew gradually worse. Immediately before he came to see me the interference with swallowing had been moderate, but there had been much difficulty in breathing, especially at night.

I found the voice much muffled, with dyspnea upon any exertion, but he breathed fairly well when at rest. Upon examination, I found a large tumor, having the appearance of a fibroid, nearly filling the laryngopharynx, leaving a space only about a fourth inch in width at the left of the laryngopharynx. I was unable to see any part of the larynx excepting the pyriform sinus and the pharyngoepiglottic fold of the left side. After several attempts with a No. 5 piano wire snare, which broke every time, I finally succeeded in removing the greater part of this tumor with a uterine ecraseur, the end of which I had bent for the purpose; armed with a No. 8 piano wire, I subsequently removed several small pieces and finally destroyed by cauterization the last remaining nodule, so that on March 20, about four weeks after the first operation, the growth appeared to have been completely destroyed and the patient was discharged. The pathologist reported the first mass removed a fibrous growth, and the later masses lipomatous tissue. The whole tumor was about 4.5 cm. by 3.8 cm. in its various diameters. This case I reported to the American Laryngological Association in May, 1899.

On November 2, 1904, this patient returned to me and reported that he had noticed some symptoms of a return of the tumor, about a year ago. Upon examining the laryngopharynx, I found a large mass extending from the base of the tongue downward to the arytenoid cartilage attached by a broad base to the right side of the pharynx and also attached to the right edge and anterior surface of the epiglottis. This tumor about three-fifths filled the laryngopharynx, allowing me to see only about three-fifths of the epiglottis and of the lower portion of the larynx. The tumor was smooth in appearance, sessile, appearing to have no pedunculation, although the lower part looked as though it might possibly be engaged in a snare. The tumor appeared to be at least 5 cm. in length and to stand out from the wall of the pharynx about 2.8 cm. and to measure from before backward about 3.5 cm. It was so soft to the touch that I suspected it was filled with fluid, and I was inclined to believe that I had to deal with a branchial cyst. The next day I attempted to aspirate the tumor, but was unable to do so, and was obliged to get a special instrument made for the purpose. On November 8, I succeeded in getting a long, strong bent needle, which I attached to my aspirator syringe, with which I punctured the tumor in two or three places, but I found that it had no fluid contents. However, it receded so before the pressure of the aspirator needle that I could not yet believe that it was a solid growth. I finally anesthetized the parts with a strong solution of cocaine, and with an unusually heavy snare armed with a No. 8 piano wire, I succeeded in catching the greater part of the growth in the loop, but as the snare was tightened, at least a half of the tumor at the upper part slipped out of the snare, so that I could only hold the lower part of it, which, after it had been cut off, measured 3.8 cm. in its largest diameter and about 2.8 cm. in its smallest diameter. I tightened the loop on this portion of the tumor gradually and instructed the patient to draw in a very deep breath just before I finally cut the tumor off, then as the wire had nearly cut this through, I had the patient hold his breath and pulled upward on the tumor as the piece was cut off, and brought it out of the mouth. In case this piece had fallen so as to obstruct the larynx, the air in the chest would have enabled the patient to cough it out. Immediately after removing this mass the patient said that he was choking and I saw that he was unable to get his breath. He quickly became cyanotic and soon stopped breathing entirely. One of my assistants rushed for

¹ Presented to the Chicago Laryngological and Climatological Society, December 6, 1904.

an O'Dwyer tube which I did not have time to use and I seized a large Schroetter dilator and attempted to pass it into the larynx but did not succeed as the muscles were becoming so rigid that the patient's teeth shut down firmly upon my finger and I had to get the instrument and finger out as quickly as possible. By this time the man had fallen upon the floor in a narrow space and most awkward position, but seeing that death was imminent, without a second's delay, I called for a knife, which one of my assistants handed me, and I made a rapid low tracheotomy. I succeeded with the second cut in opening the trachea and then passed my finger into the opening and by it directed in the Schroetter tube which I had just used in the trial to enter the larynx; this took only three or four seconds. There was a large flow of venous blood, but turning the patient upon his side I succeeded in preventing most of this from going into the trachea and the Schroetter tube so nearly closed the opening that there was not much subsequent danger. We set up artificial respiration as well as we could in the awkward position, being able to manipulate only one of the patient's arms, because it was necessary for him to lie upon the side. In the course of 10 or 15 minutes we were rewarded by having fairly good respiration and we felt that the patient was out of immediate danger. Subsequently with the patient still upon the floor, I grasped such bleeding points as I could discover with hemostats and later tied several of them. After about an hour the patient seemed well enough to sit up and as there was no bleeding I introduced a hard rubber tube which was the largest tracheotomy tube I could find in two of the large instrument houses in the city, but it was too small; however, it had to answer the purpose. I then examined the larynx but was unable to get a good view, because of the blood and mucus in the mouth though there appeared to be a mass of the tumor lying in the lower portion of the laryngopharynx. Presently I found that blood was trickling down from the lower portion of the wound in the neck and I then placed the patient upon a table and sought further for the bleeding points. I discovered that the isthmus of the thyroid had been partly cut in the hasty operation and I was obliged to secure all the bleeding points by suture and ligatures. At the end of about two hours after the unfortunate accident the bleeding had been thoroughly controlled and the patient was fairly comfortable, though necessarily much weakened, the pulse being 140.

Another examination of the throat failed to give any more satisfactory view than the one previously. I found that the patient breathed fairly well through the tracheotomy tube and sent him to the Presbyterian Hospital, giving directions that the tube should be cleaned every hour or the inner tube be left out if necessary. The patient was to be kept in a room with a temperature of 80° F. and a moist atmosphere. These directions were carried out, but the next morning the nurse in attempting to clean the inner tube placed it in hot water and it straightened out so that we were not able to use it again. The patient was unable to breathe through the larynx and could not swallow, because of some obstruction in the laryngopharynx. An inspection showed what appeared to be a portion of the tumor filling the laryngopharynx and completely closing the larynx, but the neck was so sore and the patient so weak that nothing was done for its removal until several days afterward. For 36 hours after the tracheotomy he was fed by nutritive enemata; then a stomach-tube was introduced without great difficulty, and subsequently he was fed in this way until the obstructing mass was removed. During the first few days he had a temperature running from 101° to as high as 104°, with considerable inflammation in the neck. Finally, when this had subsided and the patient had gained strength so that he could sit up without fatigue, I anesthetized the throat with a 20% solution of cocaine; then guided by a throat mirror, I grasped the tumor with vulsellum forceps that I had made from uterine forceps into the shape of McKenzie throat forceps, and passed down over it the loop of a No. 8 steel wire, with which I had armed a strong snare. I engaged a considerable mass of the tumor and soon cut it off without difficulty. It measured 3½ cm. by 3½ cm. and 2 cm. in its various diameters. I then found that, although the laryngopharynx was free, the larynx was still partially obstructed by another small portion of the tumor, which I removed in a similar way. This piece was about a sixth the size of the one that I had just removed. The laryngopharynx and larynx were then perfectly free, so that there was no interference with respiration or deglutition, but there still remained quite a large mass of the tumor on the right side of the pharynx, beginning about a centimeter below the level of the base of the tongue. This appeared to measure from 2 cm. to 3½ cm. in its various diameters. I attempted to catch it with the loop, but there was no place where the wire would hold. I attempted also to catch it with cutting forceps, but in this I was equally unsuccessful, as the growth would crowd away from the instrument and no part of it could be seized. Finding it impossible to secure it in any way, I determined that the best thing for the patient would be to have it removed through an external incision, and I so advised; however, he declined further operation, and on November 23 I removed the trachea tube and a couple of days later allowed the patient to go to his home.

I was at a great loss to understand why there should have been the sudden choking after the removal of the first piece of the growth, but after inspecting the throat,

I was led to believe that it was due to a part of the very movable tumor having fallen through the opening made in the mucous membrane by the removal of the first mass. The examination of the last portion of the tumor removed, showed that it did not have a mucous covering, and confirmed my view of the cause of the accident. Although such an accident as this from a portion of the tumor falling through an opening made by removing a part of it, could not occur, excepting in extremely rare instances, this case illustrates the necessity of being prepared for emergencies when operating in the throat. The plan suggested of having the lungs filled with air, and the patient holding the breath, is generally efficient. The Schroetter dilating tube is also very valuable as a means of preventing strangulation, but in addition, assistants and the instruments for a quick tracheotomy should be at hand.

The three different pieces removed were examined microscopically, and Dr. Peter Bassoe, pathologist at the Presbyterian Hospital, furnishes the following pathologic report:

Second piece removed, weight 6 gm. Measured 3.8 cm. by 3 cm. by 1.5 cm. The attached surface measures 3 cm. to 2.5 cm., almost circular, of whitish color. The remainder of the surface is covered by a thin fibrous capsule and is gray in color. At one point a fibrous tag, 8 mm. long, projects 3 mm. from surface. Consistency, soft and spongy. Cut surface, whitish color, with yellow tinge. Little blood is seen, except close to the surface. Smaller piece—weight 1.5 gm. Tissue resembles first.

Microscopic Examination.—The fibrous capsule is very thin. The tumor is composed of intermingled adipose tissue and fibrous connective tissue in about equal proportions. The fibrous tissue is rich in cells, most of which are of the fibroblast type, but there are also many small inflammatory mononuclear cells, and in places considerable number of polymorphonuclear cells. Bloodvessels are rather abundant in the fibrous tissue and contain many polymorphonuclear cells. Their endothelial cells are large and rich in chromatin.

Diagnosis.—Fibrolipoma, with inflammation.

I am much indebted for efficient assistance during or subsequent to the hasty tracheotomy, to Drs. J. C. Gill, J. Z. Bergeron, N. P. Colwell, S. A. Friedberg, E. L. Kenyon and J. F. Waugh. Dr. C. McDonald took care of the patient at the hospital and aided Dr. Peter Bassoe in the microscopic examination.

Female Physicians in Russia.—The number of female physicians is steadily increasing in Russia. According to a recent report there are now nearly 400 ladies studying medicine at Russian universities, the largest numbers being at St. Petersburg and Moscow.

Many Springs in the United States Abandoned.—Reports received by the United States Geological Survey for 1903 show that many springs that were formerly used as sources of table waters were commercially abandoned during the previous year. The reports also show a decided loss in the number of gallons of water sold and also in the value of the product—losses ascribed mainly to the fact that many important springs failed to report for the year 1903, although they sent in returns for the previous year. These losses occur in all sections but one. The list of mineral springs reported for 1903 is slightly increased over that of 1902, including now 725 springs instead of 721 as in 1902. The list has been lengthened by the addition of 42 new names. The number of springs dropped from the list, because commercially abandoned, is 38. The springs actually reporting sales for 1903 number 522, which is 127 less than the number reporting in 1902. The springs not heard from number 167, and these, with few exceptions, reported sales in 1902. In addition, there are 36 springs which report that no sales were made in 1903, thus increasing the number of delinquents to 203. The average price for a gallon of mineral water is about 16 cents for 1903, as compared with 13.7 cents for 1902. The total production for 1903, including the figures estimated for the delinquent springs, is 50,575,746 gallons, at a valuation of \$8,074,096. This is a loss in quantity of 14,283,715 gallons and in value of product of \$719,655, as compared with the production of 1902. When the 522 springs actually reporting are alone considered, the figures are 37,707,647 gallons, as compared with 63,174,522 gallons in 1902, a loss of 25,466,905 gallons; and a valuation for 1903 of \$6,382,726, compared with \$8,634,179 in 1902, a loss of \$2,251,453. It is probable that a loss would be shown even had all the springs now delinquent sent in returns. The survey report from which these figures are taken is an abstract from the forthcoming volume, *Mineral Resources of the United States, 1903.*

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 28, 1905. [Vol. XLIV, No. 4.]

1. The Nature and Significance of Leukocytosis. A. MANSFIELD HOLMES.
2. Chronic Arterial Hypertension. HENRY WIREMAN COOK.
3. Therapeutic Value of Massage in Acute Diseases. JAY W. SEAVER.
4. Report on the Progress of Actinotherapy during the Past Year. WILLIAM S. GOTTHRIE.
5. The Dividing Line between the Neuroses and the Psychoses. RICHARD DEWEY.
6. Medical Practice in Siberia. G. B. HASSIN.
7. Clinical and Histologic Observations on Sympathetic Ophthalmia. C. A. VEASEY.
8. The Genesis of Sympathetic Ophthalmitis. SAMUEL THEOBALD.
9. Operative Procedure on the Exciting and the Sympathizing Eye in Cases of Sympathetic Ophthalmia. JOHN E. WEEKS.
10. Fifty Consecutive Cases of Pneumonia without a Death. W. J. GALBRAITH.
11. The Most Ancient Medical Practice Laws. The Code of Hammurabi, 2200 B. C. BAYARD HOLMES.

1.—See *American Medicine*, Vol. VII, No. 25, p. 973.

2.—See *American Medicine*, Vol. VII, No. 25, p. 975.

3.—See *American Medicine*, Vol. VIII, No. 3, p. 97.

4.—See *American Medicine*, Vol. VIII, No. 2, p. 51.

5.—See *American Medicine*, Vol. VII, No. 24, p. 926.

7, 8.—See *American Medicine*, Vol. VIII, No. 5, p. 185.

9.—See *American Medicine*, Vol. VIII, No. 6, p. 227.

10.—**Pneumonia.**—W. J. Galbraith suggests that when in the first stage there is tenderness and pain in the region of the gallbladder, there may be primary invasion of that organ. He states that he has never seen more desperate cases of pneumonia than those which have recovered under his treatment with iron and quinin, and he has never seen a case of malarial infection in his locality. A review of several cases reported in the paper shows that in one and a fourth hours after administering large doses of quinin, the condition of the patient was improved. The symptoms of cardiac failure, commonly called crises, are entirely prevented. Quinin reduces the frequency of the heart-beat, and increases its volume. Cinchonism after the largest doses in the active stage of the disease, has not been observed. In one case 115 gr. were given within one hour after arrival at the hospital. Iron maintains the heart as well. Rusty sputum is delayed until the third or fourth day, and continues only one or two days. Alcohol and strychnin prior to resolution increase distressing mechanical conditions, instead of strengthening the heart. Bromid of lithium with chloral controls nervousness better than morphin. The writer has discarded all external applications, uses expectorants only as a vehicle, and gives a liquid diet with plenty of alkaline drinking water. Broken and small doses of quinin and iron will not produce satisfactory results. During resolution, however, even 5 gr. or 10 gr. of quinin may produce cinchonism. [H.M.]

Boston Medical and Surgical Journal.

January 28, 1905. [Vol. CLII, No. 4.]

1. The Psycholeptic Crises. PIERRE JANET.
2. Gastroenterostomy. (A Preliminary Note.) JAMES G. MUMFORD.
3. The Prophylaxis of Syphilis. WM. G. MACDONALD.
4. The Etiology of Pulmonary Tuberculosis Considered in Relation to Its Therapeutics. LOUIS F. HIGH.
5. Points Pertaining to the Management of Diabetic and Nondiabetic Glycosuria. (Concluded.) HEINRICH STERN.

1.—**Psycholeptic Crisis.**—P. Janet states that oftener than is generally supposed there is a definite beginning to the peculiar mental state of psychasthenics. Some have not merely a single definite crisis, but a great number of these punctuated by intervals of almost normal existence. There are two types, one terminating suddenly, the other slowly and imperceptibly. These patients, of whom he gives several illustrations, complain of the sudden sense of the unreality of surrounding objects and of their own personality. The different forms of sensation seem to be intact. The writer describes the condition as a "feeling of incompleteness." If the crisis is somewhat prolonged, there may be observed every variety of abulia, slowness of action, absence of resistance. Absence of genuine motor disturbances and of all alteration of the reflexes and of sensibility excludes the graver cerebral lesions. Disturbance of attention bears only on recent events, leaving intact reason-

ing power and memory. The psycholeptic differs from the hysteric, in clearly remembering what he has been through. Adaptation to the present is the goal of all evolution. Action brings into play a higher center in the formative stage and excitable only with difficulty. The writer divides psychologic operations into a higher, including the functions of the real, and a lower calling for less tension and embracing the abstract, the imaginary and the past. In these patients events take place as if the higher sensorial and motor centers could no longer enter into activity, while the simpler association centers, long formed, perform their functions normally. [H.M.]

2.—**Gastroenterostomy.**—James G. Mumford says in the case of malignant disease of the stomach some form of gastroenterostomy must nearly always be done, if operation is resorted to. Finney's operation is valuable, for it returns the parts to a condition approximating the normal, but Finney's operation is not always applicable. Rodman's partial gastrectomy, combined gastroenterostomy, returns the parts essentially to the normal, but Rodman's operation seems needlessly radical for routine practices. The object of this communication is to urge an operation Mumford has practised of late. As originally done by Chaput, that operation consisted of: (1) Posterior gastroenterostomy with the long loop; (2) enteroenterostomy; (3) section of the afferent loop between the two anastomoses. So far as it goes that operation is very satisfactory, but it does not restore the parts to their normal relations. Vicious circle sometimes ensues, the pylorus may resume its functions; the new gastric stoma may close. Mumford advocates a fourth step,—invariable, routine, (4) section of the pylorus. That adds nothing to the risks; vicious circle is rendered impossible; the duodenum, now side-tracked, becomes a mere duct, a continuation of the common bile duct. [A.B.C.]

3.—**The Prophylaxis of Syphilis.**—William G. MacDonald discusses this subject at length, reviews the various methods of prophylaxis which have been tried, and urges, as the most important step in the prophylaxis of syphilis, the education of the whole people concerning the various and numerous means of communication, and the baleful effects of the disease. No form of detention, isolation, inscription or compulsory examination has yet met with success, and our main hope lies in education of the masses. He approves of the suggestion of a penal and charitable commissioner of Boston, that hereafter, when a man or woman is convicted of an offense which may call for either fine or imprisonment, he or she should be physically examined, and if venereal disease be found, then the punishment must be by imprisonment. This would be farther-reaching than would seem at first glance, since a large number of those arrested for petty offenses are not only the very ones who are liable to be suffering from syphilis, but also the ones most careless about its transmission. [A.B.C.]

4.—**Etiology of Pulmonary Tuberculosis in Relation to Therapeutics.**—L. F. High emphasizes the fact that few organisms require such definite conditions for vitality and proliferation as tubercle bacilli. The number of cases recovering without treatment seem to show that slight deviations from the physiologic meet the requirements of the parasite. The greater number of bacilli in sputum and in pieces of old tissue are incapable of further growth. Bacilli of great virulence are more difficult to cultivate than those of less virulence. The results of open-air treatment show that deficient ventilation is the underlying cause of pulmonary tuberculosis, the physio-chemic condition without which tuberculosis does not exist. The symptoms of devitalization induced by deficient oxygen are those of incipient tuberculosis. While we should not relax our efforts to destroy the bacillus, the men who inaugurated open-air treatment point us to the eradication of a fundamental degeneracy of which the disease is the final expression. [H.M.]

5.—**Management of Diabetic and Nondiabetic Glycosuria.**—H. Stern states that treatment should conform with that of the underlying disease if this is recognizable. Glycosuria may be due to injury or removal of an organ, to certain drugs, to alcohol and tobacco, or syphilis, or the infectious diseases. In neurotic individuals, glycosuria-producing drugs should be sparingly employed. When diabetes is a

family affection, carbohydrates should be curtailed for those not yet affected and malted beverages forbidden, and all excesses and mental strain be avoided. Nondiabetic glycosuria will not respond as readily as the diabetic to the withdrawal of carbohydrates. As long as the patient remains in fair condition, interference with it is not justified. Diabetic patients, free from acetone, diacetic, and betaoxybutyric acids, should be strictly dieted until all symptoms have subsided and the glycosuria is less than 1%. The indications for medical treatment alone are lack of result or deterioration on regulated diet, the excretion of less than 1% of sugar, and a recurrence due to mental excitement. As nervous cases are exceedingly chronic, poisonous and narcotic remedies should be used only exceptionally. So far as glycosuria *per se* is concerned, there is hardly ever any contraindication to ingestion of fat. In obese subjects the egress of nitrogen may be allowed to surpass its ingress for a short time. Carbohydrates should never be abruptly, always gradually withdrawn. Acidosis may result synthetically or from fat decomposition. Stern deals with the treatment of intercurrent nephritis and coma. [H.M.]

Medical Record.

January 28, 1905. [Vol. 67, No. 4.]

1. Pathologic Characters, Diagnosis, and Epidemiology of Bubonic Plague. MARK JOHNSTON WHITE.
2. The Limitations of the Office Treatment of Rectal Diseases. CHARLES B. KELSEY.
3. The Use and Abuse of Curetage of the Uterus. E. K. BROWD.
4. Gluttony or "Food Poisoning" as a Cause of Symptomatic Epileptic Convulsions. WILLIAM P. SPATTLING.
5. Marked Mental Improvement Following Operation for Depressed Fracture of Skull. B. VAN D. HEDGES.
6. Geheimrath, Dr. Dettweiler. Eulogy Pronounced on the Occasion of the First Anniversary of His Death. S. A. KNOPF.

1.—Pathologic Characters, Diagnosis, and Epidemiology of Bubonic Plague.—M. J. White, who has studied plague among white persons, Asiatics, animals, and insects, in California, Honolulu, and Hongkong, gives an extensive and very detailed discussion of all features of the disease. Three clinical varieties are recognized and may be defined pathologically as follows: 1. The bubonic or lymphadenal variety. This is a regional lymphadenitis or "typic bubo," characterized anatomically by a chain of hemorrhagic necrotic nodes embedded in sero-hemorrhagic edema. 2. The pneumonic variety. This occurs as a lobar or lobular consolidation essentially indistinguishable, histologically, from pneumococcal and other bacterial pneumonias. 3. The septicemic variety, which is a bacilleamia without the association of pneumonia, lymphadenitis or other gross lesions resulting from bacterial activity. The facies and tongue are valuable diagnostic aids, the facial expression being characterized by great anxiety and congested conjunctivas, while the tongue is at first pearly white-coated and soon becomes covered with a thick, very moist, mahogany-brown coating, most marked along the center posteriorly. The borders are pale red and the organ is somewhat swollen. The early coexistence of such facies and tongue, especially when the severity of the attack is marked, is almost pathognomonic, particularly if there are very severe headaches. The bacteriology of *B. pestis* is treated at length and it is stated that the examination of the feces affords a good chance for early diagnosis and should be made in every case. The most troublesome associates of the pest bacillus are the colon group organisms, and these may best be filtered out of the cultures by cutaneous inoculation of a guinea pig. Postmortem cultures from the spleen or heart's blood will usually be free from contaminating organisms. In considering the epidemiology of the disease the author points out that suctorial insects do not by biting inoculate bacteria, and that plague rats are dangerous, chiefly by distributing their dejecta about the food and habitations of man, and not through their fleas. Scavenger insects have abundant facilities both for acquiring and distributing the infection, and the author believes that for the eradication of plague it is necessary to kill these insects, as well as rats, by shutting them off from human habitations, food sources, their breeding places and haunts, by screening doors and windows, closing cracks and holes in markets, houses, and stables, etc., prompt removal of

all garbage, refuse, etc., and attention to the marketing of sea-foods from waters likely to be contaminated with infected sewage.

2.—The Limitations of the Office Treatment of Rectal Diseases.—C. B. Kelsey discusses the rectal operations which it is feasible to perform in the office under local anesthesia. The author states that a very large proportion of all cases of piles, fissures, superficial ulcers, and pruritus, and a certain proportion of abscesses and fistulas, may be radically cured in one's office without resorting to ether or confinement to bed, but much judgment is necessary in selecting the proper cases. In general, it may be said that it is often simpler in the end, and safer and more comfortable for the patient, to do at home or in the hospital an operation which might have been performed in the office.

3.—The Use and Abuse of Curetage of the Uterus.—E. K. Browd says that the apparent simplicity and security of the operation has led to the frequent performance of curetage of the uterus in cases in which the procedure is not only of no service, but may even be directly contraindicated. It is useful in cases of endometritis not associated with pelvic inflammations, exudates, or diseased adnexa, in subinvolution of the uterus or retained secundines, in endocervicitis as a prophylactic against carcinoma, in mole pregnancies, and in all cases of endometritis of so-called hyperplastic nature. In postpartum infections there is room for much judgment, for, while saprophytic cases with retained membranes, etc., are benefited by curetage, the measure is distinctly contraindicated if the infection is of the septic type. Curetage should not be regarded as a routine treatment for sterility, for it may aggravate existing pathologic conditions, while the danger of perforation is very great in cureting for syphilitic, tuberculous, sarcomatous, or cancerous degeneration of the endometrium. It should never be performed without an anesthetic, owing to the danger of perforation due to sudden movements of the patient, or in dirty surroundings that cannot be rendered aseptic. A number of cases are cited in which disregard of these rules was followed by serious consequences.

4.—Gluttony as a Cause of Symptomatic Epileptic Convulsions.—W. P. Spatting describes a type of epilepsy due to errors of diet which is fairly common and is generally amenable to treatment. The patients are usually middle-aged men of plethoric physique, leading inactive lives, and eating and drinking to excess. The primary cause of the convulsive attacks in these cases seems to lie, first in a weak stomach, and second in some obscure disorder of metabolism. The type of convulsion induced is of the *grand mal* variety, though *petit mal* seizures are also observed. The treatment is that of the toxic state induced by the faulty metabolism and is mainly dietetic and hygienic.

5.—Marked Mental Improvement Following Operation for Depressed Fracture of the Skull.—B. Van D. Hedges describes the case of a boy of 8 who, 4 years previously, had been struck on the head by a brick, which had caused a marked depression in the bone at the seat of the injury. From this time there was evidence of a change in his mental and moral make-up. Intellectually he was at a standstill, and all moral sense appeared to be lost. Over a year ago the author removed the area of depressed bone, and since that time the boy's mental and moral condition has become normal. The depression was about an inch in diameter, one-quarter inch in depth, and situated in the median line along the course of the sagittal suture, the center of the depression being an inch and a half anterior to the vertical point, and 4½ inches from the glabellar point.

6.—Geheimrath Dr. Dettweiler.—(Eulogy pronounced on the occasion of the first anniversary of his death.) S. A. Knopf, who was for a time assistant to Dettweiler, points out the great part played by this physician in developing the modern sanatorium treatment of pulmonary tuberculosis. In the performance of his duties as military surgeon, he contracted tuberculosis, and was compelled to resign from the army. Regaining his health, he made the treatment of this disease his lifework, and the sanatorium he founded at Falkenstein is still the Mecca for students of phthisiotherapy from all over the world.

New York Medical Journal.

January 21, 1905. [Vol. LXXXI, No. 3.]

1. The Abuse of Water Drinking in Disease. MORRIS MANGES.
2. The Surgical Cure of Intractable Dyspepsia, Depending upon Gastric Ulcer and Its Complications. WILLIAM D. HAGGARD.
3. The Pathology and Treatment of Diabetic Gangrene of the Lower Extremity. HORACE J. WHITACRE.
4. On Rubidium Salts, with Special Reference to the Use of Rubidium Iodid in Optic Atrophy. PAUL BARTHOLOW.
5. The Present Status of Railway Emergency Work. U. F. MARTIN.
6. Meralgia Paresthetica, Following Typhoid Fever. (Concluded.) L. L. VON WEDEKIND.
7. The Vasodilators and Contractors. GEORGE W. GREENE.
8. Delayed Results of a Wound of the Brain. PHILIP F. O'HANLON.

1.—The abuse of water drinking in disease is discussed by Morris Manges. He says that it not infrequently adds to the burdens of an already taxed heart and circulation, and augments the embarrassment of organs we are striving to relieve by allowing too free use of water. Taken in small quantities, hot water raises the pulse-rate and lowers the blood-pressure; cold water diminishes the pulse-rate and raises the blood-pressure; lukewarm water lowers blood-pressure. Water at ordinary temperature (60°) has very little effect. These effects cease in about 20 minutes. They are due to the influence exerted upon the vasomotor centers rather than to a dilution of the blood. The greater the quantity of water above 200 cc., the greater the effect upon the bloodvessels. Diuresis does not depend upon the quantity of water introduced into the body, but upon the blood-pressure in the kidneys. He states that the practice of simply directing the patient to drink as much water as possible, as is so often done, without considering the condition of the heart, circulation, and kidneys, cannot be too strongly condemned. [C.A.O.]

2.—Dyspepsia and Gastric Ulcer.—W. D. Haggard says that many of our cases of obstinate dyspepsia are due to the ravages of ulcer or the relics which it leaves behind. He has made a thorough review of the literature, and discusses the surgical treatment of gastric ulcer in detail. He believes that in the treatment of most cases of chronic and incorrigible dyspepsia, depending upon the existence of chronic gastric ulcer and its complications, gastroenterostomy has demonstrated its competency to cure. The explanation of these cures lies in the rapid emptying of the stomach and the resulting physiologic rest which allows the ulcer, frequently more than one, to heal. [C.A.O.]

4.—Rubidium.—Paul Bartholow discusses the rubidium compounds and refers especially to the use of rubidium iodid in optic nerve atrophy. Three or four drops of the following solution are instilled:

Rubidium iodid	25 gr.
Distilled water	1 oz.

For some time he has used this solution, which is limpid, nonirritating, and painless, in the case of a patient who has suffered for years from tabes, and in whom troublesome symptoms of optic atrophy have been superadded, *e. g.*, concentric diminution of the field, with progressive loss of acuity of vision. These symptoms were in all probability caused by the action of a postsyphilitic toxin. The author reports a considerable improvement. [C.A.O.]

6.—Meralgia Paresthetica.—L. L. Von Wedekind reports such a case in a man of 30. The condition came on during an attack of typhoid fever. There is almost complete anesthesia of the external and anterior aspects of each thigh, the outline on each being identical, one spot about the size of a silver dollar, of exquisite hyperesthesia along the inferior line of demarcation on the right thigh only. Myalgia is general in both thighs and legs after continued exercise, disappearing completely after a long rest. The treatment has been rest, strychnin, and massage; the results not great. [C.A.O.]

Medical News.

January 23, 1905. [Vol. 86, No. 4.]

1. Some Irregular Features of Lobar Pneumonia. CHARLES KNAPP LAW.
2. Excision of the Superior Cervical Ganglion of the Sympathetic for Simple Glaucoma. COLMAN W. CUTLER.
3. Homicide by a Boy during a State of Somnambulistic Automatism. T. M. T. MCKENNA and W. K. WALKER.

4. Diagnosis of Diseases of the Upper Abdominal Region. A Plea for Earlier Surgical Interference. C. D. HILL.
5. The Relation of Cholin to Epilepsy. JULIUS DONATH.
6. Ruptured Ectopic Pregnancy: with Reference to Cases of the Acute Intraperitoneal Type. GROESBECK WALSH.

1.—Irregular Features of Lobar Pneumonia.—C. K. Law finds empyema more frequent in childhood and early life, although he has seen it once in a man of 50. If germs find their way to an already inflamed cavity they change a plastic or serofibrinous pleurisy to a purulent one. This accounts for the more prolonged pain in the side in the pneumonia preceding empyema, the continuance or return of temperature after the crisis, the change from dullness to flatness when the bronchial breathing and subcrepitant rale subside and vesicular breathing does not take their place at the lower portion of the lung. Under these conditions we should at once aspirate. Central pneumonia or that with late localization often leads to error in diagnosis. Some have passed the crisis before slight pleuritic sounds have established it. In migratory pneumonia there may be a crisis for each lobe indicated by a drop in temperature and improved pulse. Tympanites is as much to be dreaded as in typhoid, a condition often aggravated by opium and too much milk. The disastrous results are both toxic and mechanical. The writer accounts for initial abdominal pain by involvement of abdominal branches of the nerves supplying the thorax. Usually a thorough chest examination will reveal the true state of affairs, for central pneumonia will rarely give rise to such pain. [H.M.]

2.—Excision of the Superior Cervical Ganglion of the Sympathetic for Simple Glaucoma.—Colman W. Cutler says two questions should be answered before this becomes a definite operative procedure. 1. Is the eye ever injured or the glaucoma aggravated by the operation? 2. Does sympathetomy offer a prospect of sufficiently prolonged relief to justify us in urging it in these desperate cases, either before or in place of iridectomy? One case, the history of which has covered a considerable period is again referred to, having been previously reported. In 1893 glaucoma first appeared in a male patient. Various forms of treatment were resorted to; finally in June, 1901, sympathetomy was done. Following this, vision improved, and in April, 1904, it was practically as good as it was soon after the operation. He had enjoyed useful vision, had worked and suffered no return of the symptoms for a period of three years. Examination, however, made in October, 1904, showed that vision had perceptibly failed. Other operations are reported by Cutler. In three recent cases of simple glaucoma the results of the operation have not been positive, *i. e.*, vision has not been improved, but the disease has not progressed, and the eye has not suffered. The risk of the operation is trifling in competent hands, and the danger to the eye is practically negligible. The author hopes the operation will not be allowed to fall into disuse because of fancied difficulties to patient and physician. [A.B.C.]

4.—Diagnosis of Disease in the Upper Abdomen.—C. D. Hill confines himself to those diseases which are now classed as surgical. In this region the stomach is the organ of most interest, not only because of the symptoms which it causes when diseased, but it also is apt to be disturbed in disease of the adjacent organs. The group of organs in the situation mentioned include the stomach, pylorus, gallbladder and bile ducts, the pancreas, and transverse colon. The author reports a series of cases illustrative of the subject under discussion. These include stone in the gallbladder, with appropriate operative treatment; ulcer of the stomach, with perigastritis; periodic attacks of vomiting, etc. Perforated gastric ulcer, peritonitis, operation and death, cancer of the stomach, diseases of the pancreas, etc., are discussed at length. Hill says: In the greater number of surgical cases, we ought to be able to make a diagnosis by thorough investigations, along the usual lines. But if we find by our diagnosis, surgical measures are indicated, we should not hesitate to offer them; for many pathologic conditions can be remedied that seemed utterly hopeless only a few years ago. If, after exhausting all methods, we are still undecided as to our diagnosis, we are doing our patients and ourselves an injustice by persisting in the policy of waiting for more diagnostic symptoms to appear. In such cases surgical lesion is often the basis for the morbid phenomena; a diagnosis

should be made by surgical methods, and surgical relief attempted. [A.B.C.]

5.—Relation of Cholin to Epilepsy.—J. Donath believes that both irritation and increased irritability of the cortex are essential to an epileptic attack. It has been discovered that the perspiration and blood of epileptics are poisonous, while the urine is not so. The cerebrospinal fluid is innocuous in intermediary periods, but will set up intense general convulsions if withdrawn during the attack. For this, cholin is chiefly responsible. This results from the decomposition of lecithin, set free as the medullary sheath disintegrates. The writer gives at length his own investigations of the fluid and of animal experiments made with cholin. Lumbar puncture was made in 80 patients. In 18 cases of genuine epilepsy, cholin was found 15 times, in 3 of Jacksonian epilepsy, 3 times, one in 3 cases of dementia paralytica, once in 2 cases of taboparalysis, 10 times in 15 cases of tabes dorsalis, once in 3 cases of neurasthenia, once in 3 cases of hysterolepsy. It was also found in one case of syphilitic epilepsy, in 3 cases of lues cerebri, 2 of cerebral tumor, 2 of cerebral abscess, 1 of encephalomalacia, 1 of chronic hydrocephalus, 1 of spina bifida, 1 of compression myelitis, 1 of polyneuritis alcoholica, none in 2 cases of hysteria. The amount is probably proportioned to the degree of nerve disintegration. Though ammonia is fairly constant, it is hardly probable it induces the attack. Cholin differs from neurin only in the elements of one molecule of water. It does not appear in the urine, and seems to be burnt up completely in the system. Injections of cholin or neurin into the cortex or under the dura, cause severe tonic and clonic convulsions, often leading to paresis, general tremor, difficult respiration, frequently frothing of the mouth, lacrimation, increased intestinal secretion and peristalsis. [H.M.]

6.—Treatment of Ruptured Ectopic Pregnancy.—The central thought of Groesbeck Walsh's paper is—*waste no time in the attempted removal of blood clots within the abdominal cavity*. He says this point was constantly emphasized by writers when laparotomy for this condition first became general. But more recently it appears the point has been lost sight of, and prominent abdominal surgeons are urging the removal of all blood clots, but many in addition urge thorough irrigation of the abdominal cavity. Longyear is quoted in defense of the position of Walsh. He attempted the removal of all clots in one instance, and this was the only one of seven patients so treated and the only one lost. Prewitt likewise lost two patients under blood clot removal and irrigation treatment, and saved four treated by simply sponging out only such blood as obscured the field of operation. Walsh's contention is that blood left in the abdominal cavity, when the source of bleeding has been properly treated, can do no harm, is readily absorbed, and probably is really utilized by the system. Many cases so treated have given no untoward results. His conclusions are: In operations for acute ruptured ectopic pregnancy every minute is of value. Remove the blood clots only insofar as they obscure the field of operation. We cannot flush the abdomen clear of blood in the time at our disposal, and much of that precious time will be wasted in attempting to do so. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Enteralgia and Colic.—Buch¹ concludes his study of enteralgia, an attempt to show that the pains suffered by old persons, which are generally thought to be due to colic, are in reality due to congestion of the ganglions of the sympathetic, caused by arteriosclerosis of the splanchnic vessels. The first article deals with symptomatology and diagnosis. The principal symptom of this sclerosis is paroxysmal pain, which is generally burning or piercing or heavy in character, resembling the pain of aneurysm or Potain's "thoracic aortitis," or perhaps gastralgia, rather than that of colic. They are always deep seated and generally referred to the spine. Their exciting cause is sometimes obscure, but they are generally due either to: 1.

Exertion. 2. Attitude. 3. Mental excitement. They are rarely affected by eating. These paroxysms last from 1 to 15 minutes, or rarely longer, and may be accompanied by symptoms of vasomotor spasm elsewhere, such as angina pectoris, paroxysmal limping, cramps in the legs, dizziness, etc. Examination shows a person over 40, and generally over 50, with accentuated second heart sound, but not always with noticeable arteriosclerosis in the limbs. The abdomen shows atheroma of aorta revealed by its large size and strong pulsation and often by movability or displacement. Pressure over the aorta or over the sympathetic plexuses near it causes attacks of pain similar to the spontaneous ones. This pain may often be relieved by gentle stroking of the same region. The disease has two important subgroups: (1) Those cases in which there is interstitial nephritis and which vary from the type mainly by their greater severity and by the fact that they may begin earlier in life; and (2) a group in which the attacks are always accompanied by angina pectoris, which may either follow or accompany the epigastric pain. This group constitutes the "Aortite thoracique" of Potain. If doubt exists as to the nature of the pains, it may be resolved by administration of diuretin or theobromin. In the second article he considers the pathogenesis and treatment. The pains might be due to pressure on nerves, caused by contraction of the vessel walls, but the pain of cramps in the leg is not relieved by extending the muscle, and nicotin which is known to cause spasm of small arteries, never causes colicky pains. They are not due to dilation of the aorta and consequent stretching of the plexuses, as we know that sympathetic nerves can grow rapidly, and they are never found tense. That they are situated in the sympathetic ganglions and not in the wall of the aorta is shown by the fact that pressure on any part of the sympathetic axis causes pain like spontaneous pain. It is, however, known that these attacks are associated with arteriosclerosis of the visceral vessels and are probably due to it. Thomas showed inflammatory changes in the wall of the aorta in the nodular form of the disease, which is the usual form, and the pains may be due to extension of the inflammation along the nervi vasorum, causing inflammation of the ganglions. It is, however, more likely that sclerotic changes in the vessels supplying the ganglions lead to an interstitial inflammation of these. A vicious circle is thus established, and any cause which upsets the circulation causes increased congestion of the ganglions, which, being irritated, stimulate the splanchnic vessels to contract and thus increase the congestion and subsequent pain. The fibers to the suprarenals being stimulated, an increased amount of adrenalin may be thrown into the circulation, and this by raising blood-pressure increases the trouble. The attack is ended by the fact that internal pain causes dilation of the cutaneous vessels, relieving congestion. This theory explains pain in the upper part of the abdomen, due to causes elsewhere as well as the angina and troubles in the limbs. The treatment consists in the administration of diuretin, 7 gr. to 10 gr. a day, or of theobromin in twice that dose. Tincture of strophanthus also acts well, especially in combination with one of the above, and caffeine has been recommended. Diuretin acts as a vasodilator, whose effect is more general and lasting than that of any other. Iodin in the form of sodium iodid or iodipin may be used in addition. In some cases rest in bed, with heat or massage for the abdomen, will prove useful, while in others exercise is preferable. Diuretin (theobromin) is, however, the mainstay, and may be considered a specific. [T.S.G.]

Reaction of the Blood in Typhus Fever.—Twenty-five cases were examined by M. P. Kireew¹ in order to establish some relation between blood reaction and typhus fever. Bacteriology has proved the susceptibility of bacteria to the reaction of surrounding mediums. Behring, for instance, believes that white rats are immune against anthrax, thanks to the high alkalinity of their blood. Our author has found that in all his 25 cases the alkalinity of the blood, normal at first, rapidly increased, reaching its maximum at the severest period of the disease, and thereafter falling rapidly to the normal level. This can only indicate a protective effort on the part of nature, and the intensity of the reaction may be utilized in our prognosis, as indicating the severity of infection. Thus in three fatal cases

¹ Arch. f. Verdauungs Krank., x, 557.

¹ Medizinskoe Obosrenie, lxii, No. 19.

the reaction, having started on its downward course, failed to reach the normal limit, but remained above it on one level. In typhoid there is no such increase of alkalinity, and this fact may serve for differentiating purposes. [L.J.]

Herpes Zoster.—O. Sachs¹ had the opportunity of studying a so-called epidemic of herpes zoster, comprising 69 cases. He holds that herpes zoster and the common herpes, occurring on the face, prepuce, etc., are one and the same disease. Numerous cases arise on the borderland between these two varieties, which may be classified with one or the other, and the pathologic anatomy of both varieties is the same. Many authorities distinguish a "herpes febrilis," in which the cutaneous lesions accompany a general febrile disturbance; the herpes usually appears on the face and mucous membrane of the mouth and throat (angina herpetica). The author believes that herpetic angina may be regarded as a zoster in the course of the branches of the trigeminal nerve. Herpes zoster frequently follows a trauma, or accompanies caries of the vertebrae, ribs, or bones of the middle-ear. Uterine disease, shock, and intoxications seem responsible for a certain number of cases. Some cases may be ascribed to the influence of cold, or of rheumatic disease. But there still remain certain forms which have no known etiology, and are therefore termed idiopathic. At times, it seems that zoster partakes of an infectious nature, and may be communicated from person to person. This view is supported by the fact that zoster is often accompanied by fever and glandular swelling, and that one attack seems to confer immunity. The trophic and sensory nerve fibers are probably concerned in the pathology of the lesions. [B.K.]

Sulfur Baths and Waters in Chronic Plumbism.—T. A. W. Ogg² thinks that under ordinary circumstances the amount of lead absorbed by the skin is very small, although instances of poisoning from hair dyes, etc., occur. When once absorbed, however, either through the digestive or respiratory tract, or the skin, it is eliminated in the urine, bile, sweat, and milk. Thermal baths and waters aid this elimination. Potassium iodid sometimes causes acute symptoms, and even sudden death, through a large quantity of a soluble lead salt being introduced into the circulation. A daily sulfur bath at 95° F. for 20 minutes to 30 minutes, accompanied by drinking sulfur water, by increasing metabolism and the functions of the skin and kidneys, lessens the risk of intoxication from a too rapid entrance into the blood, while at the same time the lead becomes an insoluble sulfid. The artificially prepared waters, although not so efficacious as the natural waters, would prove a valuable prophylactic in all factories in which the workers are exposed to lead-poisoning. [H.M.]

Estimation of the Proteolytic Power of Digestive Fluids.—Bettman and Schroeder,³ having tried Hammer-schlag's method and finding that Esbach's reagent precipitated also part of the albumose and peptone, they endeavored to discover a reagent free from all objections and sources of error and finally hit on trichloroacetic acid. Their method is as follows: A 1% solution of egg albumen containing .2% free HCl is prepared and kept in the thermostat 12 hours before ready for use, so that no further change may be made by warming. Two graduated centrifuge tubes are filled to 10 parts with this solution, and in one a .2% HCl added to 15 parts; in the other the gastric juice to be tested. Both tubes are placed in the thermostat 70 minutes, and to 10 of the resulting fluids are added up to 15 of a 10% aqueous solution of trichloroacetic acid. The tubes are then centrifugated until a constant precipitate is reached and the amount of albumen digested determined by the difference between the size of the precipitates. The authors also describe a method based on the time in which the foam disappears from a solution of albumen while digesting, but the calculation is too complicated for an abstract, being based on the laws of Borissow and Schutz. [T.S.G.]

Complications and Sequels of Angina Pectoris.—Insufficient attention is paid, says W. M. Kernig,⁴ to the cardiac changes following attacks of angina pectoris. Such changes are often accessible to our clinical methods, and are very impor-

tant, furnishing some explanation of the frequent sudden death after the attack. The careful physician who bears these complications in mind will always insist on absolute rest for several days (or even longer) after an attack. One of such serious conditions following angina pectoris is pericarditis, possibly due to the same process which may be the cause of angina, namely, thrombosis and embolism of the coronary arteries. Pericarditis may cause pain in the cardiac region, but this pain can hardly be confounded with typical angina. In all reported cases of this complex nature, the attack of angina is clearly the primary occurrence, the pericarditis appearing some time later. Beside pericarditis, some cases show a well-defined enlargement of the heart after anginal seizures. Fever frequently accompanies these after-changes. All this enjoins a strict attention to the period following angina, the patient requiring rest and observation. [L.J.]

Epithelioma upon a Lupus Soil and Diabetes Treated with Röntgen Rays.—Levy-Dorn¹ calls attention to the rare combination of lupus and epithelioma and to the beneficial results obtained with this form of treatment, although the time required to accomplish it was long and the disease extensive and complicated. He calls attention to the fact that the röntgen rays did not lead to gangrene, notwithstanding the presence of diabetes. The case also illustrates that this form of treatment is not contraindicated by diabetes. [J.F.]

Transillumination of the Stomach.—H. W. Lincoln² describes the method of using fluorescein in the illumination of the stomach, and presents figures from 30 cases which tend to disprove some generally accepted points regarding the position of the stomach in health and disease. Of the 30 persons examined, 13 were males, 17 females; 13 had movable kidney. In all but one, the lower curvature of the stomach was below the line usually ascribed. In 4 it was above the umbilicus, in 4 at the level of the umbilicus, in 22 below the umbilicus. None of the 30 had motor disturbance. Of the 11 with simple gastrop-tosis, only 2 gave symptoms directly referable to it. Lincoln finds the vast majority of persons with one or more fallen organs do quite well without bandages or pads. He concludes that we do not frequently need artificially to support the abdomen in which are fallen organs. Gastrop-tosis is not, *per se*, to be taken too seriously; we need not always have neurasthenia where we find gastrop-tosis. The stomach lies much lower in the healthy individual, male and female, than has been described. [A.G.E.]

Meningismus typhosus and Meningotyphoid Fever.—C. Sträubli³ reports three cases, illustrating various types of meningitis in typhoid fever. The first case exhibited severe meningitic symptoms, but lumbar puncture failed to reveal the presence of typhoid bacilli in the central nervous system. These symptoms are therefore referable to the action of bacterial toxins on the brain. In the second case there was a gradual development of meningitic symptoms with aphasia toward the end of the febrile period. The aphasia was of a cortical, motor-ataxic type. There was evidently no gross lesion of the brain, as recovery was complete; hence, this case also was an intoxication. The third case was one of purulent cerebrospinal meningitis. Bacteriologic investigation at autopsy proved that the suppuration was caused by the typhoid bacillus alone, proving that this organism is capable of independently exciting purulent inflammation. The author gives the term "meningismus typhosus" to the class of cases illustrated by the first two examples; while those cases in which the typhoid bacillus produces lesions in the brain are called "meningotyphoid." [B.K.]

Pathology of Acute Anterior Poliomyelitis.—E. A. Falkner⁴ states that though no organism has been isolated, it is generally conceded that there is a specific germ. The disease is essentially one of early childhood and the lesions are in the neurons of the anterior cornua of the spinal cord. The *Diplococcus intracellularis capsulatus* has been shown to be the cause of cerebrospinal meningitis, and has also been isolated in the simple meningitis of children. May it not also be the cause of

¹ Zeit. für Heilkunde Bd. xxv; Abth. für Chirurg., Heft 4, p. 383.

² Scottish Medical and Surgical Journal, November, 1904.

³ Arch. f. Verdauungs. Krankh. x, 599.

⁴ Russki Vrach, October 30, 1904.

¹ Berliner klin. Woch., 1904, No. 38.

² Brooklyn Medical Journal, January, 1905.

³ Deut. Archiv f. klin. Med., Bd. lxxvii, p. 80.

⁴ Australasian Medical Gazette, October 20, 1904.

the disease under consideration? In epidemics of anterior poliomyelitis cases of cerebrospinal meningitis occur, and vice versa. Considerable difficulty exists in diagnosing between the two diseases in certain cases. Anterior poliomyelitis is rare under six months and after five years. It occurs at the period when the nervous centers which supply the muscles are most active. Simple meningitis is most active in the first two years, while cerebrospinal meningitis has the maximum number of cases later than the disease under discussion; so it seems possible the character of the affection may vary with the age of the patient. [H.M.]

Transient Tumors of the Liver.—Einhorn¹ describes two cases with fever, cough, headache, mental confusion, and jaundice, which showed on examination small tumor-like masses on the lower border of the liver, which passed away in a few days. He believes that they were due to acute hepatitis, perhaps, in the course of Weil's disease. [T.S.G.]

Concerning the Influence of Cold upon the Arteries.—M. Herz² tested the changes in the blood-pressure after the application of cold by means of a Gärtner sphygmograph, which was placed either to the distal or proximal side of the region tested. He determined that the large arteries remain uninfluenced in width. The small peripheral vessels showed an increase in blood-pressure through contraction of the arterioles, while the centrally placed vessels presented a fall in pressure because of the dilation of the arterioles. [W.E.R.]

Syphilis of the Heart.—If we are to judge by the reports in literature, cardiac syphilis is very rare. But as time goes on, the attention of physicians is more and more directed to the various syphilitic manifestations of the cardiac apparatus, and it now appears that the disease does not spare this organ as often as was formerly supposed to be the case. Prof. F. T. Romanoff³ discusses all this thoroughly. First he mentions syphilitic aortitis, then comes syphilis of the coronary arteries. Myocarditis is an important and most frequent of the syphilitic cardiac manifestations. The pericardium is usually affected after the myocardium, and the same may be said of syphilitic endocarditis. Finally the nervous cardiac apparatus may become involved. As to symptomatology, syphilis of the heart is seen most frequently in men between 20 and 40. The clinical picture may permit the localization of the lesion. Thus, in gumma of the left ventricle we may have angina and tachycardia; in gumma of the right heart we may observe dyspnea, etc. Sudden death is frequent in cardiac syphilis. According to some authors, in a third to a half of all these cases death has been sudden. Speaking generally, diagnosis during life is not so difficult as would appear. The prognosis, if treatment is timely, is quite favorable, as we are able to employ specific medication. Complete recovery is possible in early stages. Of course the treatment is the same as in other late syphilitic affections. The author appends a few illustrative cases, and in conclusion advises physicians to abandon the idea that heart syphilis is rare. In obscure cases, we should always allow for the possibility of syphilis, and treat accordingly. [L.J.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Operations for Correcting Septum Deformities.—C. M. Robertson⁴ divides cases roughly into four groups: 1. Deviations of slight degree, the majority of which may be treated by removal of the excess of tissue at the apex of deformity. 2. Cases in which removal of the apex of deformity will not suffice; for these is needed V-shaped or flap operation. 3. Cases presenting irregular masses, deviation to a marked degree, and probably deep grooves or clefts in the concave side. Here a window resection is indicated. 4. Cases due to external injury. In these, external operation is advised. Notes of two cases are given. Robertson says that great care in saving millimeters of

tissue in any operation is not demanded, as it is usually diseased. He considers all crushing operations brutal and unsurgical, as well as impractical. In the window resection operation, the liability of one or more perforations during operation or healing must be remembered. The Gleason method is easily and successfully performed in most cases possessing no external deformity. [A.G.E.]

Multiple Rarefying Osteomyelitis.—A. Langer¹ reports a case of osteomyelitis characterized by the absence of suppuration and the presence of a rarefying process, analogous to that which occurs in lymphosarcoma and myeloma of bones. The disease began in the bones of the hand and wrist, resulting in destruction of the bones and articular tissues, and the formation of fistulas. The process extended to the forearm and arm, and was especially marked around the elbow-joint, producing a loosening of that articulation. Examination of the affected bones showed a porosity, caused by softening of the compact osseous tissue and a disappearance of the spongiosa. The bone marrow was transferred into a homogeneous, grayish-red, soft mass, containing minute, microscopic abscesses, in which streptococci could be demonstrated. After amputation of the extremity above the elbow, the same process reappeared around the shoulder-joint, but disappeared again to a certain extent. The same disease was probably present in the bones of the lower extremities, but only to a mild degree. The blood count showed a polynuclear leukocytosis, probably due to the streptococcal infection, and an anemia, which might in part have been due to the lesions of the bone marrow. [B.K.]

Colles' Fracture.—W. R. Campbell² says attempts at reduction of this fracture without anesthesia are unsatisfactory, unreliable, and usually futile. In reduction, he adds to Griffith's suggestion of traction of the hand in the flexed position, supination of the hand and bending the forearm at a right angle to relax the supinator longus muscle attached to the displaced fragment. At the time traction is made upon the hand, counterpressure is made upon the upper fragment. Complete anesthesia usually unlocks the fragment. The value of the strong anterior ligament connecting the lower fragment and the carpus has not been sufficiently emphasized. It is of immense importance in pulling the fragment into position if traction be made upon the flexed hand. After reduction any splint that will keep the fragments immobilized may be used. One point should be observed, whatever splint be used, viz., the arm should be placed in a sling, with the weight of the arm resting upon the ulna, the hand outside the sling and pointing downward. The position will tend to correct the widening of the wrist and the prominence of the ulna. [A.G.E.]

The Surgical Treatment of Orogenic Purulent Cerebrospinal Meningitis.—E. P. Friedrich³ reports having operated on two cases of acute purulent meningitis of otitic origin by opening the cranial cavity and subarachnoid space, and making a counteropening at the lowest point of the spinal canal. Both patients died, but this was more because the patients were not operated on early enough, than that the operation is based on faulty principles. The autopsies in both cases revealed lesions localized to the base and the spinal canal. He states that if such cases are diagnosed before the disease has spread too far, and if the opening is made large enough, the chances of recovery should be as good as in operation for purulent accumulations elsewhere. He says the fluid should not be withdrawn too rapidly after the lumbar puncture and laminectomy, and discusses the possibility of irrigation of the subarachnoid space. [E.L.]

Harmful Effects of Gauze in Surgical Work.—R. T. Morris⁴ says great harm is done by allowing gauze to come in direct contact with tissue undergoing repair. Gauze is used with harmful effect in the peritoneum, and Morris does not use it, as commonly applied, for drainage purposes. Surgeons who have used it, should not drop its employment suddenly. It may be stopped in patients that one can afford to lose; then one gets accustomed to the fact that those are the ones he is saving most easily. Morris still uses a drainage wick surrounded by

¹ Arch. f. Verdauungs. Krank., x, 461.

² Berliner klinische Wochenschrift, November 7, 1904.

³ Russki Vrach, November 6, 1904.

⁴ Chicago Medical Recorder, December 15, 1904.

¹ Zeit. für Heilkunde; Bd. xxv, Abth. für Chirurg., Heft 4, p. 366.

² Brooklyn Medical Journal, January, 1905.

³ Deut. med. Woch., 1904, xxx, 1167.

⁴ Journal of the Med. Soc. of New Jersey, December, 1904.

guttapercha tissue, in cases of septic appendicitis, cholecystitis or salpingitis. [A.G.E.]

Benign Villous Tumor of the Renal Pelvis.—H. Savory and W. Gifford Nash¹ report that a man of 33, in previous good health, began to suffer from attacks resembling renal colic; for four years these attacks occurred at irregular intervals, there being blood in the urine. The bleeding and pain were aggravated by exertion. The attacks increased in frequency and the patient came to operation. It was believed that there was either stone in the kidney or it was the seat of malignant disease. Operation was performed and the kidney exposed. The organ was found very much enlarged and it was believed, was the seat of malignant disease; it was consequently removed entire. The patient made a good recovery. An examination of the removed kidney showed the condition was simply a large villous papilloma occupying the pelvis of the kidney. A peculiar feature of the case was that before operation it was noted that the patient had a pleuritic effusion on the right side. This was removed by tapping and on removing the kidney it was found that the upper pole was adherent to the diaphragm, and it was necrotic at the end, showing that the kidney was doubtless responsible for the diseased condition in the pleura. [A.B.C.]

Iodized Catgut.—H. Fuchs² advises the use of iodized catgut, as recommended by Claudius, as being a reliable sterile preparation, and excelling all others by its great strength and slow absorbability. Its preparation is extremely simple; the ordinary catgut is wound on glass spools or glass plates in a single layer and placed into a solution of potassium iodid and pure iodine each 1.0 gm. (15 gr.) and distilled water 100 gm. (3½ oz.). It is kept in this solution for 8 days, a length of time which suffices to make it absolutely free of germs. It is especially useful as ligature material and for deep sutures; it is less suitable for superficial sutures, on account of the irritating effect of the iodoform on cutaneous tissues. A large series of operations, in which it was used successfully, is related. [E.L.]

Prevention of Postoperative Intestinal Paresis by Atropin and Eserin.—W. S. Byrne³ explains the paresis after section as follows: The splanchnics normally inhibit peristalsis, while Auerbach's and Meissner's plexuses are the excitants and are capable of independent reflex action, even when all communication with the central nervous system is cut off. In the manipulations the plexuses are paralyzed and the splanchnics irritated, peristalsis is stopped and distention and accumulation of flatus result; this also induces the vomiting which continues after the effect of the anesthetic has passed. The writer reports eight cases in which a few minutes previous to being placed on the table atropin $\frac{1}{16}$ gr., was injected and after the operation eserine salicylate $\frac{1}{16}$ gr. In one case no result was noticed, but in the rest in from a half to two hours peristalsis was restored. In only one case was there evacuation without extraneous help but in none was there any great difficulty. In other cases in which morphin had to be injected on account of pain, the usual state of things occurred. [H.M.]

Hydrocele of the Canal of Nuck.—E. Alden⁴ reports a case of this condition and tabulates 13 other cases, which with the 92 collated by Coley brings the reported number to 106. The patient was a married woman of 46, who first observed the tumor in the right groin 10 years before. It had been tapped several times, but later attained the size of a coconut. Operation and recovery were uneventful. An interesting point in this condition is the differential diagnosis. Of the 14 cases tabulated, a wrong diagnosis was rendered in 10—hernia in 4; femoral hernia in 2, and strangulated hernia in 4. The chief cause of error is the rarity of the condition, which is not even considered in the diagnosis of tumors in this area. The best method of treatment is excision of the sac and closure of the dilated inguinal canal. [A.G.E.]

Removal of a Vesical Calculus Surrounding a Goose-quill.—P. v. Kubinyi⁵ reports the case of a woman of 40, who, during her nineteenth year, had passed through an illness asso-

ciated with violent pains in the pelvis and the lower extremities. Urination and defecation were difficult, and have continued so ever since. She had some trouble in walking, and complained of anesthesia of the inner surface of the thighs and the gluteal region. Eighteen months ago, after a profuse menstruation, she was unable to evacuate the bladder, and attempted to catheterize herself with a goose-quill. This, however, being cut too short, slipped into the bladder, forming the nucleus of a vesical calculus, which grew to the size of a small egg. After the urethra had been dilated the calculus was broken up with a strong pair of forceps and extracted. During this operation it was found that the bladder and the urethra were totally anesthetic. The stone consisted of phosphates and carbonates. The nervous and urinary symptoms of the condition the author traces to an affection of the cauda equina, or conus medullaris. No cause could be found for this. [E.L.]

Primary Sarcoma of the Bladder.—J. A. Wilder¹ reports three cases of this type and tabulates 50 cases previously reported, giving only those in which there appears reasonably good proof of the diagnosis being correct. In the three cases detailed the patients were males of 48, 53, and 61 years. The types of the tumor represented were round-cell, mixed-cell, and fibrosarcoma. Two of the patients died a few weeks after operation; the third case was inoperable. The most constant symptom of sarcoma of the bladder is hematuria; next in order are those of cystitis and vesical irritation. The growth may be situated in any part of the bladder, but the most common site is near the urethral orifice, thus causing the symptoms and results of obstruction. Metastases, as compared with sarcoma of other parts of the body, seems rare except in very advanced cases. At present the only hope for cure of sarcoma of the bladder lies in the early detection of the neoplasm by the cystoscope or exploratory incision, and its complete removal at this stage. [A.G.E.]

Circumstances and Treatment of Movable Kidney.—Sir Frederick Treves,² in considering the history of this condition, says that it is strange that it escaped the attention of physicians until comparatively recent times. Regarding the movement of the normal kidney during respiration, Treves says that of the left is often not to be appreciated, that of the right is slight and much less than the liver. The so-called mesonephron appears to be a mere myth. There is no evidence that tight lacing plays a part in the production of movable kidney. The classic symptoms may be stated thus: Dragging sensation in the abdomen, undefinable discomfort and feeling of weakness; discomfort may pass into actual pain. Undue frequency of micturition is uncommon. Dyspepsia, flatulence, and constipation may be added. The symptoms are increased by movement, especially jolting. Relief in the recumbent position is usually complete. Treves is not enthusiastic regarding operative treatment. It is imperative in the presence of torsion symptoms, but in cases of the ordinary type it is necessary in but few. He believes suturing of the kidney will, in the future, become one of the rare operations of surgery. A thin, carefully padded, metal plate, which exercises pressure upon the abdominal wall by means of two springs has given him good results in treatment of the condition; it has held the kidney in place in 95% of 300 patients for whom it has been prescribed since 1895. In a large number it need be worn only 18 months or two years. [A.G.E.]

Tumor of the Brain Following Trauma.—Liefmann³ points out that as a sailor the patient is very liable to be syphilitic, yet no evidences of such a disease could be elicited. The fact that the symptoms came on in the form of severe headaches about eight months after the injury, the presence of convulsions in the arms and also in the legs which lead to hemiparesis; the loss of sight, the inactivity of the pupils lead him to believe a tumor arose in the neighborhood of the central convolution and later involved the motor area. The tumor found at the operation proved to be a spindle-cell sarcoma which was encapsulated so that removal was comparatively easy. The convulsions persisted for a short time after the operation, but then disappeared.

¹ The Lancet, December 17, 1904.

² Münchener medizinische Wochenschrift, 1904, II, 1,297.

³ Australasian Medical Gazette, October 20, 1904.

⁴ Cleveland Medical Journal, November, 1904.

⁵ Zent. f. Gynecologie, xxviii, 1904, 1432, No. 47.

¹ American Journal of the Medical Sciences, January, 1905.

² The Practitioner, January, 1905.

³ Berliner klinische Wochenschrift, 1904, No. 86.

Liefmann calls attention to the connection of the various phases of the case; the trauma, followed by severe pains in the head, the presence of a scar, and the growth of a sarcoma in the brain beneath the site of the wound. [J.F.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Abdominal Herniation of the Gravid Uterus.—Rosner¹ finds the evidence of a hernia dated back 2 years, but 2 months before he saw the patient referred to, the hernia gradually grew larger, accompanied by severe pain in the lower portion of the abdomen on the right side. He was able to palpate the pregnant uterus in the hernia sac. Taxis failed to reduce the tumor and the patient refused to take an anesthetic. At the end of the eighth month of pregnancy he operated, opened the uterus, removed the cyanotic but living fetus. After the removal of the fetus, the uterus could be replaced in the abdominal cavity, but he was forced to perform Porro's operation, because the internal os was closed for the smallest drainage, and then, too, with the uterus in the peritoneal cavity the hernial ring could be closed only with difficulty. [J.F.]

The Treatment of Streptococcic Puerperal Fever by Antitoxic Serum.—Alexander Foulerton² states that in the early part of 1901 he began a systematic investigation into the bacteriology of puerperal infection, and during the succeeding three and a half years he examined the contents of the uterus in a series of cases of fever following on either miscarriage or labor at full term. Detailed reports will be published later. He has found streptococcus of one sort or other in the uterus in 46.3% of a series of 54 cases which have been examined, and in these the organisms have been found under the conditions which indicated that they were the primary cause for the fever. If the less severe cases are excluded, and only those which either ended in death or were clinically of a distinctly serious nature be considered, he found streptococcus present and the presumable cause of disease in 65.5%. Up to the present time he has dealt with 25 strains of streptococcus isolated from the same number of puerperal cases. After nearly two years' work at the subject he decided to test the use of a serum prepared from a horse which had been immunized against a variety of the strains which had been isolated. The serum has been used in only a few cases, and among these there have been two recoveries of extremely severe cases of streptococcic infection. A full consideration of all the circumstances justifies the opinion that if the serum treatment of streptococcic fever is to be placed on a satisfactory basis it must be by means of such methods as he has endeavored to carry out. He is encouraged thus far with the result. [A.B.C.]

Demonstration of the Fetus in Utero by Means of the Röntgen Ray.—In order to accomplish this Schoenberg³ placed the patient on her side and exposed the abdomen in the neighborhood of the umbilicus for a period of two and a half minutes. In the first case the plate showed the head of the child, both orbits, the inferior maxilla and the upper extremities very clearly. In a second case the child was in the first position, occiput presentation; the plate in this case showed the spinal column, the extremities and some of the ribs. Schoenberg questions whether with the röntgen ray the position of the child can be determined, but he feels confident that with it twin pregnancy can be demonstrated. In both the cases he reports the patients were in the eighth month of pregnancy. [J.F.]

Violent Menorrhagia of Puberty.—A. F. Tredgold⁴ reports a case in which the third appearance of the menses was marked by a violent hemorrhage, leaving the girl blanched, almost pulseless, with dyspnea, dimness of vision, delirium, and inability to retain food. There was no history of hemorrhagic diathesis. The hemorrhage was quickly controlled by adrenalin chlorid, 15 m., with tincture of cannabis indica 10 m.,

given every 2 hours. At the end of 12 hours half of this dose was given, and at the end of 48 hours the mixture was discontinued. Three periods since have been perfectly normal. [H.M.]

Appendicitis in Pregnancy.—H. A. Caird and R. E. Sedgwick¹ state that Jonathan Hutchinson, Jr., records the case of a young woman who, in the ninth month of pregnancy, was seized with gangrenous appendicitis and diffuse peritonitis. After excision of the appendix and free drainage she recovered and a living child was born a month later. In McArthur's two cases there was a gangrenous appendicitis, in one at the fourth month of pregnancy; abortion followed the operation, with subsequent death of the patient from general peritonitis. In the second, which occurred during the fifth month of pregnancy, the abscess cavity was partially walled in by the uterus. Abortion followed operation, with death of the patient from general peritonitis. Picard collected a series of 30 cases of pregnant women operated upon for appendicitis. There was a maternal mortality of 33½%, and an infant mortality of 86%. In 15 cases not operated upon there was a maternal mortality of 13%, and an infant mortality of 13%. The authors report a case. The patient was a woman of 40 years, who, in the sixth month of pregnancy, developed appendicitis; operation was performed under chloroform anesthesia, and the pus cavity was drained. Fetal movements could be plainly seen. The wound did not heal, and a month after operation the patient suffered a miscarriage, the child being born dead. The patient recovered. [A.B.C.]

Gynakomastia.—Occasionally, says Sommer,² a hypertrophy of the breast is seen in man; the condition is known as "gynakomastia." The principal factors that enter into the etiology are: Heredity, epilepsy, hysteria, neurasthenia, tuberculosis, and alcoholism; traumatism sometimes plays a part. The condition seems to occur in families that have a history of carcinoma, but especially when cancer of the breast develops in the females of the family. In many of these individuals the voice remains high pitched, the growth of the hair in the face is scanty, the genital organs are poorly developed or maldeveloped, and occasionally there is a great reduction in the manly vigor. Sommer differentiates gynakomastia from sarcoma and carcinoma by the fact that metastasis occurs early in tumors; they are not bilateral, and, as in diffuse plexiform adenoma, the growth soon obliterates the form of the gland. Sommer reports a case of a boy of 15 in whom this condition was present. A short time before the patient was seen both breasts became very painful, and at the same time increased in size. The family history revealed nothing noteworthy. The boy's voice changed a few months before Sommer saw him; female characteristics could not be detected; the hair in the axillas and over the pubes was scanty and the testicles were normal. Both breasts were well developed, of equal size; they were 5 cm. (2 in.) in height and measured 8 cm. (3½ in.) in diameter at the base; the areolas were light, Montgomery's glands were conspicuous, and the nipples stood out prominently. The gland structure could be outlined definitely by palpation, but secretion could not be expressed. [J.F.]

Death during Labor in Consequence of Hemorrhage from a Ruptured Mesenteric Vessel.—Jacoby³ says the patient to whom this accident occurred was suddenly taken with pains in the lower portion of the abdomen which she took for labor pains. She went to the hospital at once but the condition soon cleared up and the next day the patient decided to return to her home, but at the door of the hospital fell to the floor unconscious. At this time she had all the symptoms of hemorrhage. After the administration of analeptics she quickly recovered but the pains similar to those of the preceding day returned. The cervical canal now admitted two fingers, the head was engaged and since labor was begun Jacoby decided to hasten the process and accordingly introduced a rubber bougie into the uterus. The patient recovered very well but complained of great thirst and the abdominal pains were still present. Several hours after the introduction of the bougie the patient vomited upon taking food, the pulse was rapid but

¹ Centralbl. f. Gynäkol., 1904, No. 48.

² The Lancet, December 31, 1904.

³ Centralbl. f. Gynäkol., 1904, No. 49.

⁴ British Gynecological Journal, November, 1904.

¹ The Lancet, December 17, 1904.

² Münchener med. Wochenschr., 1904, Bd. li, No. 40.

³ Centralbl. f. Gynäkol., 1904, No. 48.

fairly full, the pupils reacted sluggishly, the pains became more severe and rhythmic, later the bag of waters burst, when the patient suddenly collapsed and died. At the postmortem the abdominal cavity contained from 3 liters to 4 liters (2.1 quarts) of bloody fluid and blood clot in the upper portion of the greater omentum and in the region of the pancreas. The remaining organs of the abdominal cavity presented no evidence of disease. The uterus contained a female child 43 cm. (13 in.) long. There was no history of injury and the vessels were not in the least sclerotic. [J.F.]

Vaginal Hysterectomy in Cancer of the Cervix Uteri.—R. and A. Condamin¹ favor the vaginal route in hysterectomy for cancer of the cervix, wherever it is possible to perform this operation. They claim that the lymphatic glands are involved late in this disease and are free in 80% of cases that are operable by the vaginal route. Even when the parametrium is involved these glands are free in 36% of cases. When they are invaded by the cancerous process, it is impossible to remove all of the diseased tissue, as the cancer cells are found also in the lymph-channels. The state of the parametrium should be the guide in choosing the mode of operation. If this is not involved, the vaginal route should be taken; if it is invaded by the disease, the abdominal operation is to be performed. In the latter case, it is necessary to decide whether a palliative or a radical operation is to be done. The latter may be attempted, if it is thought that the lymphatic ganglions are not involved. [B.K.]

Patient with Streptococcic Puerperal Fever Treated with a Special Puerperal Antistreptococcic Serum: Recovery.—Thomas Rose² reports the case. The patient was a woman of 29, who was delivered of a third child. Puerperium and labor were normal, but the latter was a little prolonged. She was attended by a midwife. On the third day after the delivery the temperature rose to 102° F.; the pulse-rate was 120. A physician was called and the uterus was explored, but nothing was found retained. An intrauterine douche of mercuric chlorid, 1 to 4,000, was given; the temperature fell and a favorable prognosis was given; 12 days later the left leg became painful and began to swell. The patient was then admitted to the hospital with a temperature of 102° F. and a high pulse-rate. There was rigidity of the lower abdomen and a vaginal examination showed an enlarged tender uterus, but there was no discharge. Both legs were soon swollen; the pulse was 160, and the patient delirious. Antistreptococcic serum was administered and the temperature fell after each successive administration. The patient finally recovered. The case appeared to be one of pure streptococcic infection. A culture taken from the uterus during treatment showed the presence of streptococcus in pure culture. [A.B.C.]

Tubal Abortions.—F. Lejars³ gives this name to a certain number of apparently uterine abortions, which are in reality the result of interruption of an extrauterine pregnancy. The condition is frequently unrecognized, as it often recovers spontaneously. Future complications are possible, however, based on the presence of a pelvic hematocoele, and it is important to make the diagnosis in order to remove the diseased tube. The first sign is an apparent retardation of the menstrual discharge, which is prolonged and more abundant. On examination the cervix is found to be a little soft and the uterus slightly enlarged, with marked tenderness, and an ill-defined tumefaction on one side. [B.K.]

Convulsions in Nephrectomized Rabbits.—Blumreich⁴ finds the animals at first become more excitable, then timid and fretful; these phenomena are soon followed by convulsions which are regular, but not general; they begin in the muscles of the neck. In the course of a few minutes the head is drawn backward, spasmodically, after which it is again drawn forward. In a few cases, he says, the attacks began with clonic twitching of the muscles. The convulsions finally spread to other muscle groups. So soon as the extremities became involved, paralysis appear in the intervals of the convulsions. The injection of kreatin into the carotid produced paroxysms similar to those described. Since Blumreich obtained results similar to those attained by Zuntz, that is, that it takes less

kreatin to produce convulsions in pregnant animals than in nonpregnant ones, he set up a hypothesis that the nervous system possesses a specific sensitiveness to certain agents. [J.F.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Curare in Tetanus.—P. Bergell and F. Levy¹ have been able to isolate a new curare preparation, the action of which they found to be that of pure curare, consisting of a paralysis of the ends of motor nerves. It produced death by paralyzing respiration, and did not influence the heart in the least. This preparation permits of exact dosage and remains constant in its action for months. Neither cumulative action nor getting accustomed to it was noted in the cases of the animals employed for the experiments. They employed this preparation to note to what extent the symptoms of tetanus intoxication could be retarded and made to disappear in different animals. They found that curaril (the name they give this preparation) in large doses has the property to transiently paralyze the tetanic convulsions in animals. This paralyzing action develops very rapidly after injection, but corresponding to the rapidity of action lasts only a short time, at the most two hours. In not one of the animals was the tetanic state cured; however, if employed properly and in suitable doses the grave symptoms and the entire course of the disease can be considerably retarded. Three very grave cases of puerperal tetanus could not be cured with curaril, but in one of them, by means of a very large dose, the tetanic symptoms could be made to disappear for two hours, and during this time the patient felt entirely well. Behring's serum was tried in all the cases before curaril was resorted to. In a fourth case, a light one, and the only one in which the drug was used every few hours systematically, recovery resulted. The authors conclude that curaril should be the first drug resorted to in the fight against tetanus, as it is the surest agent to counteract the convulsions. [E.L.]

The Administration of Antistreptococcic Serum.—J. W. Thompson Walker² records his own experience in receiving an infection at autopsy, and the subsequent treatment. The source of the infection was the body of a child a month old, upon which necropsy was performed. The child had died from an infection by way of the umbilical vein, as was evidenced by an encapsulated accumulation of pus the size of a hazelnut at the transverse fissure of the liver. It was not known that a wound was received at necropsy by the author. The same evening a tiny puncture was discovered at the distal fold of the left index finger, and a carbolic dressing was applied. In less than 24 hours there was a feeling of malaise, which, after a few hours, was succeeded by rise of temperature, lymphangitis, and the oncoming symptoms of infection. The bacteriologic report from the necropsy showed the infection was a pure culture of streptococcus of virulent nature. Meanwhile antistreptococcic serum had been administered in large doses, and the author recovered after an alarming experience. He draws the following conclusions: (1) The injection of antistreptococcic serum in cases of pure streptococcal infection has been followed by strikingly beneficial results; (2) variability in the effects of the serum has been due to the selective activity displayed by the antitoxin of each variety of streptococcus, or to the serum being used too late in the case, or having lost its activity through staleness; (3) more uniform results are likely to obtain from the present "combined" antistreptococcic serum than from the early forms, from the prompt injection of serum near the time of infection, and from the use only of serum which has been recently prepared; (4) the initial dose may, with benefit, be increased, and a large quantity spread over several days has no ill-effect; (5) the serum should be administered for several days after the symptoms have disappeared. [A.B.C.]

Quinin Hypodermicly in Malaria.—Robert Liehm³ employed quinin and urea hydrochlorate in 57 cases of malaria.

¹ Lyon Médical, December 4, 1904.

² The Lancet, December 31, 1904.

³ La Semaine Médicale, November 28, 1904.

⁴ Centralbl. f. Gynäkol., 1904, No. 49.

¹ Therapie der Gegenwart, 1904, xlv, 896.

² The Lancet, December 31, 1904.

³ Wiener klin. Woch., No. 42, 1904, p. 1108.

Good results were obtained in the tertian form by the injection of one or two doses of 0.15 gm. ($2\frac{1}{2}$ gr.). The injection should be given at least 20 hours to 24 hours before the expected attack. The attacks in the quartan cases are prevented with greater difficulty than in the tertian cases, and may return with the same severity as the first attack in about four weeks to six weeks. On account of the slow absorption of quinin hypodermically the internal use of the drug is preferable in tropic cases. Necrosis of the skin and subcutaneous connective tissue, and abscesses may be avoided. The injection causes some pain while the fluid is entering the subcutaneous connective tissue, and may cause, on account of the pressure from the infiltrate, a tendency to degeneration in many individuals. Toxic symptoms and disturbances of digestion never occur after the injection of quinin. The slight local symptoms after the injections are out of proportion to the toxic and other unpleasant symptoms following the administration of quinin by the mouth. A disadvantage of this form of treatment is the length of time required for its application, which in general practice is a serious item. Subcutaneous injection of quinin may be employed in those cases in which the internal use of the drug causes digestive disturbances, or when the patient is unconscious. "Chininum bismuriaticum carbamidatum." [J.H.W.R.]

Myelogenous Leukemia Treated by Röntgen Rays.—Elliott¹ reports the case of a man of 43, with an early history of syphilis, whose blood gave the typical picture of myelogenous leukemia. Under röntgen-ray exposures on alternate days, improvement at once began. The spleen became almost normal in size, but pain in the long bones persisted and the patient steadily grew weaker. Pain in the back, supposedly from hyperemia of the cord, became intractable and finally terminated in hemorrhage, with complete paralysis of the parts below. The spleen then enlarged and became tender and at the time of death, two months after röntgen-ray treatment was discontinued, reached the umbilicus. Autopsy was not obtained. From a study of this and other reported cases, Elliott concludes that the röntgen ray has no advantage over arsenic in the treatment of myelogenous leukemia. The former causes the spleen to shrink, relieves pain in the bones and causes a reduction in the leukocytes but similar, and just as permanent results have been obtained with less dangerous and less expensive methods. Elliott believes it causes sclerosis of the spleen and bone marrow, giving temporary relief, with later aggravation of symptoms. Until we know more of the true action on tissue of the röntgen ray he will hesitate to recommend its use. [A.G.E.]

Atropin Poisoning.—B. Holz² reports a case in which the patient, a young girl, took internally an atropin solution which had been prescribed for phlyctenular conjunctivitis. The dose equalled a twelfth of the alkaloid. In two hours she became wildly delirious, her pupils were widely dilated, the pulse too rapid for counting, respiration rate much increased and the abdomen tympanitic. Two hypodermic injections of as much of a grain of morphin were sufficient to control the delirium. The meteorism was relieved by a vinegar enema. This case is reported to show how thoroughly morphin counteracts atropin. Morphin is no antidote for atropin poisoning in a chemist's sense, but it stimulates the nerves which have been paralyzed by the atropin. [W.E.R.]

Phosphorized Materia Medica.—C. E. Corlette³ shows that those who wish to prescribe phosphorus in phosphorized organic combination can do so without drugging. Glycero-phosphoric acid is present in egg yolk, seeds, and brain matter. Nuclein is especially abundant in glandular organs. Pseudonuclein is present in all eggs—fish roe, for example, also in seeds, leguminous plants, and casein. Phosphocarnic acid, or nucleon is found in muscle substance and milk, especially human milk. An ordinary egg yolk contains about five grains of pure glycero-phosphoric acid, the amount usually prescribed for one medicinal dose, and for cost and convenience the advantage is on the side of the egg. Experiments discourage reliance on brain as an article of food. Sweetbreads and liver are rich in nuclein. Pseudonuclein is present with lecithin in

egg yolk, and in casein it may be as high as 7%. Cows' milk also contains phosphorus in other combinations, one pint yielding altogether 17.266 gr., expressed as P_2O_5 . Phosphocarnic acid or nucleon accounts for 41.5% of the phosphorus in human milk, and 6% of that in cows' milk. Human muscle contains from 0.1% to 0.2%. In $2\frac{1}{2}$ oz. of milk we get the amount of P_2O_5 in 1 dr. of syrup of calcium lactophosphate and in a pint, 15 times as much combined calcium; 1 fl. oz. Parrish's food equals $1\frac{1}{4}$ oz. of milk in P_2O_5 . [H.M.]

Intravenous Injection of Antitoxin in Diphtheria.—J. C. Muir¹ states that two years ago Cairns published a report on this subject. He claimed increased efficacy for antitoxin when given intravenously, stating in particular that there resulted a strikingly rapid decline in the toxemia, quick subsidence of glandular enlargement, and in pneumonic cases a marked diminution of the accompanying restlessness. In 50 cases of diphtheria which he reported, 20 were treated by this method, and there were 3 deaths, and a mortality of only 6%. Of these, 17 were tracheotomy cases with 1 death. Muir took up a series of investigations, and in a series of 38 cases which were treated by intravenous injection of antitoxin there were 3 deaths. He states that in attempting to estimate the beneficial effect of antitoxin given intravenously, those cases should be discounted in which a marked improvement follows intubation or tracheotomy, since the improvement may be due mainly to relief afforded by this means. It is noted, however, in Muir's series that of 9 cases operated on only 1 died, a low mortality. Even in cases other than laryngeal and without tracheotomy or intubation he asserts it is very difficult or impossible to say of any individual patient that a better result was obtained than might have followed subcutaneous injection. In his series of 38, a mortality of 3 seems to be in favor of the intravenous method. At the same time, though many of the cases treated were undoubtedly severe, there had been a general fall in the fatality of diphtheria in his district. It leaves room for speculation as to whether the subcutaneous method had not yielded as good results. [A.B.C.]

Neuronal.—Neuronal is bromin diethylacetamid; it is a white crystalline powder, easily soluble in ether, benzol, alcohol, and oil; in water in the proportion of 1 to 115. It has a bitter, cooling, mentholoid taste. Dogs were put to sleep by it for many hours; the dose was from 1.5 gm. to 2 gm. (22 gr. to 30 gr.). In man for temporary sleeplessness, 0.5 gm. (7½ gr.); for persistent sleeplessness 1.5 gm. to 2 gm. (22 gr. to 30 gr.) is the best dose. It has been found to be an excellent somnifacient in mild states of mental excitement. Sleep is said to be produced within 30 minutes, occurring quietly, without bad after-effects or cumulative action. Siebert² has employed the drug more than any one else. [E.L.]

Ergotin in the Treatment of Gonorrhea.—Rolcki³ considers ergotin an excellent remedy in the treatment of chronic gonorrhea. He administers it internally in pill form and, at the same time, by urethral injections, as follows:

Ergotin 0.30 gm. (4½ gr.)
Distilled water 300 gm. (10 oz.)
Inject into the urethra many times a day.

This treatment is well borne. It may be employed in hemorrhages from the urethra. [L.F.A.]

Inhalation Therapy.—Rudolf Frh. v. Seiller⁴ employed this measure in cases of acute laryngitis, acute and chronic bronchitis, and bronchial asthma with good results. He used the Bulling thermovariator, and is of the opinion that in some cases no other medication is necessary. Sodium iodid was used in the cases of dry bronchitis, as well as in the loose catarrhal condition with profuse expectoration, and good results followed in all cases. The expectoration diminished rapidly and the dyspnea was greatly reduced. In four cases the catarrh disappeared in 4 to 6 days and in four others in 10 to 12 days. In the cases of bronchial asthma associated with disease of the bronchial mucous membrane sodium iodid by inhalation is of great use. In cases of croupous pneumonia, Seiller succeeded in greatly lessening the dyspnea. [J.H.W.R.]

¹ The Lancet, December 24, 1904.

² Therapeutische Monatshefte, 1904, xviii, 591, No. 11.

³ Bulletin Général de Thérapie, Vol. cxlviii, No. 7, 1904, p. 272.

⁴ Wiener klin. Woch., No. 43, 1904, p. 1133.

¹ New Orleans Medical and Surgical Journal, January, 1905.

² Berliner klinische Wochenschrift, November 14, 1904.

³ Australasian Medical Gazette, October 20, 1904.

American Medicine ²¹¹

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 6.

FEBRUARY 11, 1905.

\$5.00 YEARLY.

The White and the "Yellow" Peril.—The world is rapidly revising its opinion as regards the so-called "yellow peril," and there will be no more convincing argument toward that end than the report of the mortality in General Oku's army for seven and a half months of the severest campaigning of last year. In 24,642 cases of disease there were only 40 deaths. Only 193 men had typhoid fever, and only 342 dysentery. In 1898, for about the same length of time the United States put about 275,000 men in the field, and the deaths were 4,965, most of them in peaceful camps and hospitals within our own territory. If Oku's army was only half so large as ours, the figures would still speak loudly for the foresight and medical skill of the Japanese. The reasons for this marvelous saving of human life have been made manifest by Dr. Seaman and other writers, who have set forth the thoroughgoing precautions of the Japanese government and its medical officers to prevent disease in the army. We Americans are by no means the only nation needing to have the lesson brought home. The English and French armies are in the same sad plight, and to a lesser degree the German. We have allowed the half-scorned "yellow men" to surpass us in military hygiene and medicine, and the lesson should not go unheeded. It is said that the Japanese early counted upon this lowered morbidity and mortality as a large factor in bringing their final success over foes not protected by an enlightened and practical medical science.

Again the Question of Alcohol and Narcotics.

—The campaign against cramming the minds of young children with incomprehensible facts of physiology and hygiene, and those of older pupils with unscientific statements regarding the action of alcohol and narcotics, is increasing in strength and power. Connecticut, several years since, adopted a less stringent and more common-sense law, which has resulted in much more satisfactory instruction. We lately referred to the commendable efforts of the medical profession to improve the teaching in Pennsylvania. A somewhat belated pamphlet now brings cheering news from New York, where the State Science Teachers' Association has for years been wrestling with the problem. Legislation has not been enacted, but the educators have reached very definite conclusions regarding the admittedly difficult problem, and they see no reason why a change in laws

should not follow cooperation with them of the temperance organizations, as was the case in Connecticut. Such cooperation is greatly desired, but intemperate temperance advocates have ever been the greatest hindrance to progress in this line. However, if they are not becoming sàner, opposition to their biased work is rapidly becoming greater, and the signs of the times are correspondingly more hopeful. The importance of this question demands frequent reference. Insistent effort on the part of educational authorities and physicians will finally right this pedagogic wrong. In so doing, the legitimate demands of temperance should and must be given just recognition. For this point we contend just as earnestly as we denounce the unjust demands of its advocates. In this way only can the happy mean be attained.

What Shall Children be Taught Regarding Alcohol?

—The conclusions upon this question of the committee of the association before mentioned appears to us an admirable solution of the difficulty and one that can be conscientiously accepted by every true temperance advocate. In the beginning, they announce their belief that the controversial question of the food value of alcohol should have no special prominence in public school physiology. If attention was not drawn to the subject by school textbooks most children would not know that alcohol was ever thought of as a food. Whether, then, it may be a food or is always a poison; whether it lengthens or shortens the time of digestion; how it affects certain organs of the body; whether its use in any quantity is ever permissible—these are unsettled questions and should not be made prominent in common school education. The committee rightly says it is unreasonable to expect a child or a youth to decide questions on which eminent physiologists differ; if the teacher decides them for him by teaching one view exclusively, this is unscientific and untruthful instruction. To the ardent temperance worker the endorsement of these statements would seem like surrendering his creed because he has settled all these points to his satisfaction and desires every child to receive the benefit of it. He should, however, be perfectly reassured, by their further statements, that the committee is looking out for the interests of the child. If we admit, as we should, everything that can truthfully be said favorable to alcohol, they say we still have ample reasons why the young

should abstain from it; and it is the young with whom teachers deal. The child should be taught to avoid alcohol because it is dangerous to him and the only safety lies in total abstinence. Likewise should be the teaching regarding tobacco. This is temperance from the shoulder, but the method of inculcation brings up the real source of contention.

Teachers and Temperance Workers Must Get Together.—This sounds as if teachers are not advocates of temperance, and just because State and national temperance organizations, in principle if not avowedly, refuse to regard them as such, there arises friction between the two classes in New York and other States. Teachers are as a rule a most temperate group of individuals, and they have at heart the welfare of the children entrusted to their care. What they desire is some freedom of action in presenting this subject to their pupils. The report we are discussing says that instead of being accorded the courtesy shown to members of other professions, "The teachers at large have been ignored or overruled in the framing of temperance legislation. Science and education have been subordinated to a propaganda, and the naturally interesting study of human physiology in the public schools has been converted into the disproportioned and unattractive vehicle of a special reform." Textbooks "contain matter which the teacher regards as ill-arranged, partisan, exaggerated, or inaccurate. He must therefore either do violence to his own convictions by teaching what he does not believe, or impair the pupil's confidence by showing that the book contains unwarranted statements and views. It is as if the law enjoined the use of a Catholic textbook in a Protestant school." This statement of the teachers' side of the case is strongly put, but we believe it is not overdrawn. Now let the temperance organizations state their side as plainly and cooperate with the teachers, upon whom, after all, they must depend for antialcoholic instruction imparted to children. Satisfactory laws and textbooks, and teaching, must necessarily follow the demands of these interests combined. Teachers and temperance workers alike desire to impress upon the young the evils of the alcohol habit. Let it be done decently and in order.

The New York Herald's Sanitary Commission.—The *New York Herald* recently sent a special commission to Cuba to study the sanitary conditions and health administration of the young Republic. Three physicians compose the commission. Supposing each of them to be a sanitary expert, it does not follow that they would make up an expert commission. Indeed, it is most unlikely that a very expert sanitarian, if called on to form such a commission, would select only medical men. Still, this enterprise of the *Herald* confers a notable distinction on the three physicians employed, and it is of professional interest to consider whether their certification to the American public as sanitary experts is justified by their performances. A physician, to be approved by the medical profession as a sanitarian, must add to a good medical education a grasp of that body of scientific knowledge which has demonstrated practical utility in the defense of public health. So much is

required of a medical sanitarian—a little more than this of a sanitary expert. One member of the *Herald's* commission falls short of these moderate requirements, and it would seem that in self-defense the medical profession should not pass in silence his criticism of the sanitary administration and political honesty of Cuba. The special assignment of the commissioner in question appears to have been the sanitary conditions at Santiago. He describes himself as an "old and close student of tropic diseases, particularly yellow fever." He has studied the sort of maritime sanitation which became established in the Gulf States during the eighties, and is profoundly impressed with its merits. He does not know, apparently, that this ponderous defense, respectable as it formerly was, now survives only to be scorned by modern sanitarians as a useless encumbrance. This monumental impediment, or, as the *Herald* correspondent calls it, "the Holt maritime sanitation establishment," for years locked up the Mississippi river every summer, and the Mississippi has been open since and because it became obsolete. The modern and unassailable views on the prophylaxis of yellow fever have not yet been accepted by the *Herald's* commissioner. He believes that the return to America of dead bodies of yellow fever victims is "fraught with peril," ignoring or ignorant of the perfectly satisfactory proof that such transportation incurs no risk whatever of yellow fever. He believes that Santiago should be encumbered with an archaic quarantine establishment, such as that which is so tenacious of its useless life on the lower Mississippi. Finally the *Herald* correspondent says, and his opinion is heavily headlined, that Uncle Sam made a serious mistake "in taking a frivolous people seriously." His quondam ward, "Cuba, has become his most insidious and dangerous foe." He predicts that if present conditions in Cuba "are permitted to continue, yellow fever will again reach the southern United States, and roll up a new record of death." The prediction that yellow fever may again exercise its frightful energy in the South, is all too reasonable, for several southern States are very poorly prepared to resist invasion, and may easily repeat the disgraceful history of the Texas epidemic of last year. If the *Herald* commission wants to do this country an inestimable service, let the sanitary authorities of several southern ports be persuaded to learn from the only people who are prepared to teach the modern prophylaxis of yellow fever, the Cubans, and at the only place where that prophylaxis is satisfactorily exemplified, at Havana.

A Tuberculosis Exhibition by the Massachusetts State Board of Health.—Always to the fore in some branch of public hygiene, the Commonwealth of Massachusetts has set a new precedent in the campaign of public education on the subject of tuberculosis. A resolution, supported by a petition of Dr. Edward O. Otis and others, now pending in the State Legislature, authorizes the Massachusetts State Board of Health to expend a sum of \$2,000 in making "public exhibition of the various means and methods used or recommended for treating or preventing tuberculosis." The Maryland Tuberculosis Exposition, held in Baltimore in January, 1904, was

made possible by the joint efforts of the Tuberculosis Commission, the State Board of Health, and a large committee of private citizens. The enterprise was financed by private purses, and its success commended the exposition idea to thoughtful visitors from many parts of the country. More impressive than the exposition itself, was the eagerness of the general public to be informed about tuberculosis. With the sanction of the State Legislature, and under the leadership of the State Board of Health, Massachusetts should be able to surpass all previous efforts in this line, both in the scope and character of the objective presentation, and in the resulting influence upon public opinion.

The Sewerage of Havana.—A day of good deeds often owes its chief distinction to one evil avoided. Such a day was the second of the recent meeting of the American Public Health Association, at Havana, when an American dentist, a citizen of Havana, read a paper on "The Actual Sanitary Conditions of Havana, and the Further Requirements for Their Improvement." The speaker said very little about the "actual" sanitary conditions of Havana, but addressed himself as vigorously as he could to the incompleteness of his adopted town's sewerage. He attributed the marvelous cleanliness of Havana's exterior wholly to American intervention, and then immediately asked his American hearers to contemplate the foulness of Havana's underwear. At the close of his paper he proposed a resolution calling on the authorities to proceed without delay in the construction of a sewerage system. This paper must have been offensive to the Cubans, and fortunately it was offensive to many delegates from the United States. The resolution was promptly referred to the executive committee, where it died. An inoffensive substitute was recommended two days later, and passed by the Association. It would have been a horrible blunder if the eagle had been allowed to strut in Havana. There was an aquiline side-show on the island during the month, but, so far as the Public Health Association is concerned, its members from the States were not to be distinguished by want of courtesy from the Canadians or Mexicans.

The Merits of Cuban Sanitary Operations.—The sanitary conditions of Cuba do not present at this moment a single subject of selfish concern to the United States. The much-heralded cleanness of Havana's streets has not been exaggerated. In this respect few cities in the United States, two at most, are comparable to Havana. The island of Cuba formerly presented a single menace to the United States—a great one—yellow fever. With this disease obliterated, not a shade of sanitary peril remains to distinguish Cuba among civilized nations. After the largest reasonable credit is appropriated to the United States on account of the suppression of yellow fever, there remains to Cuba the unique distinction that with her own men and means she has successfully resisted invasion after invasion, and is today the only exemplar of the modern and all-sufficient prophylaxis of yellow fever. Allowing as much as can be claimed for American intervention, nowhere in the United States has the work of the Yellow

Fever Commission been applied or made ready for application to public safety with anything like the intelligence or energy displayed in Cuba. A dozen coast towns in the United States are more likely than Havana to suffer epidemics of yellow fever. Those who anticipate the failure of Cuban autonomy cannot at this moment point out a sign of weakness in her sanitary government. The membership of the Superior Board of Health is, to say the least, as good as could have been dictated from Washington. Finlay, Guiteras, and Agramonte, each and all of them are the peers of the most distinguished public health officers in the United States. They are in all respects equal to their high responsibilities, and they are liberally supported by their government. The most recent appropriation by the Cuban government to the purposes of public health amounted to more than \$300,000. The United States might match this liberality and amaze the world by appropriating to our own health administration a sum of \$14,000,000.

A Sidelight on Havana's Sewerage Problem.—As we have already said, the United States has not a pennyworth of interest in the sewerage of Havana. Of private interest in that subject, there is, however, a trace. An American contractor has engaged to construct the sewers of Havana. He has pledged himself in the sum of \$500,000 to execute the work faithfully. The contract is now about three years old, some machinery has been sent to Havana, but no actual work has been done. Cuba has a heavy war debt yet to be extinguished. Meanwhile the American contractor is no doubt as patient as the circumstances permit, and according to the story current in Havana, the circumstances provide good reward for patience. The guarantee of \$500,000 is in the form of a certified check, which cannot be presented for payment, but on which the holder, the Cuban government, pays interest. It is conceivable that an American bank may keep half a million dollars in idleness against this check, and that the banker and the contractor are dissatisfied with the situation. If so, plenty of sound concerns will take over the business, paying a good price for it, on the theory that this guaranty fund can be made to yield two interest incomes annually for the next eight or ten years. Cuba will, no doubt, continue to pay interest on this wholly unproductive piece of paper, for to surrender the check would signify to the world that the republic is not nearly ready to proceed with the sewerage of Havana, an admission which Cuba cannot afford to make. But the payment of interest on mere stage money might become a disturbing factor in Cuban politics, so that the interests of certain Americans are served if by a little judicious bullyragging the sewerage project is kept momentarily impending.

Anemia in Porto Rico.—The report of the commission appointed by the governor of Porto Rico to investigate the disease known in that island as "anemia," forms a most instructive monograph on uncinariasis. For the commission proved beyond the shadow of a doubt, unless to the minds of certain of the perverse native physicians, that the anemia of Porto Ricans is, in an overwhelming majority of cases, due to hookworm

infection. The economic importance of the disease is shown by the statement that more than 90% of the rural population of the island is affected. The commission was composed of Drs. Ashford and King, whose previous work upon the subject¹ aroused the interest of the islanders and finally led to the appointment of the commission, and Dr. Gutierrez, health officer of Bayamon. In a little more than 5 months they treated 5,490 cases of hookworm disease. Of these 2,244 were cured (hemoglobin above 85%), 377 practically cured (hemoglobin between 70% and 85%) and 1,727 improved. In consideration of the fact that many of these patients had been unsuccessfully treated for years with quinin, iron and other tonics, the true cause of the anemia being unsuspected, no better instance of the great boon of modern medicine to the tropics is required. Regarding the mode of infection in uncinariasis, the members of the commission are very positive that, in Porto Rico at least, the disease is generally contracted through penetration of the skin by larvae of the parasite. Negroes and, possibly, Malays and Mongolians, are relatively immune to the disease, even when harboring the parasites; this is a strong argument in favor of the view that the symptom-complex, including the anemia itself, is due rather to a toxin, or toxins, of the parasite than to actual abstraction of blood. The severity of the affection in Porto Rico may be judged from the estimate that it is responsible for 30% of all the deaths in the island. In the treatment of the recorded cases, thymol was almost exclusively employed. After reading Bentley's results with beta-naphthol, that drug was tried in a few cases with satisfactory expulsion of the parasites.

SELECTION

Distrust of Doctors.—Side by side with the immense development and authority of modern medicine, one encounters strange signs of revolt against its claims and its practices. The chief is, of course, the vast revival of superstition lurking behind the great vogue of Christian science and "mental healing" of various kinds. At the very moment when the physician seems most absolute; when thousands of people in every city are all the while submitting to capital operations at the surgeon's word, and millions are guiding their daily lives, in sickness and in health, by doctor's advice; when the germ theory of disease and serum therapy and kindred discoveries and investigations are giving medicine more and more the air of an exact science—multitudes are found to reject it altogether. Many of them are, no doubt, a little queer in the head; others are carried away by enthusiasm or fanaticism. Yet their numbers are growing; and, whatever their minor differences or vagaries of belief, they are all agreed that the thing to do is to throw physicians to the dogs. The whole phenomenon is a suggestive reminder that the conquests of science are precarious. As the forest forever encroaches upon the cleared field, so do lingering savage beliefs tend to reassert themselves in the age that boasts itself most enlightened. Such crude denial of fact and rejection of experience do not, however, make up the whole case of the distrust of doctors. Much skepticism about medicine goes only half way; the general principle is accepted, but specific applications are called in question. Scientific niceties always find scant favor with the rule-of-thumb

men, and nowhere are people more inclined to employ the rule of thumb than in matters of health and disease. We know that a given water does not harm us, so what is the use of a doctor's telling us to boil it? Even health officers have been known to regard some of the finest demonstrations of medical science as pure whimsies. Recently in a large city of England the medical man in charge of public health was heard openly to sneer at the germ theory of disease as a mere fantasy of fussy microscopists. It was not for him to order precautions based upon absurd speculations about what he called "those pollywog things." Doctors have also suffered an abatement of respect from people of a certain order of mind, precisely because in modern times, medicine has become less of an art and more of a science. With the disappearance of the bigwig mystery of other days, concealing, as it often did, corpulent ignorance, has gone something of the awe with which the physician was regarded by the commonalty. It is hard for us moderns to image to ourselves *médecins* like those at whom Molière and Montaigne levelled their witticisms and sarcasms, but undoubtedly the oracular manner of those gentlemen did much to impress the vulgar. With the dissipated mystery has gone the wondering admiration. It is, perhaps, the exception when a patient likes to be taken into the confidence of the physician, after the manner of Lydgate in "Middlemarch," arousing the sick man's proud interest in the "expectant treatment" of his pneumonia. Most people prefer wise looks and secrecy in their doctors. To say exactly what drug is prescribed, and precisely how it is expected to work (with the frank warning that perhaps it won't), may be admirable candor, but is often bad professional tactics. We all love magic, even in our science; and to be cured without any mystery about it, is as distasteful to us as it was disgusting to the great one of Syria to be told by the prophet simply to dip in the Jordan to be quit of his leprosy. The distrust we speak of is usually more of the medical profession, impersonally, than of individual members of it. How grudgingly is medical inspection of schools provided for and paid for; what shabby treatment has been meted out to the profession in various ways in connection with military service! These grasping fellows, the argument seems to run, are all the while making an outcry about unhygienic conditions in the public schools, and about the need of sanitation in the army, just to magnify their office and get themselves jobs. Yet this spirit goes hand in hand with the perception that the medical profession is the most ruthlessly exploited of all. No one thinks of going to a lawyer or engineer or architect without his fee; yet doctors are supposed to be under a moral obligation to give their services freely to the ill and injured. This they do, to their honor, relieving pain and suffering by the expenditure of their time and skill, often with no hope or possibility of payment. Yet their protests against perils to the general health are frequently resented, and treated as the selfishness of a profession aiming to thrust itself in everywhere. This is an attitude of mind really as bewildering as outright superstition. It is puzzling to find distrust provoked by what is really the crowning proof of disinterestedness; since, as it has been said, the devotion of the medical profession to the cause of public health is really a way of making its own extinction its final goal.—[*New York Evening Post.*]

An Expensive Way of Cheating the Doctor.—An exchange says: "Traveling to cheat the doctors," is the reason given by John Sharmon, of Halifax, Yorkshire, England, who completed his seventy-ninth trip across the Atlantic when he landed from the White Star liner *Arabic*. Mr. Sharmon was worried during the last of the *Arabic's* voyage for fear he would not arrive in time to catch the *Umbria*, which sails early tomorrow morning. Once he arrived on the *Oceanic* with only nine minutes to spare to get on board the *Majestic*. Another time he was just in time to run from one incoming steamship to an outgoing one while they held the gangplank out for him.

¹ *American Medicine*, Vol. vi, Nos. 10 and 11, 1903.

BOOK REVIEWS

A Manual of Personal Hygiene. Proper Living Upon a Physiologic Basis.—By American authors. Edited by WALTER L. PYLE, A.M., M.D. Second edition revised and enlarged. W. B. Saunders & Co., Philadelphia, New York and London.

This, the second edition of Dr. Pyle's most praiseworthy book has been thoroughly revised, and desirable additions on Home Gymnastics, Domestic Hygiene, the simpler methods of Hydrotherapy, Thermotherapy, Mechanotherapy, First Aid, etc., have been made. The book now is of some 450 pages and should be in the hands of patients, teachers, and of those pupils of an age fitted to understand it. Perhaps there is no other work on practical physiology and hygiene so well adapted to prepare patients for the most intelligent cooperation with their medical advisers. For this purpose all physicians may with perfect security give it the broadest recommendation. Concerning the general subject one may gladly endorse what the author wisely says: Strange as it may seem the subject which every fair-minded person admits should be taught thoroughly—namely, how to keep healthy—has been largely neglected. With all the recent education for educational reform there remains to a great degree, the same indifference to the proper teaching of the care of the body regarding which Herbert Spencer lectured the pedagogic world over 40 years ago. Public hygiene may be enforced, but personal and domestic hygiene must be taught. No law can compel citizens in times of epidemics of typhoid fever or cholera to boil their drinking water and cleanse food that is to be eaten without cooking, but persistent warnings from the health authorities, public lectures, and literature from physicians and newspaper and periodic discussion will be of the greatest service in combatting the spread of the disease. General sanitary improvement is dependent upon the intelligence of the community, as well as upon efficient health officials, and one of the most important duties of the latter should be to strengthen public confidence and disseminate more widely knowledge concerning public, domestic, and personal hygiene. The literature for the laymen pertaining to personal hygiene is in great measure unsatisfactory and irresponsible. Many of the so-called "health books" are of very questionable authorship, often the compilation of a layman, perhaps an amateur pathologist, an inaccurate physiologist, a moralist of vague opinions, with, unfortunately, a tendency to cater to the prurient. Such books make hypochondriacs of their readers, and if they include advice as to self-treatment, they may do great harm. In literature and lectures on hygienic subjects too often the science is made too popular, or the popular exposition too scientific. There has also been too frequently a tendency to present as much of the "gospel of health" as may be put in popular form, or that, for ulterior motives, the layman may be induced to accept. Such attitude can only weaken the cause of preventive medicine among intelligent persons. It is not desirable to produce athletes, physical culture fanatics, or practitioners of new-fangled and erratic "systems" and "pathies." What is needed is simple instruction by capable teachers in the proper care and use of the body, authoritatively based upon the best available modern anatomic, physiologic, and hygienic data. We would not have "every man his own physician," as seems often the object in lectures, periodicals, and books relating to health; rather give every man fundamental knowledge that will enable him to understand and, if necessary, formulate the requisite rules of health, and to distinguish scientific medicine from quackery. Stripped of its superfluous technicalities, this knowledge may be imparted to any one of average intelligence and education, and it is desirable that more literature and personal explanation in this direction should come from the American medical profession. The subject is much too important to be left entirely in the hands of lay teachers and writers.

Studies from the Rockefeller Institute for Medical Research.—Reprints. Volume II, 1904.

The second volume of these studies contains 10 reprints. The first includes the studies regarding the Diarrheal Diseases of Infancy, which was previously published separately.

Among the remaining are Ford's Classification and Distribution of the Intestinal Bacteria in Man; Report on Infant Feeding, by Park and Holt; Cultivation of Trypanosoma Brucei, by Novy and McNeal; and Opie's paper on Eosinophiles in Relation to Nutrition. The papers continue the high order of merit shown by the first volume.

Medical Laboratory Methods and Tests.—By HERBERT FRENCH, M.D., Chicago: W. T. Keener & Co. 1904.

This little book contains 143 pages of text, and gives as accurately as the space will allow, directions for examining blood, urine, sputum, gastric contents, and other normal and abnormal products of the body. It was written to supply a demand for a small book treating of these subjects, and to those desiring such a book, will answer its purpose very well. We believe the importance of the subjects under discussion deserves more thorough consideration, and this is doubtless the belief of the author. Members of the profession should awaken to a knowledge of the general undesirability of such guides, however well they may be written.

A Laboratory Guide in Elementary Bacteriology.—By WILLIAM DODGE FROST, Ph.D. Third edition, revised. New York: The Macmillan Company, 1904.

This Guide has been revised and brought down to date, but otherwise only minor changes have been made. Charts for the various organisms and blank pages for notes are retained; if conscientiously filled by the student, the book will form a most valuable reference work in his future years. The plan is an admirable one.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

A Laboratory Guide in Elementary Bacteriology.—By WILLIAM DODGE FROST, Ph.D., Assistant Professor of Bacteriology, University of Wisconsin. Third revised edition. The Macmillan Company, New York, 1903. Price, \$1.60.

Supplement to the Annual Report of the Surgeon-General of the Army for the Year 1904. International Military Medical Statistics for the Year 1903.—Government Printing Office, Washington, D. C., 1904.

Electrostatic Modes of Application, Therapeutics and the Uses of the Röntgen Ray.—By WILLIAM BENHAM SNOW, M.D., Professor of Electrotherapeutics and Radiotherapy in the New York School of Physical Therapeutics, Editor of The Journal of Advanced Therapeutics, and late Instructor in Electrotherapeutics in the New York Post-graduate School, etc. Third edition revised and enlarged. Contains more than 100 illustrations, including ten full page half-tones, showing the various methods of posturing and treating conditions. Price, cloth bound, \$3.00. A. L. Chatterton & Co., 259 William St., New York.

The Anatomy of the Brain. A Study of the Human Brain from the Brain of the Sheep. A Manual for Students in Medicine, Biology and Psychology.—By J. F. BURKHOLDER, M.D., Professor of Anatomy in the Illinois Medical College and the Illinois Eye, Ear, Nose and Throat College; Professor of Physiology in the Dental Department of the University of Illinois and the Dearborn Medical College. With an Introduction by Prof. Henry H. Donaldson, of the Neurological Laboratory of the University of Chicago. 175 pages, octavo, 32 full page plates (5 colored). Cloth. Price \$2.00 postpaid. G. P. Engelhard & Co., 359-362 Dearborn Street, Chicago.

The Surgery of the Abdomen, Part I. Appendicitis and Other Diseases About the Appendix.—By BAYARD HOLMES, M.D., Professor of Surgery in the University of Illinois, of Clinical Surgery in the American Missionary College, Chicago; Attending Surgeon in the Chicago Baptist Hospital. Price, \$2.00 net, prepaid. 8vo, 368 pages, 39 illustrations in the text, seven plates, two of which are in color. D. Appleton & Co., New York.

Blood-Pressure as Affecting Heart, Brain, Kidneys, and General Circulation. A Practical Consideration of Theory and Treatment.—By LOUIS FAUGERES BISHOP, A.M., M.D., Physician to Lincoln Hospital, New York; Member of New York Pathological Society, etc. E. B. Treat & Co., New York, 1904. Price, \$1.00.

A Compend of Medical Latin. Designed expressly for elementary training of medical students.—By W. T. ST. CLAIR, A.M., Professor of the Latin Language and Literature in the Male High School of Louisville, Ky., etc. Second edition, revised. P. Blakiston's Son & Co., 1904. Price, \$1.00 net.

Qualitative Chemical Analysis.—By ALLARD MEMMINGER, M.D., Professor of Chemistry and Hygiene, and Clinical Professor of Urinary Diagnosis in the Medical College of the State of South Carolina, etc. Second edition, revised and rewritten. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$1.00 net.

Textbook of Human Physiology. Including Histology and Microscopic Anatomy, with Special Reference to the Practice of Medicine.—By DR. L. LANDOIS, Professor of Physiology and Director of the Physiologic Institute in the University of Greifswald. Tenth edition, revised and enlarged. Edited by Albert P. Brubaker, M.D., Professor of Physiology and Hygiene in the Jefferson Medical College, Professor of Physiology in Pennsylvania College of Dental Surgery, etc. Translated by Augustus A. Eshner, M.D., Professor of Clinical Medicine in Philadelphia Polyclinic, Physician to Philadelphia Hospital, etc. With 591 illustrations. P. Blakiston's Son & Co., Philadelphia, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Personal.—Dr. William Dunn, one of Boston's noted physicians, has been appointed to the staff of papal doctors in the Vatican at Rome.—Dr. William C. Wile, of Danbury, Conn., who has paid special attention to leprosy, has recently been in Washington trying to urge the Government to establish a laboratory on the Island of Molokai for the study of leprosy.

Pneumonia in Chicago and New York.—The Bulletin of Chicago's Health Department says: During November, the first month of the current pneumonia season, there were 260 deaths reported from this cause—a daily average of 8.6. In December there were 451 reported—a daily average of 14.5 and an increase of 40%. During the 28 days of January there have been 459 pneumonia deaths—a daily average of 16.4 and an increase of 11.5% over the December rate. Corresponding figures for New York City are 802 November deaths; daily average, 26.7. December, 1,452 deaths; daily average 46.8, and an increase of 43.9% over November. But during the 28 days of January only 1,165 pneumonia deaths were reported—a daily average of 41.6 and a decrease of 12.5% from the December rate.

The Nathan Lewis Hatfield Prize for Original Research in Medicine Awarded by the College of Physicians of Philadelphia.—Five hundred dollars will be awarded to the author of the best essay submitted in competition on or before March 1, 1906; subject, "The Clinical and Pathologic Diagnosis of Sarcoma." Essays must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device, and containing the name and address of the author. They must embody original observations and researches. The committee reserve the right to make no award if none of the essays submitted is considered worthy of the prize. For further information address Francis R. Packard, M.D., chairman, College of Physicians, 219 South Thirteenth street, Philadelphia, Pa.

No Yellow Fever Epidemic.—Recent news from Washington states that according to reports received from the Canal Zone there is no probability of an epidemic of yellow fever there. The few cases recently reported are declared by the health authorities of the zone to be sporadic, or at most endemic, and the campaign being waged by the sanitary corps is expected to stamp it out entirely. With a population of 50,000 in the Canal Zone, including the cities of Colon and Panama, there had been up to January 20, when the report was mailed, but 18 cases and 3 deaths from the disease in the six and a half months ended that date. Since then 5 cases have appeared on the United States steamship Boston, in the harbor of Panama, 2 of which resulted fatally, and 1 death has occurred in Panama. The sanitation of the streets, alleys, yards and houses in the city of Panama has recently been turned over to the American sanitary authorities by the Panama government.

The National Tuberculosis Movement.—Dr. Livingston Farrand, professor of anthropology at the Columbia University, has been appointed secretary of the National Association for the Study and Prevention of Tuberculosis. Of underlying significance, says *Charities*, is the fact that the tuberculosis association, which was inaugurated at a session of the American Medical Association, should enter upon a work which will grapple with the social, even more especially than the medical problems of preventable disease, under the executive head of a man whose professional training and striking accomplishment have been in the field of natural science. Professor Farrand enters upon this new field, however, from one which could in no sense be called purely academic in its interests. His father was one of the founders of the Bureau of Charities in Newark, and following his own graduation from Princeton, he took a medical degree at the College of Physicians and Surgeons in New York, continuing thereafter an interest in both medical and humanitarian matters.

"Tachyphagia" and "Bradyphagia."—Not quite everybody knows that the very dignified name "tachyphagia" has been invented by the doctors for the very undignified habit of gobbling down the food after the manner of the hastier and hungrier animals, but practically everybody does know—or fear—that this method of eating is a hygienic crime for which, sooner or later, heavy penalties will be exacted by the "little Marys" that suffer such maltreatment. There is real novelty, however, in the information supplied by an article in a medical journal, that tachyphagia has its equally evil converse of "bradyphagia," which is eating too slowly and with exaggerated care in chewing the food. It is, of course, much less common than the crime of gobbling and bolting, but certain over-leisurely people do practise it, to their great injury—thank heaven! They are chiefly neurasthenics, it seems, who have developed a morbid fear on the subject, and overdo the act of eating slowly, to their detriment, in consequence of the chronic inanition and temporary dysphagia that may follow.—[*New York Times*.]

The National Association for the Study and Prevention of Tuberculosis, with offices in New York City, has issued a circular to the public. Of special significance to the general public are the following quoted therefrom: Ignorance in the care of the consumptive is met in an alarming degree. The carelessness of the person affected is a menace to society. It is estimated that there are 30,000 patients in some stage of tuberculosis in New York. They are victims of a disease which causes from a quarter to a third of the suffering and death between the ages of 15 and 55, the most useful period of life. Many of the patients do not observe even the simplest precautions against spreading the disease. The cleanly consumptive, it is proved, does not scatter this death dealing infection. The unclean must be taught that in striving to deal intelligently with his malady he is prolonging his own life, guarding his family and helping the community in the gradual solution of a problem of vast magnitude. The significance of this problem, to the individual, resolves itself into a conscientious consideration of the attitude which he assumes to the healthfulness of his surroundings.

The Suction Method of Cleansing Railway Cars.—An immense vacuum plant has been erected in the Jersey City yards of the Central Railroad of New Jersey, for the purpose of cleansing cars of dust and disease germs. This road has seen fit to institute the vacuum system and for a distance of 3,000 feet pipe has been laid, varying from 2 in. to 5 in. in diameter, covering a distance of about 3 miles. At various intervals the pipe is tapped and from these cocks flexible hose is run, which can be taken into a car either by the window or door. At the foot of the hose is a metal pipe with a flat triangular end, along the base of which is an opening through which the dust and dirt is drawn by a vacuum or dirt machine, located in the central plant. The man handling the hose runs the slight openings over the cushions, curtains, wood-work, carpets, etc., and without noise or dust-raising every particle is quickly whisked away. Before reaching the central plant, the dust must pass through two dust separators, the first of which clears the air of 90% of the dust and germs, the second separator or cylinder draws the air through a solution of corrosive sublimate and complete disinfection is thus accomplished. It is estimated that by this apparatus two cars can now be thoroughly cleaned at the same expense of time and money as was formerly required for one.

Miscellaneous.—New York: The New York Skin and Cancer Hospital, through the governors, announces that Dr. L. Duncan Bulkley will give a special course of four lectures on the relation of diseases of the skin to internal disorders, in the outpatient department of the hospital, on Wednesday afternoons, at 4.15 o'clock, commencing March 1. The members of the profession are invited.—Mr. Adolph Lewisohn, of New York, has given \$5,000 for the reconstruction of the chemie laboratories at Dartmouth College.—The New York Postgraduate Medical School and Hospital has received an anonymous gift of \$5,000.—Massachusetts: Fire destroyed the almshouse at North Brookfield February 1. Eleven inmates escaped, but one, Simon Beautiate, is missing, and it is feared that he was burned to death. The loss is estimated at \$12,000, covered by \$8,000 insurance. The fire is believed to have been caused by a defective heater.—Boston: Dr. Felix McGirr has been retired from the position of physician-in-charge of the Cambridge (Boston) Contagious Hospital, and Dr. David C. Dow, formerly physician-in-charge, has been elected to the position.—Canada: The government of the northwest territories of Canada is establishing a new bacteriologic and pathologic laboratory, and has appointed Dr. George Charlton, formerly of the McGill University pathologic department, chief of the laboratory.

The Passing of the Yellow Peril.—In 50 years—perhaps less than 50, if the present laws remain in effect and are rigidly executed—the Chinese population of the United States will become practically extinct, says the *World's Work*. From 1890 to 1900 they fell away from 126,788 to 119,050, a decrease of nearly 8,000, or more than 6%. In the fiscal year ending June 30, 1903, more than 4,000 voluntarily left the port of San Francisco for the land of their birth, the total deported and returning voluntarily being 5,020. A very large majority of these Chinamen was advanced in years and went home to die. A generation ago there were in San Francisco from 30,000 to 40,000 Chinamen. The Chinese Consul-General says that, counting men, women and children, there are now not 10,000. The same proportionate decrease is seen in other places. It should be borne in mind that the total number of Chinese now in the United States includes 26,767 in Hawaii and 3,116 in Alaska, so that at the beginning of this decennial period there were living in the United States proper only 89,000. A generation ago there were at least 150,000. According to the most liberal estimate there are not more than 150 legal Chinese wives in San Francisco. But the number of Chinese women is estimated at between 1,000 and 2,000. Of such female children as are born to the lowest class, a large proportion are sold for immoral purposes by their parents, thus still further reducing the possibilities of an increased population. The main adult population is male, is unmarried, or, at least, wifeless, in America, and is rapidly approaching old age. Thus by 1930 or 1940 the main Chinese life in America will have become extinct.

EASTERN STATES.

The Medical Profession Congratulates the Boston Herald.—It is announced that hereafter the *Boston Herald* will not insert advertisements of patent medicines or those from venereal quacks. It is perfectly natural that when physicians are subscribing for a Boston paper, this progressive step taken by the *Boston Herald* will be remembered.

Tuberculous Teachers are Barred from the Public Schools.—A resolution has been adopted by the Jersey City Board of Education, that no teacher shall be permitted to continue her work in the public schools if she is afflicted with tuberculosis. The board has adopted a rule that teachers suspected of having tuberculosis shall submit to an examination by a physician to be designated by the Board of Education.

Adult Blind Education.—After an experimental trial at one of the State institutions, the Legislature of Massachusetts has decided to make an appropriation, which will be utilized in one of the State institutions for helping adult blind persons in the learning of trades. The trades so far introduced in the shops are shoe making, mattress making, repairing, chair caning, hammock making, willow work, etc. Those in charge of the institution expressed such satisfaction with the trial that the Legislature was thus induced to make the appropriation, in the hope that many adult blind persons will thus become self-supporting.

PHILADELPHIA, PENNSYLVANIA, ETC.

Public Medical Lectures of University of Pennsylvania.—The following lectures have been arranged upon subjects which are of more or less general interest, and will be delivered on Monday afternoons, at 4 o'clock, in demonstration room "C," in new medical laboratories, Thirty-sixth and Pine streets. While arranged especially for the instruction of the fourth-year class, invitations have been extended to the physicians of Philadelphia: February 6 and 13, Dr. Leonard Pearson, "Milk Supplies of Cities;" February 20, Dr. J. F. Schamberg, "Vaccination;" February 27, Dr. J. F. Schamberg, "Demonstration upon the Subject of Eruptive Fevers;" March 6 and 13, Dr. E. C. Kirk, "The Medical Relationship of Certain Dental and Oral Disorders;" March 20, Dr. A. P. Francine, "The Restriction and Prevention of Pulmonary Tuberculosis;" March 27, Dr. R. Tait McKenzie, "The Therapeutics of Exercise;" April 3 and 10, Dr. Jos. Sailer, "Hydrotherapy."

Report of the College of Physicians of Philadelphia.—According to a report of the officials issued by the College of Physicians of Philadelphia for 1904 the library receives regularly, by purchase or exchange, 442 medical periodicals—79 American and 363 foreign—32 more than in 1903, and in addition 208 American and 92 foreign current periodicals were received, in most cases the exchanges of medical journals published in Philadelphia and sent to the library through the courtesy of their editors. Eight hundred and fifty-two dissertations were received. There were received during the year, from all sources 3,889 volumes, 8,920 pamphlets, and 36,921 numbers of medical periodicals. Of the 626 new publications added to the library, 52 were written or edited by Fellows of the College. The number of visitors to the library were 6,467—an increase of 217. Number of books taken out, 4,885—1,372 more than in the preceding year; 18,624 books were supplied by the librarian for consultations in the library—an increase of 1,528 over last year, and a large number were taken directly from the shelves by Fellows of the College.

The Proposed New Pure Food Bill.—A pure food bill to take the place of the act of 1903 was recently introduced in the State Senate. The bill provides that any person, firm or corporate body who shall themselves or through their agents manufacture, sell, consign, offer for sale or have in possession with intent to sell, any article of food or drink which contains formaldehyd, sulfurous acid or sulfites, boric acid or borates, salicylic acid or salicylates saccharin, dulcin, glucin, beta naphthol, abstrastol, asapol fluorids, fluorborates, fluosilicates or other fluorin compounds, and all other preservatives injurious to health, shall be guilty of a misdemeanor. The bill does not prohibit the use of common salt, saltpeter, wood smoke, vinegar and the condimental preservatives, such as turmeric, mustard, pepper and other spices. The penalty for violation of the act is a fine of not less than \$60 nor more than \$100, with costs, or imprisonment not exceeding sixty days, or both. All penalties or fines which may be recovered in proceedings to enforce this act shall be paid into the special fund for use of the Dairy and Food Commissioner in executing the law, as is provided by existing statutes. The bill specifically repeals the act of April 27, 1903.

SOUTHERN STATES.

Morbidity and Mortality in Baltimore.—The report of the Health Department for last week, ended February 4, shows a total of 214 deaths, as compared with 216 the corresponding week of last year, 245 in 1903, and 187 in 1902. The annual death-rate per thousand of population was: Whole, 19.57; white, 16.59; colored, 35.67. As a cause of death, pneumonia heads the list, its victims numbering 34; tuberculosis follows with 23; organic heart disease, 20; Bright's disease, 14; cancer, 11.

FOREIGN NEWS AND NOTES

GENERAL.

Cathedral Window in Memory of Surgeon.—A window in the cathedral at Norwich in memory of the late William Cadge, an eminent surgeon of the city, was unveiled on December 6, by the president of the Royal College of Surgeons.

Miscellaneous.—Among the recent contributions received by the Imperial Cancer Research Fund are the following: The Duke of Bedford, £1,000 (third instalment of £3,000); Mr. J. A. Mullens, £100; the Clothworkers' Company, £50; and Mr. Archibald Walker, £50.—Professor Curie has sent, through the Austrian Ambassador, a tube of radium to the Vienna Hospital for use in the cure of lupus. The gift is a recognition of the act of the Austrian Government in furnishing Professor Curie with pitchblende for his original researches.—The city of Berlin has arranged a competition for plans for a monument to Rudolf Virchow. It is to be placed at the intersection of Karl and Luisen streets, a square which will henceforth be known as Virchow Platz.

Decreased Birthrate in Prussia.—Statistical returns issued by the Prussian Ministry of the Interior show that there has been, during the last 30 years, a remarkable decrease in the birthrate in all Prussian towns with populations exceeding 100,000. From 1875 to 1880 the average birthrate per thousand of the population of Berlin was 45; from 1881 to 1885, 38; from 1886 to 1890, 34; from 1891 to 1895, 31; and from 1896 to 1900, 28. The birthrate at Breslau decreased from 43 in 1875 to 36 in 1900, and at Krefeld from 46 to 30 during the same period. There has been a similar diminution in the birthrate of 19 in other Prussian towns, while no increase of the birthrate in any Prussian town is recorded. It is noteworthy, however, that, while the birthrate has decreased, the marriage rate in all the Prussian towns is still as high as it was 30 years ago, and in some cases is higher than at any time since 1875.

Rewarded for Not Practising Race Suicide.—According to a foreign exchange, a leading Berlin newspaper solicited subscriptions for the family of Herr and Frau Ludwig, the important event being the arrival of the twentieth child in the family. Herr Ludwig, not being by any means a millionaire, but a humble employe of the city gas works, and earning \$5.50 a week, the Berlin paper assumed the responsibility of taking subscriptions for the needy family. In two weeks more than \$1,000 was raised, beside wagon loads of food and clothing which arrived at the humble house of the parents. The event called forth statements relative to numerous births in German families, and Professor Ohlshausen reported to the Berlin Medical Society that he had run across the case of a woman who had twins 8 times and triplets once, and in addition to that brood of 19, had given birth to 6 children beside—25 in all. The professor said that abnormal birth seemed to have been inherited by this woman, as her mother had had twins 7 times and her grandmother had gone through the same experience 12 times. The professor said this case appeared to be conclusive evidence that liability to "twinhood" was inheritable by daughter from mother.

Lord Mount Stephen's Munificence.—Lord Mount Stephen has for the second time made a princely donation to the King's Hospital Fund for London. It may be remembered that an anonymous donor recently offered to contribute capital producing £3,800 per annum to the fund if the public within a certain date would find capital to produce £10,200 per annum. The £14,000 per annum so raised would have brought the fixed income of the fund up to £50,000 per annum. The anonymous offer, however, lapsed, the public having made no adequate response to the appeal issued by the Prince of Wales as president of the fund. Lord Mount Stephen has now come to the rescue and has placed at the disposal of the Prince of Wales to be used for the fund, bonds worth £200,000, producing £11,000 per annum, "leaving," as he says, "only £3,000 a year still to be provided, and affording a great opportunity for some one willing and able to do a beneficent act." Lord Mount Stephen's generosity is well known, but he has never helped with his magnificently open hand a worthier object. The value of the fund will be greatly increased by the possession of a fixed income of £50,000, and we can hardly doubt that the remaining £3,000 necessary will be forthcoming.—[*The Lancet.*]

OBITUARIES.

Michael O'Hara, Sr., aged 72, January 31, at his home in Philadelphia. He was graduated from the medical department of the University of Pennsylvania, in 1852, and he had practised medicine in Philadelphia for more than fifty years. In 1891 he resigned from active practice and entered the United States Navy as assistant surgeon, and later became surgeon of the 150th Regiment, Pennsylvania Volunteer Infantry. After the conclusion of the war he resumed the practice of medicine in his home city. For many years he was attending physician to St. Mary's Hospital, the House of the Good Shepherd, and from 1894 to 1898 he was medical director of St. Agnes' Hospital. He was a member of several scientific societies and had served as librarian and

vice-president of the Philadelphia County Medical Society. He was a delegate to the National Congress held in Philadelphia, in 1876.

Otto Kohlbase, aged 27, January 28, from yellow fever, on the cruiser Boston, in the harbor of Panama. He was assistant surgeon in the United States Navy, having received his appointment in May, 1903. He was stationed on the Boston last November, and at the time of his death he was on his first cruise. In March, 1904, he was graduated from the Naval Medical School in Washington.

William R. Reud, aged 70, February 1, at the home of his nephew, in Boston. He was a graduate of the University of Pennsylvania and of Edinburgh, and had served in the hospitals of London and Paris. He had retired from practice some twenty years ago, and for the past several years had been afflicted with rheumatism, which finally caused his death.

T. H. Brenneman, aged 34, January 28, at the Sarah Leigh Hospital, Norfolk, Va. He was formerly house physician at St. Vincent's Hospital, N. Y., and more recently physician at the Princess Anne Hospital, Virginia Beach. The cause of death was septicemia following a surgical operation performed three weeks before his death.

Cordelia A. Greene, of Castile, N. Y., January 28, in the Presbyterian Hospital, New York City, after an operation. She was a graduate of the medical department of Western Reserve University, Cleveland, Ohio, in 1857; and member of the American Medical Association and various other societies.

Virgilus G. Hitt, aged 63, of Atlanta, Ga., January 15, at the Presbyterian Hospital, Atlanta, from heart disease. A graduate of the University of Virginia, Richmond, in 1863. For a number of years he was secretary of the Association of Surgeons of the Confederate Army and Navy.

Frederick W. Richardson, formerly of St. Paul, Minn., January 26, at Ligao, Albay, P. I., as result of poisoning by wood alcohol. A graduate of Long Island Hospital College, Brooklyn, N. Y., in 1885, and was acting assistant surgeon of the United States army.

Patrick J. McGrath, formerly a member of the staff of the Manhattan State Hospital, Long Island, N. Y., was killed January 28 by falling from a stoop in New York City; a graduate of the Northwestern University Medical School, Chicago, in 1891.

James A. Freer, aged 46, February 5, at his home in Washington, D. C. He was a native of Gilbertsville, N. Y., and a graduate of the New York Homeopathic College of Medicine. He had practised in Washington for more than twenty years.

Edward Valencourt Duell, aged 63, January 20, at his home in Saratoga, N. Y., from cerebral hemorrhage. A graduate of the University of Louisville, Ky., in 1864; surgeon in the Federal army during the Civil war.

August A. Hofling, aged 47, January 22, at his home in Cincinnati, of diabetes. A graduate of the Miami Medical College, Cincinnati, in 1899. He was secretary of the West End Medical Association, Cincinnati.

Jacob W. Lowman, aged 68, January 15, at his home in Orangeburg, S. C. A graduate of the Medical College of Georgia, Augusta, Ga., in 1858; one time representative in the State Legislature of South Carolina.

Richard Cheatham, aged 49, January 21, at his home in Nashville, Tenn. A graduate of Bellevue Medical College Hospital in 1877; member of the American Medical Association and of the Nashville Board of Health.

Storrs Hull, aged 90, January 13, at the home of his son in Ripon, Wis. A graduate of the medical institution of Yale College, New Haven, Conn., and for many years a practitioner at Rosendale, Wis.

Joseph R. Duncan, aged 77, January 21, at his home in Crawfordsville, Ind. He was admitted to practice in Cincinnati in 1859; was assistant surgeon in the Federal army during the Civil war.

George C. McFarland, aged 64, January 16, at his home in Jacksonville, Ill. A graduate of Rush Medical College, Chicago, in 1863, and surgeon in the Federal service during the Civil war.

Jesse C. Waldo, aged 32, January 24, at his home in Hulbertsville, N. Y., from pneumonia. He was a graduate of the medical department of Syracuse University, in 1897.

Harry W. Spence, aged 29, January 24, at his home in Ottawa, Ont. A graduate of Toronto University medical faculty in 1898. He served in the South African war.

Wm. M. McKemy, as the result of a self-inflicted bullet wound, at his home in Pecos, Tex. A graduate of Bellevue Hospital Medical College, New York City, in 1891.

Thomas Lafayette La Fon, aged 41, January 25, at his home in La Grange, Mo., from tuberculosis. A graduate of Jefferson Medical College, Philadelphia, in 1885.

Jonathan Nichols, aged 78, formerly of Atlantic, Ia., January 17, from heart disease, at Los Angeles, Cal. A graduate of Albany (N. Y.) Medical College in 1848.

Eli W. Free, aged 80, January 27, at his home in Baltimore, from heart disease. A graduate of the College of Physicians and Surgeons, Baltimore, in 1847.

John B. Fuller, aged 78, January 18, at the home of his son in

Jacksonville, Tex. A graduate of Texas Medical College and Hospital, Galveston, in 1874.

Joseph A. Cantrelle, aged 77, January 19, at his home in New Orleans. A graduate of Tulane University medical department, New Orleans, in 1850.

William A. Mitchell, aged 63, February 1, at his home at Mangohick, Va. He was a graduate of the Medical College of Virginia, in 1873.

Jonathan A. Anthony, aged 77, January 20, at his home in Terrell, Tex. He was a veteran of the Mexican war.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 3, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Arkansas:	Helena.....Jan. 21.....	Present		
	Jacksonville.....Jan. 21.....	"		
	Little Rock.....Jan. 21.....	"		
	Lonoke Co.....Jan. 21.....	"		
	McAlmont.....Jan. 21.....	"		
	North Little Rock.....Jan. 21.....	"		
	Pulaski Co.....Jan. 21.....	"		
	Sweet Home.....Jan. 21.....	"		
	Ward.....Jan. 21.....	"		
	Wrightsville.....Jan. 21.....	"		
Illinois:	Chicago.....Jan. 21-28.....	22	1	
	Danville.....Jan. 21-28.....	3		
	Topeka.....Jan. 21-28.....	1		
Kansas:	Boston.....Jan. 21-28.....	2		
Massachusetts:	Gulfport.....Jan. 20.....	2		
Mississippi:	St. Louis.....Jan. 21-28.....	20	4	
Missouri:	Toledo.....Jan. 14-28.....	6		
Ohio:	Greenville.....Jan. 7-14.....	5	2	
South Carolina:	Memphis.....Jan. 21-28.....	12		
Tennessee:	Nashville.....Jan. 21-28.....	Two imported		
		5		

SMALLPOX—FOREIGN.			Cases	Deaths
Brazil:	Bahia.....Dec. 1-31.....	64		
France:	Paris.....Jan. 7-14.....	21		
Great Britain:	Belfast.....Jan. 7-14.....	1	1	
	Dundee.....Jan. 7-14.....	1		
	Glasgow.....Jan. 13-20.....	1		
	Hull.....Jan. 7-14.....	6		
	Leeds.....Jan. 7-14.....	21		
	London.....Jan. 7-14.....	1		
	Manchester.....Jan. 7-14.....	1		
	Newcastle-on-Tyne.....Jan. 7-14.....	8		
	Nottingham.....Jan. 7-14.....	1		
	South Shields.....Jan. 7-14.....	6	1	
Italy:	Palermo.....Dec. 24-Jan. 7.....	31	6	
Norway:	Christiania.....Jan. 7-14.....	10		
Russia:	Odessa.....Dec. 31-Jan. 7.....	2		
	St. Petersburg.....Dec. 31-Jan. 7.....	7	2	
	Warsaw.....Nov. 12-19.....	1		
Spain:	Cadiz.....Dec. 1-31.....	3		
Straits Settlements:	Singapore.....Dec. 24-31.....	1		30
West Indies:	Island of Grenada.....Dec. 29-Jan. 11.....	4		

YELLOW FEVER.			Cases	Deaths
Mexico:	Merida.....Jan. 15-21.....	1	1	
	Tehuantepec.....Jan. 15-21.....	1		
Panama:	Panama.....Jan. 25.....	1		

CHOLERA.			Cases	Deaths
Russia:	Erivan.....Dec. 21-28.....	25	26	

PLAGUE—INSULAR.			Cases	Deaths
Philippine Islands:	Manila.....Dec. 3-10.....	1	1	

PLAGUE—FOREIGN.			Cases	Deaths
Argentina:	Santa Fe.....Dec. 27.....	1	1	
Australia:	Townsville.....Dec. 9.....	1		
British East Africa:	Port Florence.....Jan. 1.....	3		
British South Africa:	Durban.....Nov. 27-Jan. 3.....	1	1	
Egypt:	Port Said.....Dec. 24-31.....	1		
	Suez.....Dec. 24-31.....	7	4	
	Tukh.....Dec. 24-31.....	5	3	
Russia:	Ural Territory.....Dec. 26-28.....	35	35	

Changes in the Medical Corps of the U. S. Army for the week ended February 4, 1905:

MCDONALD, CHARLES E., contract surgeon, having reported from the transport Sherman, is relieved from further duty with troops and will proceed to his home, Jeffersonville, N. Y., for annulment of contract.

SPARRENBARGER, FREDERICK H., contract surgeon, is granted leave for ten days.

ADAIR, GEORGE F., contract surgeon, is granted leave for about two months, from about February 1.

GRISWOLD, W. CHURCH, contract surgeon, will proceed from Brooklyn, N. Y., to Fort Du Pont for duty, relieving First Lieutenant Robert Smart, assistant surgeon, who will proceed to Fort Sheridan for duty.

FUNDERBURG, GRANT, sergeant first class, now at Dayton, Ohio, upon expiration of furlough granted him from Company B, Presidio of San Francisco, will report at Fort Meade, to relieve Sergeant First Class Paul L. Whitmarsh. Sergeant First Class Whitmarsh will be sent to Washington, D. C., reporting to the officer in charge of the field medical supply depot, to relieve Sergeant First Class John B. Copping. Sergeant First Class Copping will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I., on the transport sailing from San Francisco about March 28.

COLLINS, JOHN L., sergeant first class, Fort Hunt, will be sent to Fort Washington not later than February 2 for duty.

MURPHY, WILLIAM F., sergeant first class, now at Rahway, N. J., upon expiration of furlough granted him from Fort Du Pont, will report at Fort Hunt for duty.

OWEN, Major WILLIAM O., surgeon, will proceed from Fort Logan to the Presidio of San Francisco, and report at the General Hospital for treatment.

MCLEOD, ANGUS, sergeant first class, Fort Rodman, will be sent to West Point, N. Y., to relieve Sergeant First Class Clifford H. Perry. Sergeant First Class Perry will be sent to Fort Rodman for duty.

COX, SHELBY G., sergeant first class, Fort Crook, will be sent to the Army General Hospital, Presidio of San Francisco, for observation and treatment.

The following named officers will report to Lieutenant-Colonel Geo. H. Torney, deputy surgeon-general, president of the examining board, at the Army General Hospital, Presidio, San Francisco, not later than March 8, for examination and advancement: First Lieutenants Robert N. Winn, assistant surgeon; Henry D. Thomason, assistant surgeon.

Changes in the Medical Corps of the U. S. Navy for the week ended February 4, 1905:

MILLER, J., JR., assistant surgeon, detached from duty with the marines on the Isthmus of Panama and ordered to the Boston—January 27.

MCDONNOLD, P. E., passed assistant surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Dispensary, Washington, D. C.—January 30.

WEBB, U. R., assistant surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department—January 30.

ELMORE, B., acting assistant surgeon, appointed acting assistant surgeon from January 24, 1905—January 31.

ROSS, JOHN W., medical director, retired, detached from duty under the Isthmian Canal Commission—February 1.

SMITH, R. K., surgeon, detached from the Naval Recruiting Station, San Francisco, Cal., resignation accepted to take effect February 28—February 2.

MEANS, V. C. B., surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to duty at the Naval and Marine Recruiting Stations, San Francisco, Cal.—February 2.

Changes in the Public Health and Marine-Hospital Service for the week ended February 1, 1905:

BROOKS, S. D., surgeon, placed on waiting orders effective January 27—January 28, 1905.

MAGRUDER, G. M., surgeon, granted extension of leave of absence for thirty days from January 22, on account of sickness—January 28, 1905.

ROSENAU, M. J., passed assistant surgeon, one day's leave of absence, January 28, 1905, under paragraph 189 of the regulations.

WICKES, H. W., passed assistant surgeon, granted leave of absence for one day, January 30—January 28, 1905. To proceed to Philadelphia, Pa., and report to Surgeon Fairfax Irwin for special temporary duty—February 1, 1905.

LAVINDER, C. H., passed assistant surgeon, detailed as inspector of unserviceable property at Purveying Depot, New York, N. Y.—January 28, 1905.

GWYN, M. K., passed assistant surgeon, granted leave of absence for four months from January 19—January 24, 1905.

LONG, J. D., assistant surgeon, granted leave of absence for seven days from December 21, 1904, under paragraph 191 of the regulations.

ROBERTSON, H. MCG., assistant surgeon, granted leave of absence for six days from February 6—February 1, 1905.

FROST, WADE H., assistant surgeon, directed to proceed to Baltimore, Md., and report to the medical officer in command for duty and assignment to quarters—January 30, 1905.

MULLAN, E. H., assistant surgeon, directed to proceed to New York, N. Y. (Stapleton), and report to the medical officer in command for duty and assignment to quarters—January 30, 1905.

LINLEY, W. J., acting assistant surgeon, department letter of January 8, 1905, granting leave of absence for thirty days from January 16, 1905, revoked—January 28, 1905.

MONCURE, J. A., acting assistant surgeon, granted leave of absence for thirty days from February 1—January 25, 1905.

Board Convened.

Board convened to meet at the Marine Hospital, San Francisco, February 1, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

Appointments.

Wade H. Frost, of Virginia, commissioned as assistant surgeon in the Public Health and Marine-Hospital Service—January 13, 1905.

Eugene H. Mullan, of Maryland, commissioned as assistant surgeon in the Public Health and Marine-Hospital Service—January 13, 1905.

Resignation.

Acting Assistant Surgeon A. C. Fraser resigned to take effect January 31, 1905.

SOCIETY REPORTS

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-second Annual Meeting, Held at Havana, Cuba, January 9, 10, 11, 12 and 13, 1905.

[Specially reported for *American Medicine*.]

[Concluded from page 179.]

Diphtheria Infection in Minnesota, Especially in School Children, and Institutional Epidemics.—F. F. WESBROOK (Minneapolis) stated that in the work of the Minnesota State Board of Health the problems had naturally arranged themselves into three main groups: 1. The work of dealing with diphtheria as it occurred in family life, where one or more cases appeared in a household. 2. Where infection was widespread and the day schools had to be closed. 3. Where infection gained entrance into institutions in which children or other inmates were housed, employed, taught or confined, and where great opportunity for the spread of infection was present. In summing up the work, he said it was apparent. 1. That an adequate laboratory staff and equipment were essential since only by thorough laboratory examination could the presence of possible danger be determined. 2. It had been found convenient to utilize institutional laboratories when available, as the members of the laboratory staff of the State Board of Health could examine cultures on the spot when there was urgent need of haste. 3. The repetition of examination of both nose and throat specimens was advisable in all cases, and especially when suspicious bacilli were found. 4. Every effort should be made to prevent the exchange of nose and throat bacteria between individuals until it was definitely known whether they were infected or not. In infected individuals the bacilli would be eliminated more quickly the greater the approximation to individual isolation. 5. It was unsafe to place hitherto uninfected individuals who developed sore throat with clinical cases of diphtheria. 6. Executive action must be taken on the basis afforded by the laboratory; therefore, it was essential that these two branches be kept in the closest touch, or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge. 7. That such methods give satisfactory results and were entirely practicable had been shown in the experience of the Minnesota State Board of Health under conditions which presented the greatest possible variation. Three epidemics had thus been suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement were employed in the housework of the institution, where the babies were left in charge of different mothers at different times, and where also the almost daily admission of fresh inmates added to the opportunities for the introduction of infection. 8. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of flora of the nose and throat. 9. In institutional and school life the more independent the individual and the greater the facilities for individual infection, the greater the freedom from diphtheria infection. SAMUEL H. DURGIN (Boston) followed with the report of the committee on the infectious period of communicable diseases.

Social Hygiene.—ADOLPHO OLIVA (Guadalajara, Mexico) read a paper on this subject, in which he pointed out the effects of dress on the system. He also discussed the various forms of dress. He said that variations in temperature of the system with the climate, seasons, age, constitution, and the conditions of health or of disease fully demonstrated the physiologic necessity of dress.

Yellow Fever in Mexico.—E. LICEAGA (Mexico), with the aid of numerous charts and diagrams, described how houses that were infected with the disease were disinfected. As soon as a case of yellow fever was found, the patient was isolated, the mosquitos and larvas were destroyed. The Vera Cruz campaign against yellow fever had been very successful, in that there had not been any epidemic of the disease in that city for the last six months. He cited a case to prove, without doubt, that yellow fever was transmitted by mosquitos alone.

Infantile Feeding by Nurses.—ALFONSO PRUNEDA (Mexico) said it was necessary always to advocate the need of maternal lactation, which was really adequate from every point of view, but in the event of this being found impossible, we should not hesitate to adopt some other methods; and especially should we avoid the employment of wet nurses who, as the writer pointed out, presented many objections, but rather make use of sterilized milk, which, when properly and methodically used, would fulfil its purpose, and thus save the lives of many children who would under other conditions perish and increase the infant deathrate.

Production of Animal Vaccine.—W. F. ELGIN (Glenolden, Pa.) described experiments and his experience in the production of animal vaccine. The author pointed out: 1. That virus exposed to cold below 0 C. might remain active for an indefinite period, certainly for several years. 2. That when it was removed from cold storage, it would retain its activity for a considerable period under conditions that usually obtained commercially. 3. That when glycerinated lymph was exposed to 0 C. or below, the destruction of germ life through the action

of the glycerin was practically at a standstill. 4. The rapidity of the elimination of the contained bacteria depended upon the temperature above 10°C ., in which the virus was stored. The writer showed that the life of the average commercial vaccine was only three months in winter, and in August and September only about one month. Two lessons might be learned from this: 1. One should not vaccinate in the summer season unless compelled to do so by the presence of smallpox. 2. When compelled to vaccinate at this season, one should order direct from the laboratory the vaccine, and use it at once without regard to the dating on the package. After discussing the form of preparing vaccine, the author stated that dried vaccine in any form was short-lived, and not near so reliable as the glycerinated form. The most active virus was to be obtained from the deep curing.

Discussion.—F. P. BERNALDEZ (Mexico) cited facts and arguments which tended to demonstrate the superiority of humanized over animal vaccine for the prevention of smallpox. He claimed that persons who were vaccinated and revaccinated with humanized lymph enjoyed a longer immunity, according to his observations, and in Mexico he had never seen a case so vaccinated attacked by smallpox. His practice had taught him that in such persons revaccination did not take, or at most assumed the appearance of false vaccination, thus proving, in his opinion, that the individual was not susceptible. He urged that vaccination be practised by physicians of experience in order to avoid the possibility of transmission of disease. VINCENTE DE LA GUARDIA (Havana) spoke of the necessity of vaccination and revaccination of individuals who had suffered from smallpox. He said that in most countries nowadays there was no vaccination requirements for individuals who had had smallpox. He had had the opportunity of vaccinating and revaccinating 1,599 persons, members of the police department, custom house inspectors, port policemen, persons confined in jails, males, and females, etc. Of this number 328 were branded with the smallpox trademark, and of 47 of whom were vaccinated for the first time in their lives, 17 were successful in taking. Two hundred and sixty-three were revaccinated, in 48 of whom it took successfully, giving a total of 65 successful vaccinations. The total result of the 328 who had had smallpox previously corresponded approximately to over 20% of the total figures. The author concluded by insisting that, as a general rule, all individuals, whether they be victims of smallpox or not, should be vaccinated or revaccinated, as the case might be.

Stegomyia Fasciata.—FERNANDO LOPEZ (Mexico) detailed some experimental studies on the acclimatization of this germ. The experiments seemed to prove that *Stegomyia fasciata* could live, bite, and breed for, at least, three generations in Mexico City, notwithstanding the fact that this city had an altitude of more than 7,300 feet above sea-level.

After the introduction and adoption of resolutions of thanks to the local committee of arrangements, the President of the Republic of Cuba and the Minister of the United States, for the receptions so graciously given in honor of the members, the Association, on motion, adjourned to meet in the city of Boston, Mass., 1905.

PAN-AMERICAN MEDICAL CONGRESS.

[Specially reported for *American Medicine*.]

[Continued from page 179.]

Earlier Conditions of the Canal.—TRACY ROBINSON delivered an address on this subject. He reverted to the opening of the Panama railroad on January 31, 1855. This, next to the discovery of the Pacific by Balboa, was the most important event that had occurred on Isthmian soil. In 1869 the overland connection from Omaha to San Francisco was completed, and the prosperity of the Pan-American route waned. He said the people of Panama expected great things from the influence of the medical profession on the new canal project. He believed that Panama, under American government, would some day be an object lesson for the world. He joined his Panamanian brethren in extending the hand of welcome to the members of the Congress. There had never been a real epidemic of yellow fever on the Isthmus for 50 years, although many had died of the fever. There had been 1,200 deaths in 5 years out of a total number of 6,000 men employed in the construction of the railroad. All the workers on the canal in the sanitary corps were up-to-date medical men—true missionaries. To them the people looked for health and strength. The trained physician led, and he would be the captain in the battle of scientific civilization against bigotry and ignorance.

The Secretary-General of the Congress, José E. Calvo, extended to the members the hospitality of the city, and said that "if we have not the charm of large cities, we still take great pride in your visit, and hope that you will be rewarded for having come so far." Mexico, Guatemala, United States of America, Honduras, San Domingo, Cuba, Peru, and Porto Rico sent official delegates, as well as the medical faculty of Costa Rica, and the Academy of Sciences of Havana.

SECOND SESSION.

A New Method of Incising and Suturing the Liver to Reestablish Its Continuity and for the Control of Hem-

orrhage.—JACOB FRANK (Chicago), in a paper with this title, stated that all modern surgery, especially the abdominal surgery, sought to secure primary union, thus minimizing infection and hernias. This principle should be applicable to surgery of the liver, provided a proper technic was employed. If the surfaces were properly coapted the continuity would be reestablished, primary union secured, and hemorrhage prevented. Liver surgery had heretofore presented the following dangers: Hemorrhage; ignorance of the healing and regenerative power of the liver; infection; cholemia from the escape of bile into the peritoneal cavity. Injuries of the liver had always been considered grave, and those of the concave surface more dangerous than of the convex. Compression had been most usually tried to stop hemorrhages. It was now pretty well proved that hemorrhage might be controlled by the suture, catgut being preferred to silk. Frank had lately experimented on dogs, making deep incisions into or through the liver, some of which recovered without any treatment whatever. He then excised a wedge-shaped piece from the liver, securing exact apposition, and securing all bleeding vessels by ligature. The edges were then held in contact and sutured by catgut. The results were excellent. The abdominal incision was a matter of choice. The method was considered particularly applicable to tumors, for the reason that they usually appeared at the edge of the liver. The incision must be free, so as to be certain to remove the growth completely.

Discussion.—NICHOLAS SENN (Chicago, Ill.) stated that the experiments of Frank were conducted on normal tissue, and that the conditions were not such as one would find in pathologic tissue. In cases calling for operation the possibility of hemorrhage was greater, because vascular channels were enlarged. In operating, one should strive to imitate nature. The retraction of the cut end of bloodvessels was a mechanical impossibility in the parenchyma of the liver. A thrombus was the only thing to be relied on to secure control of liver hemorrhage. Nature would provide such a thrombus when the liver was lacerated. The idea of excising a wedge of tissue he considered excellent. GEORGE W. CRILE (Cleveland, O.) stated that in the liver the circulation was low, and that even pressure was essential to continue it. He believed that on this account bleeding should be checked by the method recommended by the essayist. FRANK, in closing the discussion, stated that he had recently received reports with reference to gall-bladder surgery where the surgeon had found that after the removal of the gallbladder, hemorrhage from the liver was best controlled by sutures. It was very essential to operate as rapidly as possible on human beings, and endeavor to control hemorrhage or prevent it from entering the peritoneal cavity.

Surgical Physiology.—GEORGE W. CRILE (Cleveland, Ohio) in a paper on this subject, stated that surgical practice rested very largely upon altered physiologic actions. Good illustrations were the surgical physiology of the two most vital phenomena, respiration and circulation. In respiratory obstruction, respirations were not immediately arrested, but were stimulated in force, though not in frequency. In mechanical stimulation of the laryngeal mucosa there was usually an immediate respiratory arrest; therefore, there should not be a moment of doubt in differentiating between reflex inhibition and obstruction, thereby avoiding certain crises in the abstraction of foreign bodies or in performing intubation. In administering anesthetics, the students should remember that if the tongue was pulled forward too forcibly, respiration would be arrested. A better way was to recall also the increased respiratory action caused by division of the anus, and to call upon the accessory muscular apparatus to aid respiration. Surgical physiology of the circulation was more vital than that of the respiration. The control of the circulation often meant control of life itself. If by any reflex action the vasomotor system was disturbed, its function was impaired, and the blood-pressure fell. If the surgeon remembered this, he would guard against excessive manipulation, and he would try to support the circulation by such mechanical means as saline infusions, posture, or bandaging. It was known that a hard pulse and high blood-pressure were characteristic of increased intracranial pressure. This might lead the surgeon into a false security. He should not push chloroform to full anesthesia, as by so doing the blood-pressure is liable to fall and cause a sudden arrest of respiration and circulation. The heart might be inhibited from mechanical stimulation of the trunk of the superior laryngeal nerve in operations upon the larynx, and death might occur, although it should not. Furthermore, a blow upon the lower ribs or pit of the stomach did not cause collapse or death from disturbance of the solar plexus, but from inhibition of the heart. As to suspended animation, he stated that the different parts of the body had varying periods of suspended animation, and death fell unevenly to the different tissues and organs. He had been able to resuscitate a dog 15 minutes after complete arrest of respiration and circulation. A decapitated dog was kept alive for 12 hours by a continuous slow infusion of a 1 to 15,000 solution of adrenalin in salt solution. The author cited several interesting experiments. The great lesson to be learned was that physiology must be studied carefully to benefit surgery.

Some Gynecologic Superstitutions.—LUCY WAITE (Illinois) said that these were hard to overthrow. One of the first superstitions was that the uterus had normal position. It had not, but it might lie in any position. The second was that

retrodeviation of the uterus was the cause of constipation. This was not so, as it could not be proved either by dissection or examination. She had 500 cases analyzed, but could not trace constipation to posture of the uterus alone. The uterus was found in anteroposition in 60%, in retroposition in 40%. Of the anteropositions, 52% gave a history of constipation, while 48% did not. Of the retropositions, 66% complained of chronic constipation, and 33% had normal bowel movements. The third was that backache was a symptom of retrodeviation. She regarded this as nonsense, as 1,000 cases examined disproved that superstition. The fourth, that flexion or stenosis was the cause of dysmenorrhea. This was not so, nor was childbirth the only cure. Of 300 cases where the question was asked: "Have you had more or less pain since the birth of your children?" the answer of 135 was, "more pain," of 89 "less pain," and of 76 "no difference." Some of these 76 had had no pain before or since childbearing. Of the 135, some had had no pain before childbearing. Many women had suffered worse after childbirth than before. She thought that the mania for operating ought to be checked on the death of these superstitions.

Discussion.—GEORGE W. CRILE (Cleveland, Ohio) asked the essayist whether all backaches were attributed to the uterus and whether they were often accompanied by aches of the legs, to which WAITE replied that not all backaches are traceable as referred pains to the uterus, but that there was usually some pelvic disturbance rather than any malposition of the uterus.

Extraction of Cataract.—S. D. RISLEY (Philadelphia). This paper will appear in a future issue of *American Medicine*.

THIRD SESSION.

Coxa Vara and Differentiation between it and Sthenic Inflammatory and Traumatic Affections of the Hip-joint.

—NICHOLAS SENN (Chicago) stated that coxa vara was a disease of the femoral neck in adolescence, and hitherto had been rarely described in this country. Müller was the first, in 1888, to give it an earnest clinical study and to prove that it was a disease entirely different from any other hitherto described. Hofmeister and Kocher, six years later, contributed to the study. A genuine coxa vara was characterized by a noninflammatory softening of the neck of the femur. It was a self-limited disease, confined to the femoral neck, and characterized by anatomic changes. Senn reported two typical cases in young men, and a third in a man of 42. The last case presented all the classic signs and the roentgen ray showed that there was no fracture of the femur, as had been suspected before the case came under his observation. There had been the usual pains in the hip-joints referred at times to the knee, coming on in paroxysms which would last for two weeks, followed by painless intervals of several days. There was no tenderness or impairment of joint motion. The pain was not aggravated by standing or walking. After two occasions in which the patient slipped and increased the pain, he noticed that the leg was shorter. When seen by the essayist he walked with a decided limp, and complained only of muscular weakness. Any infection could be excluded, and there was certainly not a complete fracture. A spontaneous recovery, as well as the degree of bending downward of the neck of the femur in its entire length, and the complete absence of neoplastic inflammatory products excluded absolutely the possibility of arthritis or senile coxitis. Very little was known with reference to the true nature of coxa vara. The softening of the neck of the femur was the most important element. Trauma, tuberculosis, or inflammatory affections must be excluded. Life itself was never threatened as the disease was self-limited, and sooner or later ended in spontaneous recovery. The general treatment was unimportant. Local treatment should be directed toward relieving pain and limiting the bending of the neck of the femur. Both of these were secured by absolute rest in bed, combined with extension. Operative treatment should be delayed as long as possible.

Sanitary Conditions in Cuba since the Proclamation of the Republic.—CARLOS J. FINLAY (Havana, Cuba) contributed a paper on this subject, which was read by MARTINEZ (Havana) in the absence of the author. The subject was divided into (1) special sanitation against yellow fever; (2) special sanitation against other infectious disease; (3) general sanitation for the preservation of public health. The author stated that there were many who did not yet acknowledge that *Stegomyia fasciata* was the only means through which yellow fever could be propagated. The author claimed that this was the only method, and that to keep yellow fever patients from being bitten was the only means of subduing the disease itself. He referred in the highest terms to the noble work done by the late Major Walter Reed, Col. W. C. Gorgas, and others. He said that Gorgas, who was the chief sanitary officer of Cuba until May 20, 1902, first drove the infection from the island, and since his regime and up to the present date, December, 1904, notwithstanding the importation of 22 cases of yellow fever from foreign ports, not a single case of the disease had occurred in Havana, nor until two months ago in any other part of Cuban territory. The acute quarantinable diseases about which the island of Cuba was particularly concerned were yellow fever, smallpox, cholera and plague. None of these diseases, except those cases mentioned, had occurred, with

the exception of one case of smallpox, which was due to an accidental contagion, which did not spread. Against smallpox, they trusted to isolation and vaccination. Against diphtheria, isolation and antidiphtheric serum, prepared in Havana, had given excellent results. Cases of infectious diseases were isolated at home or in some special hospital.

Discussion.—PURNELL, Acting Assistant Surgeon in the Marine-Hospital Service at New Orleans, stated that although he accepted the mosquito theory, he did not do so absolutely, inasmuch as there were cases unexplained by this theory, and that measures of prevention beside the attack on the mosquito should be adopted. The great epidemic in Memphis in 1879, occurred after a severe cold winter, but not until July 9, and if the mosquitos alone were the cause, the disease ought to have appeared in April. He had known of an outbreak in Jackson, Miss., among men working in buildings which 10 years previously had been infected with the disease. Fomites had undoubtedly something to do with the spread of yellow fever. H. R. CARTER (Panama) expressed himself as being positive that yellow fever was conveyed by the bite of a mosquito from sick to sick, and in this way only. He had assisted in stamping out epidemics by methods not necessarily directed against the mosquitos alone, such as isolation and fumigation, but he knew that their efficacy had destroyed the mosquito incidentally. Sulfur was a good insecticide, but not much of a disinfectant. STERN (Jamaica and Panama) concurred in the remarks of Purnell in not accepting the mosquito as the only conveyor of yellow fever. COOK (Panama) expressed himself in a similar manner. CHASSAIGNAC (New Orleans) considered the mosquito theory beyond refutation. The Havana experiments had furnished positive proof of this, and he did not think there was any other means of transmitting or conveying the disease. C. H. HUGHES (St. Louis, Mo.) spoke of his experience with the disease during his early practice. He was not convinced that the mosquito was the only means of propagation, and expressed himself as believing that flies might transmit the disease. CARTER referred to fomites, and said that there could be only two ways in which they could convey the infection. One was by direct contact, such as opening a trunk, and the other by environment. If either means was admitted, infection should take place anywhere. W. C. GORGAS said he thought at one time fomites were the only cause of transmission of the disease. He then differed from Finlay, but Major Reed soon convinced him to the contrary. The harmlessness of baggage was observed in Havana, where people from the suburbs were constantly moving back and forth, but never brought infection with them. LEWIS BALCH, in referring to fumigation, said that he relied upon 2 pounds of pyrethrum powder to 1,000 cubic feet, with 2 hours' exposure. This gave absolute results in killing *Stegomyia fasciata*. THOMAS had used pyrethrum, but had found it without value, and said that sulfur was now used exclusively in Louisiana. ECHEVERRIA (Costa Rica) spoke in favor of the mosquito theory, and added that yellow fever had never been known to occur where the *stegomyia* could not be found. MARTINEZ, in closing the discussion for Finlay, said that to explain isolated outbreaks it was assumed that children preserved the organism in the blood as they did malaria, and this offered a source of supply to the mosquito. The study of the development of the parasite in the mosquito showed that an intermediate host was necessary, just as it was in the tapeworm. The United States Army Commission had studied the question of fomites very thoroughly. In its report one instance was cited where the blankets, clothing, and bedding of patients ill or dead from yellow fever had been stored in a room and used by two sets of nonimmune fresh arrivals in Cuba, and yet no single instance of infection from this clothing had occurred.

Resolution.—CHAS. CHASSAIGNAC (New Orleans) offered the following resolution:

Resolved, That owing to the suffering and to the serious danger to health and life for which the mosquito is known to be chiefly, if not solely, responsible, it is the imperative duty of all communities and governments to use all the means in their power for the destruction and gradual annihilation of the pestiferous insect in question.

The resolution was seconded and unanimously carried.

Care and Cure of Epilepsy.—CHARLES H. HUGHES (St. Louis) claimed that epilepsy should not in many cases be listed with the curable diseases. He reported 10 cases that had been under observation for 25 years, in which there had been no recurrence. In treating epilepsy, he always demanded an agreement that the patient should be under control at least two years, during which time he would treat every function of the individual, so as to keep his general health in the best possible condition. Of course, institutional treatment was better in most cases than private treatment.

Report for the Delayed Passengers on the "Athos."—A. E. MACDONALD (New York) stated that when the members accompanying him realized that they could not reach Panama on time, the delegates and members held meetings on board the "Athos." Papers were read and discussed, of which records were kept, and he made a motion that such papers and discussions be allowed to be spread on the minutes of the Congress as a part of the regular proceedings. The resolution was adopted.

[To be concluded.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE FIFTH PRACTICAL YEAR.

BY

EMIL AMBERG, M.D.,

of Detroit, Mich.

Following up the subject of the Fifth Practical Year, which has been advanced by Dr. Rogers and by the *Journal of the American Medical Association*, on pages 1481 and 1471 of the *Journal of the Association* of November 12, 1904, I have made the following calculations for Michigan. My numbers are mostly based on Polk's Medical Directory of 1904:

The population of Michigan is	2,420,000
The number of physicians	4,449
The relation of the people to the physicians is	544 to 1
The relation is six times too large when compared with that in Italy, and four times too large when compared with that in France and Germany.	
Making a very liberal allowance, I place the necessary relation, in Michigan, at	1,500 to 1
The number of physicians required in Michigan would be	1,600
According to an article in the <i>Journal of the American Medical Association</i> of January 14, 1905, page 132, the average length of practice of a physician is	30 years
In order to make up the deficit caused by deaths, the number of newly-licensed physicians required each year would be	54
Allowing for the increase in population, an additional 25, the number would be	79
The number of beds in hospitals with more than 50 beds, or 50 beds, not counting asylums, is, roughly computed after Polk	1,895
The number of beds of those with 25 and more beds but less than 50 is about	550
Total	2,445
The number of internes, counting one interne to 25 beds, who could be accommodated would be	97

Additional provision could be made in the hospital departments of the asylums, perhaps in the asylums themselves, and in the district practice among the poor.

This calculation, although it may be defective in some parts, furnishes us, in my opinion, with some material on which we can base some conclusions. It not only proves that the inauguration of the Fifth Practical Year is possible, but it furnishes us also with the means to take the subject of overcrowding of the medical profession, which has placed the profession in such a deplorable condition, out of the realm of vague conjectures.

CASE OF POSTTYPHOID OVARIAN ABSCESS AND A CASE OF POSTTYPHOID SUPPURATIVE CHOLECYSTITIS WITH A GALLSTONE AND AN INTRAPERITONEAL ABSCESS.*

BY

B. C. HIRST, M.D.

of Philadelphia.

The occurrence of an abscess in the ovary following typhoid fever has been reported occasionally during the past 16 years. Pfannenstiel¹ quotes the cases of Walzberg, Werth and Sudeck, the first of which was reported in 1888. Morris Lewis and Le Conte² report two interesting cases in the Pennsylvania Hospital, and have collected seven others. Zantschenko³ observed suppuration in a pseudomucin cyst eight months after typhoid fever and found a pure culture of typhoid bacilli in the

* Read before the Philadelphia Obstetrical Society, November, 1904.

pus. Dirmoser⁴ reports an ovarian abscess following typhoid fever, with a positive bacteriologic examination.

In my case a young woman was admitted to a hospital in Philadelphia, April 18, with the symptoms of typhoid fever. On May 20 severe pelvic pains developed, requiring anodynes and counterirritation. The suffering diminished in intensity, but never quite disappeared. The patient was discharged June 14, and sent to the seashore to recuperate. There were exacerbations of the pelvic pain from time to time, which became so severe by the end of September that the woman was again confined to bed. She was sent to me the middle of October. At that time there was fever, a weak, rapid pulse, great abdominal tenderness, and to the right of the uterus an inflammatory mass the size of an orange. On the history and physical signs a diagnosis was made before operation of posttyphoid ovarian abscess. When the ovary was removed it was dropped into a sterile jar, which was stoppered with sterile cotton and sent to the pathologic laboratory of the University of Pennsylvania. With the exception of the ovarian abscess on the right side the abdominal and pelvic organs were normal. The corresponding tube was perfectly healthy. Professor Smith sent me a report that the ovary, which was converted into a single-chambered pus sac, contained a pure culture of colon bacilli.

The patient has made a good recovery.

My second case is reported with the first on account of the similar bacteriologic report.

The patient was a young woman from Florida, sent by Dr. John E. Boyd, of Jacksonville, to Dr. Wharton Sinkler. She had complained for two years of pain over the gallbladder. She had recovered from an attack of typhoid fever three months before coming to Philadelphia. While convalescing from the fever she noticed a lump below the ribs on the right side, as large as a clenched fist, that caused her great pain, and was very sensitive. A pelvic examination revealed a retroverted uterus and a prolapsed left ovary, from which she suffered the usual symptoms. The cervix was dilated, and the uterus cureted. Through a median incision the uterus was suspended and the left infundibulopelvic ligament shortened. Through an incision in the right hypochondriac region, the gallbladder was exposed and opened. A stone and several ounces of pus were removed. An abscess below the gallbladder in the peritoneal cavity was also evacuated. The gallbladder and the peritoneal abscess cavity were drained separately. The patient made an excellent recovery, and has returned home relieved of all her symptoms. Some pus from the gallbladder and from the peritoneal abscess was put in a sterile test-tube and sent to the Pepper Laboratory for bacteriologic examination. The report was returned that the pus contained a pure culture of an unidentified bacillus of the colon group, which I presume means the colon bacillus.

This report is presented to the society not so much to call attention to posttyphoid abscesses in the ovary and the gallbladder, a possibility familiar to well informed physicians, as to elicit a discussion regarding the infecting agent in such cases. As already stated, the infecting bacterium in my cases was apparently the colon bacillus. Sudeck found in his case, in addition to the typhoid bacillus, a diplococcus, and it is not generally admitted that the typhoid bacillus is a pus producer.

BIBLIOGRAPHY.

- ¹ Veit's Handbuch der Gynäkologie, Vol. III, p. 272.
- ² Infection of Ovarian Cysts during Typhoid Fever. *American Journal Medical Science*, October, 1902.
- ³ Monatschr. f. Geb. u. Gyn., January, 1904.
- ⁴ Zentralbl. f. Gyn., No. 40, 1904.

ARTS DEGREES AND PROFESSIONAL EDUCATION.

BY

J. C. CONNELL, M.D.,

of Kingston, Ont.

Dean Medical Faculty, Queen's University, Kingston, Ont.

To the Editor of *American Medicine*:—In your note on "Arts Degrees and Professional Education" in the issue of January 14, you suggest a plan which corresponds closely with that adopted by Queen's University for several years. I send you a marked copy of our *Calendar* in which you will see outlined a six-year course for the degrees of B.A. and M.D. or B.Sc. and M.D. The third and fourth years of this arts course are accepted as the first and second of the medical course and are in reality somewhat heavier than the usual first and second in medicine.

The plan is likely to be a popular one as quite a large number of our students are taking it. Several graduated B.A. last year on this course.

ORIGINAL ARTICLES

SOME FORMS OF INSANITY DUE TO ALCOHOL,
ESPECIALLY IN THEIR MEDICOLEGAL RELATIONS.*

BY

CHAS. K. MILLS, M.D.,

of Philadelphia.

Professor of Neurology in the University of Pennsylvania; Neurologist to the Philadelphia Hospital.

In legal medicine, as in medical practice, the subject of alcoholism is of first importance. It ranks with syphilis in claiming the attention of the physician, and with traumatism in holding the interest of the practitioner both of law and of medicine. The alcoholic, not insane, comes frequently under the hand of correction or of justice, although far more frequently escaping than he deserves if measured by the standards applied to other human beings. The insane alcoholic is both protected and neglected by the law, his protection expanding and his neglect diminishing as science and ethics present a better conception of his true condition and his real responsibility.

My object in the present contribution is to call attention to a few of the forms of insanity due to alcohol and other intoxicants, referring to some of their most important medicolegal relations, a subject the consideration of which might easily be expanded to a volume. It is necessary, therefore, to set somewhat rigid limits to the paper. Many efforts have been made to classify alcoholic disorders, the classifications having for their foundations a clinical, medicolegal or other basis. The most natural and usual subdivision is into acute and chronic alcoholic insanity. For both medical and medicolegal purposes a distinction must be made between acute alcoholism, not insanity, and acute insanity due to alcohol; also between chronic alcoholism and the chronic alcoholic insanities. Ordinary intoxication or drunkenness, however extreme, is not in the eyes of the law regarded as insanity, although both decisions and statutes differ as to the degree of responsibility incurred by one who commits a crime while in a state of acute intoxication. The question of partial responsibility has much interest in this connection.

Among the acute insanities due to alcohol are usually classed delirium tremens, and acute alcoholic mania. The epilepsy due to acute alcoholism may have attendant psychic phenomena of a dangerous character, and the lethal poisoning caused by alcohol may reduce the individual to such a state that he may become the victim of crime, and therefore the subject of legal and judicial consideration. The hallucinations and illusions in a case of delirium tremens are of such character as at times to render the subject dangerous and irresponsible; but of all the forms of acute alcoholic insanity, acute alcoholic mania is that which is of most importance in medical jurisprudence.

Any one of the numerous mental disorders with which the name alcoholic has been associated may, however, give rise to medicolegal questions. These may be few or many, according to the particular type of alcoholic mental derangement. The alcoholic somnambulist may steal or kill in his abnormal sleep; the alcoholic melancholiac may commit suicide or destroy others because of his depressive delusions. The alcoholic, suffering from acute mania, may strike down his fellowman in his wild excitement. The victim of delirium tremens, in trying to defend himself from his tormenting hallucinations and delusions, may do great harm to others and to himself; and the alcoholic dement may be unfit to care for himself or his estate, and therefore may need the protection of the law. It is not, however, with

these disorders of the mind due to alcohol that it is my purpose to deal in this contribution, nor with mere drunkenness, transient or habitual. I shall confine myself to two well-defined types of alcoholic insanity—the chronic alcoholic delusional insanity and dipsomania, under this latter head including some consideration of what by some writers is spoken of as pseudodipsomania.

Before taking up the discussion of chronic delusional insanity due to alcohol, a few words should be said about the physical basis on which this mental disorder develops. Close investigation of individual cases will often show that the chronic alcoholic delusional has a neuropathic heredity. Not infrequently this is a history of alcoholism in his immediate or somewhat remote ancestors, but it may be an inheritance of some other vice or disease.

Among the primary effects of the ingestion of alcohol is the production of vasomotor weakness, even paresis. Its continuous abuse causes pathologic changes in vessel walls, in kidneys, liver, stomach, and other viscera. In a general sense, the primary changes are congestive, the secondary, cirrhotic or sclerotic. In the brain the evidences of the prolonged excessive use of alcohol are especially notable, in arteriosclerosis, in opaque and thickened membranes, and in degenerate neurons. In a word, the effects primary and secondary, are those of a poison. This is none the less true because the nervous system and other organs and tissues of the bodies in some individuals offer great resistance to the toxic influence. The problem is a simple one of original endowment versus an agent potent for evil.

The form of alcoholic delusional insanity to which attention will first be particularly called because both of its medical and its forensic importance is known by various names, as for instance, chronic alcoholic insanity, alcoholic persecutory insanity, and alcoholic paranoia. Perhaps none of these designations, nor others which have been suggested, are strictly applicable. The cases which may be placed under this type are not all in the strict sense chronic, at least the insanity is not chronic, but the mental derangement rather appears as an episode or outbreak in a case of alcoholism, the patient not having previously been regarded as insane. In other cases the insanity develops insidiously, the prodromal psychic symptoms appearing before the fully developed persecutory syndrome. The designation paranoia is applicable here as in other forms of toxic mental disorder, as those due to morphinism and cocaineism, if it is admitted that the term paranoia should be applied to toxic cases at all. On the whole, toxic paranoia is a useful descriptive term, as the train of hallucinations and delusions which are usually present in alcoholic and other toxic cases has commonly distinct resemblances to that which is exhibited by the ordinary case of paranoia or monomania. The toxic cases also show some systematization; although this is usually of a feeble character than that presented by nontoxic paranoia. The cases of alcoholic persecutory insanity, as I have seen them, might easily be divided into several classes, according to the peculiarity of onset and of course. Those most commonly observed are of two kinds, namely, one in which the delusional state comes on slowly, or at least, not suddenly, and not necessarily with reference to any particular debauch, although a period of great excess may cause the hallucinations and delusions which have been imminent or just apparent to elaborate rapidly and become obtrusive. In these cases the delusions are often not violently expressed or exhibited, but the cases for this very reason may be more rather than less dangerous. In a second class of cases, the alcoholic, usually not having shown any previous signs of insanity, the mental disorder appears suddenly or rapidly, the symptom-complex being one in which hallucinations of hearing and sight are associated with delusions of suspicion and persecution, these being often of a revolting character. The

* Read before the Medical Jurisprudence Society, of Philadelphia, December 19, 1904.

term chronic alcoholic persecutory insanity is perhaps more applicable to the first of these classes, although in the second the acuteness of the derangement is not its dominating feature, in fact, the outbreak may be only the first of a series of similar attacks, which will occur from time to time in the further history of the patient. In the more chronic form of the disease, the delusions of persecution may continue for a long time, and may be in whole or in part suppressed for considerable periods. Recovery is more likely to take place in the cases with recurring acute attacks, although in both forms the delusions under treatment may disappear, too often, however, to reappear after a longer or shorter time.

As the chief purpose of this paper is rather to present the medicolegal than the medical aspects of the mental diseases under discussion, I shall not go into a detailed description of any of the affections to be considered. Even before the insanity is evident the patient exhibits such psychic symptoms as weakness of attention, loss of mental grasp, and impairment of memory and of will. When the mental disorder is once established, the delusion which is the most common is that which springs out of marital relations. Whatever may be the explanation of this, and not a few explanations have been attempted, as, for instance, that which would refer the frequency of this delusion to the failing sexual powers of the individual, it is true that in both the more chronic and in the acute or subacute cases this false belief holds first place. Even in the acute case with excitement and with hallucinations, not only of hearing and of sight, but of unseen agencies like electricity or hypnotism, the delusions often show a tendency to circle around the sexual organs and the marital relations. As Spitzka¹ has put it: "The combination of the delusion of mutilation of the sexual organs with the delusion that the patient's food is poisoned, and that his wife is unfaithful to him, may be considered as nearly to demonstrate the existence of alcoholic insanity as any one group of symptoms in mental pathology can prove anything." While this statement is undoubtedly true, it must not be inferred that the above triad of symptoms is always present. I have seen not a few cases of alcoholic persecutory insanity, especially cases which might be described as of the quiet and more chronic type, in which the delusion of marital infidelity and of poisoning are in evidence, the latter, however, having weaker hold upon the mind of the patient than the former. I wish especially to emphasize the fact, one of great juridic importance, that the delusion of marital infidelity may alone be present, or at least demonstrable, in a patient as clearly insane as one with the whole train of delusions and hallucinations.

Before referring explicitly to cases of alcoholic paranoia with medicolegal consequences of a serious character, this is perhaps the best place to speak briefly and for the sake of subsequent contrast, of those cases of nontoxic paranoia which most closely resemble the alcoholic or rather toxic forms of the disease. These cases are by no means rare; they are seen both within and outside of institutions. I have had to deal with many of them, as well as with their families and friends in private practice. They are not infrequently in high places, and some of them in which the delusion of marital infidelity is the sole obtrusive feature of the case, continue to hold their places in society, in the professions or in business over many years, which are too often periods of self-denial and suffering for those who are the objects of their suspicions and accusations. Patients of this kind sometimes appear at our outdoor service for nervous diseases, commonly accompanied by their wives; and it is a curious feature about them that husband and wife sometimes join in mutual explanations and descriptions without any appearance of feeling on the part of either. I remember one patient who frequently came to my outdoor service with his wife, and sometimes bringing with him the samples of the food

and drink which he believed had been poisoned by her, asking to have them chemically examined in her presence. He appeared to regard the investigation as being due to her as well as to himself, and his twice-told tale was told again and again with smiles rather than with signs of depression; nevertheless he was in earnest and may at some subsequent time have fallen into a dangerous mood.

Although all cases of well-defined persecutory delusion may be regarded as dangerous, and especially those in which the delusions of marital infidelity and of unseen or destructive agencies are present, I believe that taking all cases together the toxic cases are more dangerous than those which develop simply on a constitutional basis and without any especial exciting cause.

The intelligent or educated paranoiac—clergyman, attorney, physician, publicist, author or wealthy business man—and I have had patients representing all these and other equally important walks of life—is often by his own mental strength or by this, with the assistance of others, able to cope with his delusions sufficiently to keep himself from doing harm to the objects of his abnormal suspicion and wrath. Too much confidence should not, however, be placed in facts like these; the paranoiac with delusions of persecution, whatever his original mental stamina may be, is always a potentially dangerous individual, and the greatest care should be taken in giving an opinion and in taking action which may expose others to danger.

Recently I have been somewhat frequently consulted about a professional man of more than average attainments and standing, and have on several occasions seen the gentleman himself. Gradually a delusion of marital infidelity has become more and more fixed in his mind. At first he had occasional and pronounced suspicions that something was going wrong with his wife; later he began to suspect the family physician, a gentleman of unblemished reputation, in whose case there was not the slightest foundation for any of the suspicions or accusations of the woman's husband. He next began to suspect employes, friends, and others. He resorted to various expedients in watching his wife, descending sometimes to despicable tricks in order to try to verify his suspicions, but, as he said to me more than once, he never discovered anything really wrong; and yet his delusion grew and became more and more profound and dangerous. Various measures of treatment were tried, but these only had a temporary palliative effect. In this case, so far as I could learn, there was no history of the use of any form of intoxicant. Other delusions of persecution were apparently not present.

Dipsomania, the medicolegal relations of which will be next considered, is an entirely different affection from either acute or chronic alcoholic persecutory insanity. The name is often loosely employed to describe different forms of insanity, the result of alcoholism. It should be given a restricted and definite meaning. Personally, I believe that the views of Magnan² and his followers with regard to this subject are those which have the most scientific foundation. Dipsomania, according to these French alienists and in accordance with my views, is a form of impulsive insanity with a hereditary basis. It belongs with the episodic insanities of the degenerates of Magnan. In the strict sense, it is not an alcoholic insanity; the dipsomaniac is a neuropathic individual, who, as the result of inherited insufficiency, physical and mental, may become the victim of a series of obsessions, of imperative concepts with the morbid impulses, which are their outflow. In one with the same constitutional basis as the dipsomaniac the impulses may take another direction, as for instance, to theft, arson or sexual perversion. The dipsomania may show itself by recourse to morphin, cocain, or to any other drug instead of alcohol. The dipsomaniac may develop the physical symptoms of alcohol, or even some form of true alcoholic psychosis as the result of his long-continued recurring

excesses. These are incidents of his dipsomania rather than essential parts of it. The dipsomaniac may, during or after his excesses, have hallucinations and delusions similar in character to those which are exhibited by a case of alcoholic persecutory insanity, but these are not the proofs of his dipsomania, they are the symptoms of his excesses.

Dipsomania is often classed with the periodic insanities, and even with such affections as circular insanity, the manic-depressive insanity of Kraepelin,³ but it does not really belong here. The fact that the alcoholic or the drug excesses occur at intervals with longer or shorter periods of abstinence, has caused it to be classed among the periodic or cyclic mental disorders, but periodicity is not an essential feature, as is noted by the fact that a patient with true dipsomania may have only one or two attacks in a lifetime.

Dipsomania is not only not an alcoholic paranoia on the one hand, but on the other it is not habitual drunkenness to which also the term is sometimes loosely given. It should be remembered, however, that cases are sometimes observed which seem to hold a place between true dipsomania and inebriety, or between dipsomania and alcoholic paranoia. This is so evident that the designation pseudoparanoia has been suggested as applicable to a certain class of cases. These are individuals whose lives oscillate between intervals of tipping or hard drinking, of comparative sobriety and of spells of insane alcoholic excesses. They are at best described as chronic alcoholics with dipsomaniac episodes. Like the dipsomaniac they do not as a rule struggle, or at least not with any persistence, against the impulse to drink. I have seen a few illustrations of true dipsomania in the sense of Magnan, and of a larger number of cases which might be properly classed as pseudodipsomania or of chronic alcoholism associated with dipsomania.

The dipsomaniac may begin his recurring alcoholic excesses in early youth or in later life; he may have attacks only at intervals of years. His alcoholic episodes may come at regular or irregular intervals, changing in frequency; or his attacks, at first infrequent and relatively mild, may increase in frequency and severity with slow or rapid strides. All these cases, however, if they are examples of true dipsomania, present the same general characteristics, namely, freedom from excess for a longer or shorter time, even for a period much prolonged; prodromes, in which mental depression and physical distress, showing themselves in varying ways, are prominent; struggles of will with inclination, the latter triumphing; keen appreciation, to the point of mental anguish, of the evils of the course to which they are irresistibly impelled; and strongly announced determination to drink no more when the episodes are once over. In many cases the dipsomaniac is a man of strong parts, and in some instances one who shows brilliancy of intellect; and like his brother degenerate, he may, for a time at least, fill high places in his business or profession. Measured by other men, however, his life does not run a long course, and what he gains by transient brilliancy of achievement is counterbalanced by what he loses as a result of his relatively early breakdown.

Various forensic questions, more or less grave may arise in connection with the forms of alcoholic insanity just considered; indeed, almost any of the numerous medicolegal problems which come before courts, commissions, and juries is possible in such cases. Some of these in connection with which I have had personal experience, are actions growing out of homicides, assaults, or criminal business transactions; proceedings for the appointment of a committee or guardian and for superseding such committee or guardian; proceedings for the commitment or sequestration to institutions, and actions for divorce or separation.

Some years since I was called in consultation to see a young German living in one of the streets of the southwestern part of

Philadelphia. This man almost continuously used alcohol and at times used it to great excess. He was, however, a man of otherwise good habits, attentive to his business and kind to his wife. He gradually showed evidences of mental disorder. At first it took a religious character, and he spent much time in reading the Bible. He soon became morose and suspicious of those around him, and eventually began to suspect his wife of marital infidelity and of designs to poison him. In one way or another he communicated these delusions or suspicions to his neighbors and others, and on several occasions threatened violence against his wife.

When seen by me, very little could be got from him directly, as he confined himself to a few derogatory remarks about his wife. He was, however, sullen, morose, and cast threatening glances at his wife when she entered the room or attempted in any way to interest him. The history given of his actions for several weeks clearly pointed to the existence of a dangerously delusional state, and this, in connection with what was learned at the time of the examination, led me to the opinion that the man was suffering from a form of paranoia or delusional insanity, due in all probability to alcoholism. I recommended that he be sent as soon as possible to a hospital for the insane, but action was deferred. Other physicians were called in, and efforts were made to treat him at home.

A week or two after my examination, without any warning, he suddenly seized a chair, struck his wife to the ground, and before others could reach him, had almost crushed her skull. Her scalp was cut open by the blows, from the forehead to the nape of the neck. In spite of the injuries, she made a good recovery, the skull apparently not having been fractured. He was at once taken to the hospital, where he remained for some months, recovering largely, if not entirely.

The defense of chronic alcoholic delusional insanity or alcoholic paranoia is one which in my experience has not often been made in cases of homicide. The questions of responsibility which arise in connection with alcoholism are such as to make attorneys hesitate about using this plea. Even when the delusions alleged to be present are with some probability the result of the abuse of alcohol, it generally is considered better to present the mental disorder of the patient without reference to its etiology.

About seven years ago in one of the interior counties of Pennsylvania, a physician was placed upon trial for his life. This man was a graduate of the University of Pennsylvania, and was possessed of unusual professional and business capacity; he had in fact become one of the most prosperous and best known physicians of the district of the State in which he lived. He shot and killed his next door neighbor, an old personal friend, and also at the same time shot his wife, but not fatally, accusing his wife and neighbor of adultery, and before shooting trying to force a confession from them. He gave himself up, and a few months after the homicide was placed on trial. He was defended with great ability and energy, a verdict of murder in the second degree being secured. This was considered by his attorneys and those interested in the man as a successful issue of the case for him. Public sentiment was aroused against him and it was generally believed that he would be convicted of murder in the first degree.

His defense, which was maintained by a number of medical witnesses from his own neighborhood and from a distance, was delusional insanity, his chief and indeed his only demonstrable delusion being that of marital infidelity. The expert witnesses for the defense were examined on the evidence presented by both the prosecution and the defense in the court room, and also on the results of their examination. They testified to their belief that the accused was insane; that the form of insanity from which he was suffering was one of the types of delusional insanity; and that the especial delusion was that of marital infidelity.

It was shown that he had been much disturbed in mind after the death of a favorite daughter; that he had suffered from sleeplessness, headache, and various neurasthenic symptoms; and that the fixed idea had taken possession of him that his wife and neighbor were criminally intimate, although he himself could present no facts in the least degree substantiating this opinion. The evidence, both lay and medical, as to the insanity of the prisoner was contradictory, although much of it favored the theory of the existence of the delusion of marital infidelity. It was known, although this was not demonstrated at the trial, that the prisoner was addicted to the use of alcohol. I have seen this man on several occasions at long intervals, since he has been in prison. His physical health first improved under confinement and his delusions seemed soon to entirely disappear. Later his physical health deteriorated to some extent.

In cases of dipsomania, as in alcoholic persecutory insanity, one who has committed an assault or homicide may have insanity plead in his defense. If the case, however, is one of true dipsomania, the crime is likely to have been committed during a period of excess, and

because of the excitement and loss of control dependent upon the state of debauch, rather than the more or less deliberate result of dwelling upon a delusion, such as that of marital infidelity. It must always be remembered, in this connection, that I am speaking of dipsomania as the disease understood by Magnan and his disciples, and not of the so-called dipsomania of many writers, to whom the dipsomaniac means simply a chronic alcoholic, sane or insane, who indulges more or less frequently in debauchery.

When dipsomania is advanced as a defense in criminal cases, especially in cases of homicide, assault with intent to injure or kill, rape, and stealing or embezzlement, this defense is often looked at askance by courts and juries, being sometimes regarded as a subterfuge or a plea which is used only because other more efficient pleas are lacking. It has been testified by experts, with the approval of courts and communities, that no such disease as dipsomania exists, that it simply is periodic drinking. In order to establish dipsomania as a defense in criminal cases, it is necessary to show more than the recurrence of periods of debauch. The family history and the past history of the individual must be thoroughly studied; the occurrence of other evidences of abnormal mentality must be searched for with diligence, and often they are within easy reach of the investigator; sometimes they are hidden, the concealment being assisted even by those who are most interested in the successful determination of the existence of dipsomania as a disease.

In an interesting contribution on dipsomania as a defense for crime, Kiernan⁴ gives the details of a case tried in Chicago, about 1895 or 1896, the writer of the paper and several others having been witnesses in the defense:

A man named O'Brien was tried for homicide, having shot a woman who at one time had lived with him in open adultery, and at a later period had become his wife. The jury in this case brought in a verdict of not guilty, on the ground of insanity, conditional on the court committing the accused to an insane hospital as a still dangerous lunatic. The court declining to assume the conditions imposed by the jury, the verdict did not stand. The jury then attempted to bring in a verdict of guilty of manslaughter, but it was finally discharged unable to agree, several of its members adhering to the view that the man should be acquitted on the ground of insanity. As Kiernan says: "The jury was clearly convinced that dipsomania was a well-defined form of insanity, and that the subject of it was so dangerous as to require permanent insane hospital treatment."

In this case examinations of the accused were not made by medical witnesses for either the prosecution or the defense, but the opinions given were based entirely upon hypothetical questions presented by the attorneys on each side. These hypothetical questions were widely different, and show how facts and alleged facts can be skillfully marshalled by opposing interests. On the hypothetical statement propounded by the defense, the witnesses held that the accused was insane, while on that of the prosecution, the other witnesses stated their belief that he was sane.

The evidence seemed to show that several members of the family of the accused were insane or idiotic, and one or two the victims of periodic drunkenness; that in his youth the man had done some peculiar and extraordinary acts; that a few years before the commission of the crime, after a period in which he was morose, sullen, gloomy, and depressed, he indulged in excessive drinking, during which he was aggressive and violent.

Recently I saw an interesting alcoholic case illustrating the tendency to criminal financial transactions.

The patient was a man about 37, the son of an intellectual father, and a man of unusual education. He was especially noted during his college days and afterward as a fluent speaker and rapid thinker. He was regarded as unusually bright, although perhaps as somewhat visionary. Several years before coming under observation he became interested in various financial schemes, particularly mining operations, acting with others chiefly as promoter and organizer. A few of these schemes in which he was interested were successful, a large majority of them were not, and after making and losing money for others and himself, he became actually bankrupt. In the meantime he had taken to drinking, especially to the use of whisky. His own ideas, or at least statements, regarding the amount of whisky drank by him were somewhat vague, but both from his own admissions and from accounts given by his friends and relatives, he gradually acquired the habit of using alcoholic beverages, especially whisky, in large amounts. Several

months before he was first seen by me he had begun to pass checks, using his former good credit and the credit of others to get them cashed. During a period of about three months he had been in two different institutions for treatment; when he left the last, about three weeks before the time of my examination, he had gone to a western city ostensibly to take a position, but after reaching there he began to drink heavily, and again gave checks for money for which there was no balance. Leaving this city he went to another, and there persuaded an old college friend to cash him a check, for which he had absolutely no account. Examination showed some loss of memory with hallucinations, both of sight and hearing, and delusions regarding money and property, although the latter were not continuously determinable. He saw some one standing beside his sister when he was talking to her, and warned her against this person, although there was no such person present. He also talked of being in some way acted upon by electricity, which was conveyed to him down the corner of the wall. He also spoke of pigmies being in the room. When asked about his improper money transactions he would acknowledge that he had given the checks, that he had not the account to meet them, and in the same breath say there was some mistake about the matter. He was physically much run down.

In connection with our discussion of alcoholism and the alcoholic insanities, the question of what to do with the alcoholic is, of course, one of first importance. If the physician has before him a clear case of alcoholic persecutory insanity or of dipsomania, during the period when this disease expresses itself in excitement and well-marked hallucinations and delusions, or indeed, of any form of well-defined insanity due to drink, he will experience no particular difficulty in dealing with the question of sequestration. He will be as much justified in certifying to insanity of this kind as to any other form of mental derangement, and he will be upheld in so doing by any court, presuming, of course, that he has taken the reasonable precautions and has used proper diligence in arriving at his conclusions. I might, however, in passing, remark that there is one danger, although perhaps not a serious one, in certifying alcoholics who are temporarily insane. Such cases sometimes clear up with unusual rapidity as the result of the mental shock caused by depriving them of their liberty, or from causes which are not apparent, and the patient soon after admission to an institution presents no signs whatever of mental disorder to the physician in charge. In a long experience I recall one such case, that of a woman who had been for years a chronic alcoholic, who had had several attacks of acute alcoholic insanity, and who on the day of her commitment had given evidences of hallucinations and delusions of a persecutory type, and moreover, had been violent and destructive. The insanity of this woman was certified to by another physician and myself; she was taken to one of our best known hospitals for the insane, and was discharged in a short time, she not having shown any signs of insanity after her admission, although it is probable she relapsed into her alcoholic habits and had subsequent attacks of mental disorder.

In many cases of chronic alcoholism, the lives of all who come in contact with the alcoholics are rendered miserable, and in some instances unsafe. In many cases, also, it is probable that if steps could be taken early for the commitment of the alcoholics to institutions for care and treatment, not only would much suffering on the part of families and friends be saved, but the alcoholic himself might receive efficient help toward relief of the habit and restoration to health. In most of our States the laws are so framed that alcoholics cannot be deprived of their personal liberty by certification or by the other methods applicable to ordinary cases of insanity. In England, and in Connecticut, and perhaps in some other States of this country, special laws regarding the restriction of inebriates have been in force, these being mostly so drawn as to allow of the commitment of the inebriate or alcoholic under certain special provisions for a period of a year. Until quite recently no law bearing upon this subject was on the statute books of Pennsylvania. In 1903, the Legislature passed an act intended to meet the demands for some legislation

for the commitment of the alcoholic for care and treatment. As this act is short, I shall cite it in full. It is sometimes spoken of as the alcoholic act, although, as will be noted by the title, it provides for those addicted to intoxicants and drugs, as well as to alcoholic drinks, and therefore it would seem that cases of morphinism, cocainism or of other drug habit, might come under its provisions.

AN ACT

To authorize and provide for the commitment of persons habitually addicted to the use of alcoholic drink or intoxicating drugs to a proper hospital or asylum, for restraint, care, and treatment.

SECTION 1.—Be it enacted, etc., That from and after the passage of this act, it shall be lawful for any persons so habitually addicted to the use of alcoholic drink, absinthe, opium, morphin, chloral, or other intoxicating liquor or drug, as to be a proper subject for restraint, care, and treatment in a hospital or asylum, or for at least two persons, being the wife, husband, parent, child, children, or next friend of such person, to apply by petition to the Court of Quarter Sessions or to any magistrate or justice of the peace of the proper county, setting forth the facts, upon oath, and requesting the commitment of such person to a proper hospital or asylum for restraint, care, and treatment; and such petition shall be accompanied by the affidavit of at least two physicians, based on examination by them of the alleged drunkard, setting forth the condition of such person, and stating that, in their opinion, restraint, care, and treatment in a hospital or asylum would be a benefit to such person. Whereupon the said court, magistrate, or justice, shall issue a warrant to bring before them on the day certain, the petitioner, both physicians, and the alleged drunkard; and a hearing shall then be held, and if the facts set forth in the petition and affidavits are proved to the satisfaction of the judge, magistrate, or justice, it shall be the duty of the court to commit such alleged drunkard to a proper hospital or asylum, for restraint, care, and treatment, until, upon further hearing, the said court, magistrate, or justice shall be satisfied that such restraint, care, and treatment are no longer beneficial to the person committed as aforesaid: Provided, That such restraint shall not be continued in any case for a longer period than one year. And provided, That no person shall be committed under the provisions of this act, or be admitted into any hospital or asylum, until payment has been made or security has been given to the managers of the hospital or asylum, satisfactory to them, to pay the proper charges for the board, care, and treatment of the alleged drunkard, and also to indemnify the said managers from all cost and expense. And provided, That all commitments under this act shall be reviewable by proceedings under writ of habeas corpus, which may be sued out, at any time, by any person restrained hereby or by anyone acting for or on behalf of such person.

This act is somewhat loosely drawn. In the first place, it is doubtful whether a physician would be justified in certifying under this act unless he could, at the time of his examination of an alleged drunkard or alcoholic, determine that the individual to be committed was in reality an alcoholic; in other words, if his action was called in question the court might not hold that he was justified in signing the certificate or commitment on the facts obtained from others, however authentic and extensive these might be, unless he himself had evidence from his own investigations of the alcoholism alleged to exist. It would seem that the physicians must exercise the same care and proceed in the same manner as in certifying and in preparing themselves to certify to a case of insanity. It is for this reason that on one or two occasions when I have been asked to certify under this act I have declined to do so, because I was not able to determine by my examination or examinations of the alleged inebriates whether they were in fact alcoholics under the meaning of the law, although the evidences as obtained from others were ample in support of this contention. Giving the same magistrate, court or justice by whom the party has been committed the power to rehear the case and discharge the person would seem to be a weak point in the law, or at least unnecessary, as the last provision permits a writ of habeas corpus to be sued out as in a case of insanity. It is easy, however, to pick flaws in a new law. To say the least, this act for the commitment of alcoholics and drug habitues is a step in the right direction, and it can be amended by future Legislatures in such a way as to remove so far as possible objections to it.

BIBLIOGRAPHY.

- ¹ Spitzka, E. C.: *Insanity, Its Classification, Diagnosis, and Treatment*, New York, 1883.
- ² Magnan: *Leçons sur la Dipsomanie*. in *Progrès Medical*, 1884.
- ³ Kraepelin, Emil: *Psychiatrie*, Leipzig, 1899.
- ⁴ Kiernan, J. G.: *Journal of Inebriety*, October, 1896.

THE HISTORY AND DEVELOPMENT OF SURGERY DURING THE PAST CENTURY.¹

BY

FREDERIC S. DENNIS, M.D., F.R.C.S.,

of New York City.

Professor of Clinical Surgery, Medical Department, Cornell University, New York City; Attending Surgeon to Bellevue and St. Vincent's Hospitals; Consulting Surgeon to St. Joseph's Hospital and Montefiore Home; Ex-President American Surgical Association; Member German Congress of Surgeons, Berlin, and Clinical Society of London; New York Academy of Medicine.

[Continued from page 187.]

Tuberculous peritonitis has been taken out of the realm of internal medicine and transferred to clinical surgery. It has now become an established routine of practice that laparotomy is justifiable in cases of ascites in which the etiology does not depend upon disease of the liver, kidney, or heart. The method of invasion of the bacilli in their attack upon the peritoneum varies in different cases. The bacilli in rare instances may gain entrance through a perforation from a tuberculous intestinal ulcer, or from a purulent tuberculous vaginitis. Again, the peritoneum may become infected through a perforating tuberculous appendicitis, or from a tuberculous ovary, or fallopian tube. Williams, of the Johns Hopkins University, has shown that from 40% to 50% of the cases of tuberculous peritonitis can be traced to this origin. Abbe has demonstrated that about 66% of the cases of tuberculous peritonitis are due to infection of the thoracic lymph-nodes, and in only 16% is entrance gained by the mesenteric glands. It is thus evident that while 16% of the cases of tuberculous peritonitis can be explained by infection through the alimentary canal from milk or other kinds of infected food, that the great proportion is due to infection from the thoracic lymph-nodes. There is little doubt but tuberculous peritonitis may arise as a secondary affection following tuberculosis of the intestinal canal. Here again imbibition of infected milk and meats plays an important role. The entrance of tuberculous sputum into the stomach in those affected with pulmonary tuberculosis explains intestinal and peritoneal infection. The latter method of invasion is considered a frequent cause of peritoneal tuberculosis. The presence of tuberculous ulcers in the stomach in phthisical patients who subsequently suffered from intestinal tuberculosis has been thus explained by the investigation of Klebs. Many experiments upon lower animals which were fed by food containing tuberculous sputum and fragments of tuberculous lung, have proved beyond doubt that intestinal and peritoneal tuberculosis can arise in this way. It is a strange clinical fact, that laparotomy for the cure of this disease has become established as a recognized procedure through errors of diagnosis. Sir Spencer Wells cured a case of tuberculous peritonitis by a laparotomy performed under the supposition that it was ovarian disease. Laparotomy, however, as a curative measure, was first introduced by Dr. Van de Warker, of Syracuse, N. Y. He blundered upon a case of tuberculosis of the peritoneum, under the supposition that he was operating for the cure of a case of hydrops of the peritoneum. Dr. Van de Warker presented this case at a meeting of the New York State Medical Association in 1883. From this time on, the operation of laparotomy for the cure of tuberculosis of the peritoneum has been practised. The operation has, however, been modified from year to

¹ Address before the International Congress of Arts and Science at St. Louis, September, 1904.

year; but most surgeons still adhere to the simple operation at first devised by our American surgeon. As regards the result of laparotomy for the cure of tuberculous peritonitis, surgeons differ largely in their statistics. Parker Syme shows that some claim 80% of cures while others 24%. Marked improvement follows in 80% of the cases, and the mortality of the operation is only about 3%. Syme concludes that it is safe to estimate that 80% of the cases of tuberculous peritonitis are permanently cured by laparotomy.

In suppurative peritonitis surgery has opened up a new field within the past few years. The operation of incision into the peritoneal cavity has effected cures in a class of cases that heretofore were uniformly fatal. Murphy reports 7 recoveries out of 9 cases, or 77% of recoveries in diffuse suppurative peritonitis following appendicitis, while Dennis has had 11 cases of diffuse suppurative peritonitis without a death.

The radical cure of hernia presents one of the most forcible illustrations of the onward march of surgery. Coley reports 1,003 operations with a mortality of less than a fifth of 1%, and with relapses of less than a tenth of 1%. When it is considered that nearly one person in every 20, and even by some statisticians one to every eight persons is born with a rupture, and these patients must wear trusses, the bane of human existence, and which are as necessary to the comfort and safety of the patient as a splint is to a fractured leg, the untold blessings of this one contribution of surgery to the human race become strikingly apparent. In other words, surgery offers to the thousands affected in this way a sure, perfect, and safe cure, and with the complete elimination of the uncomfortable, inconvenient, often painful, and sometimes dangerous instrument of barbaric times, the truss. What aseptic surgery has accomplished for the human family in the relief of this one distressing and common condition, no one can appreciate except he who has been the recipient of this blessing offered to him by the science of surgery. Until recently great expense was incurred and time consumed in fitting trusses. Many of these patients died as a result of strangulated hernia, which formerly had a mortality of over 50%. Now the possibility of strangulated hernia is eliminated and a radical cure effected with less than 1% mortality and 1% relapse. Perhaps one of the most forcible arguments to show the effect of certain improvements in the technic of surgical operations is demonstrated by the use of rubber gloves. In 116 cases of hernia operated upon at the John's Hopkins Hospital prior to 1896, there were 28 cases of suppuration in the wounds, or 24% while in 226 cases of the same operation with rubber gloves upon the surgeons' hands there were four cases of suppuration, or a fraction over 1%.

In umbilical hernia Mayo has devised an operation that offers relief to these patients who heretofore lived a life of constant suffering and danger. Mayo first performed his overlapping operation in 1895 and in a series of 50 cases there was no mortality and no relapses except one in which the relapse was only a partial stretching.

The operation for the relief of acute appendicitis is clearly traced to the work of American surgeons. In 1843 Willard Parker, and later Gurdon Buck did much to explain the nature of these iliac inflammations, and Sands cleared the way for the perfected operation of McBurney, which aims to prevent these dangerous peritoneal inflammations, and to prepare the wound for aseptic healing. Sands also first operated with success after perforation had taken place and general peritonitis was present. To McBurney is due great credit for the perfection of this operation, which is now recognized throughout the world as the best, safest, and most scientific way of managing these varieties of suppuration hitherto so fatal. The operation of removing the appendix vermiformis during the quiescent period between relapsing attacks was suggested by Sir Frederick Treves,

of London, although the appendix was successfully removed in this country by Dennis in 1887. In this case the appendix was diseased, owing to adhesions to an ovarian tumor.

The surgery of the appendix is most interesting with a view to a study of what surgery of the past century has accomplished. There is probably no surgical disease about which so much has been written as appendicitis. The subject is trite and threadbare in many respects. There is little to be learned in regard to the etiology, symptomatology, and diagnosis of the disease. The operative technic can be but little improved upon in its present state of perfection. The mortality under proper antiseptic and aseptic conditions is so low, that in the nature of the disease it will never in all probability be brought much lower. The percentage in these days of aseptic surgery in this abdominal operation is less than the percentage in the simple amputation of the finger in the preantiseptic days. It would seem that surgery had reached its climax in regard to mortality in operation for the relief of appendicitis, yet the time will never come when there will be no deathrate. Complications are certain to arise that are beyond the control of the surgeon. Crural thrombosis, intestinal obstruction, acetoneemia, embolism, shock of operation, intercurrent affections, all afford examples to show that some mortality must always exist. If a fraction of a percent can be gained in the reduction of the mortality, it is an advance in the right direction. The experience of surgeons during the past few years has demonstrated new methods, has pointed out new ways, and has discovered new facts, all of which tend to reduce the mortality. It seems now the only thing that is left is to combine the various views of experienced surgeons into some uniform plan of treatment, in order to produce the best results. The mortality in appendicitis in all cases under medical treatment is about 16%, with 30% of relapses, while in diffuse suppurative peritonitis it is almost uniformly fatal.

The mortality in appendicitis in all cases under surgical treatment is about 4%, and with no relapses, and in diffuse suppurative peritonitis the mortality in published statistics is from 31%, the lowest, to 91%, the highest, and in Dennis's 11 consecutive cases of diffuse suppurative peritonitis the mortality was zero.

Ochsner has recently contributed some statistics from his own operations during one year, which reflect great credit upon his excellent work. In the acute cases there was a mortality of 3%, and in the chronic cases there was a mortality of 1%. In the entire number of cases, both acute and chronic, there was a mortality following the operation of 2%. Deaver has also recently contributed some statistics from his own operations extending over a period of one year, which likewise reflect great credit upon his surgical skill. In the cases of general diffuse peritonitis there was a mortality of 31%. In the cases in which there was abscess there was a mortality of 12%. In the cases in which the disease was confined to the appendix, with stricture, ulceration, and necrosis of the mucous membrane there was a mortality of 0.8%, and finally, in all the cases operated upon, the total mortality was 5%. Richardson's published statistics are practically the same, and the result of these various operators gives an idea of what surgery has accomplished. In a study of the last 119 cases of appendicitis operated upon by Dennis up to April 1, 1903, the mortality of the disease irrespective of operation or of any special plan of treatment, was a little over 1.5%. In the cases treated without operation in which the attack was a mild, catarrhal one, and in which the patients were not operated upon during the attack, the mortality was zero. In this group of cases in which conservatism was employed for special reasons, the appendix was in many cases subsequently removed owing to repeated attacks, and the mortality was zero. In the group of cases in which the appendix was gangrenous and had ruptured

lution of abdominal surgery, a part of which has reference to the results obtained in ovariectomy. He states that in Leeds Infirmary, in 1870-1871, no case was reported under abdominal surgery. In 1901, or 20 years later, there were performed in the Leeds Infirmary 569 abdominal sections. In reference to ovariectomy he states that about 1,870 ovarian tumors were considered a variety of dropsy, and tapping was resorted to as a means of transient alleviation. Thus, in 1870, in St. Bartholomew's Hospital, London, there were only 3 ovariectomies performed, with 100% mortality. In Guy's Hospital, London, 5 ovariectomies, with 60% mortality. In St. Thomas' Hospital, London, 1 ovariectomy, with 100% mortality. In St. George's Hospital, London, 2 ovariectomies, with 100% mortality. In 1875, ovariectomy had such unfavorable statistics that tapping was done to defer a radical operation. In 1875 in 12 cases of ovarian tumor only 7 patients had an ovariectomy performed, and 5 died, thus giving a mortality of 71%.

Now mark the contrast. In 1901 ovariectomy was performed 64 times, with 4 deaths, or a mortality of about 6%. When it is considered that in these cases some were malignant, gangrenous and suppurating cases, the story seems incredible. Mouillin reports, in 1901, 57 ovariectomies in the hospital for women, with no death. Richardson, of Boston, reports 93 consecutive ovariectomies without a death. Ovariectomy in the aged shows most remarkable results, thus Kelly has reported in his book over 100 ovariectomies in women who were over 70, and operated upon by 59 surgeons, with only 12 deaths. This is a triumph of surgery that Ephraim McDowell foreshadowed in his courageous work. Sutton collected, in 1896, 11 cases of ovariectomy in women over 80, with no deaths.

Ovariectomy during pregnancy has likewise a most astonishing record, since Williams in his book reports 142 cases collected by Orgler, with only a mortality of 2.77%.

In 1902, in one London hospital there were 40 ovariectomies, with 1 death, or 2.5% mortality, as contrasted with 100% mortality about 1870. Thus in a quarter of a century the mortality has been reduced in one of the most formidable operations in surgery from 71% to 6%, and in exceptional series of cases even to 2.5% mortality. It may be of interest to show the progress which surgery has made during the century in reference to the operation of ovariectomy, from 1809 to 1904.

In America—McDowell.....	1809, and later, 12 cases; mortality, 68%
N. Smith.....	1821, 1 " " 0%
A. G. Smith.....	1823, 1 " " 0%
Several operators.....	1855, 21 " " 70%
In America.....	1857, 97 " " 34%
In England.....	1857, 123 " " 43%
In Germany.....	1857, 47 " " 77%
Hofmeier.....	1903, 200 " " 4.5%
Hofmeier.....	1903, last, 115 " " 1.74%

From the above table it appears that during the first quarter of the nineteenth century, according to the combined reports of McDowell and N. and A. G. Smith, the mortality in 14 cases of ovariectomy was 57%. The combined English and American returns for 1855 and 1857 give an average mortality of 48%. The most recent figures are by Hofmeier, for 1903, who returns a mortality of 1.74%. If the earlier mortality prevailed at the present time, Hofmeier would have had 180 deaths in a total of 315 cases, instead of 11, which actually occurred.

Hysterectomy or the removal of the entire uterus, with or without the ovaries and tubes, affords a most striking illustration of the recent development of surgery. Hysterectomy shows brilliant results when performed for non-malignant disease; but the result of the operation when performed for malignant disease is the darkest chapter in the present status of surgery. Bigelow collected in 1884, 359 cases of hysterectomy for fibroids of the uterus, with a mortality of 58%. Kelly reports in 1898, 100 cases of hysterectomy, including extirpation of the ovaries and tubes, with a mortality of only 4%. Pryor

has investigated the subject of the mortality of abdominal hysterectomy for myofibroma of the uterus, and states that it is not over 2%, while in fibrocysts of the uterus it is much higher, reaching at least 10%, and states that this great increase in mortality is due to "coexisting cardiac lesions, which so often accompany fibrocystic disease." Pryor also states that his mortality of hysterectomy in pus cases is about 3%. Noble reports 58 cases of pyosalpinx and abscess of the ovary, in which he performs hysterectomy with removal of the appendages, and the immediate mortality was not quite 2%, and 36 cases of removal of the appendages without hysterectomy, with a mortality of 5%. Richardson, of Boston, had a mortality of 3% in 111 cases during the past two years; and Polk, of New York, has had a long series of cases with equally brilliant results. Webster reports 65 hysterectomies for infective disease of the uterus and appendages, with a mortality of 1.07%. With such an array of statistics before us in hysterectomy, which may be considered the keystone of the arch, there is no more forcible illustration of the steady advance of surgery than the improvement in this operation. In regard to vaginal hysterectomy, statistics are likewise brilliant, thus Pryor has collected 228 cases of vaginal hysterectomy for nonmalignant disease with one death. Webster reports 40 cases of vaginal hysterectomy for malignant disease of the uterus with no death from the operation itself. No mention is made of the percentage of permanent cures in these cases.

Hysterectomy for the cure of cancer furnishes the most discouraging and melancholy statistics of any modern operation. In this case it is not so much the fault of the technic as it is the disease which calls for the operation. Cancer is most fatal in the uterus; but the time will soon come when early operations will effect a far greater percentage of recovery. Cancer of the cervix and body of the uterus is most fatal, yet the faintest glimmer of dawn is upon the horizon, and the results of hysterectomy for the permanent cure of cancer are beginning to show signs of improvement. In the history of every great operation the mortality is high at first; but as technic improves and early and radical operations are resorted to, the result will be different. Ovariectomy passed through just such a crisis, and it is certain that hysterectomy for cancer will show better results in the future and if so it will be the greatest triumph of surgery. The statistics of hysterectomy for cancer are subject to the widest variation. Penrose states that his results have been most discouraging as he has only two or three patients who have permanently recovered. Penrose also criticises the report of 20% of cures for cancer of the uterus at the Johns Hopkins Hospital, and claims that "after due deduction and thorough sifting of their figures 5% of cures comes nearer the actual truth." The mortality of the operation itself for the cure of cancer has a favorable showing in contrast to the results of permanent cure. Thus Pryor, in 1901, reports 98 cases of hysterectomy for cancer of the uterus with a primary mortality of about 11%. In a very careful and thorough research of the literature of the subject statistics show that abdominal hysterectomy for cancer has an immediate mortality of nearly 20% if the cases from all available operators are taken and that the immediate mortality for vaginal hysterectomy for cancer has been as high as 16%, and by some operators reduced to almost zero.

The Surgery of the Bones and Joints.—The management of fractures has brought out the wonderful mechanical ingenuity which is a characteristic of the human mind. The application of the plaster-of-paris bandage in the treatment of fractures is one of the greatest improvements of the century. To the perfection of its technic, Fluhner's work deserves special commendation. The use of flexible narrow strips of tin or zinc in the management of fractures was devised by Fluhner in 1872, with the object of securing immobility of the frac-

tured bones. The strips are not designed to act as rigid supports, although incidentally, by their width (a quarter of an inch) they edgewise oppose resistance to angular motion when passing through or near an axis of motion. Their principle effect is by virtue of their inextensibility, not shortening or lengthening under strain when bandaged to the limb in the principal planes of motion. They are roughened on each side by perforations, so that they may be securely held in position by the retaining bandage. They are not designed to serve as an accessory strengthening of an immovable splint; the strips themselves are the splint. The plaster-of-paris or other material incorporated in the retaining bandages, gives to the provisional effect of the strips durability, which, of course, cannot be obtained by a simple bandage. The work of Dr. James L. Little, in the use of plaster-of-paris bandage, must not be overlooked, since he utilized this dressing for various fractures, and perfected several dressings for special fractures, notably the patella. Time will not permit of a discussion of the manifold ways that this dressing can be employed in the different fractures.

The present method of treatment of fractures of the thigh, affords the best illustration of the evolution of the general plan of the treatment of fractures. If we start with Desault's splint, which was crude and unsatisfactory, the first change that occurred was Physick's modification, which consisted in making Desault's splint, which reached only to the crest of the ilium, extend above to the axilla and downward below the foot, with a perineal band for extension and counter-extension. In 1819, Daniell, of Georgia, introduced the weight and pulley. In 1851, Buck still further modified Physick's splint, so as to do away with the perineal band, and accomplished extension of the limb by the weight and pulley, after the manner of its present use. This was a great improvement, in order to overcome shortening of a fractured limb. Van Ingen, in 1857, suggested the elevation of the foot of the bed to permit the body to act as a counterextending force. The coaptation splints were used by Buck in 1861, so that the present complete and perfect method is one that is the result of evolution, the consummation of which has been accomplished by the work of American surgeons.

In 1827, Nathan R. Smith adopted the principle of suspension in the treatment of fractures, and the use of the sand bag was introduced by Hunt, of Philadelphia, in 1862. In fracture of the clavicle, Sayre has originated a dressing which is not only unique, but which is accepted as the simplest, most reliable, and most satisfactory of all the different forms of apparatus. Physick suggested the two angular splints for treating fracture of the lower end of the humerus, and Gunning and Bean the interdental splint in the treatment of the fracture of the lower jaw. Allis first called attention to the pathological condition found in fractures of the lower end of the humerus, and suggested new principles in the treatment to prevent deformities. In 1881, Mason devised a new method of treating fractures of the nasal bones by passing a curved needle under the fragments and elevating them. In the treatment of fracture of the patella by the use of the metallic suture, American surgery can claim the operation as far as priority is concerned, since Rhea Barton wired a fractured patella in 1834, and MacClellan in 1838, and Cooper of San Francisco, in 1861, and after him Logan and Gunn.

While American surgery cannot justly claim the priority of this operation as practised by Lister with the modern aseptic technic, she can at least claim to having brought the operation to its present perfected technic, and can point to the fact that in New York, the operation has been performed more times than it has been in any city, or in any country in the world. While the operation is not one to be commended universally, it is an operation yielding brilliant results in suitable cases

and in the hands of aseptic surgeons. The first time that fractures of the lower jaw were treated by metallic suture was by Kinloch of South Carolina.

In the management of ununited fractures, American surgery stands preeminent. In 1802, Physick passed a seton between the ends of an ununited fracture of the humerus. In 1830, or 28 years after the operation, Physick obtained the specimen. The use of the metallic suture was first successfully tried in 1827 by J. Kearney Rodgers, in a case of ununited fracture of the humerus. Perforation of the ends of the bones in an ununited fracture of the tibia was accomplished in 1850, by Detmold. In 1825, Brinard introduced the operation of drilling the fragments. In 1857, Pancoast used the iron screw to accomplish the same object. In 1878, Pilcher first pointed out the correct pathology and the treatment of fractures of the lower end of the radius. Before dismissing the subject of fractures, the work of Hamilton and Stimson must not be overlooked, since they did more to systematize and to perfect the treatment of fractures in general than any other surgeons. The saw devised by Shradley for performing a subcutaneous section of the bone is an instrument worthy of the highest commendation.

Excision of the superior maxillary bone, with the exception of the orbital plate, was first performed by Jameson, in 1820. The complete excision of the superior maxilla was first performed in New York, by David L. Rodgers, in 1824. Excision of the inferior maxilla was first partially and successfully made "without known precedent or professional counsel or aid," by Deadrich, of Tennessee, in 1810. Jameson excised nearly the entire inferior maxilla in 1820. Mott excised half of the jaw in 1821; Ackley in 1850; and Carnochan excised the entire bone in 1851. Excision of the os hyoides was performed for the first time by Warren, in 1803. Excision of the wedge-shaped piece of bone from the tibia and fibula, with osteoclasis of the bones to correct a deformity by an osteotomy, was performed by Warren, in 1820. In 1835 Barton devised an operation which is still practised for the relief of angular ankylosis of the knee. The entire clavicle was excised successfully for necrosis for the first time in 1813, by McCreary, of Kentucky. The entire clavicle was again excised successfully for the first time for malignant disease, by Mott, in 1828. The entire scapula, three-fourths of the clavicle, and the arm were excised for the first time, and also successfully, by Dixie Crosby, in 1836. This same operation was repeated by Twitchell, in 1838, by MacClellan, in 1838, and by Mussey, in 1845, and since then to the present time the operation has been performed many times throughout the world.

The entire scapula and the clavicle were removed successfully six years after an amputation at the shoulder-joint by Mussey in 1837. Two-thirds of the ulna was excised successfully by Butt, of Virginia, in 1825, and the olecranon by Buck, in 1842, while the entire ulna was excised by Carnochan, in 1853. The same operator excised the entire radius in 1854. Both radius and ulna were excised by Compton, of New Orleans, in 1853. Excision of the coccyx was first performed by Nott, in 1832, for the relief of severe and persistent neuralgia. Excision of a portion of the rib by the trephine, for affording drainage in empyema, was first performed by Stone in 1862, and excision of a part of one or more ribs for the same purpose was first performed by Walter, of Pittsburg, in 1857. Beside these excisions for necrosis, suppuration, and malignant disease, much credit is due to American surgery for the part it has played in subperiosteal surgery. One of the most remarkable specimens is the reproduction of the inferior maxilla by Wood, in 1856. Langenbeck, the authority on subperiosteal surgery said "that he did not believe a corresponding preparation really existed anywhere," and remarked that "there was not another such specimen in the whole of Europe." This was indeed a fitting

tribute, from one of Europe's greatest surgeons, to the genius of one of America's greatest operators. Wood has also succeeded in reproducing many other bones in the body by the application of the same principles of subperiosteal surgery. Thus it is evident, if the first successful excision of the superior and inferior maxillas, the hyoid bone, the entire clavicle, the entire scapula, the ulna and radius, the coccyx and ribs; also trephining for relief of osteomyelitis; the most perfect specimens of reproduced bone, be subtracted from the sum total of operative surgery upon the bones, there is little left that is not the offspring of American surgery.

In the surgery of the joints, American surgeons have accomplished brilliant work since in the management of dislocations they have contributed much to the sum total of our knowledge. Physick was the first to perform venesection to cause muscular relaxation, in order to reduce a dislocation. This was a most valuable means, to which resort was made prior to the introduction of anesthetics. McKenzie and Smith, in 1805, reduced a dislocation of the shoulder of six months' standing by the employment of venesection. This patient had been to England and all attempts at reduction failed, and upon his return to Baltimore the reduction was effected, by relaxing the muscular system by blood-letting *ad deliquium animi*. The plan is now abandoned since the introduction of anesthetics. Warren excised the head of the humerus to restore the usefulness of it after an unreduced dislocation of the shoulder-joint. The invention of plaster-of-paris jacket by Sayre, for the treatment of Pott's disease, in 1874, is one of the most important surgical discoveries of the century. The same apparatus he devised for the treatment of lateral curvature. These cases of Pott's disease, which hitherto were consigned to a distressing death, are now permanently relieved of their sufferings, and are in many cases entirely cured. Excision of the hip-joint was performed as a systematic operation, and successfully, for the first time in this country, by Sayre, in 1854. To this same surgeon is due the credit of suggesting and carrying into execution the principle of free drainage in cases of empyema of joints. In hydrops articuli, Martin, of Boston, in 1853, suggested equable uniform compression by means of an elastic bandage, and Sayre has applied the same principle by using compressed sponges. Martin, in 1877, also employed the elastic bandage for the cure of chronic ulcers of the leg. In 1826 Barton divided with a saw the great trochanter and the neck of the thigh to relieve ankylosis of the hip-joint. In 1830 Rodgers removed a disc of bone, and in 1862 Sayre perfected the operation and introduced a new principle by removing a plano-convex wedge of bone between the two trochanters, and made rotund the end of the lower fragment in order to form a new and artificial joint. In 1835 Barton removed a cuneiform wedge just above the condyle and fractured the bone, and made the limb straight to relieve angular ankylosis of the knee-joint. This operation is practically the osteotomy of the present time. In 1840 Carnochan first operated for the relief of ankylosis of the lower jaw by subcutaneously dividing the masseter muscle. In forcing open the mouth after tenotomy of the muscle, he accidentally fractured the bone, thus producing a false joint until the fracture united. Carnochan conceived then the idea of excising a wedge-shaped piece from the jaw and establishing a false joint. For the relief of this distressing condition, in 1873, Gross excised the condyle and a portion of the neck of the bone, and in 1875 Mears excised the coronoid and condyloid process together with the upper half of the ramus. Wood, in 1876, cured a patient with fracture of the cervical vertebra associated with paraplegia and brachial paralysis, by the use of the plaster-of-paris jacket. The patient, though completely paralyzed, made an excellent recovery and was able to resume his work as a carpenter.

Compound fracture may be designated as the touch-

stone of surgery, because a discussion of the treatment of compound fractures includes all the great principles involved in every department of the science. It embraces a consideration of cerebral, thoracic, and abdominal surgery; it includes a discussion of the great principles of antisepsis, it covers operative technic, it embraces the study of surgical pathology, it touches upon the higher departments of the science, and opens up the field where surgery must be considered, as an arena for the exercise of sound judgment, for the display of clear foresight, and for the exhibition of accurate knowledge and ripe erudition. Finally, a full discussion of this subject inevitably leads to a consideration of the progress of surgery during the present century and its precise status at the present day. In considering the management of compound fractures I shall confine myself to the results of my own personal work as embodied in an extensive clinical experience embracing a report of 1,000 cases, which I published some time ago, and since then hundreds more can be added to my list, with substantially the same result. These cases occurred within a period of a year in four metropolitan hospitals devoted to the treatment of acute surgical cases, and also in private practice. The accumulation of so vast an amount of clinical material has been attained with considerable labor. The conscientious treatment of these serious cases has been attended with a sense of great responsibility, and the results have been attained only by close attention to the minutest details in the management of each individual case. There are some points in the treatment of compound fractures that deserve special consideration, and it is only by a study of these cases in groups that clinical facts of essential importance can be established. The same plan of treatment has been carefully watched in many cases at the same time, and it has been by a process of evolution that some of the opinions which I shall enunciate have become fixed laws in routine practice. To see in one day 19 compound fractures in the same ward with a normal temperature is not a coincidence. The number might possibly be, but the same condition in all is the result of the application of fixed principles which have been established as the result of long study and observation. To see at another time 12 cases in the same ward and all with a normal temperature is likewise no coincidence. These circumstances make it evident that the application of fixed rules is necessary to arrive at certain and uniform results.

The complete history of each one of the 1,000 cases of compound fracture is carefully preserved. Each case is given in full, with the name of the patient, the date of his or her admittance to the hospital, the age, a description of the injury, the treatment in full, and the result, together with the name of the house surgeon on duty at the time as a matter of reference. It is obvious that time will not permit to discuss in detail these histories, and therefore I can only give a summary.

The general summary in the 1,000 cases is as follows:

Skull.....	178
Nasal, malar, maxillas, and patellas.....	89
Arm.....	40
Forearm.....	41
Fingers and toes.....	97
Ilium, clavicle.....	2
Thigh.....	87
Leg.....	295
Fractures involving shoulder, elbow, or wrist-joints, as a result of disease or accident.....	39
Fractures involving hip, knee, or ankle-joints, as a result of disease or accident.....	85
Fractures involving carpal or metacarpal, tarsal or metatarsal joints, as a result of disease or accident.....	47
	1,000

Now, following the example of surgical writers, who have carefully tabulated the results of treatment in compound fractures, I shall eliminate all those cases in which primary amputations were performed, because they do not concern the point at issue; and I shall also, according to the practice of writers, reject all those patients who died of hemorrhage, collapse, shock, etc.,

within a few hours after injury. I shall also leave out cases of compound fractures of the hand and foot, as too insignificant to be classed with compound fractures of the long bones. After these deductions are made there remain 681 cases of compound fractures, with one death due to sepsis. This gives a deathrate of about $\frac{1}{3}$ of 1%.

In order to appreciate fully what aseptic surgery has accomplished in reference to the management of compound fractures, it is necessary to compare the results obtained prior to the introduction of antiseptic surgery. In the Pennsylvania Hospital Norris has made a statistical report of the compound fractures treated between the years 1839 and 1851. During that time there were 116 cases of compound fractures of the leg and thigh (excluding those cases requiring amputation) with 51 deaths, thus giving a rate mortality of 44%. In the New York Hospital during the same period there were treated 126 cases of compound fracture of the leg and thigh (excluding those cases requiring amputation) with 61 deaths, thus giving a rate of mortality of 40%. In the Obuchow Hospital reports of St. Petersburg there are 106 cases of compound fracture with a mortality of 68%. In Guy's Hospital, from 1841 to 1861, there were reported 208 cases of compound fractures with 56 deaths, giving a mortality of about 28%. Billroth reports from surgical clinics of Vienna and Zurich 180 cases of compound fractures (excluding cases of amputation), with a mortality of 31% from septopyæmia. Now, after the introduction of antiseptics a study of Billroth's table of compound fractures shows a reduction in the deathrate to about 3%. The influence, therefore, of antiseptics has caused the deathrate to fall from 68% to about 3%. In my personal report of 1,000 cases the fractures of the extremities only are compared, as has been done in all of the above tables; there is no death from septopyæmia, and thus the rate of mortality from blood-poisoning is now reduced from 68% to zero. It may be said, therefore, that pyæmia and septicæmia, which formerly destroyed as many as 68% of compound fractures, have been practically eliminated.

The science of surgery has at last demonstrated to the world that it has fairly met these demons of destruction, and that it has conquered them. Without doubt, the means of warfare have been found in the establishment of bacteriological laboratories, for without these institutions the discoveries that effect the happiness and mortality of the human race could not have been made. For my own part, I remained a sceptic to the germ theory of inflammation until the Carnegie Laboratory afforded me an opportunity to work out this great problem. The reduction of the deathrate from 68%, which half a century ago was considered a brilliant achievement, and a result which was thought worthy of publication, to that of a cipher, represents what surgery has done for the amelioration of human suffering and the preservation of life. These statistics afford us the most startling and impressive lesson of what surgery has done. It has lessened suffering, it has annihilated pain, it has saved limbs, it has conquered sepsis, it has saved life. Surely nothing could be added to show more clearly the triumphant march of the onward progress of the grandest profession in the world.

Compound fractures of the skull require surgical interference which formerly was not resorted to unless in extreme cases. The intervention of operative measures has not only reduced the mortality to a very small percentage by preventing an infective process, but it also has eliminated the various nervous phenomena, such as headache, ataxia, epilepsy, insanity, and other like conditions. I have treated many hundred cases of compound fractures of the skull, and at one time collected a series of 116 cases of my own, a reference to which may give an idea of what modern surgery has achieved in the past few years in the management of this class of serious cases. There are 116 cases of compound fractures of the skull, excluding those deaths from shock within 48 hours, in accordance with all statisticians, because these

deaths were not the result of any special plan of treatment, there are two deaths which may be ascribed to sepsis. Perfection has been almost reached in the technique of the operation of trephining; but as yet there are circumstances which are not controlled by the practical surgeon, and to a study of these causes future scientific surgery must engage. In these 116 cases of compound fractures of the skull there were two deaths due to sepsis, which give a mortality of less than 2%.

[To be concluded.]

A SHORT NOTE ON SUBCUTANEOUS ALIMENTATION.

BY

ARTHUR E. BARKER, F.R.C.S.,

of London, Eng.

Professor of Surgery at University College, London, and Surgeon to University College Hospital.

Having been requested to contribute a short paper on the use of subcutaneous injections of salines and carbohydrates in conditions of asthenia due to various causes, of which I have now had a large experience, I do so readily. The more so, as since a former communication upon the same subject more than two years have elapsed, and a much wider clinical experience in a variety of cases has given an opportunity of more accurately estimating the value of the procedure.

The injection of fluid in bulk into the subcutaneous tissues or veins in extreme exhaustion may have several ends in view. When we consider the daily normal loss of water from the body by the lungs, skin, kidneys, and intestines and how this may be increased by fever it must become clear to us that in certain diseases in which it is necessary to deny our patients food in solid or liquid form, or in which vomiting deprives them of the benefit of aliments by the mouth, the system runs great risk of being gradually robbed of its most necessary component, water, and of suffering in many ways thereby. We are all familiar, for instance, with the victims of pyloric stenosis with their extreme emaciation and dried-up appearance. In them whatever food is taken by the mouth is either wholly returned by vomiting or, more commonly, is only passed through the pylorus in very small quantities quite insufficient to make up for the loss of water from the skin, kidneys, lungs, and intestines, the stomach itself absorbing little or nothing. The ordinary consequences of this are well known. If water is not supplied to the tissues and organs by some means or other, the end will be death. But there is one special effect of the loss of water in the tissues, which although attention has been called to it from time to time, has not yet apparently received sufficient consideration. This is the effect upon the nervous system. Years ago the theory was put forward by von Mering that (to put it briefly) in those cases in which dilation of the stomach, due to pyloric stenosis, was followed by tetanic spasms, for which the term "gastric tetany" was proposed, the cause was to seek in the extreme loss of water throughout the nervous system engendering an irritability of the nerve centers, which only required some accidental stimulus to call forth explosive action, this excitant being sometimes an attempt to siphon the putrid contents of the stomach. Since this theory was first propounded another has been put forth that in the fermentative processes going on in a dilated stomach certain toxins were produced in the organ, whose absorption led to a direct poisonous action on the nerve centers, inducing tetanic spasms just as the toxin of *B. tetani* acts. But though this theory seemed plausible, and was said to be supported by the discovery of such a poison, further observation and experience seemed to throw doubt on it, and actual proof may be said to be lacking as to its accuracy. Of late good reasons have been again put forth in support of the correctness of von Mering's orig-

inal theory. If the latter be sound, there is good reason for supplying water alone to the tissues in these cases of emaciation and general asthenia, the result of pyloric stenosis. In two cases of my own in which gastric tetany was present, the patients, I think, were saved by the subcutaneous infusion of water in large quantities. It might be urged in these instances that the infusion of water diluted the supposed toxins of the later theory and enabled the kidneys and other emunctory organs to eliminate them in solution, or that their dilution alone was enough to rob them of their specific powers of producing explosive effects on the nervous system. But I am told by more competent physiologists than myself that von Mering's hypothesis is the sounder of the two and that it is far more likely that it is the loss of water alone which produces the tetany. If this is so, gastric tetany ought soon to be a thing of the past, for nothing is easier than to supply the system with water quickly and safely by the procedure in question.

But the question of the dilution of deleterious matters in the system is still an important one, even though there may be no special tetanic spasms produced. There are many such, long known to chemists and physiologists, such as the alloxuric bodies, and some less definite toxins, such as the products of septic conditions. And this leads us to the second reason for supplying the tissues with water directly where it is denied by the usual channels. Let us take a case of peritonitis, say from appendicitis, in which the offending organ has been removed but in which the toxemia is still well marked. We are obliged to restrict food by the mouth to the smallest quantities, on account of vomiting or paresis of the bowel, and fever is present. In this case the patient is getting rid of water by vomiting, the lungs, skin, and kidneys, and this water is not being replaced. Now it is fair to suppose that the toxins from the peritoneal inflammation under these conditions become more and more concentrated in the blood, just as uric acid does under similar circumstances, and that they are, therefore, more dangerous. In some such cases they are eliminated by the intestine as the result of diarrhea, but in most instances the paresis or absolute paralysis of the bowel prevents this desirable purging. There remain, therefore, only the skin, and kidneys, and possibly the lungs, to rid the system of these injurious matters. The sweating which so often occurs in such cases, associated at times with rigors, may eliminate a little of the toxins, too, but in the main they have to be excreted by the kidneys and intestines, or increase in amount. That the kidneys do excrete the poisons, whether in bacterial form or as toxins, the products of the latter, is well known. And we are all familiar with the damage they often suffer in the process of elimination. The albuminuria so often present in these cases is a witness to it. And when such patients die we frequently have an opportunity of seeing the grosser and finer lesions of the organs in question recognized as the results of toxemia. We find therein inflammation in one or other of its stages, from mere congestion with the production of tube casts, to actual renal abscess. Now it is fair to suppose that if the toxins are in concentrated form they will exercise more vigorously their power upon the kidneys than when dilute. As we cannot, in many cases, produce this dilution by giving fluids by the mouth, we are only following the dictates of common sense by injecting them under the skin. And this we can do to a very large extent by the procedure in question. I believe that I have seen in at least one case of appendectomy, life saved in this way. I was consulted some five weeks after the appendix had been removed in the country by another surgeon. I found the patient suffering from an almost hopeless degree of toxemia. Daily subcutaneous injections of a half liter of solution saline and glucose were then given morning and evening, and from that time he began to mend steadily, and soon recovered completely. No one was more surprised than

the operator, who had told me he regarded the case as hopeless.

It is possible that in this case another beneficial process was set agoing by the injection which has lately engaged the earnest attention of pathologists and clinical observers. It is believed by many that these injections produce or encourage leukocytosis and the phagocytic action of the multiplied white corpuscles upon the deleterious organisms. On this point I cannot speak as yet from personal research, but if it is true it is an extra reason for giving these subcutaneous injections in septic infection and their use might possibly be greatly extended with advantage.

There is another way in which saline infusion may be of use, in surgery at any rate; viz., by reducing the effects of shock from loss of blood and perhaps also of shock from other causes. But in great loss of blood the absence of fluid alone from the tissues can hardly fail to injure not only the work of the heart, but also that of the nervous system. Without taking into account all the factors which operate in that very complex condition to which we still give the old name of shock, so much may be admitted.

It would appear also from some experimental work of Küttner of Tübingen that infused saline solution may be made the medium of conveying oxygen to the blood directly, and so of stimulating the heart in cases of shock. This method is to shake up with the well-warmed saline solution about a tenth of its volume of pure oxygen and introduce this into a vein by puncture with a hollow needle in the usual way. Subcutaneous injection will not answer in this case, as the oxygen would be absorbed by the tissues. This method is combined with the administration of oxygen by the lungs. Of this procedure I have no experience, but it seems practical. It is well known to physiologists that animals deprived of blood can be kept alive for long periods with normal saline solution circulating instead, provided they are kept in an atmosphere of oxygen. At all events it is a simple method and worthy of trial.

So far, it has been only a question of supplying water to the tissues safely, the sodium chlorid being hardly more than an addition, with the aim in view of rendering it isotonic with the blood. An almost equally important consideration remains. Is it possible to supply subcutaneously or by the veins such a fluid as will play the part of a food, so to speak? Such a fluid should be easily made, easily absorbed and assimilated and, above all things, otherwise harmless. So long as the rectum is available, we trust to it to absorb peptonized foods, which in many cases act satisfactorily, albeit slowly. But when the rectum is unavailable, or it is necessary rapidly to supply one of the most important foods, we have to look to other ways. Fortunately we have in pure glucose a food of considerable value, in which combination is very active, and is not being compensated for by ordinary food. This carbohydrate is easy to procure, is very soluble, and in proper amount is perfectly safe when injected under the skin. Having used it thus for several years at the suggestion of Lennander, of Upsala, in only one case was a trace of the sugar found in the urine, and here it had been given in very large amount for secondary hemorrhage and with the best results. This fact alone shows that, except in this one case, all the sugar had been used up somewhere in the system and always with benefit. Indeed, I have never seen any ill-results from its use.

But in order that water or sugar should be introduced into the tissues safely, several precautions must be taken which there is abundant evidence to show are not uncommonly overlooked. In the first place, any solution which is going to be used in this way must be sterile, of course. As this in practice usually means boiling, the substances to be used must be able to withstand boiling without alteration. It is conceivable that certain serums might be carefully prepared beforehand and

sealed up sterile for use in emergencies. But there are practical difficulties in the way of this, and some not inconsiderable risks, so that at present, at all events, we cannot rely on this source of supply.

Again, any solution which is going to be used for the purpose in question, must be first carefully graduated, so that its osmotic tension is actually, or very nearly, that of the blood. If it is not so, the injection will cause pain, even when slightly differing from the blood in this respect, and in many cases will cause osmotic destruction of the blood-corpuscles or necrotic changes in the other tissues. To ascertain this osmotic tension, is, fortunately, not a difficult matter. Saline fluids with the same freezing-point have, within ordinary limits, the same osmotic tension. This is only a short way of stating a wellknown physical law. It is only necessary, then, to have a Berkmann's freezing apparatus at hand to test our solutions occasionally, in order to be quite safe upon this point. Now, the freezing-point of normal blood, it is well known, is -0.56°C . To obtain, then, a solution of NaCl in distilled water, which shall neither swell nor shrink the blood-corpuscles, or tissue elements, *i. e.*, which is "isotonic" with them, a percentage of NaCl must be used, which will lower the freezing-point of the watery solution to -0.56°C . This percentage is now known to be 0.91% of NaCl. For my own satisfaction I have tested this over and over again many times by freezing, and found it to be correct. A very slight range in both directions is admissible, so that we may say that 0.9% of NaCl is near enough for practical purposes. The usual percentage given of 0.6% is too low. Moreover, if we are aiming at accuracy, it will not do to measure out a dram of common salt to a pint, as is commonly done. The solutions should always be made with distilled water, most carefully measured by weight, and pure NaCl should also be weighed out to the amount required. With the decimal system, this is very easily done.

In testing a solution of pure glucose in a Berkmann's apparatus we find that it requires 5% of the sugar in pure distilled water to lower the freezing-point to -0.56°C . At this strength, therefore, our glucose solutions are isotonic with the blood just as the 0.9% solution of common salt in water, is and will produce no osmotic changes in the tissues, in other words, is "indifferent" to them.

Such a solution will keep for a considerable time if sterilized by boiling. The best way perhaps to accomplish this is to make it with well-boiled distilled water to which the salt and sugar are then added and then boil it in glass flasks holding a liter and marked on the neck to this capacity. The neck contains a tuft of wool and as evaporation from the boiling proceeds, the fluid dissipated can be replaced by boiling water. It is well, however, not to trust the sterility of such solutions too long. They should be injected at about blood heat, otherwise they cause some pain if either too cool or too hot.

As to the mode of injecting the fluid it may be made most simple. For a long while past I have only required a hollow needle of 1 mm. bore, 3 feet of small-sized rubber tubing attached to it, with a 4-oz. glass syringe *without a piston* fixed to the other end. This latter is held about 2 feet or so above the patient's bed and is filled with the solution and covered with a piece of sterile gauze. When the tubing and needle are quite full and free from air the needle is thrust through a fold of skin on the inner aspect of the upper arm toward the axilla and the fluid is allowed to run in, being replaced from above without removing the needle. The latter is of course inserted through skin previously sterilized as far as possible.

After a long use of this method of supplying water and more or less food to exhausted patients I can testify to its value. It is always ready in the wards and only requires to be warmed and infused as above, the appa-

ratus and needle having been boiled for a few minutes previously. In some cases its effects are very remarkable and in no case in my experience could any injury be traced to it either when used to prepare a patient for operation or for the exhaustion following on one.

Of the method of alimentation by the subcutaneous injection of sterilized olive oil, which I also learned from Lennander, of Upsala, I can only speak from limited experience. He, however, speaks highly of it, and in theory it ought to be useful. Here some five ounces of fresh olive oil are sterilized by heat and placed in an 8-ounce flask with a rubber cork pierced in two places for glass tubes. One of the latter dips to the bottom of the flask, and is connected by a rubber tube with another larger flask holding sterile, 0.0% saline solution. The other dips nearly to the surface of the oil, and is connected by rubber tubing with the injection needle. When the second bottle is raised a couple of feet, the saline flows into the first and the oil floats on it until it reaches the other glass tube by which it begins to run off. When the needle is quite full it is thrust under the skin into the areolar tissue and spreads out in the latter as the saline from a height displaces the oil. In the few cases in which I have employed this method it has been a little painful, but perhaps this was something unusual. The oil was only very slowly taken up by the lymphatics. In theory a considerable number of calories can be supplied to the body in this way, but as stated, the absorption in my cases was very slow, and in one of extensive carcinoma which succumbed some time after, a considerable quantity was found quite unabsorbed in the areolar tissue.

It still remains for chemists and physiologists to devise some solution which injected subcutaneously shall bring to the system other more complex foods. In the meanwhile the foregoing notes indicate some simple methods by which at all events a beginning can be made.

BEZOLD'S VARIETY OF MASTOID DISEASE, COMPLICATING DIABETES MELLITUS.¹

BY

S. MACCUEN SMITH, M.D.,

of Philadelphia.

Professor of Otology, Jefferson Medical College; Aurist and Laryngologist to Germantown Hospital; Aurist to Jewish Hospital, Philadelphia.

In bringing to your notice the subject of this paper, I wish to state that the points herein set forth for consideration were suggested by a few unusual cases which have come under my observation during recent years, to two of which I desire to call especial attention, giving a brief history and a few of the uncommon features which they presented.

The question as to the actual existence of what has been termed the "diabetic ear," has been the subject of much discussion for many years past; yet so unsatisfactory were the conclusions drawn that it is only in the most recently revised textbooks that we find more than casual mention of mastoid disease complicating diabetes; and in many it is not even alluded to. Osler states that in diabetes, aural symptoms may come on with great rapidity, either as otitis media, or in some instances as inflammation of the mastoid cells. None of the other books on general medicine deal with this class of diabetic complications in any fuller detail, and when we turn to books on otology for an elucidation of the subject the information sought is still more conspicuous by its absence. Friedrich's treatise on "Rhinology, Laryngology, and Otology, and their Significance in General Medicine," discusses the subject more thoroughly, I think, than any other textbook yet published. In reviewing the periodicals, however, both American and

¹ Read before the American Laryngological, Rhinological, and Otological Society, held at Chicago, June, 1904.

foreign, we find that during the past 10 years or 12 years there have been reported some exceedingly interesting observations along this line by men prominent in the profession, and yet even among these we find a great diversity of opinion concerning the various phenomena observed, as to the primary point of infection, its course, extent, and character of necrosis, some even treating the whole complication as a mere coincidence, that diseases of the ear of more or less severity are just as likely to complicate any other general systemic disease as they are diabetes mellitus, and hence cannot be regarded as possessing clinical features characteristic of any special condition.

One writer, in 1896, makes this statement: "There is no specific reason for the causation of otitis media in the diabetic; it is caused in them, as in others, by 'a cold,' and then adds, 'the mastoid in no case will become affected if the primary tympanic inflammation is properly treated, and thus secondary infection avoided.'" Others have reported cases of nearly every variety of ear disease, furunculosis, otitis media, with so-called secondary necrosis, and deafness without any apparent associated infective process, complicating diabetes mellitus; but to Kuhn and Körner I believe we are indebted for first advancing the opinion that the pathologic process in diabetes mellitus involving the organ of hearing begins as a primary osteitis of the mastoid process, extending secondarily to the tympanic cavity.

While the large majority of recorded cases would seem to contradict this theory, it is, nevertheless, substantiated by sufficient evidence to render it worthy of most careful consideration, and should stimulate each of us to investigate most thoroughly every case with which we may come in contact.

My experience, as exemplified in the cases herein reported, not only confirms this view, but would seem to lend new evidence, inasmuch as the tympanic cavity was not involved in either case, at least not to the point of suppuration. The ominous drooping of the superior and posterior wall of the external auditory canal was present in both, but the inferior part of the tympanic membrane or cavity was not involved in even a passing inflammation when first seen, although it is quite possible that the middle-ear may have been the site of considerable inflammation prior to that time. The latter view, however, seems quite improbable, since the pain, which was severe and sudden in its onset, was confined to the mastoid and occipital regions, at no time being referable to the tympanic cavity or the region anterior to the auricle. If, therefore, it seems advisable or necessary to designate a disease of the ear, showing certain characteristics peculiar to and dependent upon diabetes mellitus for its existence, it is best that such a disease, "diabetic ear," if you like, should be so recognized only in those cases in which the disease begins as a primary osteitis of the mastoid, or should this classification draw the line too tightly, it may include those cases in which primary tympanic involvement and rapid mastoid complication seem simultaneous, which undoubtedly appears to be characteristic of this disease.

The two cases which came under my observation were so nearly alike as regards the local condition, that the history of but one will be given.

Mr. S. J. F., aged 41, had always been healthy until his thirty-sixth year, when he first noticed a sudden increase in the amount of urine voided. This continued for a few weeks, when the quantity ranged from 12 qt. to 18 qt. A few weeks later the amount voided was 32 qt., or 1,024 oz. in every 24 hours. It seemed impossible for him to be able either to eat or drink enough to satisfy his abnormal appetite and thirst; beside large quantities of food, he would consume from 4 qt. to 6 qt. of milk or water with each meal. I am informed by his wife that he would empty a bucket almost filled with water, with about the same facility and relish of a thirsty horse. The specific gravity of the urine ranged from 1.030 to 1.055; the sugar from 4% to 10%. He continued in this way enjoying moderately good health, under the circumstances, for about

a year, when he developed severe pain on the left side of the head and mastoid. This continued without additional symptoms for about 3 weeks, when the neck immediately below the mastoid tip became very painful. Two weeks later a large fluctuating swelling appeared below the mastoid process. A week later, or 6 weeks from the initial mastoid pain, the swelling involving the neck had enlarged and descended until it reached a point about an inch above the clavicle.

During the entire mastoid complication he did not have any pain referable to the middle-ear, nor had he had any previous ear disease at any time in his life. It is of interest to note that although the pain was severe over the mastoid, and especially painful on pressure, there was not at any time swelling or redness over the process. In this condition he was placed under my care February 4, 1902, and I sent him at once to the hospital, and a few hours later performed the usual Schwartz-Stacke operation.

A large carious opening was found perforating the tip of the mastoid process. The antrum and superior part of the cells presented the dry gangrenous or necrotic appearance so characteristic of the diabetic diathesis, whereas the tip was bathed in a greenish-yellow pus, which on further inspection was found to cover a mass of foul-smelling granulation tissue and other inflammatory debris. Part of the tip was next removed. An incision was then carried from the mastoid tip down to the bottom of the pus sac, about an inch above the clavicle. The vessels of the neck were not involved. The patient made an uninterrupted recovery and seemed to improve somewhat in his general health.

About a year later the patient was admitted to the hospital with an edema of the larynx, from which he lapsed into diabetic coma, death following a few hours later.

To summarize, I would suggest the following points as worthy of consideration:

1. That aural complications of diabetes mellitus may originate primarily in the mastoid cells.
2. That the process may be manifested by the classic mastoid symptoms without involving the tympanic cavity.
3. That this condition is peculiar to diabetes mellitus.
4. That the term "diabetic ear" should be limited to those cases in which the disease begins as a primary osteitis of the mastoid, or in which primary tympanic involvement and rapid mastoid complications seem simultaneous.
5. That while I believe it advisable to reduce the amount of sugar when possible, in those cases showing an excessive glycosuria, unless the urgency of the local symptoms would demand immediate operation, I have to record, however, that I have not met any cases that terminated in what could be called postoperative coma.

PNEUMONIA AND PREGNANCY.

BY

ROBERT C. RANDELL, M.D.,

of Washington, D. C.

Resident Obstetrician, Columbia Hospital, Washington, D. C.

It has been my object while collecting my material and preparing this paper to set forth in indisputable statistics the danger of pneumonia occurring coincidentally with pregnancy, and the bearing that intercurrent abortion would have upon the mortality. The majority of textbooks of the present day either merely state that pneumonia superimposed upon the pregnant state is extremely dangerous, or accept the highly fallacious statistics of Gusserow. I have been able to collect 350 cases from the English, French, German and Italian literature on the subject, to which I have added 2 which have come under my own observation, making a total of 352 cases.

History.—Hippocrates makes the following remark concerning acute diseases in general: "Acute diseases, occurring during pregnancy, are very dangerous, and often result in a fatal termination." From the Father of Medicine it is a long jump to Mauriceau, the eminent French accoucheur of the seventeenth century, who in his "Traité des maux des femmes grosses," Paris, 1694, makes a similar observation and records a case of a woman six months' pregnant who aborted on the ninth

day and died upon the thirteenth. This is the first recorded case I have been able to find. In the eighteenth century I find one case, Valsalva, with death. In the last century, Duplay, in 1830, in the report of the "Maison d'Accouchement," reports 11 cases, with 5 deaths. Majistel, in the same year, reports one case and reports having seen five more, in all of which the infants died. Skipping Vancoetsem, Inderfurths, Toulmouche, Thirion, and a dozen other scattered cases we come to Bourgeois, in 1861, with observations upon his 12 cases and 2 deaths; Grissolle, in 1864, 17 cases and 7 deaths, and Gusserow, in 1868, with a mortality of 71.4%. Up to this period it had been the accepted theory that the induction of abortion was beneficial to the mother. Gusserow was the first to express a desire for statistics to show that the prognosis for mother and for child is far better if abortion is not induced. This was closely followed by Chatelain's paper, in 1870, reporting 39 cases from literature, with 10 deaths and 19 abortions, and advocating the induction of abortion, despite the fact that of these 10 deaths, 9 were among those who had aborted. This point was one of prolific discussion in the succeeding decade in which the observations of Matton, Ricau, Bergesio, Coli and Fischl are especially noteworthy. Traumann, in his Inaugural Dissertation, 1889, collected 117 cases, with a mortality of 35.9%. The most exhaustive compendium on the subject is in Flatté's Thesis, 1892, in which he has collected 239 cases, of which, however, I find the author has repeated 52, leaving really only 187 individual cases from which to draw observations. Flatté found the percentage of deaths to be 31.4 and the percentage of abortions 55.4. Since then, among others, the papers of Deroubaix, Piretti and Doumanoff well deserve attention for their observations upon the subject, while adding little to the number of cases. As Bruchhäuser remarks, "All authors apparently agree in the belief that pneumonia in pregnancy is far more dangerous than in the nonpregnant; and, furthermore perilous in such pregnancies in which abortion supervenes during the illness (whether spontaneous or induced) than in those in which the same does not take place."

The following two cases came under my care in the services of Drs. Chas. R. Luce and Thos. N. Vincent, at Providence Hospital:

CASE I.—Mary K., aged 24, white, primipara, was admitted to the contagious building of the Providence Hospital, February 20, 1903, suffering with an attack of measles. She was in the seventh month of her pregnancy. Her temperature on admission was 102°. The course was uneventful until the third day, when with a moderate chill the temperature shot up to 103.6°. Physical examination showed involvement of the entire lower lobe of the right lung. Respiratory embarrassment was no more marked than in an ordinary case of pneumonia. On the sixth day after entry, and the third day since onset of the pneumonia, patient aborted with apparently slight pains, a stillborn seven-month fetus. No marked change occurred in the mother's condition immediately following miscarriage, but death suddenly intervened three days later.

CASE II.—Annette B. I., aged 35, white, multipara. The patient was admitted to the Providence Hospital December 14, 1903, in the third day of a frank pneumonia of the right lung. The temperature on admission was 102.6°, pulse 100, respirations 26. She was delivered on the night of admission of a full term child. Labor was short, pains apparently not severe, and accompanied with very little prostration. The temperature dropped to 99.8° after delivery, but mounted to 103.6° by next day. It continued between 102° and 104°, with a pulse and respiration gradually mounting upward till the ninth day of illness and sixth day after delivery, when a drop of 4° with profuse perspiration and drop in pulse, gave us to believe that a favorable termination would take place. But this was not to be. On the morning of the eleventh day of illness the patient succumbed. Examination of the blood on the seventh day of illness showed only 7,750 leukocytes, which, however, had increased to 27,266 on the tenth day.

The sputum showed abundant *Diplococci pneumoniae*. Child pursued an entirely uneventful course.

Complication.—Uterine fibroid size of adult head.

Etiology.—There has apparently been only one observer who has denied the rarity of this condition. Jürgensen, in 1877, claimed that relatively pneumonia

was not more uncommon in the pregnant state than in the general run of mankind, and cited the statistics of the Vienna Hospital from 1858-1870, showing that in 1842 cases of pneumonia in women between the ages of 15 and 50, 2.3% were in pregnant women. But the general experience of medical men of all ages has been that it is an exceedingly rare condition. Grissolle observed only 4 cases from 1854-1864. Wegschneider testifies to the rarity in a practice of 30 years. Bergesio saw only 5 cases in the clinic at Turin from 1872-1879, out of 1,495 cases. The fact that out of the copious French, German, English and Italian medical literature of the last two centuries I have only been able to collect 350 cases, would alone be convincing evidence.

As to the reason for this rarity, we would not seek any natural protection from disease which the woman might have in the pregnant state, but turn rather to the simple fact that in what is commonly called a "delicate state," women will naturally protect themselves more closely from exposure to any of the predisposing causes of lung inflammation.

Prognosis.—Contrary to the generally accepted opinion, the general mortality of pneumonia occurring during pregnancy is not extremely high. Taking private as well as hospital practice together the world over, it is my opinion that the mortality of pneumonia in all cases will run close to 20%. To compare with this, we have my figures of 352 cases with 96 deaths—a mortality of 27.3%.

It is not in the absolute mortality that the greatest interest lies, it is in the comparative mortality in those cases in which abortion took place and in those in which it did not. It is here that the most startling difference lies. Of 308 cases in which it was stated whether abortion took place or not, and which state mortality, 190 women did abort, and of these, 70 died, a mortality of 36.7%. Of the remaining 118 who did not abort, only 12 died, a deathrate of 10.17%!

Of the whole 352 cases, abortion took place in 207—58.8%. Of the 308 cases before mentioned, 144 were in the first six months, 164 in the last three months of pregnancy. Both the percentage of abortions and of deaths is markedly higher in the last three months than in the first six. Of the first 144 patients, 32 died—22.22%, and 75 aborted—52.08%. Of the last 164 patients, 50 died—a mortality of 30.49%, while 115 aborted, or 70.12%. Moreover, of the 82 deaths, 72 patients had aborted, that is, 85.4%.

These figures should be sufficient to show the marked difference in prognosis between the two divisions of pregnancy. That this should be due to diminution of chest cavity by the developing uterus has been disproved by the spirometric researches of Küchenmeister, Fabius, and Wintrich, who demonstrated that the lung capacity is not diminished even in the last months. Gerhard showed that the diaphragm is not pressed up by pregnancy; of 48 patients which he examined he found it normal in 42, and lower in 6. More probably the diminution in hemoglobin which takes place in the puerperium, the degenerative changes in the heart muscle in pregnancy and the puerperium, and the overloading of the right heart and pulmonary circulation after birth, are responsible for the fatal issue. Grissolle lays stress upon the extreme intensity of the febrile reaction. In my collection of cases the average highest temperature was only 103.2°. Ricau, in his exhaustive thesis, attributes it to the type of respiration, and extreme dyspnea, traced by him to a mechanical origin (disproved, as I have said before), but partly to the physiologic modification observed in the blood of pregnant women. (In my two cases dyspnea was not extreme.)

The high percentage of abortions has been variously attributed to the suddenness of the malady, the intensity of the fever, great diminution of sodium chlorid in the blood, and to the accumulation of carbonic acid in the blood, provoking, according to the theory of Brown-

Sequard, contractions of the uterus. The latter theory is probably the correct one.

It was a noticeable feature in my two cases, and has been frequently commented on by others, that the labors have been short and pains apparently not severe. This is probably due to the fact that the physical pains of the malady, from which they are suffering, have been sufficient to overmask the uterine pains in their early stages.

I append a few additional tables which should be of some interest:

RELATIVE FREQUENCY OF ABORTIONS UPON DAYS OF THE DISEASE.

1	2	3	4	5	6	7	8	9	10	11+
7	18	27	12	16	10	8	3	5	2	13

OF THE 121 CASES IN WHICH DAY OF ABORTION IS MENTIONED.

52 aborted on or before third day, with 21 deaths.....	40.38%
69 aborted after third day with 19 deaths.....	27.53%

From the foregoing tables it will be observed that if the abortion can be timed over the first few days of the disease, the prognosis is improved, and continues to improve with each day gained. The third day seems to be the most frequent time for abortion—both of my cases occurred on that day.

AGE.

Mortality before 25 years.....	13.33%
Mortality from 25 to 35 years.....	23.2%
Mortality after 35 years.....	22%

PARITY.

Of 102 cases in which parity was mentioned	
59 were multiparas with 13 deaths.....	20.11%
13 were primiparas with 4 deaths.....	30.77%

Infantile Mortality.—Of 142 cases in which infantile mortality is mentioned, and in which age of viability has been reached, 58 infants were lost—40.84%. With regard to the cause of the infantile mortality, various theories have been advanced. That it is due to the temperature of the child in the uterus always being higher than mother's; that owing to the lung disturbance of the mother, with insufficient aeration of the blood, the child dies of asphyxia, while mother is cyanosed; or that the pneumococci actually pass from the mother to the child. About this subject I will say no more, except to mention that Thorner, Marchant, Strachan, Birch-Hirschfeldt, and others have lately reported cases of direct transmission.

SUMMARY.

We can summarize our observations briefly, as follows:

1. The deathrate is appreciably higher in the pregnant woman than in the ordinary patient.
2. Abortion takes place in more than half the patients.
3. The mortality is much higher when abortion takes place than when the uterus does not empty itself.
4. The mortality is higher in the last three months of pregnancy.
5. The causes of death can be attributed to: (a) Diminution in hemoglobin; (b) degenerative changes in heart muscle; (c) overloading of the right heart and pulmonary circulation after birth.
6. That the high percentage of abortions is due to accumulation of carbonic acid in the blood.

BIBLIOGRAPHY.

- Hippocrates: Aphorisms.
Mauriceau: Traité de mal des femmes grosses. Paris, 1694, Traité d'Accouchement. Paris, 1738.
Vaisalva: Morgagni, 20e lettre. S. 10.
Duplay: Jour. hebdom. de Med. Paris, 1830, t. vii, p. 369.
Majistel: Ibid., 277-81.
Vancoetsem: Ann. de Med. Belge, July, 1835.
Inderfurth: Gen.-Ber. d. k. rhein. Med.-Coll., 1839. Koblenz, 1842, 63.
Toulmouche: Gaz. med. de Paris, 1842, x, 489.
Thirion, E.: J. de Med. de Bruxelles, 1844, p. 97.
Mazade: Bull. de ther., t. xxxvii, 1849, p. 314.
Habrand: Rev. med.-chirurg., livre de nov., 1849.
Marlineau: Bull. de therapeut., t. xiv, 1853. Ibid., April, 1874.
Sorbets: Monit. d. hop. Paris, 1854, ii, 772-4.
Tanner: Signs and Diseases of Pregnancy.
Aran: Gaz. des hôpitaux., 1857, May 16.
Saint Romes: Thèse de Paris, 1858.
Dürr: Würtemb. Correspondenzbl., Bd. ix, p. 324.

- Aertz: Ber. d. k. k. allg. Krankenh. zu Wien. (1858) 1859, 122.
Roth: Würzb. med. Zeitsch., 1860, i, 185.
Hecker and Bull: Klinik der Geburtshilfe, 1861, i, S., 190.
Smoler: Wien. Med. Halle., 1861, ii, 230.
Bourgeois: Mäl. des femmes pend. la grossesse, 1861.
Körnig: De Pneumon. Croup. Dissert. Gryphiswald, 1863.
Grisolle: Arch. Gen. de Med., 1850. Traité de la pneumon., 1864, second edition.
Verrier: L'Abeille méd., Paris, 1865, xxii, 361.
Müller P.: Würzb. med. Zeitsch., 1865, p. 158.
Hegar: Die Sterblichkeit während der Schwangersch. Freiburg in Anh., 1868.
Gusserow: Monatsch. f. Geburtstsk., xxxii, H. 2, p. 87.
Chatale: J. de Med. de Brux., 1870.
Matton: J. de med. chir. et pharm., Brux., 1872, liv, 418, 528, liv, 3.
Wattelle: Union Medicale, December 19, 1872.
Wernich: Beiträg. z. Geburtstsk., 1873, ii, p. 249.
Martin, A.: Beitr. z. Geb. u. Gyn., 1873, ii, 163.
Martin, E.: Ibid., p. 160.
Wegschneider: Ibid., p. 162.
Ruge: Ibid., p. 163.
Fasbender: Ibid., p. 163. Ibid., 1874, Bd. iii, p. 49.
Doleris: Arch. de Toxicologie, 1874.
Behler: Ann. de Gynec., 1874, t. i, p. 223.
Ricaud: Thèse Paris, 1874.
Brown: Detroit Rev. Med and Pharm., 1875, x, 329.
Reclus: Pneumonie dans la grossesse, Paris, 1875.
Gillet: Gaz. des hôpitaux., 1875, p. 826.
Hecker: Arch. f. Gyn., 1876, p. 533.
Adams: Lancet, London, 1877, 311.
Jürgensen: Ziemsen's Handb. d. spec. Path. u. Therap., Bd. v, Leipzig, 1877, p. 25.
Rutherford: Med. and Surg. Reporter, Phila., 1879, xli, 548.
Fischl: Prager Vierteljahresschr., Bd. iv, 1875.
Bergesio: Annali di ostetricia, 1879, p. 209.
Schenck: St. Louis Cour. Med., 1880, iv, 21.
Robinson: Proc. Conn. M. Soc., Hartford, 1882, ii, 75.
Chittuck: Detroit Lancet, 1883-4. N. S. vii, 167.
Hofmeyer: Centralt. f. Gyn., 1884.
Thorner: Inaug. Dissert. München., 1884.
King: South. Pract., Nashville, 1884, vi, 106-8.
Lehfeldt: Beiträg. z. Kompl. Akut. Krankh. mit Schwangerschaft, Berlin, 1884.
Burchmore: Nashville J. M. and S. n. s., xxxvi, 447.
Coli: Thèse de Bologne, 1885.
Ahlfeldt: Berichte u. Arb. aus. der geb.-gyn. Klin. zu Giessenin, Marburg, 1885.
Sage: Med. Press West N. Y., Buffalo, 1885-6, i, 225.
Brieger: Charité Annalen, 1886, p. 143.
Strachan: Brit. Med. Jour., November 6, 1886.
Spiegelberg: Lehrb. d. Geburtstsk., p. 265.
Weiss: J. Am. Med. Ass., 1886, vii, 677-3.
Foa-Uffreduzzi: Riforma med., 1887, No. 39, p. 233.
Fasola: Ann. di ost. e gyn., 1887, p. 309.
Auvard: Arch. f. toxicologie, 1888, p. 248.
Verlet: Progres medical, 1888.
Wallich: Ann. de gyn. et d'obst., Paris, 1884, xxxi, 439.
Traumann: Über die Complicat. v. Pneum. mit Schwangersch. (Halle) Götchen in Anh., 1889.
Stack: Brit. Med. J., 1889, ii, 816.
Netter: Comptes-rendus de la Société di Biol. Seance, 1889, p. 187.
Levy: Arch. f. exper. path. Leipzig, 1889, xxvi, 155.
Bradbury: Brit. Med. Jour., 1889, p. 312.
Villa: Ann. di ostet., Milano, 1890, xii, 641.
Fraigauid: Union méd., Paris, 1890, xlix, 281.
Davis: Brit. Med. J., 1891, i, 755.
Barthelemy: De la pneum. pend. la gross., 4e. Toulouse, 1891.
Birch-Hirschfeldt: Beitr. z. path. anat. u. alg., 1891, 383.
Mann: Lancet, London, 1891, ii, 610.
Allegria: V. Arch. di Ost. e Gyn. Anno., i, No. 11, 521.
Raven: Brit. Med. J., 1891, March 14.
Viti: Riforma med., 1891, vi.
Darby: Ala. M. and S. Age, 1891-2, iv, 433.
Flatté: La pneum. pend. la grossesse, Paris, 1892.
Vinay: Lyon Medical, 1892.
Craigin: Bost. M. and S. J., 1893, cxxix, 270.
Bruchatser: Über Pneum. in Puerp., Giessen, 1894.
Deroubaix: Grossesse et Pneumonie, Lille, 1894.
Rendu: Sajous' Ann. de l'Univ. Med. Soc., 1894, V. ii.
Ferrari: Rev. ital. di clin. med., Milano, 1895, i, 577.
Hawkins: London Lancet, 1895, i, 989.
Piretti: Incurabili, Napoli, 1896, xi, 289.
Schuhl: Presse med., Paris, 1896, 491.
Bausquet: Gaz. hebdom., 1897.
Lambinon: Rev. obst. internat., Toulouse, 1898, iv, 191. J. d'Accouch., Liege, 1900, xxi, 455.
Doumanoff: Contribution a l'etude de la pneum. pend. la gross., Nancy, 1900.
Chambrelent: J. de Med. de Bordeaux, 1900, xxx, 984.
Cooper: Brit. Med. J., 1901, i, 767.
Edwards: Tr. M. Ass. Ala., Montgomery, 1901, 471.
Lop: Gaz. d. hôp., Paris, 1901, lxxiv, 637.
Charles: J. d'Accouch., Liege, 1902, xxiii, 202.
Lopriori: Gaz. d. Osped. e. d. Clin., August 30, 1903.
Santi: Boll. di Soc. tosc. d. ostet. e. ginec., Firenze, 1903, iii, 36.

Increase of Plague in Upper India.—According to the *Public Health and Marine-Hospital Service Reports*, with the advance of the cold weather, plague is again growing worse in upper India. Last week, December 3, the United Provinces had 4 425 deaths, an increase of 1,000 on the total of the previous week; the Punjab 2,446, an increase of 400; Mysore 1,157, an increase of nearly 600; Hyderabad State 768, an increase of 200. In the Bombay Presidency there were 6,770 deaths, an increase of 300. Elsewhere throughout India the disease remains about as before. The total for the entire country last week was 17,728 deaths. This is 3,000 more than the previous seven days, and 1,000 in excess of the returns of the corresponding week of last year.

TYPHOID COXITIS, WITH REPORT OF A CASE.*

BY

JOHN L. PORTER, M.D.,
of Chicago.Professor of Orthopedic Surgery, College of Physicians and Surgeons
(University of Illinois); Attending Orthopedic Surgeon to
St. Luke's and Cook County Hospitals.

That typhoid infection of the hip and other joints occurs as a complication of the intestinal infection has been recognized for several years, but it is seen so rarely and so little is known of the pathology that we find few references to the condition in the literature. Yet the result of hip-joint infection is often serious, and anything that adds to our knowledge is of interest. Involvement of the hip in the course of typhoid enteritis seems to be a complication which usually develops late in the disease, or even during convalescence. The pain is often severe, though the patient may only complain of slight pain or discomfort about the joint. Swelling develops slowly, and on account of the thickness of the muscles about the joint, may progress to a considerable degree before being noticed.

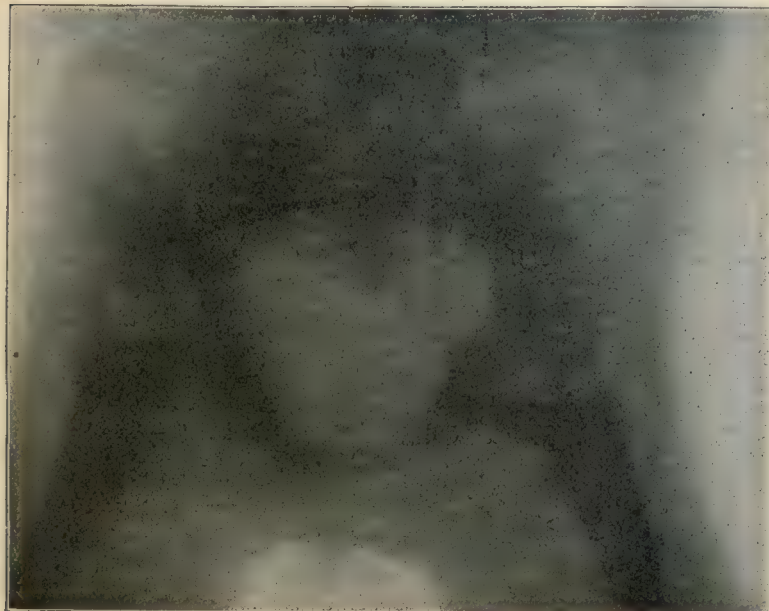
The first thing to call the physician's attention to the

mechanical cause there is also probably an actual destruction of the tissues in the joint in many cases, which aids in producing the displacement.

As to the bacteriology, little is positively known. Grancher² obtained typhoid bacilli from an acute tendosynovitis following typhoid. Orloff³ found a thick tenacious turbid fluid followed the injection of typhoid cultures into the joints of dogs and rabbits, which, after a few days, became purulent, and the typhoid bacilli disappeared.

Keen⁴ cites five cases in which examinations of the fluid in the joint were made. In one *Staphylococcus aureus* and *albus* only were found. Three were sterile, but one of these had an abscess outside the joint involving the trochanter, which contained typhoid bacilli. One contained bacilli resembling typhoid, but were not identified positively.

Goldthwaite⁵ believes that the result to the joint probably depends upon whether the synovitis is due to the presence of the typhoid bacilli or is only the effect of their toxins. Keen thinks that while the bacilli may be present during the acute synovitis, they are destroyed later by leukocytosis or some other agency, and disappear from the synovial fluid, thus accounting for the



joint may be the fact that the patient cannot lie on that side or that he keeps the thigh flexed. In a patient weakened by a prolonged intestinal typhoid, with sensibilities somewhat obtunded, we can readily see how a slowly progressive synovitis with little pain may proceed to a considerable degree before being noticed.

The one peculiar thing about these hip infections is the tendency to spontaneous dislocation of the joint, and it is this feature which makes typhoid coxitis such a serious condition.

Keen,¹ in the series of 84 cases which he collected, found that spontaneous dislocation occurred in 43, or over 50%. That dislocation should occur so frequently may seem strange, but the mechanical reason is very simple. The joint becomes distended with fluid, and the thigh is kept flexed and adducted. The distention of the joint lifts the head out of the acetabulum, and the adduction rotates the head inward and against the upper and outer border of the acetabulum. In this position the joint is most easily dislocated, and the contraction of the thigh muscles, with no opposition, the iliopsoas group being relaxed, furnishes the power. But added to this

fluid obtained being sterile in several instances. This gap in our knowledge of the subject can only be filled by making cultures from the aspirated fluid at intervals, beginning with the acute onset.

As to the gross pathology, Graff⁶ has reported several cases of spontaneous dislocation following typhoid and other acute infections of the joint, with röntgen pictures showing flattening or destruction of the upper rim of the acetabulum. He believes that the synovitis is serofibrinous in character, and that beside causing a distention of the joint, it produces an inflammatory softening of the acetabular margin, and the pressure of the head of the femur by contraction in a flexed and adducted position, causes a pressure atrophy of the outer part of the acetabular rim, permitting the head of the femur to slip slowly out. It is with the hope of adding something to our knowledge that I present these skiagrams and history of the following case:

CASE.—E. D., aged 10; about October 10, 1901, was taken sick with headache, loss of appetite, nausea, fever, pain in back and different parts of the body, and especially in abdomen. The trouble steadily grew worse, and October 15, the family physician made a diagnosis of typhoid. The fever persisted about three weeks, ranging from 102° to 105°. It then began to subside gradually, but on November 14, five weeks from the

* Read before the American Orthopedic Association, at Atlantic City, June 8, 1904.

onset, the patient had a marked chill, and pain in the left thigh and hip. The thigh became flexed on the abdomen, and any attempt at motion caused severe pain. A purplish-red spot appeared near the trochanter, and about two weeks later ruptured and discharged a "core," and a quantity of thin, yellowish pus, and continued to discharge somewhat until February, 1902, the joint meanwhile getting better. After the chill of November 15, preceding the joint symptoms, the fever persisted for about three weeks, and gradually subsided. It remained normal for two or three days, and then about December 7 another elevation occurred, lasting about ten days. At this time the patient had severe pain in the right groin, the right thigh became flexed, and motion very painful. He gradually recovered from this attack, and on Christmas day was allowed to sit up, but the right hip remained flexed and sensitive to motion. By the middle of February, 1902, the patient had apparently completely recovered from his illness; the sinus into the left hip had closed, but the deformity in the right hip persisted. He had no pain after that in either hip except on violent motion.

June 21, 1902, the patient came under my observation with the following condition: Boy, about ten years old, appeared healthy, and well nourished. Walks with a crutch, and cannot stand without support. Right thigh flexed to 90°, and adducted so that it touches the left. The trochanter very prominent under the gluteal muscles on the dorsum ilii. Motion at the hip lost except slight flexion. Head of the femur cannot be felt. No scars about the hip; no evidence of synovitis. No pain on attempt at motion, except extreme force is used. The resistance to motion seems like ankylosis. No muscular rigidity.

Near the left trochanter is a scar about three-quarters of an inch long; but motion in left hip practically normal and painless. Since recovery he has been under treatment by an osteopath, who diagnosed dislocation, and said he could reduce it, but treatment has been fruitless. The boy had been to two surgeons, who advised resection of the joint. The father would not listen to any cutting proposition, and asked me bluntly if I could straighten the leg without it. I took the skiagram (No. 1), and then told him that if he would let me anesthetize the lad and do a tenotomy of the shortened adductors, which I explained to him, I would try to correct forcibly the deformity but I was doubtful if it could be entirely straightened by that method. He consented.

July 2, 1902, boy entered hospital. July 5,

operation. Tenotomy, forcible extension; sound of tearing adhesions and crepitus. Leg put up in plaster at about 20° flexion.

July 15. Cast removed. Weight and pulley extension applied.

July 23. Extension removed. Cast put on. Flexion and lordosis somewhat less.

July 31. Cast changed. August 14, cast changed. August 16, went home.

Later, a Thomas hip splint was applied, and this was taken off each day and passive motion given the joint. Gradually this was discarded as tenderness subsided, and motion increased. Returned in October, 1902. Walking without any support, with leg one inch shorter than the left, and some motion in all directions, least in flexion.

I believe that in the case just exhibited, nature has distinctly pointed out that early evacuation of the joint is the satisfactory treatment. Both joints were involved, but the one that opened and discharged spontaneously, although it was stiff and somewhat flexed when he got up, has recovered with almost perfect motion, while the other became dislocated, extensive destruction occurred in the acetabulum and femoral head, the joint had to be straightened by operative measures, and he now has only very limited motion.

BIBLIOGRAPHY.

¹ Keen: Surgical Comp. of Typhoid Fever, pp. 96-108.

² Bull. Med., 1892, vi, 1271.

³ Centralblatt f. Bacteriol., 1890, 366.

⁴ Loc. cit.

⁵ Boston Med. and Surg. Jour., April 7, 1904.

⁶ Centralblatt f. Chirurgie, Vol. xxviii, p. 1248.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 4, 1905. [Vol. XLIV, No. 5.]

1. Conservative Perineal Prostatectomy: A Report of 50 Cases. HUGH H. YOUNG.
2. The Operative Treatment of Chronic Suppuration of the Frontal Sinus, with Special Reference to the Method of Killian. A. LOGAN TURNER.
3. Dementia Præcox. F. X. DERCUM.
4. The Nature of Traumatic Sclerosis. ARTHUR CONKLIN BRUSH.
5. Prevalence and Prophylaxis of Pneumonia. EDWARD F. WELLS.
6. The Relation of the Internal Secretions to Epilepsy, Puerperal Eclampsia and Kindred Disorders. CHARLES E. DE M. SAJOURS.
7. The Axis of Astigmatism. J. HERBERT CLAIBORNE.
8. The Relation of Corneal Curvatures to the Refraction of the Eye. MELVILLE BLACK.
9. The Mechanical Treatment of Hip Disease. ADOLPH LORENZ.
10. The Management of Prison Tuberculosis, with the Aid of Tuberculin as a Diagnostic Agent. JEWETT B. REED.
11. Tonsillectomy, Thorough, Painless and Safe. E. FLETCHER INGALLS.
12. Immunity: Chapter II.—Infectious Etiology.

1.—See *American Medicine*, Vol. VIII, No. 4, p. 140.

2.—See *American Medicine*, Vol. VIII, No. 26, p. 1011.

3.—See *American Medicine*, Vol. VII, No. 24, p. 926.

4.—**Traumatic Sclerosis.**—A. C. Brush gives a review of the evidence furnished by pathologic findings, clinical observation, and the opinions of recent writers. The marked part which neurasthenia and hysteria play has undoubtedly caused some to classify this condition as a neurosis, but when we consider the symptoms, such as syllabic speech, true nystagmus, the pupillary reactions and optic atrophy, the character of the tremor, reflexes, and anesthesia, the true ataxia, the vesical paralysis, the bed-sores, the fatal course, and pathologic findings, it shows we are dealing with organic disease, rather than a neurosis. It differs from multiple sclerosis in that secondary and systematic degenerations occur; the axons are destroyed, and patches of morbid tissue consist more of fibrous and less of cellular tissue than those found in true multiple sclerosis. Traumatic sclerosis is an organic disease of the cerebrospinal axis; trauma is a competent producing cause; it is not a type of multiple sclerosis, but a distinct pathologic entity. [H.M.]

5.—See *American Medicine*, Vol. VIII, No. 4, p. 142.

6.—See *American Medicine*, Vol. VII, No. 25, p. 975.

7, 8.—See *American Medicine*, Vol. VIII, No. 7, p. 270.

9.—**Mechanical Treatment of Hip Disease.**—A. Lorenz's method differs from that of Americans and other Europeans. Cases which come to the surgeon after the disease has run its course are the most interesting and desirable. They suffer no pain, their treatment is short and simple, and is usually followed by excellent results. Intraarticular modeling redressment, a central or subtrochanteric osteotomy, according to circumstances, corrects the contracted position and improves the patient's gait, usually to his complete satisfaction. Never-treated children attain an independent enduring gait more quickly than the mechanically treated coxitic patients. English physicians do not consider extension necessary, but remove body-weight. Americans confine the patient to bed with extension. The Germans use ambulatory treatment with apparatus for extension. In the last ten years, Lorenz has used extension scarcely at all. Under it the leg becomes emaciated, the muscles flabby, the knee-joint lax, the bones brittle, the frequency of abscess formation is hardly lessened, and contracture results when it is discarded. The general health deteriorates with confinement in bed. Lorenz fixes the joint with a plaster dressing, the knee remains free, the leg accessible to massage. On the other side the shoe is raised to equal the abduction lengthening. If walking causes pain, a leather splint jointed at the knee and ankle is attached to the plaster. The jar in walking is intercepted by a steel sole piece and transferred to the apparatus. When there is great sensitiveness the steel sole is lowered so that the leg is in suspension. The plaster is followed by a leather splint, massage, active and passive abduction and passive extension movements. [H.M.]

10.—**Management of Prison Tuberculosis.**—J. B. Reed states that tuberculosis has always been the chief cause of sickness and death in the Indiana Reformatory. In diagnosis of incipient cases it was impossible to examine the sputum frequently. Reliance was placed altogether on the administration of tuberculin. This was given when any symptoms or signs of

the disease were present if the temperature was not elevated. A 10-mg. dose was used after an hour temperature record had been taken for about 36 hours. Out of 278 men so tested, 102 gave a definite reaction consisting in a rise of 2° above that previously recorded. A majority of the men were found to have a temperature 1° below normal. No ill-effects followed the administration. Out of 965 inmates, 24 were in advanced stages, which, with the above 102, make a total of nearly 13% with the disease. The tuberculous were given a separate cell house, and ate at separate tables. Sawdust, wet with carbolic acid was used before sweeping and the same was used in spittoons. Those too weak to work were given benches in a sunny part of the grounds. Deaths decreased from 18 to 10 in the year, and the number of inmates attending sick call has been 40% less. [H.M.]

11.—See *American Medicine*, Vol. VII, No. 24, p. 927.

Boston Medical and Surgical Journal.
February 4, 1905. [Vol. CLII, No. 5.]

1. The Relation of the Epileptic to the Community. WILLIAM N. BULLARD.
2. The State's Relation to the Epileptic. OWEN COPP.
3. The Tuberculosis Problem, and Some Suggestions in Dealing with It. EDWARD O. OTIS.
4. The Treatment of Hemorrhoids by the General Practitioner. T. CHITTENDEN HILL.
5. Tuberculosis and Its Borderland: Public and Professional Concern. PAUL PAQUIN.

1.—Relation of the Epileptic to the Community.—W. N. Bullard states that any one who has not given careful attention to the subject, would be surprised to learn how large a proportion of the pauper epileptics—that is, those who are not able to obtain all the ameliorations of their condition consistent with a large pecuniary expense—are mentally affected, irresponsible, incapable of earning their living and liable to become vagrants or criminals. They are a terrible burden on their relatives. They must be supported in idleness, and often their mental condition, irritability, and unreasonableness render them most undesirable inmates of the family. It is much better for both patient and family that the epileptic be supported away from home. For the average person, the State institution is the proper resort. [H.M.]

2.—The State's Relation to the Epileptic.—O. Copp reminds us that many projects humanitarian in motive eventuate in the wisest economy, notwithstanding the magnitude of initial expenditure. Ignored, the epileptic may become a menace through vicious, criminal, and degenerative tendencies, reproduction of his kind and impairment of his earning power. Relatively few epileptics survive middle age. There is excessive infant mortality among their offspring and a meager percentage of healthy descendants. This self-extinction is counteracted, however, by forces inflowing through healthy persons. The ratio to the healthy varies from 1 to $2\frac{1}{2}$ in 1,000. Their productive capacity is very small. Their development entails an often impossible expense. The almost inevitable lot is dependency. The indirect burden on the community probably far exceeds the direct tax. The direct public outlay in Massachusetts is about \$250,000. The primary need relates to provision and training for the young epileptic. The mean age on admission to the hospital is 31 years. Such dilatory policy results in dealing with only confirmed and terminal conditions. The State should supply a center for research, teaching, and scientific treatment, and schools for elementary education and manual training. It should establish colonies where the epileptic may find society and industrial opportunities. There should be custodial provision for the infirm, intractable, and insane epileptic. Segregation would afford the chief check on hereditary transmission. In several States there is restrictive legislation against marriage and illicit relations during the child-bearing period. [H.M.]

3.—The Tuberculosis Problem.—E. O. Otis considers the main point of attack, prevention, through an educational propaganda, dealing with infectiousness and hygiene. It should be a reportable disease, and early recognition is of paramount importance. Promiscuous spitting must be strenuously forbidden. Factory inspections should be made at stated periods. In fighting tuberculosis we must fight against alcohol. [H.M.]

4.—Treatment of Hemorrhoids by the General Prac-

itioner.—T. Chittenden Hill says the general practitioner should be able to treat successfully the more common rectal diseases. Hemorrhoids is the most common of these affections. Of the external variety but two forms are common, viz.: The thrombotic, and the external connective-tissue hemorrhoid. A thrombotic hemorrhoid is an extravasation of blood at the anal margin beneath the skin covering the external sphincter and extending slightly into the anal canal. Treatment consists in injecting a 1% solution of eucain hypodermically as follow: With left index finger and thumb pinch the perianal skin to numb the part, and insert the needle superficially just under the skin; the whole of the top of the tumor is well injected, then transfixed with bistoury and cut outward; pack firmly with iodoform gauze, which should remain in place for 24 hours. Healing is rapid and cure is complete. Connective-tissue hemorrhoids are simply redundant folds of perianal and anal skin, caused by stretching by large fecal masses. Overstretching causes slight tearing and infection; this subsiding, the folds do not contract to their normal size. These became inflamed and constitute this variety of piles. When acutely inflamed and the external sphincter is not hypertrophied palliative treatment is best. This consists in bathing and drying, then wipe with cotton wet with olive oil, and use ointment composed of the following: Zinc oxid, 2 dr.; camphor liniment, 4 dr.; vaselin, 1 oz. Apply at night, and dust during day with powder composed of: Zinc oxid, 4 dr.; pulverized camphor, 2 dr.; powdered starch, 10 dr. After acute symptoms have subsided, the skin tabs may be removed under local anesthesia, with scissors. Should the external sphincter be hypertrophied or ulcer complicate the situation more radical treatment may be justified. The great majority of internal hemorrhoids can be treated successfully in the physician's office. Hill sends not more than 10% of private patients afflicted with internal hemorrhoids to a hospital. Grant, of New York, has reported 126 instances in which he used hypodermic injections of sterile water as a local anesthetic previous to operating on internal hemorrhoids. Of these 116 were by ligature, 6 by incision and 4 by clamp and cautery. It must be remembered that the after-treatment in all cases requires care and strict attention. The bowels should be confined for 48 hours, after which there should be daily evacuation. A pad of cotton-wool wrung out of 1 to 1,000 mercuric chlorid should be worn over the anal orifice. Extreme pain, which is rare, can be relieved by opium suppositories, cocain, etc. [A.B.C.]

5.—Tuberculosis and Its Borderland.—P. Paquin states that the death roll of all the wars of the nineteenth century is estimated at 14,000,000, and of tuberculosis at 30,000,000. It invalidates each victim one to two years with a loss of \$76,800,000 a year on the larger estimate. Apathy toward this disease is due to a belief in its incurability and an attitude of wanton optimism. The diagnosis is concealed by the physician while chances of recovery are lost and others are infected. Through marriage, new centers of infection are established. Probably 80% could be saved by early treatment. Dissecting material indicates its curability at different stages. Infectious and constitutional deviations from the physiologic are in the end disorders of nutrition. This fails because the directing nerve force fails. There is no clear cut line between health and disease, but after the appearance of characteristic symptoms we are in the domain of pulmonary tuberculosis. The question of germ entrance has the greatest bearing on early diagnosis. The tonsils are perhaps the chief gateways. A vigorous campaign on hygiene should include two branches, one for the public and one for the further instruction of the profession. [H.M.]

Medical Record.

February 4, 1905. [Vol. 67, No. 5.]

1. Sanitary Conditions as Encountered in Cuba and Panama, and What is Being Done to Render the Canal Zone Healthy. WILLIAM C. GORGAS.
2. Intramuscular Hemorrhage from Muscular Action. A. H. SMITH.
3. A Review of Some Recent Papers on the Surgical Treatment of Prostatic Hypertrophy. E. G. BALLENGER.
4. The Diagnosis of Renal and Ureteral Calculi. H. A. FOWLER.
5. Growth of Bone in the Tonsil. WILLIAM WESLEY CARTER.
6. Report of Three Cases of Intestinal Anastomosis by the Connell Suture. H. H. SINCLAIR.

1.—Sanitary Conditions as Encountered in Cuba and Panama, and What is Being Done to Render the Canal

Zone Healthy.—W. C. Gorgas traces the steps by which the sanitation of Cuba has progressed until now for a period of over three years, not a single case of yellow fever has originated in Havana. Almost every month a case or two is brought in by ship, but the patients are conveyed to the yellow-fever hospital in the heart of the city without any risk of spreading the infection. The patient is carefully screened so that no Havana mosquito can bite him, and with this exception the case is cared for as typhoid fever is in the United States, and is feared just as little. In Panama and the Canal Zone, yellow fever can no doubt be eliminated by the means that have proved so effectual in Cuba, but malaria on the Isthmus and malaria at Havana are very different problems. Owing to the very abundant breeding places, the mosquitos are more difficult to exterminate, and as over 70% of the 12,000 people living along the line of the canal actually have the parasite of estivoautumnal malaria in their blood the conditions are exceedingly difficult to deal with. The plan is to destroy all possible breeding places for anopheles along the canal by drainage, and to free the inhabitants from contagion by establishing dispensaries. The maritime sanitary service of the zone is being developed, as well as the sanitary supervision of Panama and Colon, and adequate hospital and laboratory facilities are being provided for.

2.—Intramuscular Hemorrhage from Muscular Action.

—A. H. Smith says that a sharp distinction is to be drawn between those cases in which the escape of blood within the intact sheath of a muscle is the important factor, and those in which laceration of muscle and sheath plays the principal part. Contrary to what might be expected, the former sort of cases may give rise to greater immediate suffering and more lasting impairment of function than the latter. While almost any muscle may be the seat of rupture, those that act through the tendo-Achillis are especially liable to the accident. The strain on this structure in walking is at certain moments equal to three times the weight of the body, and if it is brought to bear suddenly, the tendon may be ruptured, or some of the muscular structures, which act through it, may give way. Inco-ordination of the fibers of a muscle also may cause some of them to rupture, and this irregular contraction probably is the cause of the lesion in those cases in which there is no conscious muscular effort at the moment of the accident. The author describes two cases of hemorrhage into the calf muscles, due to muscular action, and two other cases, affecting the gastrocnemius and the sternomastoid muscles respectively, in which there was a demonstrable rent in muscle and sheath. In the former two cases the effusion of a moderate amount of blood into the confined space afforded by the intact sheath, caused much pain and protracted disability, whereas in the latter, the suffering was comparatively slight, and recovery was relatively prompt.

3.—A Review of Some Recent Papers on the Surgical Treatment of Prostatic Hypertrophy.—E. G. Ballenger gives the history of the development of prostatic surgery and the indications for, and technic of, the different modes of operative treatment in vogue at present. Suprapubic drainage of the bladder is advised in those cases too weak to withstand an operation; if improvement follows this procedure, then a radical operation is indicated. There are three radical methods that are without doubt the most valuable; suprapubic prostatectomy, perineal prostatectomy, and the Bottini operation, and each of these has a definite place in prostatic surgery. All patients should be operated on before the breakdown in catheter life, and the earlier the operation the fewer will be the complications encountered. The suprapubic route is indicated when there is a large intravesicular, mobile adenomatous growth, with general health and bladder and kidneys in a satisfactory condition. The perineal operation is more desirable for small, dense, fibrous prostates firmly attached, and those where the growth is largely along the urethra or back toward the rectum. The Bottini is indicated in those cases where prostatectomy is refused, and in selected cases, where the general health and kidneys counterindicate more radical measures. Of course, it is never to be used for a large, rapidly-growing hypertrophy. Marked improvement results in the large majority of cases where the operation has been properly selected and carefully performed.

4.—The Diagnosis of Renal and Ureteral Calculi.—H.

A. Fowler says that the following conditions are necessary for the formation of urinary calculi: (1) The presence in the urine of the inorganic salts—the stone-forming materials; (2) the presence in the urinary tract of a catarrhal or inflammatory condition which furnishes the *organic* material—the framework; (3) changes in the urinary passages which prevent the escape of the nucleus, thus permitting its further growth. Although the severity of the symptoms and the course of the malady vary greatly in different cases, the disease is always one of the utmost gravity and danger to the patient, and the results attending the operation of nephrolithotomy are among the most brilliant in surgery. The author considers a good history as the most important step toward making the diagnosis, and ranks the other measures in order of importance, physical examination, urine examination, cystoscopy, radiography, ureteral catheterization, and exploratory incision. Unless there are special contraindications, cystoscopy, with or without catheterization of the ureters, should always be done in these cases, as it often yields the most important information, and is not as trying an ordeal for the patient as is usually supposed. The cystoscope gives information on the following points: (1) Presence or absence of vesical involvement—calculus, tumor, etc.; (2) difference in two sides of the trigone, suggesting a lesion higher up, either calculous or tuberculous; (3) presence of ureteral calculus at its vesical orifice; (4) in cases of pyuria and hematuria, which kidney, if the disease is unilateral, harbors the foreign body. Röntgen-ray examinations are valuable, but require expert interpretation, and negative results are of less value than positive ones.

5.—Growth of Bone in the Tonsil.—W. W. Carter reports a case in which bone and cartilage in process of transformation into bone were found imbedded in the connective tissue of the tonsil. The author believes that in these cases the bone originates from metaplastic changes in the connective tissue, and not from the branchial arch, for the following reasons: 1. At the time that the tonsil develops, the branchial arch has disappeared. 2. If the bone came from the arch, it should be uniformly distributed through the organ, and not confined, as it usually is, to the connective tissue. The natural sequence of development of osteomas is from connective tissue, through cartilage to bone. This process is clearly shown in the specimen taken from this case. 4. Analogy with other organs shows that cartilage and bone are frequently found in the connective-tissue framework of such glands as the parotid, the mammary gland, and the testis, when these have been subject to chronic inflammation. But since bone does not develop in every tonsil that has been subject to proliferative connective-tissue changes, when it does occur we must assume some local predisposing tendency to its formation.

6.—Report of Three Cases of Intestinal Anastomosis by the Connell Suture.—H. H. Sinclair describes three cases in which he performed intestinal anastomosis by the Connell method. The patients all made good recoveries, and the author suggests that perhaps the lack of a simple method of doing an intestinal anastomosis has been one of the causes of mortality in strangulated hernia and volvulus.

New York Medical Journal.

January 28, 1905. [Vol. LXXXI, No. 4.]

1. The Relation of Radiographic Appearances to Clinical Symptoms in Hip Disease. ROBERT W. LOVETT and PERCY BROWN.
2. Vesico-rectal Anastomosis. BENJAMIN MERRILL RICKETTS.
3. Ovarian Angioma. BENJAMIN MERRILL RICKETTS.
4. A Note on Brown-Séquard's Paralysis, with Report of a Case in which the Paralysis Followed a Gunshot Wound in the Neck. ALFRED GORDON.
5. The Significance of Abulic Symptoms in Cases of Mental Disease. ROBERT H. CHASE.
6. The Pathology and Treatment of Diabetic Gangrene of the Lower Extremity. (Concluded.) HORACE J. WHITACK.
7. Preliminary Notice of a New and Simplified Double Stain for Bacillus Tuberculosis. IRA S. WILE.
8. Remarks on Some Abuses in the Intranasal Surgery of Today. JOHN N. MACKENZIE.
9. A Recurrent Perinephritic Abscess, of 26 Years' Standing and Presenting a Clinical Picture of Addison's Disease. GEORGE A. MOLEEN.

1.—The relation of radiographic appearances to clinical symptoms in hip disease has been investigated by R. W. Lovett and Percy Brown. One hundred consecutive negatives

of the hip-joint were examined and recorded by number and an opinion written in each case as to whether disease was present, and as to the character of such disease. The clinical history was later looked up and the value of the opinion formed from the radiograph tested in this way. Sixty-one cases were diagnosed as hip disease from the radiograph, in which the clinical history was typical, and the subsequent course of the affection confirmed the opinion formed. The various radiographic appearances seen in tuberculous disease of the hip are characteristic of this affection when taken collectively. Any one of them may be a factor in making up the röntgen pictures of other pathologic conditions, but, considered in combination, they tell a consistent story of a process in which tuberculosis is a causative factor. The appearances vary, naturally, with the extent and duration of the disease, beginning with evidences of simple atrophy, passing on to bony thickening, erosion, cavity formation, and loss of substance, to complete absorption, destruction and ankylosis. The earliest changes seen in the radiograph are (a) diminution in the density of the shadow and (b) a relative diminution in the size of the shadow cast by the affected bone. Where one form of atrophy exists, the other is likely to be found. Bony thickening is the best radiographic evidence of nature's effort at repair, and is most often seen, in the plate, to involve the neck, and less often the head of the femur. Their conclusion as to the value of radiographs in the diagnosis of hip disease, and especially early disease, is that they are of great value in the hands of persons of average experience; that a radiograph free from abnormal appearances does not show that hip disease is absent or will not develop, but that in a case of doubtful clinical diagnosis a normal röntgen ray is a matter of weight and makes the likelihood of speedy recovery greater than will radiograph of abnormal appearances. The existence of slight atrophy of bone, and slight diminution of shadow, while on the other hand, not showing that hip disease was present in a case of doubtful clinical diagnosis, makes the likelihood of it greater and the outlook rather more serious than a normal radiograph would do. In only two cases was hip disease diagnosed where it was not present, and here the writers were misled by an extraarticular collection of pus. In three cases out of the hundred the opinion expressed was wholly wrong. In the remaining 95, the opinion formed from the röntgen ray was fairly well borne out clinically. [C.A.O.]

2.—Vesicorectal Anastomosis.—B. M. Ricketts reports the case of a man of 67 who had had prostatic hypertrophy for years. The urine contained albumin and pus in abundance. A median perineal incision was made and the entire gland, together with its capsule, of twice the size of a guinea egg, was removed, the prostatic urethra included. An S-shaped silver tube was introduced for drainage for several days, when urine was discovered to be escaping from the rectum, the flow from the incision gradually becoming less until at the end of 10 months all the urine passed per rectum at intervals of 3, 4 and 5 hours. The patient regained health and vigor, and had complete sphincteric control. Death occurred 2 years after the operation. The necropsy showed that nephritis was present in the right, and multiple abscesses were found in the left kidney. There are many reasons to believe that infection of the kidneys antedated the removal of the gland, and that its removal prolonged life and made it more comfortable. [C.A.O.]

4.—Brown-Séquard's Paralysis.—Alfred Gordon discusses this condition, and reports a typical case in which the paralysis followed a gunshot wound in the neck. The bullet penetrated the right side, posterior to the sternomastoid muscle in its middle third and fractured the fifth cervical vertebra. An incision was made and the vertebral arch and transverse process on the right side removed. The right arm and leg were paralyzed. The leg improved so that now he is able to walk, although some dragging is noticed in walking. There is some foot-drop; the knee-jerks are markedly exaggerated; ankle-clonus and Babinski's sign are distinct. The right upper extremity is practically useless. On the opposite side of the body there is no indication of impairment of the motor power. While the sense of touch is observed, the temperature and pain sense are very much impaired. The left upper extremity, beginning on all its aspects at a level of 14 cm. (5½ in.) below the acromion, the thorax below the mammillary line, and the

abdomen on the left; finally, the entire left lower extremity on all its aspects, are totally thermoanesthetic and analgesic. Above the mammillary line to the clavicle, also partly on the left side of the face, there is some diminution of sensations of pain and temperature. Over the deltoid muscle there is a slight hyperesthesia, and immediately below a small area of hypalgesia. The disturbance of sensations is strictly and mathematically limited to the middle line of the body. The pupils are unequal, left larger than the right; slight drooping of the right eyelid; and slight enophthalmos is present on the right side. [C.A.O.]

6.—Diabetic Gangrene.—H. J. Whitacre concludes that endarteritis obliterans is the main etiologic factor in so-called diabetic gangrene. In the absence of such arterial change it is believed that gangrene of the lower extremity will not often occur in diabetes. The form of diabetes presented in this type of case varies considerably from true diabetes mellitus. An expectant line of treatment should be followed as long as the gangrene is confined to the toes. Amputation above the knee should be done as soon as the gangrene process involves the dorsum of the foot. [C.A.O.]

Medical News.

February 4, 1905. [Vol. 86, No. 5.]

1. Presidential Address. CHARLES L. DANA.
2. Partially Afebrile Estivoautumnal Malarial Infection Having Its Origin in New York City. J. L. POMEROY.
3. Summer Infant Mortality. LOUIS C. AGER.
4. Serum Diagnosis of Typhoid Fever by Means of Ficker's Typhus Diagnosticum. JOHANNES H. M. A. VON TILING.
5. Inflammatory Stricture of the Rectum. J. M. FRANKENBURGER.
6. A Case of So-called Traumatic Asphyxia. RANDOLPH WINSLOW.

2.—Estivoautumnal Malaria.—J. L. Pomeroy reports a case having its origin in New York City, in which there were chills and sweats, without temperature, the latter appearing only when quinin had been administered, and then not rising above 100.2° F. [H.M.]

3.—Summer Infant Mortality.—L. C. Ager states that since 1898 there has been no improvement in infant mortality in Greater New York. Deaths under 5 years are 35% of all deaths; of these, 20% are due to diarrheal diseases, which are as preventable as typhoid. Improvements previous to 1898 are attributable to supervision of the milk supply and tenement house regulations. Street cleanliness has a more marked effect on infant than adult mortality, because children come in closer contact with the ground, and the atmosphere at their level contains many more organisms than at the height of six feet. Future improvements in the deathrate must come more from individual than corporate action. Statistics show a larger proportion of weaklings in Brooklyn than in Manhattan. The writer attributes this to condensed milk. In Manhattan it is given to about a quarter, while in Brooklyn to from a half to three-quarters of bottle-fed babies. The writer gives a table, comparing the average condensed milk mixture with human milk, showing the excess of sugar, the presence of cane sugar, and the deficiency in fat and casein. Brooklyn physicians are largely responsible for this. If they condemn the practice it can be eradicated. Much educational work has been done in Manhattan through the free distribution of modified and pasteurized milk and ice. [H.M.]

4.—Diagnosis of Typhoid by Ficker's Typhus Diagnosticum.—J. H. M. A. von Tiling considers this test a great simplification for the general practitioner since it does away with the necessity for live cultures and the use of the microscope. The fluid is made by Merck and the apparatus costs but \$1.85. The serum diluted with nine parts of water is mixed with the diagnostic fluid in the proportions 1 to 5 and 1 to 10 in two test-tubes, and a third tube is filled with diagnostic fluid alone. Each of these fluids appears about equally turbid because of the bacilli in suspension. The reaction is positive if after 10 or 12 hours the fluid in the first or second glass begins to get clear, for in this case the bacilli clot together and sink to the bottom. Sometimes the reaction takes place sooner or later, but if no clearing occurs within this time the test may be taken as negative. Instead of getting the blood by means of a cupping glass the writer pricks the finger with a needle, catches a few drops on a glass slide or filter paper, lets it dry, dissolves it in normal salt solution in the proportion of 1 to 10 and mixes

this in the required way with the diagnostic fluid and the results have been most satisfactory. The whitish flocks of agglutinated bacilli stand out very clearly. The author is having a paratyphoid diagnosticum prepared. [H.M.]

5.—Inflammatory Stricture of the Rectum.—J. M. Frankenburg says under the head of inflammatory stricture must be grouped the great mass of rectal strictures, including the simple, tuberculous, dysenteric, and syphilitic. The exact etiology of strictures of the rectum remains unsettled. It is doubtful if dysentery or tuberculosis is causative. Allingham and Matthews both assert that 50% of all rectal strictures are syphilitic in origin. These strictures are more common in women, due to the proximity of the posterior vaginal wall. Rectal stricture is common in the negro race, as is also syphilis. Ulcer may be below the stricture, in which case the ulcer is usually of the same disease process as that which caused the stricture. A simple infectious ulcer may be situated above the stricture. Fistula is a common complication; usually they open above the stricture; Allingham, however, says they usually open below. Diagnosis is easily made by means of the finger when the stricture is within four inches of the anus. Diagnosis by bougie is unreliable. If the stricture is high in the bowel, the sigmoidoscope is the best instrument for diagnostic purposes. If there are symptoms of stricture and yet none can be detected by rectal examination, exploratory laparotomy is justifiable. In any case, the surgeon should always inform the patient that a permanent cure is impossible. By palliative treatment, such as gradual dilation, operation, etc., the stricture can usually be kept under control, but cure practically is never accomplished. Forcible dilation should never be performed; it is dangerous and harmful. Operative treatment is considered at length. [A.B.C.]

6.—Traumatic Asphyxia.—Randolph Winslow reports that a man of 22 was caught between the ceiling and the top of an elevator car, was forcibly bent down so that he sat on his heels, while his head was forced down to the roof of the car. He remained in this position for some moments; consciousness was not lost. He was at once admitted to the hospital, where the following conditions were noted: Temperature normal, bloody expectoration, epistaxis, fracture of the fourth, fifth and sixth ribs of the left side, with some emphysema, pupils equal and responded to light, subconjunctival hemorrhagic extravasation, but the most noteworthy feature was a bluish discoloration of the head, face and neck to the level of the cricoid cartilage. The discoloration was short of cyanosis, and was punctiform in character; it did not disappear or change its color on pressure. The patient was out of bed in a week and left the hospital in 12 days, though the discoloration had not entirely disappeared at that time. Winslow removed a piece of the patient's skin, and microscopic examination showed the discoloration to be due to distention of the capillaries. [A.B.C.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Subcutaneous Alimentation.—The article by Professor Arthur E. Barker, of University College, London, published in this issue of *American Medicine*, should receive the attention of American surgeons. We speak of surgeons especially, because the method of alimentation by the subcutaneous infusion of glucose has been introduced by Prof. Barker with reference to surgical cases chiefly. He uses it to prepare for operation weak and emaciated patients, for example those who have suffered from conditions of obstruction in the alimentary tract, and also to assist in sustaining their strength, and thus in promoting recovery, after operation. The high standing of the author, his large experience and the fact that he has employed the method for several years before bringing it to professional attention (his first communication being published in the *British Medical Journal*, March 29, 1902) combine to make the recommendation weighty. Physicians also should find considerable em-

ployment for the method, as in cases of gastric ulcer, in febrile diseases associated with gastric irritability and in which rectal alimentation for any reason fails, in uremia, and in a host of other conditions needless to enumerate. It is possible that glycogen—in isotonic solution—might serve the purpose even better than glucose, and we should be glad to hear from any of our readers who have had or may make experience with either or both methods. Dr. Barker's remarks concerning the utility of saline infusion in supplying water to the tissues, in overcoming shock, in diluting toxins, and in favoring elimination, and his emphasis of the necessity for using a truly isotonic solution of 0.9% are not so novel as the recommendation concerning the use of glucose for subcutaneous alimentation, but are well worthy of attention as confirmatory of the experience of other observers.

REVIEW OF LITERATURE

Mechanical Sterilization of Rubber Gloves.—Fromme and Gawronsky¹ make the statement, that washing rubber gloves for four minutes in running water and soap, followed by disinfection in mercuric chlorid solution, 1 to 1,000 for two minutes, is sufficient to make the surface of the gloves thoroughly germ free. It is therefore not necessary for the physician to sterilize his gloves before he leaves his home, it can be done very easily just before he operates. The necessity of a closely-fitting glove is emphasized by the authors. [E.L.]

The Treatment of Tuberculous Arthritis.—Mosetig-Moorhof² advises a careful removal of the entire tuberculous tissue, whether it be in the soft parts or the bone. The removal of the diseased tissue must be as complete as if the operation were upon a malignant growth. If possible, the capsule of the joint must be removed in toto, as curetment of the surface is insufficient. The space left after the removal of the diseased parts must be packed with iodoform gauze. [J.H.W.R.]

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Cultivation and Etiologic Significance of Amebas.—Notwithstanding steady advances in our knowledge there is still much positive information to be gained regarding amebas and disease processes appearing quite clearly due to them. Questions concerning their varieties, their presence in the human intestine, and their relation to intestinal and hepatic lesions are all to a certain extent *sub judice*. One of the most authoritative of recent contributions to this subject is that of Musgrave and Clegg,³ whose stations in the Philippines afford exceptional opportunities for investigating the parasite which, in those islands, is well-nigh universally distributed. Their study of amebas in culture, in human subjects during health and when suffering from dysentery, and in inoculated animals has led to conclusions of which some are at variance with previous generally accepted views. The writers introduce the term "amebiasis" for infection with amebas; as this is in line with the nomenclature of allied infections, as filariasis and uncinariasis, it has much to commend its adoption. Attention is directed to two points in diagnostic technic, the first being the error of the general recommendation to select for examination a mass of mucus from the stool; instead, the fluid part of a stool resulting from a saline cathartic should be employed. Second, the diagnosis of amebas should never be made unless they are in a motile condition. Amebas have never been grown in pure culture, but in the presence of symbiotic bacteria they are quite easily propagated. The writers obtain the most satisfactory growth upon a stock medium composed of agar 20 parts and sodium chlorid and beef ex-

¹ Münchener medizinische Wochenschrift, 1904, li. No. 40, 1773.

² Wiener klin. Woch., No. 39, 1904, p. 1309.

³ Bureau of Government Laboratories. Biologic Laboratory, No 18, October, 1904.

tract, of each, .3 to .5 parts, the whole made 1% alkaline to phenolphthalein. By this means, when grown with bacteria proved nonpathogenic to man, very definite results in the way of inoculation, proof of pathogenicity, etc., are possible. Musgrave and Clegg are exceedingly sceptical as to the presence of amebas in the normal colon and state that no intestine containing them should be pronounced healthy until after microscopic examination. Whether or not they are transiently present in the normal intestine, "their harmless persistence and proliferation there for a time equal to the greatest incubation period of the disease (dysentery) has not been demonstrated." This raises the question of the existence of pathogenic and nonpathogenic amebas; while this existence is not denied, the statement is made that proof of it has not yet been adduced. The writers, at least, have never followed a case indicating that nonpathogenic amebas were propagated in the intestine. There is too great a tendency among recent workers to class all cultivated amebas under the so-called nonpathogenic group without actually determining their pathogenicity. Pending the solution of the problem, the only safe working hypothesis for the tropics is that all amebas are, or may become, pathogenic. Animal experiments with cultures of amebas have been convincing as to the etiologic role of some of them. Monkeys are the most satisfactory for this work, nothing being gained from cats, dogs and other animals. Amebic dysentery was produced in several monkeys and in a man by the ingestion of cultures grown with nonpathogenic symbiotic bacteria. The genuineness of the lesions in the animals, which were comparatively slight, were in a measure confirmed by a study of many early cases of intestinal amebiasis in man furnished by an epidemic of pneumonia in a prison where many of the inmates were suffering from dysentery. The conditions found in this group of cases indicate the existence of a definite pre-ulcerative stage and also several varieties of early ulceration in addition to the classic advanced intestinal lesions well described by many workers. From the fact that amebas may be cultivated from dysenteric stools and from ulcers in the human intestine and dysentery produced in monkeys and in man by ingestion of these cultures, with consequent reclaiming of the amebas, the writers conclude that amebas are the etiologic factor in the disease generally known as amebic dysentery. In the tropics, at least, the presence of amebas in the stools should be the signal for active therapeutic measures without regard to the clinical symptoms. The report contains many practical deductions and suggestions in addition to those we have briefly outlined and is accompanied by a colored plate and 32 figures. In view of the enormous inroads of the disease among both natives and Americans, this increased rating of the pathogenicity of amebas is of great economic significance. When the pathology of amebiasis is considered, which we infer is to be done in a future report, we trust the writers will further elucidate the relation of amebas to liver abscess and the part, if any, there taken by symbiotic bacteria.

Comparative Histology of Vaccinia and Variola.

—The publication earlier in the year¹ of the elaborate researches of Councilman and his coworkers regarding the lesions of variola, marked an epoch in the investigation of that disease in this country, and seemed strongly to implicate a protozoan as the specific cause of the affection. Later,² their conclusions were confirmed in almost every particular by Howard and Perkins, who made extensive histologic studies of the disease in Cleveland. There were those, however, who, in spite of the elaborate intranuclear cycle constructed by Calkins, were not fully convinced of the parasitic nature of the bodies described, and who are yet inclined to look upon the question as being far from definitely settled. Among

this number is no less an authority than James Ewing, who presents the results¹ of a study of the lesions of variola and vaccinia begun in 1901 with material obtained from autopsy on 30 persons dead of variola. Ewing's observations on corneal vaccinia in the rabbit led him to the conclusion that there is a specific vaccine body which in many instances follows a definite cycle of development, but its morphology strongly indicates it to be simply a degenerated portion of the cytotreticulum. Experiments with diphtheria toxin failed fully to verify the statement of Sikorsky that this toxin is capable of reproducing perfectly the vaccine body, but this comparison of lesions was of value in demonstrating that a diffusible poison similar to diphtheria toxin must be at work in vaccinia. Nuclear changes in variola and other lesions have, of all his studies, raised the most serious doubts in Ewing's mind as to the presence in the former of a specific parasite. While the findings of the Boston investigators form a body of evidence that must be handled with great caution, his observations are not favorable to, though they do not definitely disprove, the protozoan theory. Suitable cutaneous lesions from 24 cases of variola were studied, and intranuclear bodies found in 17. In the lesions on mucous membranes such bodies were encountered much less frequently, the difference being so marked as to be, to him, unaccountable on the protozoan hypothesis. Ewing's conclusions set forth so clearly what we believe to be the correct status of the question at the present time, that we quote the opening paragraph: "When such a study as that of Hückel leads the investigator to a positive conclusion that vaccine bodies are cytoplasmic degeneration products, and practically identical data serve to convince other competent observers that the bodies are certainly parasites, it is obvious that the evidence fully justifies neither contention, and that a demonstration has not been reached. As the present study has not secured any demonstrative proof of the nature of vaccine bodies, it hardly permits the writer to claim absolute certainty for the opinion that the vaccine body is a cytoplasmic degeneration product. This view is very strongly favored, however, by a great number of facts." These facts, some of which we have briefly outlined, are given in detail. Ewing believes that nothing absolutely demonstrative will be shown until there is at hand evidence other than that thus far obtained by cutting and staining sections.

Histogenesis of Teratomas.—The origin of teratomas and other more or less closely allied growths is still shrouded in mystery. New interest in this question has in recent years been added by the increasing number of cases of chorioepithelioma found outside the placental site in females, and even in males. A remarkable specimen of teratoma was lately shown at the Pathological Society of London by Mr. S. G. Shattock,² who suggested a very ingenious explanation of the origin of these tumors. The teratoma was found projecting into a smooth-walled daughter cyst of a large ovarian cystoma. It was covered by skin and had two illy-formed lower extremities, between which was a vulva; above this was a tuft of long pubic hair, the remainder of the teratoma being covered by lanugo. At the base of the mass was a smooth cavity containing a blind coil of intestine. In each lower limb was a compound skeletal element and in the trunk was a rudimentary spinal column, in connection with which medullated nerve fibers were demonstrable. Mr. Shattock explains the formation of teratomas by a process termed epigenesis, the fertilization of primordial ova in the embryo. In this way the embryo furnishes a second imperfect individual, the origin of which was not synchronous with, but later than itself. This theory would seem to imply a second penetration of the developing ovum by a

¹ Journal of Medical Research, Vol. xi, February, 1904.

² Ibid, Vol. xii, No. 3, October, 1904.

¹ Ibid, Vol. xii, No. 4, November, 1904.

² The Lancet, November 5, 1904.

spermatozoon, but Mr. Shattock states this is not necessary. More than one spermatozoon originally enters the ovum and a surplus may lie between the cells of the blastoderm and later fertilize primordial ova, which develop in the embryo soon after the cleavage that results in the formation of the body cavity. According to this view, the cyst wall of a teratoma corresponds to the sac of an ovarian pregnancy. This theory is most suggestive. Certain points are contrary to generally accepted teachings, as, for instance, the statement that more than one spermatozoon enters the ovum, polyspermism usually being attributed only to some of the lower animals. On the whole, however, it is at least as plausible as many of the other theories thus far advanced.

Of the fetal nature of chorioepithelioma, and therefore the correctness of that name instead of deciduoma malignum, there now seems to be no doubt. Its occurrence at the placental site offers but little difficulty in the way of explanation other than that pertaining to the cause of tumors in general; when found independent of the placenta, a new aspect is given to the question. Findley¹ cites 20 such cases and adds a personal observation; he also refers to several reported instances of chorioepitheliomatous tissue in teratomas of the testicle. Djewitzki² reports the occurrence of a tumor of this type in the wall of the urinary bladder of a virgin of 75. Regarding the origin of these, which may be called aberrant chorioepitheliomas, speculation is rife. Shattock, in a further application of his theory, ascribes their occurrence in the testicle to fertilization of ova in that organ during fetal life. Findley considers them probably due to displacement, when the fetus is little more than a segmentation sphere, of polar bodies or blastomeres and their incorporation in structures, which later form the testicle or other organ containing the growth. Cuthbert Lockyer,³ in reporting a case, directs special attention to the association of chorioepitheliomas with excessive lutein production in the ovaries, a phase of the question which, as yet, has been disregarded in England. He is strongly inclined to accept Pick's view, that an excess of lutein cells acts upon the developing ovum, converting it into a mole, which is simple or malignant, as the circumstances determine. In three cases of mole, or chorioepithelioma, in which the ovaries appeared normal or only slightly cystic, Lockyer found, on microscopic examination, the ovarian stroma infiltrated with lutein cells, although cysts were absent. This is important, as showing that naked-eye appearance of ovaries is not reliable in determining this point. This theory is at variance with those previously cited, but possibly possesses just as much right to recognition. Histologic study of the ovaries should be made in every case in which it is possible, with the object of determining the frequency of the association of the conditions named.

Anticarcinoma Serum.—One of the most recent contributions to the cancer problem is a preliminary report⁴ by Drs. H. R. Gaylord, G. H. A. Clowes, and F. W. Baeslack, who have been studying cancer-infected mice in the State laboratory at Buffalo, N. Y. From two white mice, which had been infected with adenocarcinoma, obtained from Jensen's laboratory in Copenhagen, others were inoculated, and in this way many animals containing tumors have been studied. The "takes" in these tumor inoculations vary from 20% to 70%. In a number of mice the tumors, after reaching a demonstrable size, underwent spontaneous retrogression and disappeared without recurrence. Experiments showed that the blood-serum of the spontaneously recovered mice, when injected into others containing rapidly-growing tumors, exerted on those growths an inhibitive or destructive action, depending upon the

size of the tumor. The most marked instance was one in which the injection of doses of 0.2 cc. of serum caused the disappearance of three tumors the size of peas in two different animals within three days. In one case a tumor which had been thus markedly reduced in size was found to consist largely of newly-formed connective tissue enclosing atrophied and disintegrating epithelial cells. The nature of the active substance in this serum has not been determined, but thus far it does not appear to be a cytolytin. The writers are very conservative regarding the significance of the facts they announce, an attitude properly assumed as the studies are incomplete. They express the hope that ultimately this serum reaction may be of service in combating cancer in human beings. The possibility of this is favored by the fact that spontaneous cure of cancer does occasionally occur in human beings. Coming almost at the time that a further report of the Harvard Cancer Commission, as foreshadowed in the daily press, announces its failure to detect the cause of cancer, this finding in Buffalo is exceedingly suggestive. It is made more significant by the remark of a member of the Harvard commission who is quoted as saying that the cause of cancer will not be found along present lines of investigation, and at the present time the only hope is from the knife or a serum. If the animal experiments briefly outlined can be thus applied, the results may be of the greatest therapeutic value. We believe great strides would be made if all persons now studying cancer would drop, for the present, at least, the parasitic theory of its origin, and devote their time and energy to new lines of research. So many elaborate theories based on the germ hypothesis have been effectually exploded that the possibilities in other fields now seem infinitely greater.

REVIEW OF LITERATURE

Transmissibility of Human Epithelioma to a Series of Rats.—Dagonet and Maclaure¹ report a second case of transmission of cancer from a human being to animals. The tumor was a cylindric celled carcinoma of the rectum in a man of 44. A small part of the tumor was macerated and injected into a white rat; it developed a small tumor in the abdominal wall; a part of this tumor was injected into a second rat and produced a tumor occupying nearly the whole of the distended abdominal cavity. The tumors in the rats were identical in structure but had changed somewhat from the type in the man, appearing partially like sarcoma and leading to the diagnosis of sarcomatous carcinoma. In spite of this there seems no doubt that the tumor was transferred from the man to the animal and again to the second animal. The writers discuss the question of why a positive result occurs occasionally while so many inoculations are negative. Among the points determining this are perhaps the time of inoculation after the tumor is removed, the aseptic precautions, and the condition of the carcinoma before removal. To this should probably be added the fact that varieties of cancer are not all of the same degree of virulence. Which of these are the real causes they are not at present prepared to state.

Standardization of Methods for the Bacteriologic Examination of Water.—The Congress of the Royal Institute of Public Health, held in Liverpool in 1903, appointed a committee of 10 to draw up a scheme of uniform procedure in making bacteriologic analyses of water. They have lately presented their report,² and all agree that the minimum number of procedures should be two: 1. Enumeration of the bacteria present on a medium incubated at room temperature (18° C. to 22° C.). 2. Search for *B. coli* and identification and enumeration of this organism, if it is present. In addition to these, the majority recommend (3) enumeration of the bacteria present on a medium incubated at blood heat (36° C. to 38° C.), and (4) search for and enumeration of streptococci. The committee do not think it necessary, as a routine measure, to search for *B. enteritidis sporogenes*, but agree that in special or exceptional in-

¹ Journal American Medical Association, November 5, 1904.

² Virchow's Archiv., Band clxxviii, Heft 3.

³ The Practitioner, December, 1904.

⁴ Med. News, July 14, 1905.

¹ Archiv de Med. Exper. et d'Anat. Pathologique, September, 1904.

² Public Health, October, 1904.

stances it may be advisable to look for this organism. Suggestions are made regarding the mediums to be employed for the tests and the entire technic connected therewith. The committee emphasizes the desirability of the adoption of these rules by all who make such examinations, in order that uniform data may be obtained.

Action of Toxins and Poisons upon the Kidney.—G. Lyon¹ studied the effect upon the kidneys of animals of the injection of diphtheria toxin, corrosive sublimate, cantharidin and filtrate of staphylococcus cultures. He was not able to produce and follow the evolution of changes at all analogous to those found in subacute and chronic diffuse nephritis in man, the results indicating that in animals, at least, the kidney is restored to normal after the subsidence of acute inflammatory phenomena. The findings emphasize the importance of continuous action of some toxic substance in the insidious origin of subacute and chronic lesions. Of the materials used, only diphtheria toxin produced distinctive vascular lesions. The occurrence of active proliferation of the capillary endothelium, as emphasized by Langhans and Councilman, was not found. In all cases, lesions of the secreting tubules was the prominent feature. The studies show that some tube casts were formed by the coagulation of an intratubular exudate, but the great majority came from the granular disintegration or colloid transformation of secreting cells.

Artificial Streptococcus Arthritis.—R. I. Cole² shows by a series of experiments that arthritis and endocarditis may be produced by the intravenous inoculation of rabbits with streptococci from various sources, and the results obtained are quite similar to those described as resulting from the inoculation of the so-called *Micrococcus* or *Diplococcus rheumaticus*. The description of a distinct variety or species of streptococcus based on this property of causing endocarditis and arthritis is therefore considered unwarranted. The writer does not discuss the question as to whether acute rheumatic fever is simply a form of streptococcus septicemia.

Action of Bacteria on the Toxins of Other Species of Bacteria.—M. Garnier and G. Saboreau³ have studied this question experimentally on a great many animals and with many species of bacteria. They find that the action of bacteria on other toxins is variable and depends sometimes on the bacteria and sometimes on the toxin. The typhoid bacillus, as an example, destroys diphtheria toxin and reinforces tetanotoxin. On the contrary, anthrax bacilli destroy tetanotoxin and reinforce diphtheria toxin. The destruction of the tetanotoxin by this bacillus is due to a direct action upon the toxin by the bacillus and not to the action of any secretory product of the bacteria. The tetanotoxin, although not giving rise to tetanus after this action, is still able to cause emaciation, and often death, after some days. This activity of the toxin, although nonspecific, is comparable to that which Ehrlich attributes to toxons. The toxic action consequently replaces the tetanizing action and under certain influences the latter may again appear. Action of this sort may account for certain specific diseases losing their usual properties and showing different manifestations; as for instance, the occurrence of parasyphilis.

Dysentery in Ceylon.—A. K. Castellani⁴ has made a study of the dysenteries in Ceylon, and from it reaches these conclusions: Of the several forms of dysentery, by far the most frequent is the bacterial form, due to *B. dysenteriae*, Shiga and Kruse; a rare form is due to bacilli very nearly related to the typical Shiga-Kruse bacillus. Such a form may be called paradyentery in analogy to paratyphoid, leaving the term dysentery to denote forms of the disease absolutely different from dysentery, as, for instance, that from bilharzia. A third form of dysentery in the island is an amebic type, the cause of which is probably *Ameba histolitica* of Schaudin. This form appears to be rare.

Characters of Bacilli of the Dysentery Group.—P. H. Hiss⁵ gives the results of extended research regarding the char-

acters of bacilli isolated from dysenteric and diarrheic diseases. He divides them, as determined by fermentation tests, into four groups: 1. Represented by *B. dysenteriae* of Shiga and Kruse, ferments monosaccharids readily, and at times and after many days, maltose. This group is distinguished from all the following groups by not fermenting mannit. 2. Represented by our bacillus "Y," ferments monosaccharids and alcohol mannit generally within 24 hours. Maltose (and at times, under special conditions, saccharose also) may be fermented, but not with ease. 3. Represented by Strong's Philippine culture, ferments monosaccharids and mannit with ease; saccharose is fermented comparatively readily, and at times maltose, but slowly. 4. Represented by Flexner's Manila cultures and Duval's "Baltimore" culture, ferment monosaccharids and mannit, maltose, saccharose and dextrin with ease, although the saccharose fermentation is usually less complete and slower than the others. Typhoid bacilli ferment monosaccharids, mannit, maltose, and dextrin, and are distinguished from the last group by not fermenting saccharose and also by their mobility. Hiss warns against hasty conclusions that a certain organism, found in the intestine in connection with certain disease, is the cause of that condition.

Virulence of Pseudodiphtheria Bacilli.—Alice Hamilton's¹ results confirm the findings of Spronck that animal experiments are the only sure means of making a diagnosis between *B. diphtherie* and the virulent pseudodiphtheria bacillus. This is too long for a prompt diagnosis, but the differentiation by acid formation must also be carried over a considerable time, and then is not absolutely accurate. Hamilton shows that at least 9 strains of the pseudodiphtheria bacillus produce in 48 hours as much acid as the less vigorous acid-producers among the diphtheria bacillus; 4 of the strains produced as much acid after the lapse of 4 days. A more rapid and sure method of diagnosis between the two organisms is demanded.

Influence of Suprarenal Extract upon Absorption and Transudation.—S. J. Meltzer and J. Auer² report experiments showing that intravenous injections of suprarenal extract invariably retard the processes of absorption and transudation. Subcutaneous injections also often show retardation of these processes, but the effect is neither strong nor constant. The theory by which the writers explain this effect of the substance is that it causes an increase of the tonicity of the contractile protoplasm of the endothelial cells of the blood capillaries and lymphatics. This increase in tonicity narrows the lumen of the pores and decreases the facility for the interchange between the blood and the tissue fluid. In other words, the extract decreases the vital permeability of the capillary wall; hence the retardation of absorption and transudation.

Parasites of Smallpox, Vaccinia and Varicella.—W. E. DeKorte³ says in order to see these parasites, the lymph from the vesicles of the diseases must be collected and put up as hanging-drop preparations. From smallpox the lymph must be obtained on the fifth day of the eruption or earlier, vaccine lymph on the eighth or ninth day and examined at once; the parasite of chickenpox is found on the first, second and third days of the eruption. On a warm stage they show ameboid movement. They are small and contain numerous granules which are considered to be spores; these, when extracellular, are also motile. The staining reaction of the nuclei helps differentiate the various species.

Degenerate Changes of the Myocardium Which Give Rise to Serious Cardiac Disease.—Raymond Clark⁴ bases his paper upon the findings in 340 autopsies, 71 of which showed myocardial degeneration. Twenty of these showed acute parenchymatous degeneration or cloudy swelling; in all but 2 the degeneration was associated with some form of toxemia. There were 18 cases of fatty degeneration and infiltration, and 18 cases of fatty degeneration without infiltration were found. These degenerative changes are associated with toxic disease of longer standing than those of the acute parenchymatous group. This supports the view that cloudy swelling often precedes fatty degeneration. There were 6 cases of fatty

¹ Journal of Pathology and Bacteriology, July, 1904.

² Journal of Infectious Diseases, Vol. 1, No. 4, 1904.

³ Archiv de Med. Exper. et d'Anat. Pathologique, September, 1904.

⁴ Journal of Hygiene, October, 1904.

⁵ Journal of Medical Research, December, 1904.

¹ Journal of Infectious Diseases, Vol. 1, No. 4, 1904.

² American Journal of the Medical Sciences, January, 1905.

³ The Practitioner, January, 1905.

⁴ Brooklyn Medical Journal, December, 1904.

infiltration without degeneration, 4 of brown atrophy, 1 of amyloid degeneration, 1 of capillary ecchymosis into the wall of the left ventricle, 2 of secondary carcinoma of the myocardium, 1 of tuberculosis of the myocardium. In all the cases of fatty degeneration and infiltration the valves were in a normal state. This is an important factor to be remembered in making diagnosis of cardiac lesions. Another point is that chronic diseases which cause interference with the proper oxidation of the blood cause fatty degeneration of the myocardium.

Group Agglutinins.—W. H. Parke and W. R. Collins¹ began with a study of Shiga bacillus, but broadened their investigations to include a general study of specific and group agglutinins. They found that the protoplasm of a single variety of bacteria, when injected into a suitable animal, excites the production of a number of agglutinins. A portion of these may properly be called specific; the remainder, agglutinate bacteria, closely allied to the variety injected, but also others which may differ greatly. These substances, therefore, are not specific. Often the term "group" implies too much relationship. If the injections are continued for a long period of time, the amount of specific agglutinins will rise to a certain height and then diminish. The common agglutinins also diminish, but may do so more slowly. The writers state the only test proving an organism has identical agglutinable substances with another, is that it shall be able to absorb from a serum containing specific agglutinins for that other, all agglutinins acting upon it. The statement that the bactericidal properties of a serum can be judged by its agglutinating strength, is not founded on fact, since in animals continuing under treatment, the agglutinins decrease, while the bactericidal substances remain or often increase.

Organic Acid in the Urine in Cases of Rheumatoid Arthritis.—Helen Baldwin² reports examinations of 40 specimens of urine from 21 different patients. In 33, from patients in which the disease was progressing, there was an excess of the bases over the acids normally present. In all cases with progressive lesions there are certain definite evidences in the urine of perverted metabolism, as shown by the presence of organic acid other than that normally present. Patients leading inactive lives, as in rheumatoid arthritis, would naturally be subject to gastrointestinal indigestion, but the regularity with which such symptoms are noted and their degree, would suggest that certain of the disturbances of nutrition which occur in rheumatoid arthritis are due to putrefactive processes in the intestine.

Power of the Liver to Destroy Diphtheria Toxin.—Sir Lauder Brunton and T. J. Bokenham,³ in experiments upon guinea pigs, rabbits and cats, found: 1. By the circulation of diphtheria toxin through the liver its lethal action is greatly diminished. This diminution occurs whether the toxin is mixed with blood or an indifferent fluid. 2. Bile from such livers has a slightly antitoxic action, as has also the expressed juice of the liver. 3. Nucleoproteids separated from the juice of these livers possess a marked antitoxic action. The experiments tend to show that the liver not only diminishes the lethal activity of diphtheria toxin, but also probably forms an antitoxin. This depends not upon the blood but upon the liver tissue itself. This is similar to the power exercised by the liver in lessening toxic action of peptones during digestion. The experiments are also believed to support the view that immunity, natural or acquired, is nothing more than the extension to the cells of tissue generally of the power constantly exercised during digestion by those of the intestine and liver.

The Antagonism against *Bacillus typhosus* Exhibited by Certain Saprophytic Bacteria.—W. D. Frost⁴ has found that a marked antagonism against *B. typhosus* is exercised by mixed cultures of bacteria obtained from the soil and water when they are grown in broth and a collodion sac containing the typhoid germ is immersed therein. The growth is not merely checked, but the typhoid germs are partially or entirely killed. The antagonistic substances probably do not exist ready formed in the soil or water, the antagonism depending on

the rapid development of the germs in the immediate presence of *B. typhosus*. The antagonistic bacteria are widely distributed in nature, being present in various soils and water. In the cases studied the antagonism was not due to exhaustion of food supply, the action of proteolytic enzymes, specific poisons, or the production of hydroxyl ions.

Acidity of Viscera as a Certain Sign of Death.—Brissmoret and Ambard¹ assert that the viscera, particularly the liver and spleen, which during life are alkaline become rapidly acid after death. This change may be put in evidence by removing a bit of the pulp with a small needle and placing it on thin tournesol blue paper. In case of recent death, the acid reaction will be slight, but may be determined if the blood be carefully blotted from the tissue in order to remove the alkalinity due to that substance. Acidity of the viscera may be demonstrated a half, or even a quarter hour after death; it is a phenomenon absolutely constant.

Hydrophobia.—C. Nicolle and J. Chaltiel² report experiments showing both gray and white rats susceptible to this disease and capable under what must be very rare circumstances, of transmitting it to human beings. Rats are not well adapted for such experiments however, as they often succumb to the disease so rapidly that the typical symptoms are not observed, and inoculation experiments are necessary to prove the presence of the specific virus. Observations show the ichneumon also capable of contracting hydrophobia and transmitting it to man or animals. In a separate paper, Nicolle furnishes statistics of persons treated in the Pasteur Institute, of Tunis, for the year 1903, and also the collective statistics since it was founded. In 1903 the cases treated were 274, with no deaths. Hydrophobia was proved in the biting animal experimentally in 38 cases, and by a veterinary examination in 110; in the remainder it was suspected. Since the Institute was founded, 1,440 persons have been treated, with 5 deaths.

Pathogenesis of Bronchiectasis.—D. B. King³ maintains that pleural adhesions, local or general, however slight, are factors of marked importance in the initial production of bronchiectasis. They act chiefly through the support they give the lung tissue during continued expiratory effort with closed glottis. This factor often determines the onset of bronchiectasis instead of emphysema, the other conditions being the same in both instances. Fibrosis of the lung plays a part as a secondary process in maintaining or increasing bronchial dilation, but even this is coincident with or secondary to an associate chronic pleuritis. In all the cases of pure bronchiectasis studied post-mortem by King, there was only one in which adhesions of the pleura were absent over the affected part of the lung.

A Method of Inoculating Animals with Precise Amounts.—M. J. Rosenau⁴ says that with the ordinary methods of inoculating animals in use in most laboratories there is an invariable loss resulting in an error of from 1% to 8%, the two pronounced sources of error being the loss in the glass in which the substance is measured and the loss in the syringe. Measurement in many instances is given to show the exact amount of this waste. To avoid these errors Rosenau now measures the fluid the animal is to receive directly in the barrel of the syringe; the fluid remaining in the syringe after it is emptied is washed with sterile salt solution, which is then injected into the animal. By this means the loss is not appreciable. The syringe employed is a modification of the old Koch syringe, the glass barrels tapering to the needle, which screws directly to the glass, thus avoiding the old slip-joint. The bulb for use in the syringe has a soft rubber stopper that fits into the syringe like a cork in a bottle.

Reduction of Methylene-blue by Nerve Tissue.—H. T. Ricketts⁵ has made a study of the ability of living cells to decolorize solutions of methylene-blue as a method of determining the toxic effect of an immune neurotoxic serum upon nerve tissue. He finds the reduction of methylene-blue by nerve tissue does not require the living cell. The reduction is accomplished by the combined action of two substances, one of which

¹ La Semaine Médicale, November 30, 1904.

² Annales de l'Institut Pasteur, October 25, 1904.

³ Journal of Pathology and Bacteriology, July, 1904.

⁴ Public Health and Marine-Hospital Service of the United States, Bulletin No. 19, October, 1904.

⁵ The Journal of Infectious Diseases, Vol. 1, No. 4, 1904.

¹ Journal of Medical Research, November, 1904.

² American Journal of the Medical Sciences, December, 1904.

³ Journal of Pathology and Bacteriology, November, 1904.

⁴ The Journal of Infectious Diseases, Vol. 1, No. 4, 1904.

is thermolabile, and the other is thermostable; serum or potassium hydrate may be substituted for the former. Ricketts' general conclusion is, that while a most interesting chemico problem is concerned in the phenomena presented, the work confronts one with so many unknown substances and reactions that he has not thought it profitable at present to follow it further. He considers it not unlikely, however, that methylene-blue may be made to play the part of an indicator or reduction reaction, where sterile substances can be dealt with.

Origin of Blood-platelets.—K. Preisich and P. Heim¹ studied the blood of normal children and small animals, using an original methylene-blue eosin mixture for staining. They found in the platelets certain granules and protoplasm which stain like the red cells. Nuclein is the principal substance in the platelets. In general, their observations lead to the conclusion that the platelets are not distinct, formed elements in the blood, but are simply degenerated and extruded nuclei of red blood cells. This is further supported by the fact that the blood of animals which normally does not possess nucleated red cells, does not contain platelets. That the platelets possess specific action in connection with coagulation of the blood cannot be held, as coagulation occurs without them; when they are present, fibrin formation begins first in or around them because of their being degenerated material.

Volumetric Determination of the Purin Bodies in Urine.—J. Rudisch and K. Kleeberg² describe what they believe to be an exact and clinical method of determining the uric acid and the purin bases in urine. Their method is founded upon the titration of the excess of silver added in a solution. For titration they use potassium iodid. Having found that silver urate in strong ammonia solutions is insoluble, and that the silver compounds which the purin bases form in the same menstruum are soluble, they are enabled to determine both these bodies by the same procedure. The entire analysis need not require more than 20 to 25 minutes. The entire process is given in detail. Practical points determined by the writers are that a few drops of chloroform added to urine will prevent decomposition of the purin bodies; the presence of albumin and sugar exerts no deleterious influence upon the test.

Differentiation of Bacillus diphtheriae, Bacillus xerosis, and Bacillus pseudodiphtheriae.—Arnold Knapp³ gives a brief review of personal experiments in differentiating the above organisms by fermentation tests in the serum water mediums of Hiss. The experiments showed that *B. xerosis* ferments saccharose, while true *B. diphtheriae* does not. Dextrin is fermented by *B. diphtheriae*, but not by *B. xerosis*. The pseudodiphtheria bacillus does not ferment any of the sugar tests, and Knapp concludes that a study of the three in saccharose and dextrin mediums will serve to differentiate them. The series of experiments was not extensive enough to be conclusive, but the results were so uniform as to indicate the reliability of the method.

Histogenesis of the Tubercle.—J. Miller⁴ has investigated the action of the tubercle bacillus upon the liver of rabbits. He says the essential meaning of the tubercle is phagocytosis, the giant cells being phagocytes; they result from fusion of epithelioid cells. The mononuclear cells of the blood are phagocytic and of exceptional resisting powers; they are capable of remaining and developing into permanent constituents of the tissues. From the very beginning they lay down a network which may develop into the tubercle. Fixed connective-tissue cells play their part, but may not be essential, as a typical tubercle can arise without the occurrence of mitotic division in them. Original mononuclear leukocytes may thus become original epithelioid cells; from these leukocytes are developed the cells around the periphery of the tubercle known by various writers as plasma cells, polyblasts, or leukocytoid cells.

The Longevity of Typhoid Bacillus in Water.—Jordon, Russell, and Zeit⁵ report the results of their study upon the life of the typhoid bacillus in the waters of Lake Michigan,

Chicago Drainage Canal and the Illinois river, the purpose being to determine whether the typhoid bacillus could survive the passage from the drainage canal to the mouth of the Illinois river. The general results have been published previously. The technic of the experiments is described in full, with the results in each series of studies. A striking uniformity was obtained in the results from all three sources. The experiments indicate that under conditions which probably closely simulate those in nature, the great majority of typhoid bacilli introduced into the water studied, perished within three or four days. It is theoretically possible that especially resistant cells may withstand for a longer period the hostile influences evidently present in water. The experiments show, however, that such individuals must be very few in number, constituting only a small fraction of the bacilli originally entering the water.

Protozoon of Scarlet Fever.—C. W. Duval¹ studied at the Philadelphia Municipal and Boston City hospitals, 18 cases of scarlet fever. From the finding by Mallory of protozoan-like bodies in the lymph spaces in tissues, Duval reasoned they should be found in the serum of blisters. He finally produced blisters rapidly by ammonia and in the fluid of 5 of the 18 cases found protozoan-like bodies, the majority of which were identical in structure and form with those described by Mallory in the skin of scarlet fever patients. In three of the five cases the spheric segmented forms were present. The positive results were obtained when the eruption was at its height. One of the patients died, and in the skin were found foci of protozoons corresponding to those detected in the serum before death. No such bodies were found in vesical contents from normal persons, other exanthematous diseases, or from chemically injured skin.

First Changes in Tuberculosis of the Lungs.—A. J. Abrikosoff² found, among hundreds of cases, two that were not too far advanced to study the early changes. The disease begins as a productive tuberculous peribronchitis, in the intralobular bronchi of the apex. Caseation occurs and spreads along the bronchi, which become dilated, as a peribronchial lymphangitis. When this material extends into the lumen of the bronchus, as it is apt to do, the condition becomes one of caseous bronchitis and peribronchitis. Following the rupture into the bronchi, aspiration of the infected material occurs and patches of bronchopneumonia develop; this is a second stage. Small bloodvessels may be affected by the tuberculous process which surrounds them and causes proliferation of the intima; large vessels are not involved. In children, bronchial lymph-nodes are first affected and here the process may remain latent for a long time. Abrikosoff believes infection in adults, which is mainly pulmonary, is always recent and not a lighting up of infection acquired during childhood.

Experimental Typhoid Fever.—J. Atlasoff³ gives these conclusions as results of experiments: 1. Experimental typhoid fever may be produced in rabbits by introducing *B. typhosus* into their alimentary canals; this can be done only with young animals. 2. The pathologic changes in such rabbits correspond closely to those found in human beings, especially children; deep ulcers are rare. 3. Symbiotic bacteria, particularly different species of torula and especially *Torula rosea*, favor infection. 4. Experimental typhoid fever produced by this means is better for studying prophylaxis and treatment than infection produced by subcutaneous or intraperitoneal inoculations.

Physiologic Action of Azoimid.—L. Smith and C. G. L. Wolf⁴ report the result of a series of studies to determine the physiologic action of this nitrogen compound. They find that the substance is a protoplasmic poison, resembling in its action hydrocyanic acid. If the vapor is inhaled there is excitation of the respiratory centers and subsequent paralysis. The blood-pressure is lowered because of the vasomotor disturbance. The acid is the most powerful of the compounds containing the trinitrogen group. The introduction of a phenyl radical diminishes the effect of the complex. Azoimid forms a com-

¹ Virchow's Archiv, Band clxxviii, Heft 1.

² American Journal of the Medical Sciences, November, 1904.

³ Journal of Medical Research, November, 1904.

⁴ Journal of Pathology and Bacteriology, November, 1904.

⁵ The Journal of Infectious Diseases, Vol. 1, No. 4, 1904.

¹ University of Pennsylvania Medical Bulletin, November, 1904.

² Virchow's Archiv, Band clxxviii, Heft 2.

³ Annales de l'Institut Pasteur, November, 25, 1904.

⁴ Journal of Medical Research, November, 1904.

pound with methemoglobin similar to that formed by hydrocyanic acid.

Generalized Blastomycosis.—J. H. Cleary¹ places on record a case with some unusual features. The anatomic diagnosis of the case was cervical sinus and abscess with miliary abscess of the lungs, liver, kidneys, and spleen. In addition the microscope showed minute blastomycetic tubercles in the myocardium. In the five cases reported, including the present, generalized infection was recognized before death in two; in the other cases there was no suspicion of generalized infection. Of the five cases the correct diagnosis was made in three, one after autopsy. Extensive involvement of the lungs in all cases rendered it possible that the organism may be found by close examination of the sputum.

Latent Infection of the Tissues.—A. Wrzosek² details experiments made to determine if normal tissues of the body are sterile. Inoculations made from healthy animals, both by needle and by actual pieces of tissue removed under the strictest aseptic precautions, yielded a large percentage of growths. Animals were then fed with food into which had been introduced certain saprophytic organisms; those organisms were afterward recovered, in 30 out of 47 cases, from the liver, spleen, kidney, bronchial glands, lungs, bone marrow, muscles and mesenteric glands. Investigation showed that the thoracic duct is the probable route by which the organisms are carried into the tissues, as no infection was found after feeding as before, but with the thoracic duct ligated. The intestines are thought to play a much larger part in receiving bacteria into the body than do the lungs, as the mechanical difficulties in the latter organs are greater. The presence of latent bacteria in essentially normal tissue readily explains the part played by trauma in the production of infective lesions when there are no external wounds; the bacteria present simply exert their action upon the tissues lowered in resistance by the injury.

Experimental Studies of Syphilis.—E. Metchnikoff and E. Roux³ present their third memoir on this subject. They have inoculated in all 10 chimpanzees, seven with human virus. No microbes were found in the fluid from the initial vesicles. Test showed that syphilitic virus does not pass through the Berkefeld filter. Heating for an hour at 51° C. deprives the virus of all virulence; the addition of glycerin does not destroy its pathogenic power. Experiments with lower apes suggest the possibility of preparing a vaccine for controlling syphilis in man.

The Effect of Filtration on Bacteriolytic Complement.—Edna Steinhardt⁴ obtained as a result of filtration experiments: 1. The gradual passage of bacteriolytic complements through a Berkefeld filter. 2. Proof that the retention by the filter of the complement of the first portion of the filtrate is due to absorption. 3. The separation of bacteriolytic complement from the immune body at zero centigrade was effected, but as yet the technic difficulties render the experiment very uncertain. 4. The partial explanation of the differentiation of bacteriolytic complements by filtration is through quantitative differences in the original serum.

Occurrence of Myelocytes in the Blood.—C. Schindler⁵ says myelocytes are not found normally in the blood, but are confined wholly to the bone marrow. Any circumstances which produce leukocytosis may cause their appearance in the blood. This is especially apt to occur in infections, such as pneumonia, scarlet fever, diphtheria, erysipelas, meningitis, rheumatism, septic conditions, etc. In many cases this myelocytosis is merely an accompaniment of the general leukocytosis, and disappears with the latter. If it persists after the leukocytosis has diminished or disappeared, it indicates functional exhaustion of the bone marrow. This is of no consequence if it occurs during convalescence, but is of grave importance if it occurs when the infection still exists in a state of full virulence. In such cases, with a falling leukocytosis, a myelocytosis is a very bad prognostic sign. The leukopenia of typhoid fever and malaria is an expression of diminution of function in the leuko-

cyte-forming tissues, caused by the specific action of the toxins of these diseases. Here, again, the myelocytes are encountered as the signs of an abnormal reaction of the bone marrow to irritation. In pernicious anemia the presence of unripe and abnormally large forms in the blood indicates the inability of the functionally insufficient marrow to supply the leukocyte wants of the organism. In some cases of lymphatic leukemia the substitution of bone marrow by lymphoid tissue gives rise to an irritation of the former; this irritation and substitution may interfere with each other, producing at times an increase, and at other times a diminution in the medullary leukocyte forms, and incidentally the myelocytes. [B.K.]

Cytologic Examination of Exudates and Transudates.—Exaver Lewkowicz¹ very fully reviews the literature. He states that endotheliosis indicates mechanical irritation such as the transudates of heart and kidney disease. Mononucleosis indicates the presence in the serous membranes of foreign cells which the organism attempts to eliminate by means of the macrophagocytes. Erythrocytosis indicates a hemorrhagic process; either a hemorrhage the result of a break in the continuity of the bloodvessels or a transudation of the erythrocyte in consequence of an inflammatory process in the vessel walls. The polynuclear formula indicates the presence of a widespread tuberculous or gummatous condition with necrotic change. When unmixed with endotheliosis the pointing is against tuberculosis. The polynuclear formula shows a pyogenic or allied process, rheumatic inflammation, heatstroke, malignant newgrowths, infarct in the lung. In cases with transudates, cytologic examinations are useful when bacteriologic studies give no results or when the results are obtained only after the lapse of a considerable time. Cytologic examination shows the character of the process. It is a cell autopsy. For example, it helps to differentiate between acute meningitis and the brain symptoms of infectious diseases, between tabes or progressive paralysis and a neurosis, between tuberculous meningitis and intestinal disease with toxic brain symptoms. [J.H.W.R.]

Suprarenal Rests in the Liver.—E. Beer² systematically examined 150 livers, and found suprarenal tissue in 6 of them. In 5 the rests lay either in or immediately beneath the capsule of the liver. All of them were on the right lobe, near the situation of the suprarenal body. Histologically they showed the typical columnar, parallel arrangement of polygonal cells, lying in direct contact with the bloodvessels. Various theories account for the occurrence of these rests; their close relation to the bloodvessels suggests that the latter, in their development, might have carried with them some stray cells from the primitive suprarenal glands. The author suggests that suprarenal rests may have some bearing upon the development of primary tumors of the liver. [B.K.]

Arterial Sclerosis.—Thomas D. Saville³ has made an exhaustive investigation into the subject of arterial sclerosis, and comes to the following conclusions: 1. The pathology of the different tunics of the arterial system should be studied separately, just as are the different coats of the heart. 2. Careful histologic methods and a large number of specimens are necessary before generalization can be made; neutral acid orcein stains are valuable aids. 3. That advanced atheroma and a considerable degree of initial and adventitial sclerosis may exist without serious consequences and be compatible with extreme old age, provided the muscular tunic is unaffected. 4. The prime importance of the muscular tunic related to the intima and adventitia is that it constitutes the functionally active structure of the arterial system and the regulator mechanism of the whole body. 5. The existence of arterial hypermyotrophy as a substantive generalized change in the arterial system. 6. The importance of its recognition by reason of the potential evils in the way of circulatory derangement, circulatory accidents, nutritional disturbances, disturbances of the balance between the heart and the arteries, and the degenerations which are apt to ensue. 7. It is the first step toward central or "generalized" decay, and is the main cause of a senile or postural vertigo at any age. The combination of the arterial hypermyotrophy and focal necrosis of the mediums is a most deadly one, and may pro-

¹ Medicine, November, 1904.

² Virchow's Archiv, Band clixviii, Heft 1.

³ Annales de l'Institut Pasteur, November 25, 1904.

⁴ Journal of Medical Research, November, 1904.

⁵ Zeit. für klin. Med., Bd. liv, p. 512.

¹ Wien. klin. Woch., September, 1904, p. 978.

² Zeit. für Heilkunde, Bd. xxv. Abth. für Path., Heft. 4, p. 381.

³ The Lancet, September 24, 1904.

duce death by hemorrhage at a comparatively early age (one case death at 39). 8. Arterial hypermyotrophy may result from chronic renal disease, but it has many other causes, all of which probably produce the condition by high arterial tension. [A.B.C.]

Purin Bodies in the Feces.—A. Schittenhelm¹ finds the purin nitrogen in the feces in direct proportion to the amount of solid substance. A diet with considerable residue will produce more purins than one which is almost completely absorbed. This is due to the fact that feces with much residue contain more bacteria, and produce greater desquamation of the intestinal mucosa. A diet rich in nuclein (thymus gland) may increase the amount of purin bodies; the purin bases contained in meat are completely absorbed. In disease of the pancreas, the quantity of purins in the feces is increased, owing to the poor digestion of nuclein. In diarrhea some of the food purins may pass into the feces unaltered, thus increasing their percentage in the latter. In constipation the purins are diminished. In acholic stools the relative quantity of purin nitrogen is small in comparison with the total nitrogen. In meconium uric acid is found, being a residue of the swallowed amniotic fluid, but never occurs in the feces in extrauterine life. A not inconsiderable amount of the purin bodies is contained in the bacteria of the feces. Normal bile does not contain purin bases, but they arise in small amounts as soon as the biliary passages become the seat of inflammation. The pancreatic juice contains purin bodies in very small amounts. The intestinal wall contains purin bases, especially adenin, guanin, xanthin, and hypoxanthin, in abundance. It is probable that a considerable proportion of the purins in the feces is derived from this source. [B.K.]

Acute Rheumatism.—J. M. Beattie² asserts that an organism with characters differing distinctly from the bacteria with which we are familiar has been isolated by himself and others from typical cases of acute rheumatism and chorea. It has been cultivated outside the body; by injection into rabbits it has produced typical acute rheumatism and chorea, and has been recovered from the infected animals. Streptococci, staphylococci, etc., do not produce these effects; and this organism, even when its virulence has been raised, does not cause manifestations similar to those of the ordinary pyogenic organisms. It is one, if not the only causal agent in acute rheumatism. Even if one admits that this *Micrococcus rheumaticus* is merely an attenuated streptococcus it does not make less strong his claim that it is specific, as this form, and this only, produces distinctive lesions and possesses cultural features which distinguish it from all ordinary forms of streptococci. [H.M.]

Tuberculous Bacillemia.—A. Jousset³ asserts the subject of tuberculous septicemia has received very unsatisfactory treatment in the past. This has probably been due to poor methods of investigation. To demonstrate the presence of the tubercle bacillus, as large a quantity of blood as possible should be employed. For microscopic and inoculative purposes, the blood clot alone should be used. Inoculation into the rabbit, followed by the development of a specific adenopathy, should be regarded as sufficient positive evidence. Proceeding on these lines, the author found that in chronic pulmonary tuberculosis the blood rarely contains bacilli, but frequently contains them in the acute forms. The bacillemia seems to depend upon the extent, rather than the severity, of the local lesions. Regarding primary bacillemiæ, the author believes they are always apparent, and that careful examination will always reveal a focus of latent tuberculosis, from which the septicemia took origin. The fever in tuberculous bacillemia is inconstant and not characteristic; the author has never observed a remittent hectic fever in this condition. Dyspnea is almost constant, the spleen is usually enlarged, and albuminuria is always found. Endocardial and renal complications are frequent. [B.K.]

Observations Pointing to Intracorporeal Stage of Development of the Trypanosome.—E. J. Moore,⁴ district medical officer of West Africa, on making daily examinations of the blood from the peripheral circulation of cattle suffering

from a severe trypanosome infection, noticed, free in the plasma, numerous exceedingly minute spheric coccus-like bodies of a highly refractive nature. He believes that the intracorporeal peg-shaped bodies seen are of a similar nature to those described by Major C. Donovan, in *The Lancet* of September 10. From Moore's observations it will be seen that minute single bodies will sometimes be found periodically swarming in the plasma in animals infected with trypanosomes; that these bodies unite in pairs, appearing as comma-shaped organisms with highly refractive extremities; that these bodies later invade and penetrate the red corpuscles, become peg-shaped, and increase greatly in size; and that they finally take on a snail-shaped appearance and are extruded into the plasma. The extrusion of the snail-shaped bodies being followed by the appearance of large numbers of trypanosomes, and the peculiar movement of the tail-spot being coincident with the presence of the free coccoid bodies, would seem to indicate that in the blood under observation the reproduction of the trypanosomes is effected by the extrusion of the tail-spot, which, after undergoing development inside the red corpuscle, eventually becomes again free in the plasma, and there possibly acquires the remaining characteristics of the mature organism. [A.B.C.]

Chemic Composition of Tuberculous Caseous Matter.—E. Schmoll¹ finds that the principal part of tuberculous cheesy material is coagulated proteid. This is proved by three facts: 1. Its solubility in a pepsin and hydrochloric acid mixture, with the formation of albumoses, peptones, etc. 2. The production of typical nitrogenous decomposition products in the course of hydrolytic decomposition. 3. The correspondence of its elementary composition with that of proteids. The tuberculous material is insoluble in ordinary solvents for soluble proteids, hence it must be composed of coagulated proteid. In the process of coagulation the cell nuclei are disintegrated; their characteristic constituents are dissolved and carried away, and are not demonstrable in the cheesy masses. The chemic processes concerned in the formation of caseous material are therefore coagulation of the proteids and solution of the nuclear constituents. [B.K.]

The Action of Fluorescent Substances on Diphtheria and Tetanus Toxins.—H. v. Tappeiner and A. Jodlbauer² performed the following experiments: To a definite quantity of diphtheria toxin, certain amounts of eosin were added; some of the receptacles were dark colored, others transparent, so that light rays could act upon them. After some days, varying quantities of the toxin were injected into guineapigs. Animals treated with eosin-diphtheria toxin which was kept in dark glasses, remained alive longer than those treated with diphtheria toxin without eosin and kept in the same manner. Animals treated with diphtheria toxin and eosin which had been exposed to rays of light, remained alive, while animals treated with diphtheria toxin without eosin and also exposed to light, died. The same results, but to a slightly less degree, were noted when, instead of eosin, fluorescein or methylene-blue was employed. Experiments with tetanus, instead of diphtheria toxin, yielded similar results. From these experiments the authors believe that the treatment of diphtheria or tetanus with fluorescent substances is feasible, and promises even better than in the experiments, as in the course of diphtheria the amount of diphtheria toxin is not sufficiently great to be fatal to the individual. The toxin may be destroyed by the fluorescent substances at the point of the production, after absorption, while it circulates in the blood, and after it has become fixed in the tissues. [E.L.]

Renal Changes in Experimental Hemoglobinuria.—L. Levy³ has investigated the changes which occur in the kidneys of rabbits, when blood or blood poisons are injected into their bodies. These changes consist especially in lesions of the convoluted tubules, leading to the formation of hemoglobin casts. The lesions are produced by the action of the hemoglobin excreted by the kidneys, when blood of another animal or a blood poison is injected, either intravenously or intraperitoneally. [B.K.]

¹ Deut. Arch. f. klin. Med., Bd. lxxxi, p. 423.

² Edinburgh Medical Journal, August, 1904.

³ La Semaine Médicale, September 14, 1904.

⁴ The Lancet, October 1, 1901.

¹ Deut. Arch. f. klin. Med. Bd., lxxxi, p. 163.

² Münchener medizinische Wochenschrift, 1904, II, 737.

³ Deut. Archiv. f. klin. Med., Bd. lxxxi, p. 359.

American Medicine 253

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPELMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 7.

FEBRUARY 18, 1905.

\$5.00 YEARLY.

The Author Should Own the Illustrations to His Article or Book.—One of the commercial tricks whereby lay publishers of medical journals and books levy tribute upon medical men is by assuming ownership and control of cuts and illustrations, the originals of which have been furnished by the physician. In later publications, solely in the interest of professional progress, the author, his medical society, or makers of textbooks, epitomes, etc., are refused the use of these cuts, even to reproduce them, because the first lay publisher (to whom the indulgent author has made a present of his scientific work) lays claim to the ownership of the picture. To this iniquitous custom there should be put a stop. The publisher may rightly ask the author for the cost of the block, if he wishes to buy it, but to refuse him the right to make another is unjust and is as selfish as it is really shortsighted. Every medical writer should make it clear to the commercial gentlemen to whom he presents his literary work that there must be professional control of professional literature, that the right to republish in whole or in part remains with the producer rather than the publisher, and that the latter does not acquire the ownership of cuts because he has been once given the right to make blocks of the photographs, drawings, etc., furnished by the author.

Progress in the Adoption of the Metric System.—The advantages, and the minor disadvantages, of the metric system of weights and measures have again and again been shown by persons in all departments of human activity. First adopted in France, it has been made official in all the continental countries of Europe, except Denmark and Russia. America and Great Britain still seem loath to follow this progressive step (for such it is), mainly, it appears, because of the cost of transition. That this cost would be comparatively slight, however, is pointed out in an admirable article by Professor E. A. Kennelly.¹ He well shows that the advantages to be derived from the change are not alone inherent in the decimal system, but are based partly on the resultant uniformity between all countries. A bill to make the system compulsory in the United States was introduced into Congress in 1903, but subsequently was withdrawn. In 1904, when a bill for the compulsory introduction of the system into the United

Kingdom of Great Britain and Ireland reached its second reading in the House of Lords, the principal advocate was Lord Kelvin, who presented petitions from 333,000 persons, representing a population of 8,000,000. The bill was finally passed and sent to the House of Commons. The change is bound to come, as the demand in Great Britain has assumed commanding proportions and the adoption of the system there means its early acceptance by this country. In this connection a statement¹ by Mr. E. B. Rosa, of the National Bureau of Standards, is very pertinent: "It will be greatly to the advantage of the United States to keep abreast of this movement, and not to be the last among the civilized nations of the world to throw off the incubus of an incoherent system of weights and measures, whose chief claim lies in the fact that it is in general use." We are not in sympathy with the suggestion of Mr. George Moores, an excerpt of whose paper is in *Science and Invention*, that the English-speaking peoples adopt a decimal system of measures based on the inch. Let us have one standard only. The metric system is gradually gaining ground throughout the world, and even now is almost universally employed by scientists; sentimental and racial questions should not bar its advancement.

Modern Prescription Writing.—In a recent paper,² Dr. M. C. Thrush, a physician and practical pharmacist, furnishes some very instructive data regarding prescriptions as they are now written. He examined 500 as they were filed in each of two of Philadelphia's best prescription stores during 1904. The prescriptions were from leading physicians of the city, some of them members of the faculties of medical schools, and hence represent the type of prescriptions written by our best practitioners. The tabulated results show that of the 1,000 prescriptions, there are 13 instances each of chemic and pharmaceutic, and only 1 of therapeutic incompatibility; 50 contain 6 or more ingredients, but most of these were written by a few very old physicians, an evidence that polypharmacy is on the wane; 718 contain 2 to 5 ingredients, 232 only one drug or preparation, 484 official preparations only, 359 proprietary preparations in whole or in part, and 2 contain patent medicines.

¹ *Science*, February 3, 1905.

² *Proceedings Philadelphia County Medical Society*, January 31 1905.

¹ *Popular Science Monthly*, February, 1905.

The metric system is employed in only 5, and but 621 were written correctly. The most able physicians employ the least drugs, and the best educated prescribe more constantly official preparations only. The metric system is but little employed, its use not having materially increased for a number of years. One of the two prescriptions containing patent medicines was written by an osteopath. Defective knowledge of prescription writing is most noticeable among recent graduates; of several prescriptions written by a young graduate who received the highest average among 400 men at a State Board examination, not one was correct. This points to a deficiency of training in this important branch, even in our best medical schools. As a whole, these 1,000 prescriptions do not reflect great credit upon the ability of modern physicians correctly to order medicines. May not this unfamiliarity with drugs partially account for the increasing tendency to prescribe proprietary preparations?

Statisticitis.—Professor Newcomb calls attention to the present unmanageable accumulation of the data of science, and advocates a bureau which should keep before investigators the real problems to be solved and promote economy and accuracy in the gathering of statistics. But a most alert-minded critic, Professor Karl Pearson, says that the trouble with our statistical era is not lack of organization and direction, but lack of brains. We need, he holds, not so much a method of manipulating present statistics, as a means of getting rid of valueless data altogether. "At least 50% of the observations made and the data collected are worthless, and no man, however able, could deduce any result from them. In engineer's language, we need to 'scrap' about 50% of the products of nineteenth century science." Dr. Pearson specifies as notoriously inaccurate meteorologic and medical statistics. The real dilemma, it is evident, is that no man whose nose is always on the details of observation is a safe fact-gatherer, while no one whose head is too high above such necessary drudgery is a safe generalizer. Almost all physicians, and especially those most well known are constantly receiving requests to fill out great sheets of questions concerning some aspect or theory of medicine. These "collective investigations" have become a veritable nuisance. The motive of the collective investigator is often not above suspicion, and his ability to digest the material he may gather is often wholly undiscoverable. The utter valuelessness of his results is assured by the fact that it is usually absolutely impossible for a busy practitioner to remember the clinical data desired, and accurately to epitomize, even briefly, the case records and work of a lifetime would compel the writing of a lengthy article and demand weeks of labor. To cap the climax of absurdity, not a tenth or a hundredth, perhaps not a thousandth of the profession can be reached, and even of these the majority will wisely scorn or neglect to reply.

A Hypothetic Case of "Collective Investigation."—But the ludicrousness of the sheet of questions is made particularly piquant when the answers are requested upon the value of a new discovery, a method,

or a theory, not yet proved or disproved by the majority of those appealed to. Suppose, for instance, a hurriedly zealous and skeptic investigator had sent his question circular to the profession the day after Lister had stated his theory as to the antiseptic treatment of wounds. With what a satisfied grin of "I told you so," the epitomizer would have announced his counting of noses! A still better illustration would be that of puerperal fever. In 1843 our own Oliver Wendell Holmes had contended that puerperal fever is a contagious disease, but he met the bitterest opposition from all the leaders of the profession, such as Hodge, Meigs, etc. In Vienna two years later, not knowing of Holmes' work, Semmelweiss tried to convince his fellow practitioners of this truth, teaching the use of a chlorin solution as a disinfectant. The violence of the hatred aroused in the hearts of his professional brethren was so great that Semmelweiss was driven from his professorate and ruined professionally and financially. Even in 1856, in the Paris Maternité, 64 women died out of 347 admitted, and in 1864, 310 out of 1,350. At last, in 1874, Fournier and Budin succeeded in introducing the new views of Pasteur and Lister in spite of what Dr. Roux calls "the tyranny of medical education," and puerperal fever forever disappeared. But any time during the 31 years preceding 1874 would not the collective investigator have had his easy victory over Holmes and Semmelweiss and science? For about a generation *vox populi* is *vox diaboli* as regards the recognition of medical truth.

A Dangerous Judicial Pronouncement.—The *Lancet*, in its *Annus Medicus*, 1904 (December 31, 1904, p. 1849) says: "An important pronouncement by the Master of the Rolls was that a man may be fully qualified to practise medicine and yet may be fitly termed a quack if he claims power to remedy conditions which are irremediable." In an abstract and strictly literal sense, that, no doubt, is true, but as a bald generalization, does it not strike at the root of all progress? What was irremediable yesterday is often amenable to remedial measures today. Someone must have been the first to prove it remediable as a result of his own experience. What, then, is the standard of irremediability? The general consensus of the profession? In that case the first promulgator of every remediable measure for a condition hitherto held to be irremediable must be condemned as a quack! Every individual case must stand on its own merits. It is a question of fact, not one for generalizations. Numberless instances might be cited to show that claims have been put forward to the discovery of a remedy for "the irremediable" by competent and trustworthy investigators, which further investigation has proved untenable. Other such claims, again, have been bitterly opposed by the consensus of the profession, which, nevertheless, have been subsequently approved by it. Under the judge's dictum all these men would have laid themselves open to the accusation of quackery. We assert that such a generalization is fraught with danger to all progress. The sole considerations which should obtain in any given case are these: Did this man remedy a hitherto irremediable condition, or did he not? If he did, that answers the general consensus of

the profession. If he did not, even then, before condemning him, it is necessary to ask: Had he reasonable grounds from his own prior experience to think that he could do so? And are his character and standing such as to credit him with bona fides? But no such generalizations as the foregoing! That way madness lies.

A criticism of the organization plan of the American Medical Association is brought out in a personal letter of a correspondent. His local or county medical society—through which alone is entrance to the American Medical Association obtainable—has passed resolutions favoring, or, what is the same thing, refused to pass resolutions against, medical contract practice and the secret commission, or division of the fee, custom. Nearly all the members so voting were "contract doctors." An ethical practitioner could not therefore continue his membership in such a local society. Most cogent therefore is the argument:

Something must be done to make the corporate units, whether these be county societies or State societies, conform to a certain standard of ethics or they forfeit membership in the American Medical Association. Theoretically the present plan is all right, but it does not work out in practice. It does, however, compel a man to retain fellowship in a county society whose morals he may despise in order that he may be associated with the larger medical body. I am afraid the present plan is to encourage quackery and a disregard for ethics within the profession and to chase from the organization those who cannot let themselves down to the lower level.

Sterility from Röntgen-ray Exposures.—Several experimenters with the röntgen ray have within the past year announced that the exposure of the abdominal region of male animals is followed by azoospermia. Halberstaedter¹ continued these investigations, but used female rabbits, with a very striking similarity in results. In the course of 15 days the graafian follicles of exposed ovaries entirely disappeared. This result seems not to have been accidental or due to previous disease of the organs studied, as in several cases the two ovaries, exposed by abdominal incision, were inspected and found to present no macroscopic evidence of disease or of differences. After the wound healed, one of the organs was exposed and later found to lack follicles while the opposite organ showed no departure from the normal. Thus sterility is induced in both male and female. Whether or not the condition is permanent is not known, although the findings in males of the disappearance of epithelium from the seminal tubules and consequent atrophy of the testes, indicates an exceedingly severe lesion. These disquieting results with the lower animals have recently been confirmed in the case of human beings by no less an authority than Dr. F. Tilden Brown,² who announces that men, patients or radiographers, in a röntgen-ray atmosphere will after an undetermined period of time become sterile. This assertion is supported by finding absolute azoospermia in 10 persons who have devoted more or less time to röntgen-ray work during the past three years; none was conscious of any change in potency. This really alarming statement is somewhat tempered by the fact

that a patient treated for pruritus ani was the subject of azoospermia, but after three months, active spermatozoa reappeared. The subject is so important as to merit careful investigation. In the meantime röntgen-ray workers and patients should be protected against this untoward action of a much-used diagnostic and therapeutic agent.

The Automobile and the Doctor.—The public may perhaps be justified in regarding as the chief province of the automobile the keeping up of a supply of accident cases for the medical profession, but the *Horseless Age*¹ has interested itself to gather information regarding the usefulness of the automobile to the medical profession as a means of locomotion. In January, 1903, they published a special doctor's number, which contained contributions from 56 physicians residing in various parts of the country, the majority of whom were favorable to the use of the automobile in professional work. Nearly two years have passed since this number was published, and they now devote a page article to the replies of 43 of these physicians to a circular letter sent out, asking whether they still continued to use a machine; if discontinued, for what reason, as well as the results of further experience. Only five of the 43 who replied reported that they had abandoned the use of the automobile. The reasons given were indefinite in some cases, but others stated that the roads in their vicinity were not suitable for the motor car for too many months in the year. Of those who continue to use the automobile some are enthusiastic in their praises; others did not speak so favorably, but believe that the machine has sufficient advantages to make it desirable for them to continue its use. Most of them question whether there is any saving in cost from that of maintaining horses and carriages. The greatest advantage seems to be the speed with which they are able to get about, which enables them to accomplish more work. The cost of maintenance is attributed chiefly to repairs and keeping the tires in order. In very hilly or very muddy localities the expense is often very great. A majority discontinue the use of the car in winter, owing to difficulty in preventing freezing, but the success of certain owners shows that it can be used even in winter. Lack of protection when driving a car in winter is another reason why many do not use the motor. The *Horseless Age* concludes that the general verdict after two years of use seems to be favorable to the motor car and to indicate that it is peculiarly adapted to meet the requirements of the doctor. The continued use of automobiles by an increasing number of physicians in cities, where street conditions are on the whole favorable, seems to indicate that the motor has much to commend it for use in large towns, but it seems highly improbable that future improvements will even make it a practical means of locomotion in country districts where the conditions of the roads are so uncertain. In places where there is considerable snow, it would certainly be of no use. Frequency of break-downs also makes it too unreliable for a profession whose prompt attention to the needs of patrons is taken as a matter of course by people of all classes.

¹ Berliner klin. Woch., January 18, 1905.

² Med. News, Editorial, January 28, 1906.

¹ December 21, 1904.

The "Nonmedical Physician's" Method of Opposing Legal Control of Medical Practice.—In one of our States there is a man who signs himself a "nonmedical physician." What a funny philologic jumble of contradictions inhabits his head! He wishes to imply that he does not give medicines. He says he is a physician, and yet he is not M.D., nor in any sense a qualified practitioner. He heads the opposition to medicine, the motley gathering of the parasites of the profession, who wish to abolish all legal control of the qualifications and conditions of medical practice. He is seeking, plainly, to oppose the legislation which makes special and general education the *sine qua non* of therapeutic practice. These are the questions to which he begs answers from all the irregulars and antimedicinals:

1. In your opinion, should the practitioners of any one method of treating the sick be given a practical monopoly on the "healing art?"

2. In view of the active hostility now existing between the advocates of the various methods of curing the sick, would it be right and just to give to the advocates of any one method the privilege of deciding who might and who might not practise any of the other methods?

3. Does the best interest of the general public demand that the practitioners of all other methods of curing the sick be placed under direct or indirect control of the practitioners of the allopathic system of medicine?

4. In your opinion, are the medical practice laws now in force in some of the States, drawn solely in behalf of the general public? If not, what other purpose do they serve?

5. Do you consider the practice of osteopathy, massage, the physical culture treatment, and other methods of curing disease without drugs or surgery, by persons not licensed by a medical board to practise medicine and surgery, a menace to the public health?

6. Should a practitioner of any of the various methods mentioned in question No. 5 be required to submit to examination before a board, the members of which are of the same school of practice as the person to be examined?

7. Please express any other views you may hold on the subject of medical legislation.

There is just enough tricky speciousness in these questions to befuddle the minds of the more ignorant members of State legislatures, and another organized movement should be instituted to tell them that (1) there is no such monopoly; (2) no such hostility among qualified practitioners; (3) no possibility of such control, and no "allopathic school;" (4) the most and best of the existing laws are drawn to protect the public against the uneducated and the quacks of all kinds; (5) these methods are only a small part of therapeutics, aids in a general medical practice, and knowledge of them alone would not qualify a man to practise medicine; (6) certainly; (7) get a good medical education and then practise quackery if you will; why do you feel that a partial education will fit a man to practise better or as well as a complete one? Why do you suspect that a sound education will prevent you thereafter from restricting your method of practise to "osteopathy, massage, and physical culture treatment?" How will you prevent the voodoo, rabbit foot, and green goods practitioners from competing with you osteopaths, masseurs, and biceps worshipers? How do you distinguish yourself as a fraud from other frauds?

Haigism, Popular and Scientific.—At least psychologically interesting is the present controversy

concerning Haig's uric acid theory of certain diseases. The literary world which busies itself with the patterns and fringes of medical matters appears to be taking up the theory, while at the same time the professional world is dropping it. In the London *National Review* a writer says that "Haig's discovery is a scientific law, as true as the law of gravitation and of infinitely more importance to mankind," and the conclusion is reached, as absolute as the law of stellar and planetary motions, that tea, coffee, and meat must be discarded if headache, gout, depression, subnormal temperature, asthma, and many such evils are to be abolished. It may be said that a strike of the magazine writers, readers, and of the lay world generally against the immoderate use of meat, tea, and coffee would much lessen their diseases, and so would also one against the use of tobacco, ill-ventilated rooms, alcohol, slanted handwriting and other evils. The trouble with Haig's theory is that, in the first place, it is not true, and second that at best it turns *post hoc* into *propter hoc* with a naivete that may be pleasing to the magazine reader, but which will still permit Headache & Company to persist with disconcerting obstinacy. The vogue of the theory is explained by Dr. Goodhart as due to the professional desire to get something to treat, and Dr. Watson of London says it has unduly narrowed the field of inquiry in reference to disease, and obscured the significance of the facts actually observed. It is clear that "uric acid foods" are not the only or chief cause of uric acid in the blood, and that a knowledge of the history of diet, and the geographic distribution of disease would completely negative Haig's theory.

Degenerate Twaddle about Degeneracy.—That is a strange and morbid tendency which makes some pseudophilosophers periodically break forth into wails, or sneers worse than wallings, as to the alliance of great wits and madness. Lombroso and Nordau have been the prophets of these people until Lombrosoism has become a synonym for a sort of dunderheaded and spurious science amusing to the enlightened, were it not more contemptible. The writers of this school have such delight in ascribing "degeneracy" to the geniuses of history that one smiles at their literary contortions and trumped up "stigmata." This word stigmata is rolled as a particularly sweet morsel beneath their tongues, and a hundred marks are found in the geniuses to prove the theory, regardless of the fact that the same stigmata are probably present in the sanest and most praised, even in the supposedly nonstigmatic philosophers whose monomania is Degeneracy, with a capital D. Were the portraits of the scorned stigmatic geniuses unknown to them, these philosophers would be utterly unable to tell whether those of a dozen geniuses and a dozen policemen were the more marked with "degeneracy." Physiognomy indicates little or nothing as to character, and the morbid and malignant desire of the degeneracy pathologist is, perhaps, a better demonstration than the unscience which he teaches. Fortunately, that teaching is both untrue and silly, and the reverence rightly entertained for the geniuses and the truly great is in no danger of being destroyed.

BOOK REVIEWS

Textbook of Human Physiology.—By L. LANDOIS, M.D. Tenth revised and enlarged edition. Edited by ALBERT P. BRUBAKER, M.D. Translated by AUGUSTUS A. ESHNER, M.D., Philadelphia. P. Blakiston's Son & Co., 1904.

A reviewer need say but little regarding a book which has reached its tenth German edition, several of which have been translated into English and other languages. In this edition the author has been guided by the idea that has made so successful previous ones, namely, to provide for the practising physician a thoroughly helpful and practical book. With this end in view, a brief outline of pathologic variations is in every section appended to the description of the normal processes. This feature cannot be too highly commended, and makes of the work the most valuable one intended for both student and clinician. The experience of the American editor, who has himself written an excellent treatise on the subject, has contributed to the value of the book, which has in every respect been brought abreast of the times. It contains 1006 pages of text and a satisfactory index. Much of the type is smaller than is desirable, but the scope of the work renders this almost a necessity; the clearness helps to counteract its undesirability. The author, editor, translator and publisher have unitedly produced a most valuable and attractive book which can in every way be depended upon as authoritative.

A Practical Treatise on Diseases of the Skin, for the Use of Students and Practitioners.—By JAMES NEVINS HYDE, A.M., M.D., and FRANK HUGH MONTGOMERY, M.D. Seventh edition, revised. Philadelphia and New York: Lea Brothers & Co., 1904.

A book which, like this one, has achieved the distinction of a seventh edition no longer stands in need of extended and elaborate review; it may fairly be regarded as having firmly established a right to an honorable place in the literature of its subject. This new addition of Hyde and Montgomery's treatise upon diseases of the skin shows evidences of the careful revision to which it has been subjected on almost every page. A considerable number of new subjects has been introduced, and many of the old sections have been partly or entirely rewritten. Among the new subjects treated are Radiotherapy, Phototherapy, Pyroplasmosis Hominis, Erythema Elevatum Diutinum, Ulcerating Granuloma of the Pudenda, Psoriasiform Dermatoses, and Dermatitis Vegetans. The subject of the therapeutic employment of the röntgen ray and light in diseases of the skin is considered at some length, and the indications for the use of these potent agents and the technic to be employed are fully described. The addition of many references to dermatologic literature is not the least of the many excellent features of this edition; they add greatly to its usefulness as a work of reference. The work continues to be, what it has long been, one of the very best on the subject.

Essentials of Bacteriology.—By M. V. BALL, M.D. Fifth edition thoroughly revised by KARL M. VOGEL, M.D. W. B. Saunders & Co., 1904. Philadelphia, New York, and London.

The revised edition of this, No. 20, in Saunders' Question-Compend, is one of the most valuable in the series. The tables of bacteria, pathogenic, and nonpathogenic, with which the book concludes, form a very convenient reference list. The illustrations have been well selected.

Outlines of Physiological Chemistry.—By S. P. BEEBE, Ph.D., and B. H. BUXTON, M.D. New York: The Macmillan Company. 1904.

This unique book of 193 pages will fill a distinct gap in the works on the protean subject of physiologic chemistry. It deals entirely with the theoretic side of the questions involved, and furnishes data to help the student grasp the significance of his laboratory work. Subjects of purely chemic interest are eschewed, and details for applying various tests are usually omitted. The object simply has been to explain the nature of the reactions considered, as the book is in no sense a laboratory guide. It appears to be very practical, and may be used by the

clinician who wishes to know something of the nature of certain processes of which he reads, as well as by the student of the branch. It is very well written.

A Textbook of Physiological Chemistry.—By OLOF HAMMARSTEN. Authorized Translation from the Fifth German Edition by JOHN A. MANDEL, Sc.D., New York. Fourth Edition. New York: John Wiley & Sons. 1904.

The original plan of the book has been followed in this edition; in order to keep it within bounds of a short textbook, a great deal of the older, and, to a certain extent, superfluous parts of the previous volume have been eliminated. It is now a book of 703 pages, 120 of which are devoted to the urine. The only illustration is a spectrum plate, and this is uncolored. Copious references to the literature are given. The book still maintains its standard as one of the most authoritative of the works on physiologic chemistry. The translator has again rendered a service to English readers by making the book available to them. The type of this edition is good, but a better quality of paper would have been an improvement.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Handbook of the Anatomy and Diseases of the Eye and Ear. For Students and Practitioners.—By D. B. ST. JOHN ROOSA, M.D., LL.D., Professor of Diseases of the Eye and Ear in the New York Postgraduate Medical School; formerly President of the New York Academy of Medicine, etc.; and A. EDWARD DAVIS, A.M., M.D., Professor of Diseases of the Eye in the New York Postgraduate Medical School; Fellow of the New York Academy of Medicine. 300 pages, square, 12mo. Price, extra cloth, \$1.00 net. F. A. Davis Company, Philadelphia.

Beauty Through Hygiene. Common Sense Ways to Health for Girls.—By EMMA E. WALKER, M.D., Member of New York Academy of Medicine, etc. Illustrated. A. S. Barnes & Co., New York City, 1904.

Light Energy: Its Physics, Physiologic Action and Therapeutic Applications.—By MARGARET A. CLEAVES, M.D., Fellow of the New York Academy of Medicine; Fellow of the American Electrotherapeutic Association; Professor of Light Energy in the New York School of Physical Therapeutics, etc. With numerous illustrations in the text and a frontispiece in colors. Reberman Company, New York City.

Self-Propelled Vehicles. A Practical Treatise on the Theory, Construction, Operation, Care and Management of all Forms of Automobiles.—By JAMES E. HOMANS, A.M. Second revised edition. With upward of 500 illustrations and diagrams. Theo. Audel & Co., New York City. Price, \$2.00.

Refraction and How to Refract. Including sections on Optics, Retinoscopy, the Fitting of Spectacles and Eyeglasses, etc.—By JAMES THORINGTON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine; Member of the American Ophthalmological Society, etc. Third edition. With 215 illustrations, 13 of which are colored. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$1.50 net.

Transactions of the Ninth Annual Meeting of the American Laryngological, Rhinological and Otological Society, held at Lexington, Ky., April 30, and May 1 and 3, 1903. Published by the Society.

Essentials of Anatomy; Including the Anatomy of the Viscera.—By CHARLES B. NANCORDE, M.D., Professor of Surgery and Clinical Surgery in the University of Michigan, Ann Arbor. Seventh edition, thoroughly revised. 12mo volume of 418 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York and London, 1904. Cloth, \$1.00 net.

Vital Statistics of the City of Chicago. For the years 1899 to 1903, inclusive.—Department of Health, City of Chicago, Arthur R. Reynolds, Commissioner.

The Medical Directory of New York, New Jersey and Connecticut. Vol. VI, 1904-1905.—Published by the New York State Medical Association.

The Surgical Treatment of Bright's Disease.—By GEORGE M. EDEBOHLS, A.M., M.D., LL.D., Professor of Diseases of Women in the New York Postgraduate Medical School and Hospital; Consulting Surgeon to St. Francis Hospital, New York; Consulting Gynecologist to St. John's Riverside Hospital, Yonkers, N. Y.; and to the Nyack Hospital, Nyack, N. Y., etc. Frank F. Lislack, New York City, 1904.

In Defense of the Attenuated Drug.—By ROYAL S. COPELAND, A.M., M.D., Professor in the University of Michigan; Chairman Bureau of Homeopathy, American Institute of Homeopathy; President American Homeopathic, Ophthalmological, Otological and Laryngological Society, etc. Reprinted from the Medical Century, September, 1904.

Essentials of Materia Medica and Prescription Writing.—By HENRY MORRIS, M.D., College of Physicians, Philadelphia. Sixth edition, thoroughly revised. By W. A. Bastedo, Ph.D., M.D. Tutor of Materia Medica and Pharmacology at the Columbia University (College of Physicians and Surgeons). New York City. 12mo volume of 285 pages. W. B. Saunders & Co., Philadelphia, New York and London, 1904. Cloth, \$1.00 net.

Weather Influences. An Empiric Study of the Mental and Physiologic Effects of Definite Meteorologic Conditions.—By EDWIN GRANT DEXTER, Ph.D., Professor of Education at the University of Illinois. With introductory by Cleveland Abbe, LL.D. The Macmillan Company, New York City, 1904.

Ten Lectures on Biochemistry of Muscle and Nerve.—By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology, King's College, London. With illustrations. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$2.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

The Samuel D. Gross Prize of the Philadelphia Academy of Surgery, for the year 1905, amounting to \$1,200, has been awarded to Dr. James Homer Wright, of Boston, Mass., for his essay, "The Biology of the Microorganism of Actinomycosis."

The "Snow Eye."—With the excessive snowfall in various parts of the country, complaint is heard of an affection of the eyes of drivers, letter-carriers, policemen, mounted officers, etc. The continued glare reflected from the snow caused pain in the eyes, and as a result headache. The pain passed away only with the approach of evening, and again made itself felt in the morning.

The American Antituberculosis League will hold the next meeting on April 17 to 19, 1905, at Atlanta, Ga. Governor J. M. Terrell has tendered the hall of the House of Representatives of the Georgia State capital for the use of the league during the meeting, and he will deliver an address on the first morning. The session is intended to be a broad one in an educational sense, and the heads of the largest educational institutions of the United States will be invited. Many valuable papers will be presented. Reduced rates will be had on all railroads.

Would Prevent Race Deterioration.—In an address delivered in New York City before the League for Education, Simeon N. Patten, professor of political economy of the University of Pennsylvania, has advocated that women should marry early, and when married they should work in order to have economic independence. Professor Patten deplored the fact that so many married women are in the leisure class. He argued that if the ideal which is held by so many men in regard to the support of their wives is carried on much further it will result in a deterioration of the race and a real danger to society.

Miscellaneous.—The *Iowa Medical Journal*, at considerable expense and extra work, in the January number prepared and printed the directory of Iowa physicians and other matters connected with it. This fact is much appreciated by the list of subscribers, particularly those residing within the State.—**Philadelphia:** The West Philadelphia Homeopathic Hospital and Dispensary, at No. 1234 North Fifty-fourth street, has opened its doors to the public. The hospital has ten free beds, as well as a daily free dispensary. Dr. Alfred Gordon has been appointed chief of the neurologic clinic at Jefferson Medical College Hospital.

A Test of Eddyism.—An exchange states that a bill has been introduced in the Iowa Legislature, forbidding "healers" to practise in the State under penalty of imprisonment in the penitentiary. The introducer of the bill has promised to withdraw it if the eddyites will cure the doorkeeper of the House, who is afflicted with deafness. Some of the healers are not willing to accept the challenge, but others believe that this is the appointed time to make a cure and demonstrate their powers in the most public way, and propose to organize a concert of prayer and hard thinking for removal of the doorkeeper's belief that he can not hear.

The Medical Library and Historical Journal, 1313 Bedford avenue, Brooklyn, N. Y., owing to the almost total destruction by fire of the establishment of its printers on February 13, begs to ask the kind indulgence of its subscribers and advertisers for delayed publication of the January, 1905, number. Fortunately, duplicate copies of all important manuscripts were made before sending them to the printer, so the heavy loss incurred by the *Journal* will not be shared by its contributors or readers. The editor desires to announce that immediate steps have been taken for the making of new plates and duplicating the entire number which was in press, and that this issue will be published at the earliest possible date.

Record of Accidents.—In the three months of July, August and September of last year the railroads of this country did damage to life and limb which the Interstate Commerce Commission, in its report for that quarter, just published, describes as "the most disastrous on record." The number of employees killed was 756, a slight falling off from the previous quarter, but the railroads killed 228 passengers in train accidents in that period. Not fewer than 217 persons were killed in six of the train accidents of the summer quarter of 1904. The worst accident was one in which 88 persons met death. In the quarter the total of derailments and collisions reached the total of 2,760, and the damage to cars, engines, etc., mounted up to \$2,439,073. When accidents due to all causes with which the railroads are concerned are included, such as persons falling while getting on or off trains, employees being hurt while coupling or uncoupling cars, etc., the total number of casualties reaches 14,239, of which 1,032 had fatal endings and 13,207 represented injuries of more or less severity.

Picrotoxin the Common Ingredient of Knock-out Drops.—An exchange says: The *Northwest Medicine* editorial upon the topic "Knock-out Drops," is very apropos of the numerous deaths from what has been supposed to be in police circles, acute alcohol poisoning. In a recent paper, published in *St. Paul Journal*, the writer states that the drug commonly used in these knock-out drops, is not chloral as we had supposed, but picrotoxin. This has been termed by those who use it for the nefarious purpose mentioned, "extract of hazel nuts." Added to whisky, it sometimes produces symptoms rather similar to the poisonous effects of the more familiar strychnin; convulsions being followed by delirium and coma. Its symptoms are more or less modified by those of the whisky, so that the victim may show similar effects to those which might be produced by an overdose of alcohol. Profound stupor and unconsciousness might lead one to suspect alcoholic poisoning alone; and, delay in the application of the proper antidotal measures might result in death. These facts should receive the careful attention of all physicians.

The Walter Reed Memorial.—The following letter from Dr. Daniel E. Gilman has been published by *Science*. At a meeting of the association held in Washington, a committee was appointed, of which I was made chairman, to take such measure as might be wise for securing a permanent memorial of Major Walter Reed, U. S. A., in recognition of his important services to humanity. Acting under this authority, it was at length found expedient, after several preliminary meetings, to form an incorporation in the city of Washington to hold such funds as might be contributed. This incorporation is now endeavoring to raise the sum of \$25,000, of which the income may be paid to Mrs. Reed and the principal may be devoted to a permanent memorial of Dr. Reed. More than \$13,000 has been subscribed already, a large part of this amount coming from the medical profession. This is all in addition to the action of Congress, which has given, on the representations of your committee, an annual pension to Mrs. Reed. The effort is now making to secure the additional sum of \$12,000, and the cooperation of all members of the American Association for the Advancement of Science is urgently desired.

Would Care for Lepers.—Recent news from Washington states that the care of lepers in the United States and Hawaii was considered recently by the House Committee on Interstate and Foreign Commerce. Two bills, one providing for the establishment of a sanatorium in this country for all lepers in the United States, and another appropriating \$150,000 to be used in Hawaii for the scientific study of the disease, were before the committee. Delegate Kalaniana'ole explained briefly the condition of lepers in the Hawaiian Islands. He said over 1,000 persons were suffering with the disease there. The territorial government has spent \$900,000 in their care in the last six years. The diminution of the revenues of the island, owing to their absorption by the United States, he said, amounted to \$1,250,000 annually, and for this reason the federal government was asked for an appropriation, not to care for the lepers, but to prosecute a scientific study of the disease, with the view of finding some remedy therefor. Surgeon-General Wyman, of the Public Health and Marine-Hospital Service, explained the need of the leprosarium in this country. He said there were known to be 275 persons afflicted with the disease in the United States, and he estimated there were 100 others scattered through the States and Territories. He suggested to the committee a site in the arid region of the Southwest. The committee authorized a favorable report on both bills.

Public Water Purification.—In a recent address before the Lowell Institute on the "Pollution and the Purification of City Water," Prof. Sedgwick is quoted with the following statement: The combined method of sewage disposal and water-supply is rapidly going out of vogue, and in place of settling or storage basins, or reservoirs, sanitary science is today teaching that filtration, or if possible something even better than filtration must be employed to safeguard the health of cities and towns having public water-supplies. As to filtration, there are in the United States two principal types adapted for the city water-supplies. The first is the older method long used in England and now rapidly coming into fashion on the continent of Europe, namely, the method of "slow sand filtration" so called. This method has much to commend it, and is being widely adopted in the United States, especially for waters free from clay, and very large amounts of color derived from dead leaves and other organic materials. This system has been carefully investigated by the State Board of Health of Massachusetts, and excellent examples of its operation are to be seen at Lawrence, Mass., Albany, N. Y., and Ashland, Wis. It has the great advantage of approaching closely to the natural process of purification observed in the genesis of all well waters, and also of reducing to its lowest terms the human element in the operation of the filters. In the West and South, however, as well as in some other sections of the United States and elsewhere, filters of this type give with the local waters an opalescent, cloudy, colored effluent, and with very muddy waters the filters rapidly clog up. To meet these conditions there has been gradually perfected another system of filtration known sometimes as the "mechanical" and sometimes as the "American" system, and within the last few years there has been an

enormous growth of this method of filtration as a means of purification of city water-supplies, especially in the West and South.

NEW YORK.

Enforcing the Spitting Ordinance.—Health Commissioner Darlington, of New York, is entitled to credit for enforcing the ordinance against spitting. A large number of arrests have recently been made, many of them of persons of more or less prominence, for violations of the ordinance.

Mortality in New York State during 1904.—There were 141,564 deaths in New York State during 1904, according to the report of the State Board of Health, the largest number ever officially recorded. The deathrate per 1,000 population was 18.2, against an average deathrate for the past 5 years of 17.2. There were 380 deaths a day on an average through the year, against 350 in 1903. In March there were over 14,000 deaths, a number never before reached in any month on record. Pneumonia was one of the chief causes of mortality in the early part of the year, there being 8,000 deaths from this cause in the first 5 months of the year. Pulmonary tuberculosis caused over 14,000 deaths, or about 10% of the total. In the last 20 years there have been 259,000 deaths from pulmonary tuberculosis in this State.

Osteopaths Push Bill.—Senator Davis recently introduced a bill to regulate the practice of osteopathy in the State. Similar measures have been presented in recent years, but have not been passed. Osteopaths have engaged John T. McDonough, ex-justice of the Supreme Court in the Philippines, to aid them in explaining the merits of the bill. The osteopaths of the State, numbering between 300 and 400, have been incorporated, and they say that State recognition of the science has been accorded in 20 States of the union. The osteopaths' bill follows the general lines of laws which regulate the practice of medicine, except that the study of osteopathy must extend over a period of nine months each year for 3 years. The time required for preparation for the practice of medicine is 6 months each year for 4 years. A board of examiners is provided, and examinations under the direction of the State Board of Regents are also required.

PHILADELPHIA, PENNSYLVANIA, ETC.

Crusade for Pure Milk.—Working in harmony with the Board of Health, the Philadelphia Milk Exchange has adopted and sent to all its members a request that no milk be purchased or sold by them unless it conforms to certain rules. Most important of these recommendations is that all cows used for milk supply shall be free from any diseases and that milk from any cow suspected of being ill shall not be mixed with the herd milk. It is also urged that milk shall not be taken from a dairyman in whose household there is contagious disease and that cleanliness shall be scrupulously exercised.

For Better Sanitation.—Representatives of the State Board of Health, and of the associated health authorities and sanatoriums of this State, appeared before the Committee on Public Health at Harrisburg recently in support of bills now before the Legislature for establishing county and township health officers and also a bureau of vital statistics under the supervision of the State Board of Health. Both bills, prepared by a committee appointed at the joint meeting of the State Board and the Health Association at Gettysburg last year, provide that the cost shall be borne by the respective counties and not by the State. The delegates also supported measures for the better protection of water-supplies.

SOUTHERN STATES.

Tuberculosis in Washington, D. C.—Residents of Washington are surprised by the statistics recently compiled by the Department of Labor, showing that, with the exception of Denver and Los Angeles, both of which are health resorts, Washington has the greatest percentage of deaths from tuberculosis of any city in the United States. As a result, the Associated Charities has appointed a special committee to investigate the subject and raise money to protect the city from the spread of the disease.

WESTERN STATES.

Medical Society of the Missouri Valley.—The seventeenth semiannual meeting of this association will be held in Kansas City, March 23 and 24. An excellent program is being arranged for the occasion, and the local profession, which is noted for its hospitality, will keep open house for the visitors upon this occasion. S. Grover Burnett, of Kansas City, is president of the society, and C. Lester Hall, chairman of the arrangement committee.

Illinois Would Have State Sanatorium.—A bill has been introduced in the Legislature of Illinois which provides for the location, erection, organization and management of a State sanatorium for persons afflicted with tuberculosis and for making an appropriation of \$200,000 for the purchase of the land, the construction of the necessary buildings and the maintenance of the institution. Chicago is situated in a belt of territory along the western shore of Lake Michigan, which fur-

nishes, as a whole, an average of only 87 deaths from tuberculosis out of every 1,000 deaths from all causes, as compared with an average of 126 out of every 1,000 in the entire United States, and of 137 in the remainder of the State outside this belt.

Smallpox in Arkansas.—*Public Health and Marine-Hospital Service Reports* says: On account of the mild form of the disease, as it has prevailed heretofore, vigorous measures have not in many localities been taken to eradicate it. This has particularly been the case in several sections where the negro population is largely in excess of the white. The negroes, in most cases, have preferred to take the chances of a light case of smallpox rather than the risk of a sore arm from vaccination. In some sections the reappearance of smallpox annually with the coming of cold weather had come to be looked upon as a rather insignificant affair, and in a number of instances negroes in the eruptive stage of the disease have picked cotton, and even worked in the gins and presses, where cotton was made ready for the market, thus sending the contagion broadcast. On many plantations all sanitary precautions have been neglected, houses where the disease had prevailed in one year being occupied the following one by families wholly unprotected, either by previous attack or by vaccination. With the advent of cold weather last fall the smallpox appeared as usual, but it was soon apparent that the disease was decidedly more malignant than heretofore, the deathrate being many times larger than in the previous recent outbreaks.

FOREIGN NEWS AND NOTES

GENERAL.

Röntgen Congress in Berlin.—The Berlin Röntgen Society has arranged for a Congress, April 30 to May 3, 1905, in commemoration of the decennial of Röntgen's discovery. The Congress is to be held under the auspices of Excellenz von Bergmann "Ehrenpresident," and of an honorary committee headed by the present Minister of Instruction, and His Majesty's physician, the Surgeon-General of the Prussian Army.

Miscellaneous.—The mortality in the jails of British India has been reduced in 20 years from 37 per 1,000 to 21 per 1,000.—Situate on the eastern highway, between Scotland and London, Newcastle-on-Tyne is much frequented by tramps, to whose visits 450 cases of smallpox have been traced.—The epidemic of 1902-1903 cost the city over \$50,000.—A German statistician calls attention to the fact that the increased longevity in Europe within the last 50 years is more conspicuous in the case of women than of men.

Object Lesson in the Mortality in Japanese Army.—In nine months there have been but 40 deaths from disease in the immense army commanded by General Oku, a record that is believed to be unequaled in the world's warfare. There have been treated since May 6, when the army landed 24,642 cases of disease, but only two score of deaths have resulted. There were only 193 cases of typhoid fever, 342 of dysentery, and of beri beri 5,070. The casualties of this army from May 6 to December 19 were: Killed—Officers, 210; men, 4,917. Wounded—Officers, 743; men, 20,337. Missing—Officers, 4; men, 402. The percentages of the other Japanese armies are believed to be about the same.

Charity for Unmarried Women.—The recent bequest of nearly £14,000 to the Deakin Institution at Sheffield has aroused some curiosity as to the nature of this charity. It was founded by Mr. Thomas Deakin, who in 1849 bequeathed £3,000 toward the establishment in the city of an institution for the benefit of unmarried women of good character, being members of the Church of England or Protestant dissenters. By the rules of the charity any woman in reduced or straitened circumstances, resident in England, not being less than 40 years of age, and not having been married, and who comes within the above denomination, is eligible as an annuitant. At present there are 76 women receiving benefit, and since the inauguration of the charity, 196 have received life pensions.—[*London Mail*.]

Berlin Has Not 2,000,000 Population Yet.—Consul-General Mason reports, December 23 and January 2, as follows: According to a calculation made by the Berlin Department of Statistics, the number of inhabitants of Berlin at the close of the week ended July 2, 1904, amounted to 1,967,707. Since the beginning of the present year, therefore, the population of Berlin had not increased by more than 12,000 and 32,000 were still lacking to make up the second million. The expectation was, however, confidently entertained that by the end of the year 1904 Berlin would become a 2,000,000 city. Later it was reported that the second million would probably be complete already in October, and it was even claimed that the 2,000,000 would be attained during the month of August. Other statisticians, it is true, claim that Berlin has already a population of 2,000,000.—[*Public Health and Marine-Hospital Service Reports*.]

Adulteration of Milk.—George Quesneville, of the Paris School of Pharmacy, has made an interesting discovery regarding milk adulterations. From a liter of milk he abstracted nearly all the cream, supplying the butter thus removed by an equal amount of lard in emulsion. He sent this mixture to the Municipal Laboratory for analysis. The report was "excellent milk." This led Mr. Quesneville to conclude that as milk butter is in suspension in a state of independent cells enclosed in a thin envelope of albumin, by using a solvent which does not act upon these cells the problem of detecting adulterations would be solved. This he succeeded in doing by the use of benzoin. In many instances he has detected considerable quantities of cocoa butter, lard and other foreign fats. The Congress of Social Hygiene, held at Berlin, and the one held at Arros, have recently defined "good milk" and fixed the amount of butter fat at 30 gm. to the liter. This method of detecting spurious fats in milk by means of the addition of benzoin may prove of value to Boards of Health.

A City of Cretins.—According to M. Guillaume Capus, the author of a book entitled "Les Médecins et la Médecine en Asie Centrale," the population of the town of Khokand in Turkestan consists for the most part of sufferers from goiter and cretinism. The traveler entering the town is at once struck by the fact that nearly every person he meets is the bearer of a more or less voluminous goiter. Khokand is the only place in Turkestan in which such a state of things exists, and there appears to be nothing in the place or its surroundings to account for the prevalence of goiter and cretinism. Its sanitary condition is satisfactory. The town is situated at a height of 1,300 feet, and is abundantly supplied with water from a river, which, like the others in the same region, comes from the Altai mountains. When the Russian troops occupied Khokand in 1878, the medical officers noted that a tenth of the garrison became affected with goiter after a few months' stay. The tumors yielded to the iodine treatment; nevertheless it was decided to abandon Khokand and transfer the headquarters to Marghillan.—[*British Medical Journal*.]

Cuba and Proprietary Medicines.—The following comes from a commercial source but is said to be authentic, and is dated November 12, 1904. The Provisions of Regulation dated February 24, 1844, related to proprietary medicines and preparations, and was afterward modified by Royal Order dated April 3, 1855. This regulation exacted that all preparations of a medicinal nature which were not then on sale or being used for the cure of diseases for which they were recommended, or if in use there was proposed a change in the manner of preparing same which differed from that already known, should be presented to the Government in a sufficient quantity to permit of analysis and qualification, the medicines to be accompanied by a sealed document bearing the names of the substances of which the medicine might be composed, together with the method of preparing and administering same. In conformity with the above regulation which is hereby put into force, the Secretary of this Department has fixed a period of six months from the date hereof in which to allow the owners of such preparations as may be on sale in the drug stores of the Island, to comply with the requirements hereof and obtain the necessary authorization. At the expiration of the said period of six months there shall be prohibited the sale of all medicines which shall not have complied with this order to the above effect.

OBITUARIES.

William Johnston, aged 90, January 31, at his home in St. Louis; a graduate of the Transylvania University medical department, Lexington, Ky., in 1838. He was the oldest practitioner in St. Louis and the third to die of the quartette of octogenarians honored by the St. Louis Medical Society at a banquet two years ago.

Frank Herndon Sims, aged 42, of Atlanta, Ga., February 5, at the Elkin-Cooper Sanitarium in Atlanta, of pneumonia. He was born in Mobile, Ala., and completed his medical education in Heidelberg, Germany. He became a specialist in diseases of the eye, ear, nose, and throat, in which he attained marked success.

Jacob G. Sharp, February 4, at his home in Philadelphia. He was graduated from Hahnemann Medical College, Philadelphia, in 1875. In early life he was a professor in Rutgers College, New Brunswick, N. J., and for the past twelve years had been connected with the Board of Health as district physician of Philadelphia.

Clarence W. De Lonnay, formerly a practicing physician of Chester, Pa., February 7, at his home in Telluride, Col. The cause of death was blood-poisoning contracted during a surgical operation. He was graduated from the Jefferson Medical College, Philadelphia, in 1881.

Phillip Long Dittenbacher, aged 74, January 29, at his home in Havana, Ill.: a member of the American Medical Association and oldest practitioner in Mason county, Ill. He was a surgeon in the Federal service during the Civil war.

Frederic Otis Spooner, aged 38, of Sherburne, N. Y., January 30, at Faxon Hospital, Utica, N. Y., after an operation for gallbladder

obstruction. He was graduated from the University of Vermont medical department, Burlington, in 1892.

John H. Doughty, aged 74, at his home in Matteawan, N. Y.; a graduate of the University of Michigan medical department, Ann Arbor, Mich., in 1863; surgeon in the Federal army during the Civil war. Death was due to pneumonia.

J. B. Howard Gittings, February 10, at his home in Philadelphia. He was a graduate of the University of Pennsylvania medical department in 1863 and had practised medicine in West Philadelphia continuously since that time.

Augusta Smith, aged 73, a widely known woman physician of St. Louis, February 3, as a result of being struck by a street car. She was a graduate of Bennett Medical College of Chicago, and was born in Fulton, N. Y.

William Heath, aged 80, February 7, at Scranton, Pa., as a result of a fractured skull sustained in falling on the ice. He was a native of Pennsylvania and surgeon in the American army during the Mexican war.

Eugene C. French, aged 50, January 26, at his home in Orlando, after an illness of four years, from chronic bronchitis. He was a graduate of the University of Michigan medical department, in 1883.

Matthew R. Hall, aged 62, January 28, at his home in Warrenton, Ga.; a graduate of the New York University, New York City, in 1857. He was a colonel in the Confederate army during the Civil war.

James McElderry Mullikin, aged 80, February 8, at his home near Collington, Prince George's county, Maryland; a graduate of the University of Maryland medical department, Baltimore, in 1842.

Dwight W. Chase, January 18, at the home of his daughter in Salina, Kansas, a graduate of the Jefferson Medical College, Philadelphia, in 1846. He formerly practised in Delphos, Kan.

Walter Kellogg Strong, aged 81, January 26, at his home in Fishkill Landing, N. Y., from heart disease. He was a graduate of the University of Buffalo medical department, in 1847.

John M. Donlan, aged 31, January 26, at his home in Fitchburg Mass., from pulmonary tuberculosis; a graduate of the Harvard University Medical School, Boston, in 1897.

John C. Herring, aged 72, January 19, at his home in Lancaster, Ky., from septicemia; a graduate of the University of Louisville, Kentucky, medical department, in 1859.

Homer L. Bartlett, aged 74, of Brooklyn, February 3, at Thomasville, Georgia. He was a graduate of the College of Physicians and Surgeons of New York City in 1858.

John Bagby, aged 61, January 29, at the home of his daughter in Lake Village, Ark.; a graduate of the University of Maryland School of Medicine, Baltimore, in 1861.

Francis J. Lemoyne Johnson, aged 33, January 25, at his home in Washington, Pa.; a graduate of the University of Pennsylvania medical department, in 1897.

Andrew H. Askew, aged 61, February 1, at his home in Harrellsville, N. C.; a graduate of the University of Pennsylvania medical department, in 1869.

Samuel Johnson Mathews, aged 70, January 21, from septicemia, at his home in Mayfield, Ky.; a graduate of the University at Nashville, Tenn., in 1860.

John Stoddart, January 30, at his home in Silver Creek, Nebraska; a graduate of the University of Michigan department of medicine, in 1900.

Jephtha Phelps Haynes, aged 78, January 26, at his home in Beaumont, Tex.; a graduate of Tulane University, La., in 1870.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 11, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington.....	Jan. 28-Feb. 4.....	1	
Georgia:	Macon.....	Jan. 21-23.....		1
Illinois:	Chicago.....	Jan. 28-Feb. 4.....	13	0
	Galesburg.....	Jan. 28-Feb. 4.....	1	
Kansas:	Topeka.....	Jan. 28-Feb. 4.....	1	
Louisiana:	New Orleans.....	Jan. 21-Feb. 4.....	23	1
			Nine imported	
Maine:	Perry.....	Feb. 1.....	1	
Michigan:	Detroit.....	Jan. 28-Feb. 4.....	8	
Missouri:	St. Louis.....	Jan. 28-Feb. 4.....	38	
New York:	New York.....	Jan. 28-Feb. 4.....	9	1
Ohio:	Toledo.....	Jan. 28-Feb. 4.....	5	
South Carolina:	Charleston.....	Jan. 28-Feb. 4.....	5	
Tennessee:	Memphis.....	Jan. 28-Feb. 4.....	14	
	Nashville.....	Jan. 28-Feb. 4.....	8	

SMALLPOX—INSULAR.

Philippine Islands:	Manila.....	Dec. 10-21.....	2
---------------------	-------------	-----------------	---

SMALLPOX—FOREIGN.			
Bosnia and Herzegovina	Nov. 1-30	22	3
Brazil:	Pernambuco	Dec. 15-31	116
	Rio de Janeiro	Jan. 1-8	45 15
Ecuador:	Guayaquil	Jan. 4-18	3
	Manabi Province	Jan. 4	Present
France:	Paris	Jan. 14-21	17 3
Germany:	Bremen	Jan. 7-14	1
Great Britain:	Glasgow	Jan. 20-27	1
	Hull	Jan. 14-21	4
	Liverpool	Jan. 14-21	1
	London	Jan. 14-21	1
	Newcastle-on-Tyne	Jan. 14-21	11
	South Shields	Jan. 14-21	11
India:	Bombay	Dec. 20-Jan. 10	102
	Calcutta	Dec. 17-Jan. 7	5
	Karachi	Dec. 24-Jan. 8	6 1
	Madras	Dec. 17-Jan. 6	5
Italy:	Catania	Jan. 12-26	4
	Palermo	Jan. 7-21	48 9
Luxemburg:		Dec. 1-16	3
Mexico:	Mexico	Dec. 17-Jan. 7	4 4
Netherlands:	Rotterdam	Jan. 21-28	2
Russia:	Odessa	Jan. 7-14	1
	St. Petersburg	Jan. 7-14	2 3
	Warsaw	Nov. 26-Dec. 3	8
Spain:	Barcelona	Jan. 10-20	12
Straits Settlements:	Singapore	Dec. 17-31	2
Turkey:	Constantinople	Jan. 15-22	17
Venezuela:	La Guayra	Jan. 21	Epidemic
YELLOW FEVER.			
Brazil:	Rio de Janeiro	Jan. 1-8	1
Mexico:	Coatzacoalcas	Jan. 21-28	1
	Merida	Jan. 22-28	1
Panama:	Colon	Jan. 28	1
Case probably imported			
PLAGUE—INSULAR.			
Philippine Islands:	Manila	Dec. 3	1
PLAGUE—FOREIGN.			
Africa:	Cape Colony	(East London) Dec. 25	1
Arabia:	Aden	Dec. 31-Jan. 14	161 116
Brazil:	Guaratingueta	Nov. 30-Dec. 13	11
	Rio de Janeiro	Jan. 1-8	22 11
Egypt:	Suez	Dec. 31-Jan. 7	2 3
	Tukh	Dec. 31-Jan. 7	1 1
India:	Bombay	Dec. 20-Jan. 10	374
	Calcutta	Dec. 15-Jan. 7	67
	Karachi	Dec. 25-Jan. 8	120 105
Siam:	Bangkok	Dec. 17-24	Present
Siberia:	Sibodakoi and Vi-		
	gatka Districts	Oct. 18-Dec. 14	227
CHOLERA.			
India:	Bombay	Dec. 20-Jan. 10	1
	Calcutta	Dec. 12-Jan. 7	304
Russia:	Astrachan	Dec. 7-14	1
	Baku Province and		
	City	Dec. 7-14	450 355
	Eri van Province		
	and City	Dec. 7-14	1,506 1,285
	Samara	Dec. 7-14	17
	Saratov	Dec. 7-14	10
	Trans-Caspian		
	Province	Dec. 7-14	40 1
Turkey in Asia:		Dec. 26-Jan.	10,466 9,192

Changes in the Medical Corps of the U. S. Army for the week ended February 11, 1905:

BROWN, First Lieutenant ORVILLE G., assistant surgeon, is relieved from duty at Cottabato, Mindanao, and will proceed to Camp Marahui, Mindanao, for duty.

SNYDER, First Lieutenant CRAIG R., assistant surgeon, is assigned to duty at Cottabato, Mindanao.

DAVIS, First Lieutenant WILLIAM T., assistant surgeon, now on temporary duty at Zamboanga, Mindanao, is assigned to duty at that post.

RAGAN, First Lieutenant CHARLES A., assistant surgeon, is relieved from duty at headquarters, Department of Luzon, and will proceed to Tabaco, Albay, for duty with the provisional battalion of Philippine scouts.

GIRARD, Colonel ALFRED C., assistant surgeon, is granted leave for one month, with permission to apply for an extension of one month.

MEARNS, Major EDGAR A., surgeon, leave granted December 31 is extended one month.

MATHEWS, First Lieutenant GEORGE W., assistant surgeon, having been examined by a board of officers and found physically disqualified for the duties of assistant surgeon with the rank of captain, by reason of disability incident to the service, his retirement from active service as a captain, under the provisions of the act of Congress approved October 1, 1890, as amended by the act approved July 27, 1892, is announced, to date from February 2, 1905. He will proceed to his home.

MARVIN, MARION F., contract surgeon, leave granted December 2, is extended one month.

JEA, First Lieutenant GEORGE W., assistant surgeon, is granted leave for two months.

The following-named contract surgeons will proceed from the places designated after their respective names to Fort Leavenworth and report not later than February 13 to the commanding officer, Sixth Infantry, for duty, to accompany that regiment to the Philippine Islands, where they will report in person to the commanding general, Philippines Division, for assignment to duty: Joseph L. Sanford, Clifton, Va.; Everett A. Anderson, Georgetown, Ky.

SMART, First Lieutenant ROBERT, assistant surgeon, so much of orders of January 27 as direct him to proceed to Fort Sheridan for duty are revoked.

The following changes in the stations and duties of officers and contract surgeons are ordered: First Lieutenant Robert Smart, assistant surgeon, will proceed to Fort Myer for duty, to relieve Captain James S. Wilson, assistant surgeon. Captain Wilson will proceed to Fort Oglethorpe for duty, to relieve First Lieutenant William L. Little, assistant surgeon. Lieutenant Little will proceed to Jackson Barracks for duty.

HEWITT, JOHN M., contract surgeon, will proceed from Kewanee, Ill., to Jefferson Barracks, Mo., and report not later than February 14 to the commanding officer of the Second Squadron, Eighth Cavalry, to accompany that command to the Philippine Islands, where upon arrival he will report to the commanding general, Philippines Division, for assignment to duty.

Changes in the Medical Corps of the U. S. Navy for the week ended February 11, 1905:

WELLS, H., medical director, commissioned medical director with rank of captain from January 1, 1905—February 3.

STEPP, J., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant from June 7, 1904—February 3.

BISHOP, L. W., assistant surgeon, detached from the Naval Hospital, New York, and ordered to continue duties at the Navy Yard, New York, N. Y.—February 3.

BLUE, J. H., FOSTER, T. G., assistant surgeons, appointed assistant surgeons with the rank of lieutenant, junior grade, from January 16, 1905—February 3.

HARTON, G. E. H., medical director, commissioned medical director with rank of captain from December 15, 1904—February 4.

HIBBETT, G. H., medical inspector, commissioned medical inspector with rank of commander from December 15, 1904—February 4.

GUEST, M. S., surgeon, commissioned surgeon with rank of lieutenant-commander from January 20, 1905—February 4.

MAYERS, C. M., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—February 4.

ELMORE, R., acting assistant surgeon, ordered to the Navy Yard, Washington, D. C., for duty at the Naval Hospital—February 4.

VON WEDEKIND, L. L., surgeon, ordered to the Naval Training Station, Newport, R. I., with additional duty on board the Constellation—February 6.

BARBER, G. H., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the Ohio, February 25—February 6.

HIGH, W. E. G., assistant surgeon, detached from duty with marine detachment on Midway Islands and ordered to the Naval Training Station, San Francisco, Cal.—February 6.

TYREE, F. W., acting assistant surgeon, detached from the Navy Yard, Charleston, S. C., and ordered to duty with marine detachment on Midway Islands—February 6.

GRUNWELL, A. G., surgeon, when discharged from treatment at the Naval Hospital, New York, ordered to duty at that hospital—February 7.

ODELL, H. E., passed assistant surgeon, detached from the Naval Hospital, New York, N. Y., February 14 and ordered to the Galveston February 15—February 7.

PLUMMER, R. W., passed assistant surgeon, ordered to the Navy Yard, Charleston, S. C., February 17—February 7.

DEVALIN, G. M., surgeon, commissioned surgeon with rank of lieutenant-commander from January 31, 1903—February 7.

DRAKE, N. H., medical inspector, commissioned medical inspector with rank of commander from January 1, 1905—February 7.

Changes in the Public Health and Marine-Hospital Service for the week ended February 8, 1905:

GASAWAY, J. M., surgeon, granted leave of absence for ten days from February 9—February 3, 1905.

RICHARDSON, T. F., passed assistant surgeon, to proceed to Savannah Quarantine and assume temporary charge of the service during the absence, on leave, of Acting Assistant Surgeon W. J. Linley—February 2, 1905.

WILSON, R. L., passed assistant surgeon, granted leave of absence for one month from March 1—February 8, 1905.

FRANCIS, EDWARD, assistant surgeon, granted leave of absence for seven days from February 2, 1905, under paragraph 191 of the regulations. Granted extension of leave of absence for twenty-three days from February 9—February 8, 1905.

DUFFY, F., acting assistant surgeon, granted leave of absence for seven days from February 8—February 6, 1905.

HARGIS, J. W., acting assistant surgeon, granted leave of absence for twenty days from February 8—February 1, 1905.

LINLEY, W. J., acting assistant surgeon, granted leave of absence for thirty days from February 13—February 1, 1905.

MCCONNELL, E. F., acting assistant surgeon, granted leave of absence for thirty days from February 1—February 7, 1905.

MORRIS, G. A., pharmacist, relieved from duty at Fort Stanton, N. M., and directed to proceed to St. Louis, Mo., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist J. M. Bell—February 4, 1905.

BELL, J. M., pharmacist, upon being relieved from duty at St. Louis, Mo., by Pharmacist G. A. Morris, to proceed to Fort Stanton, N. M., and report to the medical officer in command for duty and assignment to quarters—February 4, 1905.

Board Convened.

Board convened to meet at the Marine Hospital, Baltimore, Md., February 3, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. W. Wille, chairman; Acting Assistant Surgeon G. H. Stuart, recorder.

SOCIETY REPORTS

PAN-AMERICAN MEDICAL CONGRESS.

[Specially reported for *American Medicine*.]

[Concluded from p. 221.]

Permeability of Filters to the Protozoa of the Waters Used in the City of Lima.—HUGO BIFFI (Lima) read a paper with this title, saying that the idea of the experiment was to see what filters were serviceable not only to provide good drinking water to those using them, but to secure sterile water for laboratory purposes. They found that some amebas and flagellate bacilli passed through all the filters. Most filters suffered from prolonged use. He considered the Berkefeld and Grandjaen filters were the best.

Plague at Mazatlan, Mexico.—JOSÉ RAMOS (Mexico) outlined the methods by which the Mexican government was able to suppress the outbreak of plague at Mazatlan in 1900. Complete isolation of plague patients was insisted on. Disinfection was thoroughly carried out; destruction of rats was attempted on a very large scale, and even houses were destroyed by fire to reach results. They had found the use of anti-plague serum very efficacious in suspected cases.

FOURTH SESSION.

Trachoma in Mexico.—JOSÉ RAMOS (Mexico) stated that this disease was gradually spreading in the Republic, and there were certain well-recognized areas where it was more frequently found, but there was no doubt that the elevation at which most of the people lived had a good influence on the disease, and that it was rather more benign than in other parts of the world. He urged that popular lectures for general practitioners be given throughout the country on the diagnosis and treatment of trachoma. CALVO read by title all of the papers on the program, the authors of which were not present, or had had no time to read them. The delegates and members were warmly received and royally entertained. The next place of meeting will be in Guatemala City, Guatemala, in 1908.

SENECA EGBERT (Philadelphia) read a paper on **Typhoid Fever in Relation to the Rural and Urban Populations of the United States**. This will appear in a future issue of *American Medicine*.

Discussion.—J. W. PUTNAM (Buffalo, N. Y.) had supposed that typhoid fever was more prevalent in cities than in rural communities. There is, however, a chance of error in the deductions drawn, as it is quite possible that, owing to the lack of skilled nursing and the highest and best professional care in the rural districts, the cities may actually have a lower death-rate with a given number of cases. JOSEPH MCFARLAND (Philadelphia) said: The more frequent incidence of typhoid fever in the country than in the city should demonstrate clearly the purely infectious nature of the disease and that it does not seem to require such predisposing causes as overcrowding and unhygienic surroundings. It is regrettable that the paper could not include a study of flies in their relation to the disease. The greater number of flies in the country when compared with the city afford more opportunities for transmitting infection in this manner, although naturally the distances they have to traverse from house to house are greater. However, they are often carried from farm to farm on wagons and the like, and might thus carry the infection. A. E. MACDONALD (New York City). Any influence upon the accuracy of Egbert's tabulations, arising from difference in quality and methods of care and treatment of typhoid fever cases as between city and country, is more than offset by another factor operating in the opposite direction. The tabulations are based, of course, upon reports of cases diagnosed or dying in the localities where the diagnosis is determined or death occurs. Many of the cases of typhoid fever in cities owe their origin to residence during vacation or other periods in suburban or rural localities, although the development of the disease does not take place until after the return of the patient to the city. Probably that the number of cases where this process is reversed would prove comparatively insignificant—that is, where the disease is contracted in the city, but manifests itself in the country. In the city of New York typhoid fever is for the most part an autumnal disease, and occurs largely in those who have spent their summer vacations in resorts where sudden popularity and consequent influx of patrons have been in advance or excess of necessary measures of precaution and sanitation. This tends to strengthen them and to prove that typhoid fever is a disease of rural or suburban rather than urban origin. W. SOHIER BRYANT (New York City) said these carefully compiled statistics prove conclusively the deductions which must come from comparison of the liability of typhoid infection in city and country. The city has the minimum liability owing to the cooperation of many individuals to provide unpolluted food and drink. Public sentiment requires a certain degree of cleanliness in personal habits. The country, on the other hand, has the maximum liability to infection owing to the isolation of ignorant individuals who must depend upon themselves for any freedom of pollution in either food or drink. Many times more flies are found in the country in proportion to the population than in the cities. Moreover, flies in the country have

much greater opportunity to spread the infection of typhoid fever on account of the filthy habits of many of the rural population. The figures show that relative personal cleanliness and attention to the ordinary proprieties of the toilet have a marked bearing on the prevalence of typhoid fever. This is proved by the preponderance of the disease in that portion of our country where the personal habits of the people are the least cleanly. The importance of flies in the spread of typhoid fever might be emphasized more than has been done by the preceding speaker. The danger from flies increases with the carelessness of the population in the matter of the toilet. This danger is least in cities and greatest in mismanaged recruiting camps. During the summer of 1898, Bryant had charge, as brigadesurgeon, of a portion of the Seventh Army Corps, at Jacksonville, Fla. One regiment appeared to be infected with typhoid fever nearly to a man. The cause was clearly due to flies. This observation enabled him to be the first to draw the attention of the military authorities to this previously unnoticed source of infection which was able to give rise to an appalling epidemic. The influence of other usual factors was eliminated, as all the water for the Seventh Army Corps was piped from the city of Jacksonville, which is supplied by deep artesian wells, and as the milk supply was from many widely separated sources. EGBERT said that the conversion of the numerical statistics of the Census Reports into the graphic representations of the charts was purely a mechanical process, and that any error present is likely to be in the interpretation of these statistics. While it is probable that a higher percentage of patients of typhoid fever recover in the cities than in the rural districts, on account of better professional attention and care, this influence upon the statistics is more than offset not only by that mentioned by MacDonald, but also by the fact that many of rural cases are never correctly diagnosed and reported as typhoid fever. For example, recalling an investigation of an epidemic made in North Carolina in 1892, there were 63 cases of typhoid fever with 10 deaths in a population of about 300 before the nature of the malady was agreed upon by the attending physicians. Regarding the influence of flies in disseminating typhoid fever and other diseases, as suggested by McFarland and Bryant, while these are important agents when large bodies of men are grouped together and have kitchens, mess-tables, sinks, etc., in common, as in military camps, flies have probably but slight influence in affecting the statistics for the whole country or for even a grand group, since in most places they will help to originate only sporadic cases. According to Professor George G. Groff, of Bucknell University, who was a member of the Superior Board of Health in Porto Rico immediately after the Spanish-American War, typhoid fever was a rare disease on that island, although the conditions were especially suitable for its development and spread, but when the soldiers came in with horses and the accompanying flies, numerous cases were soon reported. Then, when soldiers and horses departed, the flies become exceedingly scarce and there have been but few cases of the fever on the island in late years. This would seem to contradict the statement just made, but we must remember that the social conditions in Porto Rico, especially at the time referred to by Groff, were and are different from those prevalent throughout the United States.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY—EASTERN SECTION.

Meeting Held in Philadelphia February 4, 1905.

[Specially reported for *American Medicine*.]

The meeting was called to order at 9.30 a. m., by the Chairman S. MacCuen Smith, who extended in behalf of the Philadelphia members a cordial welcome.

JOHN D. RICHARDS (New York) read a comprehensive paper on **Technic of the Radical Operation for Chronic Suppurative Otitis Media**. In conclusion he spoke of skin-grafting, saying he did not believe in primary skin-grafting as it stands today, and as he has seen it practised. It is not in accordance with surgical principles. By our operation we have removed the protective barrier of granulations, we have exposed large areas of raw, absorbing surface; we have opened innumerable small vessels, and their mouths stand ready to receive infection; the field is septic, and with our skin-grafts we blanket this infected bed, which stands not only in dangerous proximity to, but in direct vessel connection with the endocranial lymph-sac. On two occasions he has seen meningitis and death follow primary skin-grafting, and in which it would have been very difficult to have attributed these deaths to any other cause. He has been unable to get results which would lead him to adopt it as a routine practice, nor has he seen such results obtained by others. In a procedure so simple in its technic it seems strange that operators should so vary in their reported results.

Osteomyelitis of the Temporal Bone.—CHAS. W. RICHARDSON (Washington). The interesting features of this case were: The occurrence of mastoid inflammation after a non-perforative inflammation of the middle-ear; rapid and extensively occurring edema of the soft tissue; the presence of exces-

sive granulation in the antrum and zygomatic cells, and the presence of all manifestation of osteomyelitis without the typical temperature curve.

Aural Neuralgia of Dental Origin.—GEORGE L. RICHARDS (Fall River) reported four cases, illustrating the relationship between the teeth and the ear, in each of which it was clearly shown that while the only pain complained of was in the ear, there was no aural lesion, the pain being referred from the inferior dental nerve. Each patient was cured by having the proper treatment directed to the teeth. He closed with the following observation: When severe pain, for which there are no objective appearances to be found in the tympanic membrane or in the throat, appears, and the usual palliative measures give little or no relief, it is advisable to have the teeth carefully examined.

Foreign Bodies in the Bronchi.—CHEVALIER JACKSON (Pittsburg) treated the subject under the subdivisions, frequency, diagnosis of localization, prognosis, and treatment. Röntgen rays are employed to determine the presence of a foreign body, to locate its exact position, and for guiding the instrument which may be inserted for the extraction. For all bodies within reach of the finger nothing is more successful than the trained touch for finding. Kirstein's autopsy is occasionally useful for foreign bodies in the larynx, but better still is an Escat epiglottis lifter, as modified by Grant, held by a skilled assistant, the patient being in Rosen's position, while the operator kneels at the head of the table with a miniature head lamp between his eyes (not on his forehead). A universal error in the literature of laryngology is the statement that indirect (ordinary mirror) laryngoscopy is difficult in children and infants, since such procedures are easily accomplished under chloroform anesthesia. In describing the bronchoscopes exhibited he states that they do not differ greatly from Killian's in form, though the illumination is a vast improvement. In the larger sizes small lamps at the distal end of the tube are covered and protected and enable instrumental work under direct inspection with lamps in situ. In the smaller sizes the caliber is insufficient and the light carrier is inserted in the lumen of the tube, to be removed and reinserted as required in the manner suggested by Ingalls. He also exhibited four forms of magnets which he has devised: 1. Permanent magnets long enough for insertion into the trachea or bronchi. 2. Electromagnets of small diameter but great length to be passed bodily into the air-passages. 3. A very powerful electromagnet, with a core extension. 4. A ring magnet, technically a solenoid, into which the inverted patient is lowered bodily.

Otitis Media Mucosa.—J. E. SHEPPARD (Brooklyn) reported 18 cases and suggested that there is need for a new classification of nonsuppurative middle-ear disease, since in looking through the various textbooks he finds that none of them describe cases such as those he reports in this paper, and concludes with a suggestion that the subject be brought up for full discussion before some general meeting of the society. He further stated that if the plan should meet with the approval of the officers or committees, he would be pleased to offer a prize of \$100 for a paper which would propose the best general division of this subject based upon pathologic research, such papers—if more than one—to be read at the 1906 meeting of the general society.

Primary Epithelioma of the Auditory Canal.—JOSEPH S. GRIBB (Philadelphia) reported two cases. The usual description of malignant disease of the external ear makes some portion of the external ear the primary site of involvement, the disease later comprising the entire pinna in its ravages, and in some cases extending up the auditory canal and attacking the middle-ear cavity. No specific reference has been found of primary involvement of the auditory canal, though Dench states in general terms the disease may originate either in the auditory canal or pinna, later involving both structures. The special features of interest in the cases now reported, and especially is this the case in one, is that the primary site was in the auditory canal, and that at no time did extension take place to the external ear. In both patients the disease spread along the auditory canal, attacking the soft tissues in its proximity. In one patient, ulceration of the external soft tissues anterior, posterior and inferior to the canal, was so extensive as to almost cause amputation of the pinna, though the pinna itself, hanging by a mere shred of tissue in its superior and inferior attachments, was in no way involved. It may be that the operative measures employed in both of these patients determined the direction of the spread of the disease, and had these cases been allowed to pursue the usual course, the extension would have been different.

Stricture and Disease of All Four Salivary Ducts, with Successful Probing of Same.—ROBERT C. MYLES (New York) reported this case. The patient gave a history of irregular manifestations of disease of the submaxillary and parotid glands and ducts for 35 years. During the past year the ducts would frequently become obstructed and nodular masses occur in front of the ears or beneath the jaws about the size of a goose egg. The tongue at times would press upward against the roof of her mouth, causing intense pain, until relief came with discharge through the ducts. The ducts—Steno's or Wharton's—have been dilated daily for the past eight weeks, during which time the patient has not had a single violent attack or any extensive swelling. There seems to be an extensive cavity in each of the glands which fills with a peculiar

white ropy mucus, mixed with the usual secretions. Myles exhibited some instruments which he found most practical for probing.

Skiagraphy as an Aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose.—C. G. COAKLEY (New York) said the employment of the röntgen rays as an aid in diagnosis in accessory sinuses has hitherto been of little value, though by the aid of an apparatus exhibit the author has found it of practical application, a process which he states is probably due to Killian of Freiburg. From 44 skiagraphs taken since November, he draws the following conclusions: 1. It is impossible, by means of a skiagraph, to determine the presence or absence of a frontal sinus which extends vertically above the glabella. 2. A frontal sinus may be small, parallel with the upper, inner margin of the orbit and not detected in the skiagraph. 3. In all cases of unilateral disease of the frontal sinus verified by operation, we have observed a cloudiness in part or all of the area occupied by the sinus and an indistinctness in the outline of the cavity when compared with the opposite or healthy side. 4. The skiagraph has invariably shown the frontal sinus to be somewhat larger in all dimensions than it proved to be when operated upon. 5. A good negative may be depended upon to show the septum separating one sinus from another. 6. An oblong, narrow, much darker area, nearly parallel with the upper margin of the orbit on its nasal side, and usually just above it, whenever present, has been found to be an orbital prolongation of the frontal sinus running anteroposteriorly above the orbit, oftentimes the full depth of the latter. 7. We believe that the examination of a skiagraph of the two frontal sinuses when compared with results found on transillumination will aid us very much in determining the presence of a diseased frontal sinus. 8. Skiagraphy may prove a valuable aid in determining our method of treating a chronic suppurative frontal sinusitis. 9. A skiagraph may also be of considerable value in determining the height and width of the ethmoidal cell area. 10. If the plate can be so arranged as to include the superior maxilla as well, we have noticed that a chronic suppurative process in an antrum presents the same filmy appearance as above noted in similar conditions in the frontal sinus and ethmoidal cells.

Brain Abscess Resulting from Chronic Purulent Otitis Media.—JAMES F. MCKERNON (New York) reported this case, not because there were any new or unusual diagnostic symptoms, but because he believes that every case of brain abscess, whether successfully treated or fatal, should be reported, so that our records in the future, and the statistics taken from them may be more nearly accurate and thus enable us to correctly determine the percentage of cases of cerebral suppuration caused by diseases of the middle-ear. In conclusion, the history of this and similar cases teaches us how extremely dangerous it is to allow a chronic suppuration of the middle-ear to continue unchecked. Not only is this important for the otologist to recognize, but for the general practitioner as well, and the first step in this direction is to teach the medical student of today, who will be the general practitioner of tomorrow, how to recognize and properly treat acute affections of the middle-ear, since by so doing they need but rarely become chronic.

Abscess of the Tongue.—FREDERIC C. COBB (Boston) reported two cases, and stated that this condition cannot be considered a common disease. In 15 years of experience he could recall but two cases, one in the hospital and one in private practice. The explanation of the rarity of this disease is to be found in the rich blood supply of the tongue, and perhaps, also in a certain resistance to infection which it acquires on account of its constant exposure to all sorts of microorganisms. It is well known that all injuries of the tongue heal quickly and the traumatic ulcerations due to bad teeth cicatrize within a wonderfully short period after the cause of the trouble has been removed. The diagnosis in these cases was not difficult as soon as localization occurred. In the first case the disease had progressed so far that the general swelling had gone down and the local conditions had become evident; while in the second case it was necessary to wait a few days to determine where incision should be made.

The Health of London.—According to the *London Chronicle*, the report of the public health committee of the London County Council, for 1903, has but lately been made. The death-rate during the year was the lowest on record, being 15.2 per 1,000. This is favorable when compared with other European cities. For instance, during the same year the death-rate of Amsterdam was 14; Leicester, 14.2; Bristol, 14.3; Stockholm, 14.4, and Brussels, 14.2 per 1,000. The infant mortality showed a marked decline; the number of smallpox cases fell to 416, as against 7,796 in 1902, and 1,700 in 1901; measles claimed many victims during the 12 months, there being no fewer than 2,046 from this cause. Scarlet fever, diphtheria, and enteric fever declined considerably. Tuberculosis was the cause of 7,124 deaths, against 7,424 in 1902. On the other hand, cancer caused 4,694 deaths, the annual average for the preceding 10 years being 3,694. Investigation showed that many houses which were intended for one family were now occupied by several families, with but little alteration. The sanitary condition of the city on the whole showed improvement from the preceding years.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

NEW METHOD OF MAKING RING TEST FOR ALBUMIN.

BY

E. AGATE FOSTER, M.D.,
of Patchogue, N. Y.

To the Editor of American Medicine:—I have read with interest the communication by William H. Bennett, M.D., of Philadelphia, entitled "A New Method of Making the Ring Test for Albumin," in your issue of December 3, 1904, and am surprised that so complicated a method should be deemed necessary in making so simple a test. When a pipet is used, it is unnecessary, as well as unsanitary, to draw the urine or acid into the pipet by suction with the mouth, as he states he has found to be the custom. It is sufficient to introduce the pipet into the solution, when the fluid will rise in the pipet to its level in the bottle or graduated test-glass. Then, by simply placing the index-finger over the top of pipet, the fluid, urine (or acid) can be lifted in the pipet from the specimen to be examined, and by removing the pressure of finger, allowed to trickle down slowly inside of test-tube to overlie the acid which has been placed there by a similar method.

However, even this is too slow. I have used for years an ordinary medicine dropper, on the same principle as one would fill a fountain pen.

The acid being first placed in the test-tube, any amount of urine desired can be slowly superimposed upon the underlying nitric acid. The white ring will usually appear at once, when even the smallest percentage of albumin is present. In using the nitric acid test, I have found it necessary to be absolutely sure of the strength of the acid, otherwise the result will be negative.

ORTHOFORM IN THE DIAGNOSIS OF GASTRIC ULCER.

BY

FRANK H. MURDOCH, M.D.,
of Pittsburg, Pa.

To the Editor of American Medicine:—In a note at the end of an article published in the *Medical Record* for December 31, 1904, by Dr. Beverly Robinson, entitled "Problems Relating to Simple Ulcer of the Stomach," he says, Dr. F. H. Murdoch's latest report regarding "Orthoform in the Diagnosis of Gastric Ulcer" is interesting and important. Then he quotes me quite correctly as follows:

As this remedy will not anesthetize nerve-endings when they are protected by skin or mucous membrane, it is certain that if it relieves pain in the stomach it can do so only by coming in contact with a surface from which the mucous membrane has been removed.

"My own experience," he says, "as reported in my paper has not confirmed such an absolute judgment, nor does it wholly coincide with the experience of others. Orthoform does not invariably relieve ulcer of the stomach when the diagnosis is reasonably sure." Now in cases of gastric ulcer where the diagnosis is reasonably sure, it is very seldom necessary to give orthoform at all. I have seen only one case in which attacks of severe gastralgia came on after the patient had been put to bed and restricted to liquid food. The first attack was relieved by a hypodermic injection of morphin which did not prove anything; the second attack was promptly relieved by orthoform given by the mouth, which proved two things: 1. That there was an open ulcer in the stomach. 2. That the ulcer was the cause of the gastralgia. My claim for orthoform in gastric ulcer is simply this: Given a patient suffering from a sudden, severe pain in the epigastrium, and if the pain entirely disappears in 20 or 30 minutes after the administration of orthoform, we may be certain that the patient was suffering from gastralgia the result of ulcer of the stomach; for orthoform will not relieve pain in the epigastrium when produced from any other

cause whatever. In regard to the experience which others have had with orthoform in gastric ulcer, Hemmeter¹ says:

There is another point of value in making a differential diagnosis. It has always been considered desirable to possess a substance which would relieve gastric pain if applied locally in patients afflicted with gastric ulcer. For this purpose I have administered orthoform. If orthoform is given in cholelithiasis the pain will not cease; but if given in a case of gastric ulcer it will cease promptly, especially if an alkali be combined with it.

The alkali however is, I think, superfluous. I have always given plain orthoform, and have never seen it fail to relieve gastralgia promptly, no matter how severe, if caused by chronic ulcer of the stomach.

A SIMPLE METHOD OF CLEANSING THE "BLOOD" PIPET.

BY

CLARENCE F. BALL, M.D.,
of Rutland, Vt.

To the Editor of American Medicine:—Much trouble and annoyance in cleansing this instrument by the usual method has led me to the use of an ordinary rubber "ear and ulcer" syringe. This eliminates the puffing and blowing incident to cleansing in the old way.

It is simple and quick of operation, not requiring more than a minute. Remove the rubber tubing and mouth-piece from the pipet, insert the tip of the syringe (small size) into the expanded upper end of the instrument and expel the contents, if any, of the chamber. The elasticity of the rubber bulb (syringe collapsed) produces sufficient aspirating power to fill quickly the chamber with any of the cleansing fluids. Having aspirated sufficient alcohol (or other cleansing solution) to rinse thoroughly the instrument, you then expel it quite forcibly by a few quick compressions on the bulb. Use ether for "drying" in the same way, continuing until the surfaces of the capillary tube and chamber are perfectly dry. Upon the dryness of the pipet depends the accuracy of the next "count." Any moisture in the instrument interferes with accuracy by capillary attraction and faulty dilution. Try it, especially the next time the capillary tube becomes plugged from any cause.

YEARS OF REPUTABLE PRACTICE TO COUNT IN EXAMINATIONS FOR LICENSURE.

BY

R. M. SLAUGHTER, M.D.,
of Theological Seminary, Va.

Member Virginia Board of Medical Examiners.

To the Editor of American Medicine:—Apropos of an editorial in *American Medicine* published November 5, 1904, headed "Years of Reputable Practice to Count in Examination for Licensure" I will state that the Virginia Board of Examiners has for ten years, to my own knowledge, if not longer, recognized and acted upon its recognition of the fact that it is a great injustice to require of the old practitioner the same rigid theoretic examination that is demanded of the recent graduate. Our Board does not require as high an average percentage of practitioners of over five years in practice, and if they have been regularly licensed practitioners in another State, we do not demand of them a written examination. They have only to take an oral examination, and this is confined almost entirely to practical subjects. The Illinois Board cannot (and I do not know that it does) claim priority in this step in advance.

Favors the Whipping-post in Minnesota.—A representative in the Minnesota Legislature has introduced in the lower house of the Legislature a bill establishing the whipping-post as a means of punishment for wife-beaters. The bill provides that the whip used must be of rawhide, with a lash half an inch in diameter and three feet long. It must be applied to the back with such force that each stroke shall leave a well-defined stripe. The whipping in every instance shall be public. Not more than 60 lashes are to be applied.

¹Journal of the American Medical Association, November 16, 1904, p. 1116.

ORIGINAL ARTICLES

THE HISTORY AND DEVELOPMENT OF SURGERY
DURING THE PAST CENTURY.¹

BY

FREDERIC S. DENNIS, M.D., F.R.C.S.,
of New York City.

Professor of Clinical Surgery, Medical Department, Cornell University, New York City; Attending Surgeon to Bellevue and St. Vincent's Hospitals; Consulting Surgeon to St. Joseph's Hospital and Montefiore Home; Ex-President American Surgical Association; Member German Congress of Surgeons, Berlin, and Clinical Society of London; New York Academy of Medicine.

[Concluded from page 234.]

Traumatism of the vertebral column and the spinal cord have been treated by Sayre's plaster-of-paris jacket. The utter helplessness, the intense suffering, the absolute hopelessness, the wretched discomfort, the living death, make these patients objects likewise of pity to all under whose care they come. On the other hand, the recent advances in the science of neurology, the precision of topographical anatomy, the modern researches in physiology, the introduction of anesthetics and antiseptics, the wonderful inventions in mechanical art present a most vivid picture to the modern surgeon of what surgery has accomplished by this new method of treatment. The expectant plan terminates in death, the application of well-recognized surgical principle to this peculiar class of hitherto neglected cases, has demonstrated the possibility of salvation in at least a limited number. The treatment of all these different varieties of traumatism of the spine and cord by the plaster-of-paris jacket has met with brilliant results. Before the employment of the jacket these patients were doomed to unrelieved suffering and death. There is no reason why the same brilliant results should not follow the application of the jacket when used in connection with spinal meningitis or myelitis secondary to traumatism. Some time ago I collected 33 cases of recovery after unmistakable fracture of the spine and to this list many others can be added of recent date. Cases have been eliminated in which improvement only was noted. This list is sufficiently large to attract the attention of surgeons, and to induce them to employ this method of treatment in all forms of traumatism of the spine and cord. Still again, the usefulness of the jacket is demonstrated in a large list of injuries, among which may be mentioned sprains, concussion, hemorrhage, lacerations, and inflammatory thickenings. Thus it is evident that immediate extension and counterextension with immobilization by means of the jacket in all forms of spinal injuries, offers the most satisfactory plan of treatment that has been suggested, a plan of treatment, too, in which the results show manifest evidence of improvement and a plan of treatment further that has been attended with a most gratifying success.

Orthopaedic surgery is a department by itself, a part of which will be discussed under pediatrics. Under orthopaedic surgery there are, however, a few operations that could be referred to briefly in order not to overlook the importance of this subject. Orthopaedic surgery literally refers to the treatment of deformities; but the progress in this department has already passed beyond the limits that originally were set for it, and include now some of the operations in general surgery. Among the advances mentioned by Taylor are the Lorenz bloodless method of manual replacement of congenitally dislocated hips, the correction of deformed limbs by forcible movement without division of the tendons, the straightening of the kyphotic spine by great force as suggested by Calot, the use of Sayre's plaster-of-paris jacket for correction of

Pott's disease, the straightening of deformities in the limbs by osteotomy, the correction of deformities affecting the long bones, by osteoclasis, the arrest of disease of the joints by excision, the removal of osteomyelitic foci in bone by excision or by the Röntgen rays, tendon grafting suggested by Dr. Vulpius, nerve suture for transference of functional activity from a healthy nerve to a paralyzed nerve, the tuberculin injection for diagnostic purposes, the extirpation of articular disease, the cure of periarticular bursitis and tenosynovitis, the healing of nontuberculous joint disease where the etiology is dependent upon microorganisms such as are found in typhoid, pneumonia, gonorrhea, syphilis, and septic infection; the management of atrophic and hypertrophic joint disease by improvement in the physical condition and correction by mechanical means, and finally the treatment of Paget's disease of the joints or osteitis deformans.

Surgery of the Vascular System.—In the surgery of the vascular system American operators have made most valuable contributions. The innominate artery was ligated for the first time in the history of surgery by Valentine Mott, of this city, on May 11, 1818. The operation was performed for the cure of aneurysm, and the patient died. The operation was essayed for the second time by Hall, of Baltimore, in 1830, and again by Cooper, of San Francisco, in 1859. Both of these cases terminated fatally. The artery was finally tied successfully for the first time by Smyth, of New Orleans, on May 9, 1864. This last operator tied also the vertebral in the same patient for the first time. Thus it is evident that the ligation of the innominate artery was first performed in this country, and it was first ligated successfully in America. Mott tied 138 large arteries for the relief of aneurysm, and no surgeon in the world at that time ligated so many vessels. The primitive carotid artery was ligated for the first time successfully, for primary hemorrhage, by Cogswell, of Hartford, on November 4, 1803. Abernethy is accredited with tying the primitive carotid first in 1798, but his patient died. The first successful case, therefore, of ligation of the primitive carotid for primary hemorrhage, was in America, and Cogswell had no knowledge of Abernethy's unsuccessful attempt. Again the primitive carotid was first tied successfully for secondary hemorrhage by Amos Twitchell, of Keene, N. H., in 1807, eight months prior to Sir Astley Cooper's famous case, which was supposed until lately to be the first on record. The primitive carotid was first tied in its continuity successfully, for the cure of aneurysm, by J. Wright Post, on January 9, 1813. This same surgeon repeated the operation successfully on November 28, 1816. The two primitive carotids were first tied in their continuity successfully, within a month's interval, by Macgill, of Maryland, in 1823. Mott tied both carotids simultaneously in 1833, for malignant disease of the parotid gland. In 1823 Davidge first tied the carotid artery for fungous tumor of the antrum. The primitive and internal carotids were first tied simultaneously by Gordon Buck, of New York City, in 1857, and again by Briggs, of Nashville, in 1871. The internal carotid was tied successfully above and below, for secondary hemorrhage, by Sands, in 1874. Carnochan tied both carotids for the first time, for elephantiasis arabum of the neck and face, in 1867. The subclavian artery in its third portion was first tied successfully, for the cure of aneurysm, by J. Wright Post, of New York City, in September, 1817. The subclavian artery in its first portion was ligated for the first time by J. Kearney Rodgers, in 1845. The patient died and the vessel has never been tied successfully until 1892, when it was tied by Halsted, of Baltimore. The operation was for the cure of aneurysm, and the sac was dissected out by removal of the clavicle. This is the only case in which ligation of the subclavian on its tracheal side has ever been successful, although it has been attempted in other countries; but the vessel has never been tied successfully, except in

¹ Address before the International Congress of Arts and Science at St. Louis, September, 1904.

this country. The primitive iliac artery was first tied in America by Gibson, of Baltimore, in 1812. The ligation was for the arrest of hemorrhage following a gunshot wound. The patient died on the thirteenth day. Valentine Mott tied the artery successfully for the cure of aneurysm, on March 15, 1827. In 1880, Sands first tied the primitive iliac, by performing first a laparotomy and securing the vessel by this procedure. The internal iliac was first successfully tied for the cure of an aneurysm by Stevens, in 1812, and again successfully by Mott, in 1827, and by White, in 1847. The two internal iliacs were first tied simultaneously for the cure of double gluteal aneurysm by Dennis, in 1886, upon a patient belonging to Dr. Carpenter, of Boonton. In this case a laparotomy was performed as a preliminary step. The same operator has since tied successfully the internal iliac for the cure of gluteal aneurysm, for the first time, by laparotomy, as a preliminary step to operation. The external iliac was tied successfully in 1811, by Dorsey, and again successfully by Post, in 1814. Onderdonk, in 1813, tied the femoral artery successfully for acute phlegmonous inflammation of the knee-joint, and Rodgers did the same operation with success in 1824. Carnochan, in the year of 1851, tied the femoral artery for the first time for the cure of elephantiasis arabum, thereby inaugurating a new principle of treatment. In addition to the various ligations already mentioned for the cure of aneurysm, the invention of a variety of compression, known as digital pressure, was carried into practice by Jonathan Knight, of New Haven, in 1848.

There are many modifications of digital pressure. Wood utilized the bag of shot, which was suspended above the patient, and by this means the pressure was effected by it instead of by the finger. In 1874, Stone, of New Orleans, first cured a traumatic aneurysm of the second portion of the subclavian artery by digital pressure upon the third portion of the vessel. Martin, in 1877, suggested the use of the elastic bandage in the treatment of varicose veins, and recently Phelps, the method of the multiple ligature of the veins from the ankle to the saphenous opening. He applies some 60 ligatures to the limb, and the results of his operations have been most satisfactory.

There has been much diversity of opinion as to whom the credit belongs for the introduction of the Esmarch bandage. In the public clinics of the Jefferson Medical College, at the time of an amputation, the limb was rendered bloodless by elevation of it, and by the application of a roller bandage to it by the elder Pancoast and Gross. This was done before a tourniquet was applied. The value of this procedure was not published, and to Esmarch is due the credit of having adopted the principle with the modification of the elastic bandage, and having published it abroad for the benefit of the profession.

In the surgery of the nerves the work performed by Americans is most commendable. In 1856 Carnochan excised the second branch of the fifth cranial nerve beyond Meckel's ganglion for the relief of tic douloureux, and two years later Pancoast performed the same operation in the pterygomaxillary fossa. The mortality of the Kraus-Hartley operation for the relief of tic douloureux by removal of the gasserian ganglion in 108 cases collected by Tiffany was 22.2%. In a later series collected by Murphy the mortality of the operation was reduced to 16%. The recurrence of pain after the operation is observed in about 10% of the cases. This operation is one of the most beneficent ones in surgery, as it has afforded relief from the most excruciating pain and suffering.

In 1863 Gross removed the inferior maxillary branch of the same nerve. In 1871 Sands excised a piece of the brachial plexus for the relief of persistent neuralgia of a traumatic origin. Gross for the first time excised nearly two inches of the spinal accessory nerve. The sutures of nerves, even three days after division, have been united

with restoration of the function of the nerve. Operation for the relief of facial paralysis marks a new epoch in surgery of the nerves. There have been 12 cases of facial paralysis reported by Faure. In these cases the paralyzed facial nerve was exposed by dissection and then united to the hypoglossal or the eleventh nerve, and through this inosculation, motor stimulus was given to the facial, which had lost its function. The results have been most satisfactory, even though the face had been paralyzed from five months to three years.

Amputation shows a steady improvement in its results during the past century. In this department of surgery American surgeons have not only taken the initiative in the more important amputations, but they have perfected methods devised by eminent surgeons in other countries throughout the entire world. The first successful primary amputation at the hip-joint was performed by a Kentucky surgeon named Brashear, in 1806. The amputation was repeated with success by Mott, in 1824. Nathan Smith was among the first, if not the first, to successfully and systematically amputate at the knee-joint, in 1824, and the technic of this operation has been perfected by Markoe and Stephen Smith. The first successful amputation of the ankle-joint in any country was performed in 1842, by Syme, in Scotland. Triple simultaneous amputations have been performed successfully, also quadruple amputation. These are among the curiosities of surgery, and illustrate the preservation of human life in face of the greatest danger.

In the invention of *prothetic apparatus* the ingenuity of the American mind has discovered a most wonderful field of operation, since in no country can be found the mechanism that is displayed in the manufacture of aluminium artificial limbs. I have at present patients who can walk and even run with two artificial limbs, and one who has artificial hands who is employed as a pharmacist.

Staphylorrhaphy was performed by Warren, in 1820, the same year, it is just to state, that the operation was performed in France by Roux, but Warren had no knowledge of Roux's method.

Excision of the tonsil was an operation placed upon a permanent and safe basis by Dr. Cox, of New York. This surgeon invented, in 1820, an instrument which included the tonsil in a ring, and then cut it by a ring-shaped knife. The guillotine principle applied to the tonsillotome was an improvement upon this instrument.

The operation for the relief of goitre is a great advance in operative work, since this was formerly one of the most serious operations in surgery. Woelfer reports 60 cases collected from Billroth, Socin, and his own clinics with only two deaths. Reverdin's mortality was only 2.8%, Kocher's results are most brilliant, 0.2%. Mikulicz's, 2.6%. The treatment of cretinism and myxedema by thyroid extract is another method of cure that has been followed by recent success in a fair percentage of cases, though the use of the drug must be continued for at least two years.

The operation for rhinoplasty to restore a lost nose is one of the triumphs of the century, and plastic operations for the restoration of a partially destroyed nose is also a contribution of modern surgery. *Cheiloplasty* or the formation of a new lip is another plastic operation, the product of aseptic surgery. *Stomatoplasty*, or the repair of defects of the lips from contraction due to burns, and *metoplasty* or the repair of defects of the cheeks, and *blepharoplasty*, the repair of defects of the eyelids, are an illustration of the beneficent work that surgery has achieved.

Surgery of the Genitourinary System.—In the department of genitourinary surgery a great advance has been made by the invention of instruments to facilitate and improve the technic.

The cystoscope is an American instrument, having been invented by Fisher, of Boston, in 1824, Civiale and

Heurteloup having invented their instruments in 1827. The cystoscope of today is one which has been evolved from the general principle of Fisher's endoscope. Otis has perfected the urethroscope by the addition of a new lamp for the electrourethroscope. Klotz has also devised a cystoscope which is in use at the present time. Brown has devised a most useful urethral speculum for the purpose of making topical application to the canal. The Gross urethrotome, also Powell's urethral dilator, and the Otis dilating urethrotome, and the urethrotometer are instruments deserving of worthy mention. The work of Bumstead and of Van Buren in this department of surgery has already a worldwide reputation.

In surgery of the kidney, great progress has been made. The floating kidney is successfully anchored, gunshot wounds of the kidney cured, renal calculi removed, suppuration in the pelvis of the kidney arrested, removal of the kidney itself undertaken for tuberculous and other diseases, and tumors of the organ excised. These are among the achievements of modern surgery, to relieve conditions which were uniformly fatal in pre-anesthetic and preantiseptic days.

Nephrotomy, or cutting into the kidney for the removal of a calculus, or the evacuation of an abscess, or for any other reason, is attended with a mortality depending upon the condition of the kidney. Rovsing, in Bull's Surgery, publishes a mortality of 6% for extraction of calculi in aseptic cases. Morris publishes the mortality of this same operation in aseptic cases as nearly 3%, but when suppuration is present it is as high as 23%.

Nephrectomy, or extirpation of the kidney, has a mortality during the last decade that marks an important advance in surgery. Thus, in Bull's Surgery, during the past ten years there were 365 lumbar nephrectomies with 62 deaths, or a mortality of 17%, and 165 abdominal nephrectomies with 32 deaths, or a mortality of 19%.

Nephrectomy for the relief of tuberculous kidney marks a great advance in surgery of recent years. Statistics show that in 22 nephrectomies, 16 patients recovered, or about 70%. In another group the recoveries were from 12% to 33%.

Nephrectomy for the relief of malignant disease of the kidney is of American origin, since it was first performed by Wolcott, of Milwaukee, in 1860. British surgeons give the credit of this operation to Simon, of Heidelberg; but he did not perform his operation until 1869, or nine years after Wolcott's operation.

Nephrectomy was first performed in America for gunshot wound of the kidney by Keen in 1887, and again two months later for the same reason by Willard, and still again for the same cause by Price, successfully, in 1888.

Aneurysm of the renal artery has been operated upon by Albert, Hahn and Keen, and all of their patients recovered.

Wounds of the ureters have been successfully sutured, a triumph of modern surgery, and the ureter itself catheterized for diagnostic purposes.

The first successful operation for the relief of extroversion of the bladder was performed in New York by Carroll on April 13, 1858. Pancoast performed the same operation successfully the same year, and Ayres in 1859. All of these cases antedate the British successes of Woods and Holmes, although there are two operative failures reported by Crook and Lloyd in London in 1851. In plastic surgery of the urethra another brilliant triumph has been made by American surgeons. In 1892 Alexander succeeded for the first time in the history of genitourinary surgery in making a new urethra, the retentive powers of which were perfect in a case of complete epispadias in the female. There have been 12 cases in all of complete epispadias, in none of which heretofore has the urine been completely under the control of the patient. Physick did an internal urethrotomy by a concealed lancet, and Stevens, in 1817, was the first

surgeon in this country to perform external perineal urethrotomy. He revived the operation, which had fallen into desuetude, since at the close of the last century the mortality was so great that the operation was practically abandoned. Prior to 1840 the operation was performed in this country by several surgeons; notably, in 1820 by Jameson, in 1823 by Rodgers, in 1829 by Warren, and later by several surgeons connected with the New York Hospital, among whom may be mentioned Hoffman, Post, Watson, and also by Alden March, of Albany, and Wood, of New York City. Without doubt the operation has reached its present state of perfection through the labors of Gouley, who suggested the whalebone guide, the tunnelled catheter staff, and the beaked bistoury.

In *lithotomy* American surgeons have achieved brilliant results. McDowell did 32 lithotomies in succession without a death. Dudley performed over 100 consecutive operations without a fatal case. In 1846 Willard Parker removed a calculus from the bladder by producing a rectovesical fistula, and subsequently performed this operation for the cure of chronic cystitis, and in 1861 Bozeman did this same operation to relieve a chronic cystitis in the female. In 1836 Physick removed over 1,000 calculi. These brilliant results in lithotomy are most remarkable when it is considered that there was a time in the medical history of this country when a patient actually made the pilgrimage across the ocean in order to secure the services of a surgeon to perform lithotomy.

Litholapaxy is an operation that was introduced by Bigelow in 1878, and has been the means of saving thousands of human lives within the past quarter of a century. It forms one of the most prominent advances in surgery that has distinguished the century. By litholapaxy is meant the crushing of a stone in the bladder with an instrument called a lithotrite and the immediate rapid evacuation of the fragments from the bladder by a syringe especially made and adapted for this purpose. It is a matter of surprise and interest that Bigelow's entire apparatus for litholapaxy remains essentially the same today as it did a quarter of a century ago, which demonstrates how complete the mechanism is in all its minor details. Keyes has made some great improvements in litholapaxy, thereby reducing the mortality of the operation, among which may be mentioned in the list of improved instruments the modern evacuating tube, the alteration in the mechanism, and other improvements in the technic of the operation. Keegan performed Bigelow's operation 59 times in children, with one death, and Freyer performed it 49 times without a death. The record of Bigelow's, or the American operation of litholapaxy, has certainly won for itself a fixed place in the annals of surgery.

Rupture of the bladder was operated upon successfully by a laparotomy by Walters, of Pittsburg, in 1862, but to Sir William MacCormac is justly due the credit of establishing this operation. Rupture of the bladder has been successfully treated by modern surgery. Formerly these patients nearly all died, thus Ullman's statistics show only 22 recoveries in 237 cases, and in 143 intraperitoneal ruptures only two patients recovered. If the patients are operated upon early and with aseptic precaution, the prognosis is as brilliant as it was formerly forlorn.

Tumors of the bladder have been removed in recent years, and this operation marks an important epoch in this department of surgery. In benign tumors the mortality is about 10%, while in malignant tumors the mortality is 25%. These statistics are certain to improve in the future. Intravesical cauterization with the operating cystoscope for small tumors of the bladder, has met brilliant results, thus Nitze had 119 cases without a death.

Hypertrophy of the prostate is a distressing and fatal condition which modern surgery in the course of its

development has to a certain extent relieved, if not cured in a large percentage of cases. It is one of the triumphs of the art within the period of time, of which an inventory of the present surgical operations is taken. A review of the operation for the relief of hypertrophy of the prostate would be incomplete without an acknowledgment of the work of Reginald Harrison, Alexander, and White. As regards the benefits which have accrued to these sufferers from castration, it may be stated that White has shown that 66% or more have return of the power of micturition, most of them a relief of the cystitis, and nearly all freedom from pain. In a series of 98 cases with 7 deaths estimated by White, the mortality of the operation was only about 7%. This is after eliminating a few deaths which had no relation to the operation itself. These figures are striking, and as the time goes on and diagnosis is improved and technic is perfected, and early operations are resorted to, the percentage of alleviation of symptoms and of mortality will be even better than those just mentioned. Castration will never take the place of modern prostatectomy with its present low mortality, and which is gradually improving each year, which is about 6% as reported by Mayo.

The operation for suprapubic prostatectomy was first performed in this country by Belfield, in October, 1886. Prostatectomy is an operation, the technic of which has been devised in recent years, and it gives great comfort to the patient and saves life. Murphy has reported 34 consecutive cases without a single death due to the operation. This operation has been greatly improved upon by the use of Gouley's prostatectome, which facilitates the removal of the gland.

Malignant tumors have been treated with brilliant success in recent years. In fact, so much so in certain varieties that the term seems almost a misnomer. In the management of malignant tumors, American surgeons have displayed great ability. The early work of Warren, of Boston, was among the first attempts to systematically collect and study neoplasms from a clinical point of view. The writings of Gross upon tumors demand more than a passing notice, while the contributions of Shrady and of Mudd to cancer of the tongue are most exhaustive.

Malignant tumors are now often cured by radical operations. A century ago these cases presented a frightful mortality. In the course of the development of surgery, owing to anesthesia and antiseptics, more radical operations are permissible, and cures are now effected where formerly death was the inevitable result. The study of sarcoma is fraught with great interest on account of the meager knowledge, and of its great importance owing to the fact of the terrible mortality which attends the disease. Sarcoma of bone inevitably terminates in death without operative interference. Its early recognition and its complete removal are subjects which are worthy the profound study of the surgeon. Sarcoma in the large majority of cases, is a disease more deadly in its nature than any other variety of malignant tumor. Its unprecedented rapidity of growth, its widespread metastases, its insidious development, its uncertainty of early diagnosis, its absolute certainty to kill, make this disease a subject of paramount importance. In this address a study of the varieties, the etiology, and the diagnosis has no place. The prognosis concerns us only.

The prognosis in sarcoma is as gloomy as can be imagined. It is a disease which destroys life rapidly, unless arrested by amputation. The prognosis may be modified as regards time by the situation and the particular cell variety of the sarcoma. In whatever way we look at the prognosis it is serious. On the other hand a radical amputation may rescue a patient's life, even in the cases of the most malignant variety. I shall refer to some statistics already published by others, and present the result of my own personal work as evidence of the progress which surgery has made within the past quarter of a century. For purposes of illustration the

malignant tumor known as sarcoma will be first considered.

Sarcoma of glands is a malignant tumor concerning which reliable statistics are very meager. The great English authority, Butlin, states that he fails to discover a single case of permanent recovery after operation. In my list there have been 12 cases of sarcoma of the glands up to 1895, the subsequent histories of which are all known. There have been some cases since that date; but sufficient time has not elapsed since operation in some of the cases, and unreliable histories in some other cases, prevent the tabulation of these cases subsequent to 1895. The principle of cure is the essential feature, and the data up to 1895 have been most carefully investigated. This may be said of all the cases of sarcoma. In these 12 cases, recovery occurred in every case but one, thus giving 83.3% of permanent cures beyond the three-year limit of time. In these 11 successful and permanently cured cases of sarcoma of the glands, there were some which were very large. In two the tumors involved the neck, one of which was larger than a child's head, necessitating a deep and dangerous dissection, which exposed the large cervical vessels. In another case the tumor was situated about the femoral vessels. Some of the tumors were removed in the presence of alarming hemorrhage and involved a most formidable operation. Thus, in sarcoma of glands with formerly 100% mortality, the permanent cure amounted to 83.3% in the 12 cases.

Sarcoma of bone in previous years has been attended with a frightful mortality until surgery, with modern technic, has come to the rescue of these unfortunate sufferers. Butlin records 78 cases of subperiosteal sarcoma, of which the results in 28 cases were unknown, and in 6 cases more the patients had not reached the three-year limit of time, which leaves 44 cases in which the full subsequent histories are known. Of these 44 cases, 14 died of the operation and 29 from recurrences, which leaves but 1 permanent cure in the 44 cases. There are thus 78 cases in which the operation was performed; 14 of the patients died from the immediate effects of the operation, which gives 18% mortality for the operation itself, and of the 44 patients whose full subsequent histories are known, there was but 1 permanent cure, or 2%. In my list I reported 21 cases of subperiosteal sarcoma of bone in which an operation was performed. One was an amputation of the hip-joint. The patient died from the immediate effects of the operation. This gives only 5% mortality for the operation itself. The histories of 4 are unknown. In the remaining 17 cases of the original 21 cases in which the results are known, there are 3 deaths, 1 of which has just been referred to as a result of shock, and 14 cures beyond the three-year limit of time, which gives 82% of permanent cures. This is in marked contrast to Butlin's statistics, which records only 2% of permanent cures.

Sarcoma of the breast is a disease that formerly was most fatal. Modern surgery has accomplished much in reducing the terrible deathrate. Butlin, in his book on malignant disease, gives no results either as to mortality or as to permanent recoveries. Williams, in his book, reports 10 cases of sarcoma of the breast, in which no deaths occurred in consequence of the operation itself. The subsequent histories of only 2 out of the 10 cases are known. Death occurred in the 2 cases within 2 years from the date of the operation. The percentage of permanent cures, therefore, amounts to zero, since no patient recovered so as to be free from the disease for a period of 3 years. It is to be regretted that nothing is known of the 8 cases since among the list; there may be some cases of permanent cure. It is unfortunate that these cases have been lost sight of, since no statistics of permanent cure can be recovered unless the result is known. Gross reports 91 cases operated upon, of which 12 were permanently cured, giving 13% of permanent cures.

I operated in 6 cases of sarcoma of the breast, in which no death occurred in consequence of the operation itself. The subsequent histories are all known. Four of the 6 patients were permanently cured, and the remaining 2 died from a return of the disease. This gives 62½% of permanent cures in sarcoma of the breast.

Carcinoma of the breast affords a striking illustration of a disease over which surgery has gained a decided victory. There is no more brilliant example to show the progress of surgery during the past century than is found in a study of cancer of the female breast. The necessity of an investigation of carcinoma of the breast can be estimated when it is considered that in England alone there are 7,000 deaths annually from carcinoma, and that there are 30,000 patients suffering at all times in that country from this affection, of which number a large proportion involve the breast. When it is considered that 50% of the cases of carcinoma of the breast die within three years, and that a third die within two years, and that of all of the tumors affecting the breast, 80% consist of carcinoma, some idea can be formed of the overwhelming interest and paramount importance of this subject. The mere fact that carcinoma causes more deaths in the United States in one year than the sum total of deaths due to erysipelas, tetanus, hydrophobia, lightning, typhlitis, gunshot wounds, joint disease, together with wellknown surgical affections, conveys at once an idea of the wide dimensions of this subject. Carcinoma causes nearly half as many deaths in a year in the United States as are caused by accidents and injuries of all kinds and descriptions.

Dr. Billings has demonstrated by statistics that carcinoma is a disease which is slowly increasing, and that it is a cause of a larger proportion of deaths in nations which have reached the highest state of civilization. For example, in the United States in a year there were over 13,000 deaths from carcinoma, of which there were twice as many deaths among females as among males. There were 1,387 cases of death from carcinoma of the breast alone in this country during the year 1880, and since then statistics show the disease is still increasing. The mortality of this disease, if left unoperated upon, is nearly 100% at the present time, just as it has always been. The mortality of the patients operated upon formerly was considerable, and the percentage of permanent cures very small, while now the operative mortality is very small and the percentage of permanent cures is very high.

I shall refer to my own personal experience, the results of which I have already published, adding, however, that the results in the more recent cases are even better; but the data in full are not possible to collect for many reasons, and chief among these is the three-year limit of time. I have collected within a given period a series of 116 cases of tumors of the breast, 19 of which were not operated upon, leaving 97 cases in which the breast was amputated. In the 97 cases of amputation there was but one death, thus giving a mortality of a little over 1%. The one fatal case was due to the presence of hemophilia and is a death that might have occurred in connection with any other operation, no matter how insignificant in character. This death can therefore with propriety be excluded as far as bearing upon the mortality of this special operation, and if so, there is an unbroken series of 96 consecutive operations without a death. In addition to the reduction of the mortality of the operation from as high as 23% recorded by Billroth to zero, there was no case of pyæmia, septicæmia or erysipelas of the 97 cases of amputation of the breast. Twenty-three cases of sarcoma and other tumors than cancer must be eliminated in order to compute the percentage of permanent cures of pure carcinoma of the breast. These cases of sarcoma of the breast are discussed in connection with the subject of sarcoma. Of the 74 cases of pure carcinoma of the breast, the subsequent histories of 41 are known. Three of these patients

have not reached the three-year limit of time, although they are still alive and free from the disease; there remain 38 cases, therefore, of pure carcinoma of the breast in which the full subsequent histories are known. In these 38 cases there are 17 cases in which a permanent recovery has taken place. This gives 45% of permanent cures. Among these 38 patients whose histories are known there were but 2 local recurrences, which gives but a little over 5% of local recurrences. Since the publication of this series I have had 15 consecutive cases of pure carcinoma of the breast with no mortality from the operation itself. Of these 15 cases, 1 died several weeks following the operation from hemophilia, in which the major joints were filled with blood, and the greater part of the body was affected with subcutaneous hemorrhages. Two of the 15 have not yet reached the three-year limit of time. There are, therefore, 13 cases in which the full subsequent histories are known; 2 of these patients died from a recurrence of the disease and 1 from hemophilia, as stated before, and the remaining 10 have passed the three-year limit of time. This gives 77% of permanent cures in cancer of the breast in the last 15 consecutive cases. I believe the last 15 consecutive cases will yield even better results. At all events, the mortality was zero and the permanent cures seem likely to be higher than 77%. Modern surgery has much of which to be proud in connection with amputation of the breast, since the frightful mortality of a century ago has been replaced by a steadily increasing percentage of permanent cures. In the future even the present favorable percentage of permanent cures will be increased, as early and more radical operations are practised.

In 1820 Sidney Smith, the great literary genius of his time, made use of the following phrases in the *Edinburgh Review*, which furnishes somewhat amusing reading in the light of today. "Americans have done absolutely nothing for the sciences. . . . In the four quarters of the globe who reads an American book? What does the world yet owe to American physicians and surgeons? What new substances have their chemists discovered?" The contradiction of the first phrase that "Americans have done absolutely nothing for the sciences" is found in the brilliant and wonderful achievements performed by them; as recorded in this address, by which millions of human lives are saved. "In the four quarters of the globe who reads an American book?" To such a challenge facts reply louder than words. Were you to take from the world's medical literature, alone, all that has been contributed by Americans during the past century, the result would be astonishing and the loss incalculable. "What does the world owe to American physicians and surgeons?" To this challenge the record of new operations bold and undreamed of, the invention of new processes, the introduction of new instruments and methods, all of which I have endeavored to outline rapidly in this address, is the abundant reply to this unique interrogative viewed in the light of today. "What new substances have their chemists discovered?" The sufficient answer is, "anesthesia," which one discovery, apart from all the other noteworthy ones which our chemists have made, places the civilized world under unspeakable obligations to America. Anesthesia is by far the greatest and most far-reaching discovery of the century, a gift to the world which cannot be estimated, a direct benediction from God upon mankind for the saving of life and the escape of humanity from pain.

In a review of the statistics that have been presented, one prominent fact stands out in clear and bold relief, and that is, that all along the line constant and marvelous improvement has been made in the science of surgery. To this statement there is not a single exception in the entire surgical domain. Everywhere and in every department there has been uninterrupted progress—a progress which has not been hindered or hampered by the loss of any past discovery.

In nearly all the other arts and sciences there is something which has been lost. They have advanced, indeed, most gloriously, and their present development is wonderful in the extreme; yet each one has dropped some good thing by the way, which can never be recovered. Their votaries in bygone centuries possessed some secrets in methods and processes which not only died, but evidently were buried with them. By these they secured certain remarkable results which their modern followers, try as they may, are unable to reproduce. Thus, in the art of painting, sculpture, architecture, mosaics, pottery, and physics, there are what we style "lost arts," as Wendell Phillips so eloquently has told us, contributions from which have come down to us from the past, which cannot be duplicated in the present. In painting, for instance, the superb coloring of the ancients in their Tyrian purple, and the brilliant scarlet which fades not in centuries. In sculpture, the majestic chiseling of Michael Angelo, that crumbles not in ages. In mosaics, the fusing of gold and glass so that the yellow of the precious metal retains its perfect color. In pottery, a variety of delicate tints and graceful forms which baffles the skill of the potter in these modern times. In physics, the pyramids of Egypt—how were the huge blocks of stone ever carried to the summit, some of them nearly 500 feet above the desert sands, to be lain there in courses which are absolute in regularity and evenness? How were the gigantic monoliths of Baalbec cut out of the mountains and set high in the walls of the Temple of the Sun? How were the mighty obelisks, 16 centuries B.C., transported from the distant quarries, and then set on end with perfect exactitude? Or how was the massive capital, weighing 2,000 pounds, ever lifted to its place on the top of Pompey's Pillar, 100 feet in the air? All these are forcible illustrations of arts which have been lost.

But in the science of surgery it is wholly different, and there is no such counterpart. No operation, no invention, no discovery in this domain that was worth the keeping has ever been lost. The truth is, surgery, as it is practised nowadays, is so completely a modern science that it does not rely upon anything in the distant past for its present or future development. That distant past was dark with horrible things which may well be tumbled into oblivion. It is only a few decades ago that surgery emerged from the black period of ignorance and cruelty and took to itself a new face and another spirit and form. At once it began its onward march, which speedily became a triumphant one, difficulties giving way before it, obstacles being overcome, every step an advance, with here and there a milestone set up to mark some distinguished feature in the splendid progress. By this new science, diseases which were formerly attended by 100% of mortality are now accompanied by almost 100% of recoveries. In fact, there is no surgical disease whose mortality has not been reduced. No other science can show such brilliant achievements, and no other science can demonstrate its ability to save so many human lives, or to ameliorate their condition. We live in an age that is marvelous for its discoveries and achievements, but in no department of science have greater changes been wrought or more brilliant results accomplished, than in surgery. It would now seem that we had almost reached the goal. There are but few surgical diseases which our art in its present condition of development does not cure. There are but few operations in point of number that remain for succeeding generations to discover. There is still little to gain in the technic of asepsis and anesthesia, and beyond the improvement of existing operative methods there is but little to expect. The science of surgery has accomplished a great work—one of the greatest in the history of mankind. And when we consider the vast number of surgical diseases which are now amenable to cure, and the very limited number which remain for the surgery of the future to discover ways and means of treatment

better than those to which we have already attained, we can realize that we stand on the heights of a great profession—a profession which but a century ago was crude, undeveloped and uncertain. If there are higher heights to be reached in the science of surgery, and doubtless there are, we may rest assured that the vast and ever-increasing wealth of this great country will be utilized toward their attainment. Humanity demands this, and this country will never be behind any nation of the world in earnest efforts for the promotion and development of a science whose special aim is the relief of physical suffering, and the preservation of human life.

It is fitting on an occasion like this, when a national celebration is in progress, that the attention of this Congress should be directed to the part which our own country has played in the evolution of this great science. This part is best set forth and realized by a study of the facts recorded in this address. The question, however, as to what has been the inspiring motive and what has been the controlling influence, must be sought in the life history and habits of the people.

The impartiality and promptitude of the American mind have enabled it to seize with alacrity upon the best in every department of science and art wherever found, regardless of the source from which it emanates. Accordingly, American surgeons all through the past century have busied themselves in reaping a generous harvest from every nation that had any good surgical idea, method or appliance to offer, and have gathered in abundant sheaves with rejoicing, serenely indifferent as to the particular field which produced them. What mattered it to them whose hand sowed the seed, or under what influences it was brought to maturity, so long as the grain itself was desirable, and could be secured for the American garner. A precisely opposite spirit has prevailed in some other lands, thus, during our colonial days, when Great Britain and France were easily foremost in surgical attainment, so bitter was their rivalry, so intense their national jealousy, that neither would adopt anything, no matter how good or valuable, which had originated with the other. Of late years this same prejudice, this unwillingness to indulge in a sensible reciprocity, has been manifest between France and Germany, to the great detriment of surgery in each of these rival countries; as an apt illustration characteristic of the difference between the English and American spirit in this regard, may be cited the fact that in 1823 the writings of one of the great French surgeons, Desault, the most noteworthy contribution to the surgical literature of the world then published had never been translated for the use of British surgeons. No Englishman had the courage or willingness to demean himself by so doing, since he would thereby acknowledge that some good thing might come out of France. Yet at that very time, Smith, of South Carolina, rejoicing as one who had found great spoil, was busily engaged in putting Desault's works into English for the benefit of the surgeons of America.

So, in this great triangle of nations formed by England, France, and Germany, the surgical knowledge and suggestions of each remained within its own walled domain, untouched by the others; on the contrary, in a pleasantly independent spirit, and having no unfortunate jealousies to cherish, America reached her eager hand over the separating wall, and freely and gratefully laid hold upon whatever she considered best in the surgery of those and other nations, appropriating to her own use, for the good of humanity at large, as many of their principles, theories, discoveries, methods, and appliances as she considered it worth her while to take. Availing herself of these factors, utilizing them as stepping stones, and combining them with the wonderful achievements of her own inventive genius and skill, she has rapidly risen to that illustrious height in the surgical world, which she so grandly occupies today.

It goes without saying, gentlemen, that within the

past decade, America, without any effort of her own, without the least self-seeking, but through the force of her national greatness—moral, intellectual, physical—has come to the front as a world power among the nations of the earth. She now ranks second to none as an important and controlling factor in the congress of nations, and when she speaks, her voice commands the attention of a listening world. In this regard her science of surgery has kept even pace with her political advancement upon the powers. At the present time her surgeons are not outclassed by those of any other country, while in her contributions to the general literature of surgery, she stands unsurpassed. It is an actual fact, if you were to strike from the notable surgical achievements and writings of the world, what has been contributed by America during the past few decades, there would be left but little of new and original work for the older nations to claim as their own.

There are many things which combine to explain the prominent position which America has taken during the past century in the consummation of this great work. Chief among them may be mentioned the innate courage which our Puritan ancestors possessed. The undaunted bravery which enabled the people of the Mayflower and others of kindred heart and mind, to cross the great unknown ocean, and to settle in the primeval forest for the sake of liberty, has infused itself into the American spirit and has qualified Americans to attempt and to perform daring deeds in surgery. There is no science that calls for greater fearlessness, courage, and nerve than that of surgery, none that demands more of self-reliance, principle, independence and determination in the man. These were the characteristics which were chiefly conspicuous in the early settlers of this country. And it is these old-time Puritan qualities, which, descending to them in succeeding generations, have passed into the surgeons of America, giving them boldness in their art, and enabling them to win that success in surgery, which now commands the admiration of the civilized world.

Permit me to sum up in a few words the wonderful achievements of surgery during the century which has gone. What has this great science, so young comparatively and yet so strongly and splendidly developed, accomplished in its onward march? Among the blessings which it has brought to the human race may be mentioned these:

- The annihilation of pain during surgical operation.
- The elimination of sepsis after operations and injuries.
- The eradication of physical suffering.
- The restoration of sight to the blind.
- The recovery of hearing to the deaf.
- The return of lost functions to organs and glands.
- The aseptic repair of injured parts.
- The relief of the crippled and lame.
- The restitution of speech and consciousness.
- The return of activity to paralyzed members.
- The removal of malignant disease.
- The restoration of reason to the insane.
- The correction of bodily deformities.
- The alleviation of pain in disease.
- The reaction from shock and collapse.
- The cure of lockjaw and other infective processes.
- The intervention of relief in intestinal perforation.
- The extirpation of tumors, from glands and cavities.
- The cure of diseases and injuries of internal organs.
- The resection of diseased viscera.
- The excision of joints and necrosed bone.
- The amputation of diseased members.
- The cure of aneurysm.
- The removal of cerebral and spinal neoplasms.
- The reduction of mortality in all surgical diseases.
- The entire removal of mortality in some surgical diseases.
- The restoration of health and reason.
- The salvation of human life.

Surely, Mr. President and fellow members of the International Congress of the Arts and Science, the great science to which we have devoted our talents and our lives, the science which kindles our enthusiasm, and of whose achievement we are justly proud, our science of surgery during the past century has come as a benedic-

tion upon the human family, second to none which the century has spoken. Its benefits cannot be measured by words, or realized in thought. We are apt to speak of it as a human achievement. In one sense so it is; but it is come in the orderings of an all-wise Providence; and, with grateful hearts, we acknowledge it as a gift and blessing from the Almighty Father to His suffering children in the world.

KIDNEY DISEASES REQUIRING SURGICAL INTERFERENCE.

BY

J. M. BALDY, M.D.,
of Philadelphia.

It has been a matter of observation with me that in many of the kidney affections for which we interfere surgically, the most prominent symptoms in the case are often not directly referable to that organ. This has occurred so frequently that most of the cases of the kind which have of late come under my direct observation have either not been diagnosed as kidney disease (not even suspected) or although the kidneys have been supposed to be the source of the trouble, I have found the symptoms pointing in this direction to be so dubious as to make me a bit reluctant to operate. Two of five recent cases, for instance, were floating kidneys, with all the classic symptoms of gastrointestinal and nervous symptoms, but with local symptoms in abeyance and only elicited on palpation of the organ. I mean by this that the women had no symptoms referable to the kidney region until that organ was palpated when it was found to be tender and unduly movable—in one case so movable that the patient herself could at times grasp it in her hand through the abdominal walls. One case of cystic kidney with a well-defined adenoma on its surface was taken for ovarian disease; one case of calculus of the kidney and ureter was mistaken for and operated upon for an ovarian and uterine growth, and a tuberculous kidney and ureter was mistaken for a pyosalpinx. All five cases came finally to operations on the kidneys with good surgical recoveries.

CASE I.—Floating Kidney (Gynecean Hospital). The patient, aged 32, is single. Menstrual history fairly normal. Considerable leukorrhea, extreme nervousness, headache, backache, stomach easily upset. No symptoms locally over region of the kidney. On examination, right kidney was found movable and tender to touch. Incision was made in the lumbar region. The kidney capsule was incised and the kidney anchored with encircling rubber tubes tied over a pad of gauze lying over the incision. Tubes were removed at the end of four weeks.

This patient had such a good recovery and has so much relief that within three months she sent a second case of floating kidney for operation from the same town.

CASE II.—Floating Kidney (Gynecean Hospital). Patient, aged 39, married. Menstrual history fairly normal. Considerable leukorrhea, extreme nervousness, gastric indigestion and pains, backache and general miserable feeling of some years' duration. Pain below ribs on both sides. Right kidney so movable patient could grasp it, at which times it was sore and tender. Lumbar incision, with similar operation as in Case I. Three weeks later cervix was repaired and hemorrhoids removed. Returned home at end of five weeks.

CASE III.—Cystic Kidney; Adenoma of Kidney (Polyclinic Hospital). Patient, aged about 28, single. I was asked to see her with the object of doing an operation for ovarian disease, and the statement was made that in addition a lump was discernible about the umbilicus, the character of which was obscure. She complained of some slight menstrual disorder and pain and had a feeling of discomfort in the right iliac region—gastrointestinal symptoms. An examination of the pelvis revealed nothing serious. The lump at the umbilicus extended back into the kidney region and its opposite end could readily be felt in the loin. It was evidently a large kidney, tender to manipulation, with no signs of malignancy. A lumbar incision allowed of its delivery, when it was found to be universally cystic, with a large lump the size of a walnut at one point. An incision over the other kidney and an examination showed that organ to be healthy, with an apparently healthy ureter. The right kidney was removed and both incisions closed as usual.

The following pathological report is by Dr. Longcope, of the

Ayer Clinical Laboratory, Pennsylvania Hospital, one of the cyst walls and the hard tumor having been submitted to him for examination. The whole kidney, which was about double its normal size, with the exception of one solid portion on the surface, was made up of cysts with thick walls from the size of a pea to that of an English walnut, all of which contained a clear fluid.

Pathologic Report.—The specimen has an irregular shape. The walls appear of rather dense connective tissue extensively infiltrated with small round cells, epithelioid cells and plasma cells occasionally forming large clumps. Here and there are the remains of a few kidney tubules lined by low cuboidal epithelium. One or two definite glomeruli are seen. Some of them have undergone complete fibroid change while others are fairly well preserved, though small and surrounded by a thickened capsule. In places these walls are lined by flat cells. The section covering the solid tumor is composed of very dense connective tissue showing little cellular infiltration. It is filled with large cysts of various sizes lined by low cuboidal or flat epithelium, most of them are empty. The solid tumor itself represents a fairly well-circumscribed edematous growth. It is composed of rather delicate connective-tissue trabeculae which anastomose to form a close network. They carry blood-vessels and are lined by a single layer of cuboidal epithelium containing regular oval or round fairly deeply staining nuclei. No nuclear figures seen. These trabeculae are often pressed closely together and the spaces between them are small.

Diagnosis.—Cystic kidney, adenoma of kidney.

The recovery was absolutely uneventful. The kidney which was removed had evidently long since ceased to functionate.

CASE IV.—*Tuberculosis of the Right Kidney and Ureter.* A young girl of 24, complaining of some bladder trouble. Family history not relevant. She was never very strong, but had had no severe illness. Puberty established at 16. Menstrual flow always scant and recurred at irregular intervals, but no dysmenorrhea. Never suffered with chronic cough. Present illness began in December, 1902, with a dull, heavy pain in right iliac fossa, though previous to this time she had some frequency of urination. The iliac pain became progressively worse, backache and headache with bearing-down sensations developed. There was at this time marked frequency of urination with burning pain in bladder region. The urine was diminished in quantity and sometimes contained blood. She had occasional attacks of sharp lancinating pain about the ovarian region on the right side, suffered much from nervous symptoms and dyspnea and began to lose weight. There was severe and constant pain in both legs. In this condition patient was admitted to Gynaeceal Hospital early in July, 1904.

Physical Examination.—A thin girl of somewhat anxious expression and pale mucous membranes. Heart normal in all respects. Lungs are uniformly resonant upon percussion. The respiratory murmur is clear and vesicular except at the left apex anteriorly where the expiration was somewhat harsh and prolonged.

Pelvic Examination.—A multiparous pelvis with small laceration of cervix and perineum. Left appendages negative. On right side a dense adherent mass diagnosed as a chronic pyosalpinx. Operation revealed very large and adherent ureter with enlarged cystic kidney. Uterus and appendages normal. Kidney and ureter removed entire through the original incision which was extended to the kidney region.

Pathologic Report.—Specimens consist of kidney and ureter. The kidney is of normal size, of grayish-brown color, capsule strips readily leaving a nodular surface. Upon section the kidney structure cannot be made out, but the surface is covered with many small abscess cavities.

Microscopically the kidney shows the characteristic appearances of chronic tuberculosis. The ureter is much thickened, measuring 8 mm. in diameter. The mucous membrane has undergone caseous degeneration. Serous coat shows many adhesions; contains pus. Microscopically ureter also shows lesions of tuberculosis. Tubercle bacilli found in pus from both kidney and ureter.

The convalescence was normal. Tubercle bacilli were found in the urine after operation, and gradually disappeared. The cystoscope showed diffused tuberculous ulceration in the bladder. The permanent result is in doubt, as the girl returned home to the country and married, against our urgent advice.

CASE V.—*Surgical Kidney (Polyclinic Hospital).* Containing stone size of walnut in pelvis of kidney, and two smaller stones in kidney substance. The kidney substance was riddled with pus pockets, one pocket being as large as a silver dollar. Admitted by me to my service at Polyclinic Hospital during October, and operated upon by Dr. Erech on account of my illness. Family history negative. Patient, aged 38, had been married 17 years; husband died four years ago; two children, one miscarriage. Oldest child, aged 15, is living, youngest child, born five years ago, died in second year. First labor was terminated with forceps; in bed two weeks; no complications. Miscarriage at seven months, occurred on the third day of an attack of pneumonia, three years after first child. Second child was born after a normal labor; in bed 10 days; nursed this child. After the seventh month her periods reappeared, and have been regular, though profuse, ever since. About three years ago she noticed that her urine occasionally had a very offensive odor, and was turbid; she suffered no pain or other

inconvenience, nor did she consult her physician about it. In April, 1904, while doing heavy housework, she was seized with a sudden severe pain in right lumbar and inguinal region, and on the following day her uterus projected from the vagina. This had never happened before. She dragged along a week, and then consulted her physician, who advised her to have an operation performed. She worked hard all summer, and was admitted to the Polyclinic, October 25, 1904.

Examination.—Cystocele and rectocele. Uterus in second degree of prolapse. A cystic tumor reaching to the umbilicus occupied the hypogastrium; in the right lumbar and inguinal region an irregular nodular mass, apparently connected with the pelvic organs, could be made out.

Operation.—Abdomen was incised in the median line, the ovarian cyst was tapped and hysterectomy by amputation performed. The cyst was of the left ovary, the right ovary was also cystic. The nodular mass in the right lumbar region was found to be the much enlarged right kidney extending as low down as the pelvic brim. After ascertaining by palpation that the left kidney was present and not diseased, the median incision was closed and an incision outside of and parallel to the semilunar line on the right side was made. The posterior peritoneum was cut through to the outer side of the ascending colon, and the densely adherent kidney delivered. The vessels were tied off with medium-sized silk, and the ureter traced down to beyond the pelvic brim, where it was divided between two silk ligatures. No more of the ureter was removed on account of the shock produced by the operation.

The recovery was uneventful. Four weeks later I repaired the cystocele and rectocele. The urine which originally contained albumin and granular casts is gradually clearing up.

In none of these five cases were the symptoms such as to draw our attention directly to the diseased kidney, and yet all five were cured by operation. Cases I and II suffered prominently from nervous and gastrointestinal disorders. Case II attributed her trouble to her kidney only because she could feel the lump through the abdominal wall, and was told it was a kidney—naturally every ache and pain she had would be credited directly to that lump. So little did her kidney symptoms predominate that a specialist whom she saw at the first visit declared he did not believe she had a floating kidney at all, he not having found it displaced at that visit. At a subsequent visit, he found it, however, and advised the operation. Both of these women were apparently cured by operation and fixation of the loose kidney.

The cystic kidney with the complicating adenoma (Case III) had absolutely no symptom of kidney disease whatever, except the tenderness on palpation of the enlarged organ.

The patient with tuberculosis of the kidney and ureter, with the tuberculous cystitis, had no kidney symptoms as the prominent feature. However, there was more than enough to have made an accurate diagnosis had time been given to investigate the case as it should have been. It was the old story of a patient sent from the country, getting to the hospital late in the day, with the operation prearranged for the following day—the diagnosis made at her home and the most casual kind of a pelvic examination made at the hospital merely to make sure that the patient would not be sent to the operating table and nothing found in the pelvis. The general appearance of the girl, a hasty examination by an assistant, with the remark that there was an immovable mass on the right side, and the case assigned to the next morning's work in the operating-room. An examination of the urine alone and the discovery of the tubercle bacilli or a cystoscopic examination of the bladder would at once have put one on the right track.

The case of surgical kidney with renal calculi complicated by the ovarian cyst and the prolapse would almost certainly have been overlooked until the operation, especially on account of the low position of the enormous kidney and the absolute lack of symptoms pointing to the kidney. The albumin and casts would have told nothing.

I have oftentimes noticed this lack of prominence of the symptoms direct from the kidney and the chance of their being overshadowed by symptoms coming apparently from other organs. In only too many cases have the patients been sent for other troubles and their physicians surprised when told of the true situation. On not

a few occasions it has been rather embarrassing, as the patient was not prepared for the character of operation necessary, not having been advised of the possibility. In the ordinary run of cases the kidney lesion should be readily detected; the diagnosis is not so very difficult, at least for a suspicion, if time be only taken for the investigation. Our mistakes in diagnosis in the hospitals are almost always due to being tempted to operate the day after the arrival of the patient, because both the doctor (who comes a long distance and must return) and the patient desire it so, and unless the kidney symptom is sufficiently prominent to draw our attention at once to it at even a casual examination, we are tempted to be good-natured and yield to circumstances when our better judgment should warn us against the hurry.

THE EXTRACTION OF CATARACT: CHOICE OF OPERATION BASED UPON INTRAOCULAR CONDITIONS.¹

BY

S. D. RISLEY, M.D.,

of Philadelphia.

Attending Surgeon, Wills Eye Hospital.

There is probably no operation in surgery which is freighted with more perils and unforeseen contingencies than that for the extraction of cataract. There is no other which depends for a successful issue so much upon accuracy of detail and a faultless technic. This is true even when the patient is docile, the instruments are good, and the cataract free from complications.

The purpose in the present paper is not, however, to set forth the details and technic of the extraction of what may be called uncomplicated hard cataract, but to study *certain complicating conditions, their relation to the opaque lens, and the extent to which the complications modify prognosis and render the removal of cataract difficult and dangerous.*

To be strictly logical, it is probable that no cataractous eye should be regarded as free from disease.

The term *senile cataract*, which still occurs in our catalogs as a qualifying adjective, has been misleading, since it removes hard cataract, in the mind of the student, from the domain of pathology, and places it, like gray hair, etc., among the signs and concomitants of advanced life; whereas opacity of the crystalline lens occurs at any age. It is soft when present in early life, partly for the reason that in infancy and youth the normal lens is relatively soft; it is hard in old age, because even the transparent lens in advanced life is relatively hard. It should be borne in mind, however, that, as soft cataract occurs in a very small percentage of persons in early life, so is opacity of the lens in even very aged people a comparatively rare occurrence. When it is present there is no apparent relation between the cataract and the signs of general senility; indeed, it probably occurs quite as frequently in the eyes of hale and hearty old men and women as in those who manifest senility. So far then from accepting opacity of the lens as one of the inevitable attendants, and unavoidable inconveniences of the decline of life we should seek for the causes which underly and produce an exceptional condition.

In any careful study of the history and the objective and subjective symptoms of our patients with cataract, whether soft or hard, it will be discovered in a large percentage of cases that there is present, during the stage of incipency or immaturity more or less pronounced asthenopia. That is to say weak eyes, headache, swollen and red caruncles, injected palpebral conjunctiva with a tendency to thickening of the retrolarsal folds and partial retention of tears. As the opacity advances toward

maturity so that the light is excluded and attempts to read are gradually relinquished, these symptoms usually subside and are often forgotten by the patient. That they ever existed will, not infrequently, be denied except on careful inquiry when the reply will often be made: "Oh, yes, I had headache (or weak eyes) all my life until recent years."

During the stage of incipency, when it is still possible to study the fundus in one or both eyes with sufficient clearness to make out details, not only will the presence of anomalies of refraction be demonstrated in a large percentage of patients, but also the pathologic changes due to prolonged eyestrain. A general fluffiness of the eyeground, macular disease, chorioidal atrophies, atrophic crescents, usually at the temporal margin of the optic nerve, web-like or granular opacities floating in a fluid or semifluid vitreous are the rule rather than the exception.

Indeed the group of cataract patients in which there seems to be an obvious relation between the chorioidal disease, eyestrain and the opacity of the lens is a large one and probably constitutes the majority of those who come to us for extraction. But there is another considerable group who suffer, not only from the outward results of eyestrain consequent upon uncorrected errors of refraction or ocular imbalance, but who are victims of some general dyscrasia, *e. g.*, the gouty or rheumatic diathesis, which is more or less rapidly, but steadily sapping the general health through advancing disease of the general vascular tree. The bloodvessels of the retina and of the highly vascular chorioid are very prone to participation in the disease of the general vascular system and not infrequently through the aid of the ophthalmoscope, furnish the first evidence of the essential cause of the general impairment of health; the gray borders to the retinal arteries being the only visible or demonstrable manifestation of the perivascular disease present throughout the body. The liability to disease of the uveal tract in rheumatism and gout finds ample proof in the great frequency of iritis, iridocyclitis and chorioiditis associated with these affections.

When we consider the fact that the nutrition of the eyeball is dependent mainly upon the normal circulation of its uveal tract, through the long and short posterior and anterior ciliary arteries, it becomes obvious that any disease of its bloodvessels and disturbance of the circulation through this important membrane is of serious import to the health of the organ. This is true whether the disturbance is primarily due to bloodvessel disease, or to some long-standing irritation or disease of the chorioid, ciliary region or iris, consequent, either upon the presence of some general dyscrasia, as for example—gout, rheumatism or diabetes, or the pathologic changes in the fundus oculi due to eyestrain produced by uncorrected errors of refraction or binocular balance.

Reasoning *a priori* we would expect to find the avascular structures of the eye, as the vitreous body and the lens, the most prone to suffer from the impairment of the nutrition of the globe brought about in the manner indicated, since they are nourished at second hand and any impairment of the sluggish lymph streams by which even in health they are nourished must soon manifest itself in impaired nutrition. Clinical study demonstrates the correctness of such reasoning, and suggests a logical cause other than senility for the occurrence of opacity of the lens and degeneration of the vitreous body. In making this statement I am not unmindful of the fact that a diseased vascular tree is often a sign and concomitant of old age.

Experience has shown that in the presence of chronic disease of the uveal tract the vitreous body loses its transparency, becomes semifluid and is filled with a round-cell exudate, which, with a magnifying glass is manifested by a granular debris which moves to-and-fro with more or less freedom with every movement of the eye. The posterior capsule of the lens,

¹ Read before Pan-American Medical Congress, at Panama, January 8, 1905.

whether at its periphery or at the posterior pole sooner or later becomes gray, and the contiguous cortical fibers of the lens soon participate in the impaired nutrition conditions and become opaque, giving rise to posterior capsular or polar cataract. Later the entire lens may, and usually does, become involved, producing the so-called mature or ripe cataract.

When seen by the surgeon for the first time at this stage the antecedent conditions I believe are too frequently overlooked, especially if the patient has passed the meridian of life. In young patients we have always been prone to regard the occurrence of cataract as a sequel of ocular disease, but the contention of this paper is that in the hard cataracts of middle and advanced life we should also regard them as the result of antecedent pathologic states of the fundus oculi. Such a view would not only modify our prognosis in many cases, but change our procedure in many important respects. For example, if asthenopic symptoms are still present, we would not hasten our operative procedure, not because of immaturity of the cataract, but for the reason that the chorioid behind the opaque lens is still in a pathologic state, the judicious treatment of which for a few weeks or months would materially improve the prognosis as to a favorable result from extraction. It is probable that in this view of the nature and cause of the opaque lens we find a sufficient explanation for the proverbially bad results following attempts at extraction of immature hard cataracts after 55 years or 60 years of age; or, on the other hand, for the more favorable prognosis entertained in cases of fully "ripe" lenses.

After the opacity is sufficiently advanced to preclude the use of the eyes, so as to bring about an enforced rest and also to shield the inflamed retina and chorioid from the influence of light, the pathologic state of the fundus slowly subsides; especially in cases in which it has been set up and maintained by eyestrain. It is probable that this beneficial influence of rest is felt in less measure, also, even when a constitutional dyscrasia is a primary factor in the production of the intraocular disease. The enforced rest of the eyes in such cases has, in a word, led to an improved state of the fundus which materially improves the chances of an uneventful convalescence after operation.

If the condition of one eye permits ophthalmoscopic study of the fundus and reveals a fluid vitreous and chorioidal atrophies, or a fluffy unhealthy chorioid; or if the presence of a gray posterior capsule is demonstrable, it is reasonable to conclude that the condition of the other eye, in which the opacity of the lens is more advanced, is probably worse since the lenticular disease had progressed more rapidly, a fact which suggests the wisdom of therapeutic measures addressed to the relief of the existing chorioidal disease before attempting the extraction of the opaque lens.

It is probable that a surgeon of experience would not attempt the operation for *simple* extraction with the knowledge that he had a posterior capsular cataract to deal with, and all that this implies, *e. g.*, chorioiditis and a fluid vitreous. He would certainly give a less favorable prognosis, whatever operative procedure he chose to adopt; for, it is a matter of common observation that in this class of cases the cortex of the lens adheres closely to the capsule and renders the delivery of the lens more difficult. The efforts to dislodge it from its capsule are very liable to cause a rupture of the suspensory ligament, and a more or less copious escape of a viscid or fluid vitreous.

Having said so much by way of defining the nature of the complications, which so frequently mar our results in the extraction of cataract, I come to speak of the methods of treatment and operation which, in my own experience, have given the best results, and to outline certain indications which have controlled me in the choice of operation. In the first place, I never attempt extraction by simple method in a dull gray, or amber-

colored, homogeneous lens that has ripened slowly, or on one that is translucent.

In cataracts presenting these appearances it will usually be found that the iris lacks the lustrous appearance of health and that the pupil does not dilate widely under the influence of a mydriatic, a fact which suggests its participation in the general uveal disease. Such irides are prone to inflammatory reaction from slight traumatism, and it is not possible to deliver, through the narrow pupil of a rigid, inelastic iris, a large, hard lens without much bruising and stretching. This will, in all probability, especially in aged people with gouty or rheumatic tendency, lead to attacks of mild traumatic iritis, which glues the iris to the remaining lens capsule, and sets up proliferation in the capsule itself which becomes gray and tough. At best it must protract the convalescence and vitiate the ultimate result of operation. In such cases secondary capsulotomies are almost invariably required, and after these attacks of iritis with the attending proliferation, the capsule is both tough and inelastic so that it does not retract after a simple section through it. It is in this class of cases that traction upon the membrane in any effort to cut or tear it leads to attacks of iridocyclitis which not infrequently cause the loss of the eye, either through the gradual contraction of the organized exudates in the vitreous, or by detachment of the retina or ciliary process by traction at the time of operation. In the class of cases under discussion therefore I think that extraction without iridectomy is rarely advisable.

In my own experience the safest procedure has been first more or less prolonged treatment by the administration of iodids and bromids internally, and by homatropin or atropin locally until the headaches and ocular irritation have subsided before any operative interference is undertaken. A preliminary iridectomy is then performed and from four to six weeks later the extraction. If in the first operation the patient has proved tractable, the extraction is done under cocain anesthesia; if not, a general anesthetic is administered. Two methods of procedure present themselves for consideration. Shall the lens be extracted in its capsule, or by the more usual procedure with anterior capsulotomy?

My own results have been, I think, about equally good in each. If the first is chosen, a Kalt stitch is introduced and a large corneal section made. A wire loop is then introduced through the suspensory ligament above, and made to embrace the posterior convexity of the lens like a vectis and the delivery made by gentle traction. The loop of the Kalt stitch is then drawn home and tied, bringing the edges of the wound into firm apposition. When successful, this procedure removes the gray posterior capsule with the adherent cortex and leaves a clear black coloboma. The dangers which arise from adhesions between the capsule and iris and the contingencies of the subsequent capsulotomy are avoided. On the other hand, I cannot free myself from a certain dread of danger, which I think most surgeons quite justifiably entertain, from the introduction of instruments into the vitreous chamber of the eye. Nevertheless, I am free to say, that in this particular operation my dread of injury has not been realized. Another feature of the procedure just described must be considered, *viz.*, the added possible danger from corneal infection at the site of the corneal suture, especially in cases in which the conjunctiva is not healthy, or, in the presence of affections of the lacrimal sac. Even here, however, it is open to question whether this danger does not find adequate compensation in the more rapid healing of the corneal section secured by the suture.

In the second procedure, that by anterior capsulotomy, the corneal section may be smaller, but it should be remembered that the lens in these complicated cases is usually large and often very dense or hard.

Too large a section is always safer than one that is too small to permit the free delivery of the lens. If

after delivery masses of gray cortex remain, either free or adhering to the capsule their removal by irrigation, by a sufficiently free employment of a warm salt solution is preferable to the introduction of a spoon or to any considerable or rough manipulation for its extrusion, for the suspensory ligament in the group of cases under consideration seems especially brittle and therefore readily ruptured.

In the secondary capsulotomies, almost without exception required in these cases, I prefer two instruments each introduced near the limbus at opposite sides of the cornea. I prefer a spear knife which I have devised, with double edge and a very thin midrib, beaten from a shaft containing the same amount of material as the blade, which therefore fills the corneal wound made by the puncture and prevents the escape of the aqueous humor. The points of the two spear knives should both perforate the membrane at the point desired and being made to separate simultaneously in opposite directions will cut the capsule without traction upon the ciliary region. If the membrane does not retract from the first section made as described, the instruments can be carried to the original position, turned on their long axes and a second section made at right angles to the first. Carrying their points deeply into the vitreous should be avoided.

If no reaction follows, the convalescence is uneventful and the after-treatment very simple. The pupil should be dilated by the daily instillation of atropin and the eye protected by a light, firm bandage, over a nicely adapted pad of absorbing cotton. Both eyes should be closed and the patient confined to his bed in a moderately lighted room until the wound is healed and the anterior chamber restored. He is then allowed to rise and sit in an arm-chair at the bedside and the bandage removed from the unoperated eye.

I esteem it of importance to make the confinement to bed as brief as prudence will permit. The prolonged quiet in bed rapidly saps the general vigor of aged patients, as is soon manifested by their flushed cheeks, the loss of appetite, and the desire to remain in bed. Then, too, I am convinced that it fosters the tendency to mild attacks of rheumatic iritis, which usually come on from the fifth to the eighth day after the operation.

If inflammatory reaction follow, without evidence of infection, the great liability to local manifestations of the rheumatic or gouty diathesis should be borne in mind as indicating the general therapeutic measures to be adopted. The value of salicylic acid in these cases I have many times seen demonstrated.

THE EFFICIENCY OF COPPER FOIL IN DESTROYING TYPHOID AND COLON BACILLI IN WATER.¹

BY

HENRY KRAEMER, PH.D.,
of Philadelphia.

Before giving the results of my experiments with copper foil as a germicide, I desire to say that the recent experiences in Philadelphia in the consideration of the question of the purification of water-supplies by means of copper, emphasize that scientific men have certain obligations in matters of this kind, which they cannot possibly escape if they have the best interests of their community and of their fellowmen at heart. I think that the press on the whole are desirous of being fair in presenting matters of this kind, but unfortunately those who are best qualified to give enlightenment usually hesitate to do so, not liking newspaper notoriety, while those who will speak for publication are frequently not the best qualified to do so, or are unduly influenced in giving their opinions, and thus a perverted notion in regard to the merits of the question is engendered, which may prove inimical to the public good.

The purification of water-supplies containing pathogenic organisms being a subject of such vital importance, it seems to me that any method proposed for this purpose should receive careful consideration, not only at the hands of water engineers, water companies, health officials and physicians, but by all those who are in a position to test the method, or contribute information regarding it, or to foster a sentiment in favor of it, if found to be efficient. It was in this spirit that I undertook to test the method proposed by Dr. Moore and Mr. Kellerman, and published in a separate Bulletin by the United States Department of Agriculture.

On account of the false sentiment which had been engendered in Philadelphia with regard to the purification of water by means of copper, and recognizing that the city authorities would not be apt to apply the method so long as there was this prejudice against it, I determined to consider the method in relation to its application for household purposes. Notwithstanding the importunities of the health officials to boil the water, this precaution is most commonly neglected.

It is, of course, manifestly impracticable for the average householder to use copper sulfate in the purification of drinking water, and my experiments have therefore been mostly with metallic copper. I first tried to obtain copper vessels for my experiments, but finding that I would have to wait some time to have these made, those on the market being tin lined, decided to use copper foil instead, which perhaps was fortunate, as this is more convenient and less expensive.

In my earlier experiments I had a number of my students in bacteriology carry on the work, using pieces of copper foil about 25 cm. square to each 2,000 cc. or 2,500 cc. of water, allowing this to stand from four to eight hours at room temperature, the copper foil being cleaned with pumice for each operation. Agar plates were made, and it was found that there was a reduction in the total number of organisms of from 85% to 97%. For some time past one of my special students, Mr. John R. Rippetoe, has been carrying on this work under my direction, and I may say that in all of those experiments in which copper has been used, the reduction in the number of organisms has been equivalent to what would be obtained by an efficient filtration system, with the advantage in the case of the copper treatment that the organisms are completely destroyed.

In filtration processes it is generally understood that both typhoid and colon organisms are the first to be eliminated, and without waiting to make a systematic study of the organisms which persist as well as those which are killed in the copper treatment of water, I thought it well to test the method by using water containing these organisms alone. As results depend in some measure upon the method used, I will try to outline my method before giving my results.

1. Water under three different conditions was employed: (a) Distilled water which was prepared from tap water by first treating it with potassium permanganate and then distilling it two or three times by means of apparatus constructed entirely of glass; (b) filtered tap water, prepared by means of a Berkefeld filter attached to a copper spigot; (c) tap water, collected after being allowed to run through a copper spigot for five minutes. All of these were sterilized in an autoclave at 110° for 30 minutes.

2. The cultures of typhoid and colon which were used were pure cultures developed in bouillon for 18 hours to 24 hours.

3. To 200 cc. of samples of water prepared as stated, and contained in sterile Erlenmeyer flasks, were added two 8-mm. loops of the fresh bouillon cultures of typhoid and colon bacilli respectively. Counting the duplicate experiments provided for, we thus had a series of 12 flasks, 6 of them containing typhoid bacilli, and 6 colon bacilli.

4. For studying the number of organisms, 1 cc. of the respective solutions was transferred directly to a Petri

¹ Read before the Washington Academy of Sciences, Washington, D. C., January 5, 1905.

dish by means of a sterile 1-cc. pipet, and to this was added 10 cc. of Heyden's nutrient agar, which had been kept at a temperature of 40° C. for some time. Three separate plates of the water in each of the 12 flasks was made immediately upon the addition of the cultures, and both the plates and the flasks were kept at a temperature of 35° C. to 37° C. To six of the flasks were then added strips of copper foil about 15 mm. wide and 18 cm. long, these being corrugated in such a manner that the entire surface was exposed to the water.

5. Plates were made from all the 12 flasks at the end of 4 hours and 8 hours, and 1 day, 2 days, and 6 days, even in the cases in which no organisms remained, and in the cases in which they continued to develop, at the end of 14 days, 21 days, 28 days, and 53 or 60 days. The results are given in the following tables:

TABLE I.—EXPERIMENTS WITH *Bacillus coli*.

Plates made	Water without copper foil.			Water with copper foil.		
	Triple distilled water.	Filtered tap water.	Tap water.	Triple distilled water.	Filtered water.	Tap water.
At time of adding culture.	7,746	11,248	8,283	8,866	4,410	6,790
At end of 4 hours.	7,655	5,075	7,665	No organisms.	No organisms.	No organisms.
At end of 8 hours.	7,735	3,115	7,000	"	"	"
At end of 24 hours.	1,000,000	1,000,000	1,500,000	"	"	"
At end of 48 hours.	1,200,000	1,800,000	2,600,000	"	"	"
At end of 6 days.	1,200,000	1,000,000	1,200,000	"	"	"
At end of 14 days.	1,060,000	910,000	2,245,000	.....	.....	.....
At end of 21 days.	700,000	462,000	650,000	.....	.....	.....
At end of 28 days.	700,600	462,446	649,666	.....	.....	.....
At end of 53 days.	602,000	456,000	638,000	.....	.....	.....

TABLE II.—EXPERIMENTS WITH *Bacillus typhosus*.¹

Plates made	Water without copper foil.			Water with copper foil.		
	Triple distilled water.	Filtered tap water.	Tap water.	Triple distilled water.	Filtered water.	Tap water.
At time of adding culture.	3,740	4,750	3,675	3,986	127	1,400
At end of 4 hours.	2,885	No organisms.	3,815	No organisms.	No organisms.	No organisms.
At end of 8 hours.	3,850	"	1,995	"	"	"
At end of 24 hours.	3,750	"	1,485	"	"	"
At end of 48 hours.	3,815	"	1,540	"	"	"
At end of 6 days.	1,850	.....	.....	"	"	"
At end of 14 days.	16,380	.....	3,920	.....	.....	.....
At end of 21 days.	39,690	.....	65,500	.....	.....	.....
At end of 28 days.	153,600	.....	221,867	.....	.....	.....
At end of 60 days.	295,866	.....	961,800	.....	.....	.....

I may say that every single experiment which we have conducted, not only those given in the foregoing tables, but all others, shows that copper foil is exceedingly toxic to colon and typhoid bacilli, particularly the latter.

It will be seen by consulting the tables that in the filtered water, to which no copper foil had been added, the typhoid organisms did not grow and multiply as was the case with the tap water and distilled water, although there was a larger number of organisms to begin with. This also applies in a measure to the colon bacilli,

¹ Bouillon cultures of the different samples of water, at the end of 60 days, gave with Widal's test the characteristic behavior of typhoid organisms.

with which there is a very marked inhibiting action in those growing in the filtered water.

At first I was inclined to attribute this diminution in the number of the organisms to minute traces of copper in the flasks, but subsequent experiments showed that this was not the case. I am, therefore, inclined to attribute these rather anomalous results to the presence of extremely small quantities of copper dissolved by the water in its necessarily slow passage through the copper spigot to which the filter was attached. This is a phase of the problem to which I am devoting my attention at present, as it certainly opens up an interesting side of this subject.

Some time ago I was asked if I thought that a copper plate placed at the intake of a reservoir would be effective in destroying typhoid organisms. At that time I felt that such a result was almost too marvelous to be within the range of probability. But in view of the results which I have just given, it seems that copper exerts a marked oligodynamic action on typhoid and other intestinal organisms, although this action is not as marked as in the case of algae and some of the saprophytic fungi.

It is extremely fortunate that, in the copper treatment of water, a method has been devised which is so effective in destroying intestinal microorganisms and which can be applied so easily on a large scale and so safely even in the average household. Of course, the proper place to purify the water-supply of a city is in the reservoirs, before the water reaches the consumer, as thus the distribution of organisms like typhoid is brought within the narrowest limit, and individual carelessness in the community is overcome.

In a city like Philadelphia, which depends for its water-supply upon a river which has tributaries in the coal region, and is subject to contamination of all kinds, including sewage and waste products from manufacturing establishments, it is of course very necessary that the water be freed from gross impurities by sedimentation and filtration.

At time of freshets, the amount of suspended matter may be as much as 500 parts per million, and it is not unusual to see a statement like the following in the daily papers:

Philadelphia is to receive another dose of the inky water from the coal regions of Pennsylvania. Already the water is of a yellowish-red color, and by tomorrow the coal dust residue is expected. The rains in the Schuylkill Valley are responsible, the deposits from the culm piles about the mines being washed into the tributaries of the Schuylkill river and into the main stream as well.

But even in Philadelphia where the necessity for a filtration system is so urgent, there are times when the application of a method like the one proposed by Dr. Moore would be highly advantageous. I may cite two examples in this connection:

1. Only last September a certain section of Philadelphia required 28,000,000 gallons of water, and the filters for that section delivered only 22,000,000 gallons and in order to provide the necessary supply 6,000,000 gallons of unfiltered water were added. This deliberate "repopulation" of the water-supply, as it was termed by Director Martin, of the Department of Public Health, could readily have been corrected by the use of the copper method of purification.

2. Some years ago while flushing one of the large sewers, by an unfortunate accident there was an overflow at a point along the Schuylkill river just above one of the pumping stations, and as a result of this contamination of the water supplied to that section of the city, there were 258 new cases of typhoid fever in this section in two weeks afterward, and nearly 1,500 cases within the next two months.

Instances could be multiplied in which the copper method of purification of water could be applied as an emergency method, if not as a precautionary measure regularly and constantly in connection with filtration.

Even granting the efficiency of the boiling of water for domestic purposes, I believe that the copper treated water is more natural and more healthful, inasmuch as the various inorganic constituents, particularly the salts of calcium and magnesium are in a more soluble and assimilable condition, being furthermore less concentrated, at the same time the natural gases of the water being retained.

From the experiments thus far conducted the following conclusions may be drawn:

1. The intestinal bacteria, like colon and typhoid, are completely destroyed by placing clean copper foil in the water containing them.

2. The effects of colloidal copper and copper sulfate in the purification of drinking water are in a quantitative sense much like those of filtration, only the organisms are completely destroyed.

3. Pending the introduction of the copper treatment of water on a large scale the householder may avail himself of a method for the purification of drinking water by the use of strips of copper foil about $3\frac{1}{2}$ inches square to each quart of water, this being allowed to stand over night, or from six to eight hours, at the ordinary temperature, and then the water drawn off or the copper foil removed.

CLASSIFICATION OF GASTRIC ULCERS.*

BY

A. L. BENEDICT, A.M., M.D.,
of Buffalo.

Consultant in Digestive Diseases, City Hospital for Women and Riverside Hospital, Buffalo; Member of Council of American Gastroenterological Association.

It is somewhat unfortunate that the word ulcer, as applied to the stomach, has not its ordinary general significance, but is used in a special sense. It is doubly unfortunate that there is no unanimously accepted conception as to just what is meant by this special use of the term ulcer; and that, after having established a more or less complete definition of gastric ulcer, we find that certain ulcers do not conform to our premises. The purpose of this paper is, first, to plead for the same general, unqualified use of the word ulcer, as applied to the stomach, as is in vogue for other parts of the body, and secondly, but with no claim of original discovery, to point out how numerous are the conditions which may properly be included under the broad term of gastric ulcer, or which, at least, may be confused with true ulcers on account of hemorrhage.

From the clinical standpoint, I venture the assertion that a diagnosis of ulcer rests mainly upon hemorrhage. That is to say, without hemorrhage we can make only a tentative diagnosis of ulcer, unless, indeed, the stomach is exposed at necropsy or operation or unless we assume a much more practical development of the gastroscope or photographic camera than has as yet been attained. From the pathologic standpoint, we may very nearly assert the converse of this statement and say that gastric hemorrhage means gastric ulcer in the broad sense. However, this statement would require qualification in a double way. 1. What appears to be blood coming from the stomach, may arise from the throat, esophagus, duodenum, etc., or it may not be blood at all. 2. A true gastric hemorrhage may be by diapedesis as in menstruation or in the so-called parenchymatous hemorrhage with or without portal obstruction, or a hemorrhage by rhexis may be due to an acute internal traumatism which does not warrant the term ulcer, although an ulcer may subsequently develop. Still, speaking for the generality of cases, gastric hemorrhage is a necessary diagnostic feature in determining gastric ulcer, and it is near enough to being a pathognomonic sign so that the

vomiting of a considerable quantity of blood at one time, or the frequent vomiting of small quantities, enables the diagnosis of ulcer to be made with probably no more than a 5% chance of error.

It may not be out of place to remind ourselves of just what is meant by the term ulcer. It is a break or solution of continuity of a surface and it has no tendency to heal. The fact that there is a solution of continuity involves a destruction of tissue, going deeper than the epithelium, the limitation of the process to a surface demarcates from abscess and deep necrosis, the lack of tendency to heal excludes ordinary acute traumatism, surgical wounds, and the like. Ulcers are often described under the heading of local sepsis. Excepting atheromatous ulcers and similar conditions affecting endothelial surfaces, to which bacteria cannot ordinarily have access, ulcers practically always become septic foci unless bacteria are excluded by artificial means. In many, probably the majority of instances, the bacteria are not only inevitable consequences, but essential causes of delay or absolute failure of union. However, this is not always the case, and so far as the stomach is concerned, microorganisms are rather of minor moment, and in the majority of cases, are not an essential cause, either of the inception or of the persistence of the ulcer.

The following classification is offered of gastric ulcers, using the term in its broadest sense, and including certain causes of hemorrhage by diapedesis and punctate or linear traumatisms, which should theoretically be excluded, but which are often unavoidably confused in the diagnosis and which tend to become true ulcers on account of secondary destruction of tissue by peptic digestion or bacterial lysis.

1. *Peptic Ulcer*.—This includes the majority of cases of gastric ulcer with copious hemorrhage, it occurs mainly in young persons, and by preference in women in the third and early in the fourth decennium, who are anemic, neurotic, and overworked. Except by an extension of terms, it does not represent the majority of gastric ulcers noted postmortem in a miscellaneous series. This point was well brought out by August Stoll, of Zurich, in an article which I translated and published with comments.¹ In regard to the etiology and pathogenesis of gastric ulcer of the peptic type, there is practically no dispute but that the immediate cause of the break in continuity is digestion by the ordinary proteolytic process. It is unnecessary to remind this body that this process is not directly an eating out of tissue by hydrochloric acid. There is, however, a prevalent idea in the profession at large (at this writing, I do not know the opinions of this association) that either on account of the hydrolytic action of HCl, or its action in developing pepsin, or, possibly on account of some indirect action, hyperchlorhydries are much more disposed to develop ulcer than are normal individuals or those with subacidity. In one of my cases of peptic ulcer, subacidity had previously been demonstrated. In one or two others there was a distinct history of fermentative dyspepsia which may be taken as probable evidence of hypochlorhydria. In only one case that has come to my knowledge directly, was there positive evidence of hyperchlorhydria. In the majority, opportunities for investigation are not presented.

C. A. Ewald² states that 34.1% of his own cases have shown superacidity, 56.8% normal acidity, 9% subacidity. He does not state what the exact titrations were. He quotes Rheinwald as having found free HCl in 84.5% of 66 cases, amounting to hyperchlorhydria in 65.5%; 7% of the cases lacked free HCl. Schneider found only 18% to 19% of 38 cases to show superacidity. Köhler, 1890 to 1895, found free HCl absent in 84.7% of 165 tests. But it is obviously impossible to draw exact conclusions from such general and unqualified statements. Some men use the term hyperchlorhydria to apply to a less degree of acidity than is normal for pure gastric juice, and then exaggerate their results by titrat-

* Paper presented to the American Gastroenterological Association, June, 1904.

ing with dimethylamidoazobenzol and reading at the final color change, which adds ten degrees to the real acidity. Again, some of the statements as to acidity, seem to refer to total acidity by phenolphthalein. Thus, with our present data, it seems warrantable only to assert that continuous, hyperchlorhydria is not universally present in cases of gastric ulcer.

While it has been proved that living tissue may be digested by proteolytic ferments, self-digestion does not occur in and of a proteolytic organ, unless the vitality of the tissue has been markedly reduced. Thus, the essential element in the etiology of gastric ulcer is the production of necrosis, or, at least, of a marked deficiency of cellular vitality. It is obvious that the persons in whom, as a class, peptic ulcer is most frequent, are not the ones in whom we should expect embolism, arteriosclerosis, and other organic causes of necrosis. Rather is the preliminary deficiency of vitality of the tissues attacked to be attributed to vascular spasm, or possibly, to paralytic congestion, as in erythromelalgia.

Of course, we may say that the essential causative factor is a trophoneurosis, but I dislike to use the term on account of its vagueness. Does a cell lose all or part of its vitality—and here we have a vague term that we can scarcely dispense with—simply through some sin of commission or omission on the part of a nerve, or is it not more probable as well as more tangible that the nervous influence affects the cells through the circulation?

2. *Erosions by Chemic and Thermic Caustics, as in Corrosive Poisoning and the Ingestion of Liquids at or Above 60° C.*—The necrotic action of cold would be equally effective, but it is only under the most exceptional conditions that cold can continue long enough in the stomach to destroy vitality directly, though it is perfectly possible that the chilling of iced beverages may excite functional motor changes in the arterioles, which may eventuate in peptic ulcer. As a rule, erosions are promptly fatal or they heal without delay, or they cause chronic disturbance from the production of cicatricial tissue, but they do not ordinarily persist as chronic ulcers. Experimentation with radium may also be regarded as a possible source of such erosions.

3. *Ulcers Due to Organic Vascular Lesions, such as Embolism, Thrombosis, or Obliterative Inflammation of a Vessel.*—Such lesions occurring in an end-artery—and end-arteries are common in the stomach—almost inevitably lead to necrosis and digestion. It will be observed that in making a separate category of this form of ulcer it is necessary only to transfer the old hypothesis of peptic ulcer in general to patients of a more advanced age or those affected with syphilis and other causes of vascular disease.

4. *Catarrhal Ulcers are with Doubtful Propriety Separated from the Last Category, as They Occur in Chronically Inflamed and Degenerated Stomachs which Present Minor Degrees of Vascular Disease.*—Such ulcers are diffuse or irregularly punctate, or more or less confluent from independent lesions. They occur usually in persons rather advanced in years, and are quite analogous to so-called eczematous ulcers of the skin. They may be due ultimately to all sorts of chemic and thermic irritants, including alcohol, products of fermentation in chronic dyspepsia, alternation of hot and cold ingesta, etc. While essentially the same as the last class of ulcers, we may, as a matter of clinical interest, distinguish these diffuse ulcerations from rather definitely limited lesions which can be traced to a conspicuous focus of vascular disease.

5. *Varicose Ulceration, Analogous to the External Condition of the Same Name, Is Usually Due to Portal Obstruction and, Especially, to That Dependent upon Hepatic Sclerosis.*—Other forms of pressure upon the portal trunk or branches, and conditions affecting the return of venous blood to the heart through the vena cava inferior, may produce the same local condition. It is, clinically, dif-

ficult or impossible to distinguish between a genuine ulceration and a capillary oozing or rupture of a good-sized vein, without the development of a true ulcer. It is also difficult or impossible to localize the source of hemorrhage in the stomach and to exclude the esophagus and duodenum. Such hemorrhages, when a vein is ruptured, may be so massive as to lead to the diagnosis of peptic ulcer. Indeed, in some instances, there has actually occurred a secondary peptic destruction of tissue. In other instances, the dribbling hemorrhage suggests an ulcerating cancer.

There is a strong temptation to perpetrate Hibernisms in discussing such hemorrhages. For instance, my first case, in 1892, consisted in a rapidly fatal hemorrhage from the esophagus, yet the general nature of such a case brings it into the same category as hemorrhages from the stomach itself, with a definite ulcer. Packard, shortly before his death, collected 60 cases. The condition is, however, much more common than these statistics would indicate. I have seen about a dozen pretty positively diagnosed cases, not all of which terminated fatally and, of these, only one was included in Packard's list.

6. *Toxemic Diapedesis, with a Tendency to Actual Rhexis.*—This occurs in scurvy, purpuras, perhaps in Banti's disease, in jaundice, typhoid, and various infections. These and hemorrhages of the last class, without definite ulceration or rupture of visible vessels, are sometimes called "parenchymatous."

7. *Vicarious menstruation*, due to plethora and unexplained result of the menstrual molimen, so far as location is concerned. Vicarious menstruation, like normal menstruation, is theoretically a pure diapedesis. Rhexis, however, has been demonstrated in the uterus, and doubtless some cases considered as gastric menstruation are really cases of hemorrhage from ulcer.

8. *Gangrenous Ulceration.*—This term may be applied to conditions in which, as the result of chemic or thermic corrosion or vascular disease already considered, areas of necrosis occur, there being, for one reason or another, an achylia so that prompt digestion does not occur and the necrotic area becomes surrounded by a zone of inflammation with the production of an ulcer, almost precisely as in external parts in which a digestive secretion is normally lacking. I must confess never to have seen gangrene of the stomach, that is, death of tissue in visible—and usually smellable—masses, excepting in sloughing cancer. Indeed, I have elsewhere pointed out that an unquestionably putrescent odor emanating from the stomach, and not due to decomposition of ingesta, is nearly a pathognomonic sign of cancer, still noncancerous gangrene of the stomach is a recognized possibility.

9. *Phlegmonous ulceration of the stomach*, as of other parts, may begin as an ulcer, with burrowing of pus; or as a part of a general pyemia or as a local septic infection, abscesses of the gastric wall or adjacent tissues may become converted into ulcers by rupture. Suppuration of the stomach has been reported as the result of iodine poisoning, but, of course, the immediate and essential cause is bacterial.

10. *Specific Ulcers.*—Under the head of specific ulcers may be included various neoplastic, granulomatous and nongranulomatous infections in which the necrotic and, usually, also the septic process has developed upon and in addition to the primary disease. Here may be mentioned cancer and sarcoma, if these be considered specific infections or if it be considered allowable to use the term specific in a broader sense than to apply to a disease due to a definite microorganism. We may also include, with less question, syphilis, tuberculosis, actinomycosis, perhaps also pneumococcic, typhoid, dysenteric, diphtheric infections, and the exanthemas.

11. *Traumatic ulcerations* may be due to external crushing injuries or to internal lesions by hard pieces of candy, fragments of bone, nutshells, fish scales, splinters and various other foreign bodies. Lumbricoids and

other gross parasites, including the occasional shortlived intruders of higher organization, for which I have suggested the term Jonahic (pseudo) parasites, may also inflict traumatism resulting in ulcer. As has been stated, these lesions may or may not reach the stage of ulceration.

ANGIOSCLEROTIC GASTRIC ULCER, WITH PERFORATION.

Patient No. 86, of 1895-6 was attended for only trivial ailments till the spring of 1902. At that time she was treated under the diagnosis of gastric catarrh, but her condition was too weak to allow an accurate examination. Physical examination was negative excepting that a wellmarked contraction of the liver was made out by auscultatory percussion and palpation. Symptomatic recovery ensued, and the patient did not seek medical advice again till about September 1. About a month later, small quantities of blood were vomited. The vomited matter, examined from time to time, was usually free from blood, it contained ferments and combined HCl but no free HCl. The urine was normal except for an excess of indican, and a low excretion of urea. There was secondary anemia.

Late in January, 1903, the patient died. She had taken milk at midnight. At 5 a. m. she complained of abdominal pain and an intense desire to urinate, but she could not. She had a convulsion and lost consciousness. She regained consciousness but lapsed into stupor and died at 7 a. m.

At the necropsy, held at 11 a. m. the bladder was found to contain only 30 cc. of urine, showing that the desire to micturate was merely a reflex. We were surprised to find the abdomen filled with clear liquid resembling ascitic fluid, as this was contrary to the results of physical examination. Indeed, it was with a feeling of relief that I found on closer examination that the fluid was watery stomach contents. It is significant as indicating the preservation of secretory and motor power almost to the last, that two samples of stomach contents vomited during the night before death and the peritoneal fluid, showed peptonization although no free HCl was present, and there were sarcinae and a little grumous blood present. The peritoneal fluid also contained numerous leukocytes. Although milk had been taken at midnight, and the escape of stomach contents into the peritoneum occurred probably at 5 a. m. the stomach had already passed the midnight meal into the bowel and the liquid in the peritoneal cavity was mainly water, of which the patient had drunk abundantly. I may mention that I was out of town for a day or two before the patient's death, arriving just in time for the necropsy.

The necropsy was performed by Dr. N. G. Russell, Dr. F. H. Lattin being also present. The clinical diagnosis of hepatic sclerosis was verified, as well as the estimate by auscultatory percussion, of the size of the liver. Beginning fibroid changes were also found in the kidneys, and a calcified nodule in the mitral valve, the endothelial covering being smooth, so that no antemortem evidence had been presented. Otherwise, conditions were normal, except with regard to the stomach.

On the greater curvature of the stomach was a kidney-shaped ulcer, approximately 5 cm. by 10 cm. This presented two small bean-sized elevations of inflammatory tissue, not carcinomatous. The possibility of cancer had been considered clinically, and the question had not been decided, except to rule out a large tumor. The ulcer was deeply excavated in a circular area 2 cm. in diameter, and this portion was adherent to the mesocolon. Perforation had occurred through the mesocolon into the greater peritoneal cavity, the lesser not being involved at all. The perforation admitted the index finger to its full length. There was evidence of very slight hemorrhage, either into the stomach or peritoneum, and even macroscopically, the area of ulceration was indurated and the vessels sclerotic.

Because angiosclerotic changes usually occur in connection with fibroid degeneration of the kidneys, liver, and other organs, often especially marked in the liver, ulcers of this kind are, at first, with difficulty distinguished from varicosities due to back pressure in the portal circulation. For entirely different but obvious reasons, the possibility of cancer is usually also considered. In a case like this one, under observation for some months, the minuteness of the hemorrhages and the comparatively mild degree of hepatic contraction enables one to rule out back pressure hemorrhages quite positively, and the duration of the case without palpable tumor or copious dribbling or shreds of cancer tissue, enables one to exclude cancer, except in the sense that malignant degeneration of an ulcer is always to be held as a reserve diagnosis.

BIBLIOGRAPHY.

- ¹ Philadelphia Medical and Surgical Reporter, December 8, 1894.
- ² "Magengeschwür und Magenblutung," reprint from Die Deutsche Klinik, 1904.

TREATMENT OF STRANGULATED HERNIA IN THE VERY OLD.¹

BY

DAVID PEYTON, M.D.,
of Jeffersonville, Ind.

With the possible exception of appendicitis, probably no other subject has received so much attention from surgeons as hernia. Yet its increasing frequency and the fact that practically all hernias, if the patient is not cut off by some intercurrent trouble, sooner or later become strangulated, serves to impress surgeons with the fact that this is a fertile field for thought and work. Hernia, *per se*, is not a menace to life, and only indirectly, insofar as it is liable to become irreducible, obstructed, and finally strangulated. Yet it cripples the normal power of an individual, and lessens his earning capacity. For the foregoing reasons, we are warranted in plainly advising all patients suffering from hernia with few well-defined limitations, to submit to operations for radical cure. Hernia, with its divisions and subdivisions, is such a vast subject, and one upon which so much has been written, that it is not my intention to tax the patience of this Association in a lengthy review of the literature on the subject, but only to present some practical points on strangulated hernia as we find it in the very old.

No doubt every surgeon has gathered from his own work, as well as from the experience of others, certain well-defined ideas that he holds as important factors in the success of this particular class of cases. A hernia is said to be strangulated when, in addition to being irreducible and obstructed, there is an interference with the circulation of the blood in the contents of the sac.

We come now to the mechanism or pathology of strangulation, which is not yet satisfactorily explained. Berger summarizes the various theories which have been advanced, as follows: (1) Elasticity of the ring; (2) compression of the efferent by the afferent end of the loop; (3) angulation, or sharp curvature of the distal end; (4) valvular folding of the mucous membrane; (5) torsion of the imprisoned loop; (6) interposition of the mesentery, which, in the efforts of the intestine to free itself, is spread out like a fan with its apex toward the ring; (7) fecal impaction. The cause of strangulation is not fully explained by any of these. Strangulation of a partial enterocoele, with a narrow orifice, may be accounted for by elastic compression, but when the orifice is large, it obviously has no support. Obstruction may be, in a way, explained by other theories, but with the possible exception of a volvulus, they do not explain the interference with the circulation. I believe the process of inflammation of the imprisoned loop offers a satisfactory explanation. Of course, obstructive venous congestion is the first step in the inflammatory process. May it not be that this inflammatory process, begun in obstruction, by pressure engorgement, is the result of increased activity and virulence of *B. coli communis*, and several varieties of the staphylococcus and streptococcus, which process, if not arrested, results in gangrene and death? Strangulation takes place more often in middle and advanced life.

The symptoms of strangulation are both local and general. We have the evidences of intestinal obstruction: Pain, inability to reduce the tumor, tension, and tenderness on pressure, as well as loss of impulse. We have nausea and vomiting, the vomit at first consisting of the contents of the stomach, later bile, and finally it may be fecal in character. The treatment is, of course, operative only, and the earlier the operation, the more satisfactory will be our results. With a very few exceptions, such as the patient being in extremis, when time is of more importance than a radical cure, or sometimes,

¹ Read before the Indiana State Medical Association, in Indianapolis, June, 1904.

in the very old, in whom the tissues are in a very low state of vitality, a radical cure should always be attempted or aimed at. In the matter of taxis, I am quite agreed with Dr. Frank D. Smythe, of Memphis, and others, that it would be better for the subjects of hernia if the word "taxis" were left out of the treatment in future textbooks. Unfortunately, it only serves as a means of great injury to an already weakened and damaged intestine, and, I doubt not, many a life that could have been saved by an early operation, has been sacrificed by reason of the time lost in its practice. It may be the means of reducing the hernia *en masse*, without the strangulation being relieved; in all cases the sac must be opened. I am borne out by statistics, and the experience of surgeons in general, in the statement that the very old, bear operation quite well, indeed, and that age should not serve as an excuse for denying to those suffering from strangulated hernia, the advantage of an early and radical cure—operation. The advantages of an early operation are so manifest that it is unnecessary to mention but a few of them. Most important of all, an early operation means the escape of gangrene of the incarcerated gut, with all its dangers, finally necessitating a resection. The danger of a general peritonitis is obviated. Unfortunately, in many instances, the surgeon is not called until valuable time has been lost by "taxis," when it is found we have a necrotic gut to deal with, a resection beyond the line of necrosis, and an anastomosis by Murphy button are necessary.

When the sac is opened, if it is found to contain omentum, this should be well pulled down beyond the point of constriction, transfixed, ligated, and cut off. If a knuckle of intestine is also found, it should be carefully inspected, and if of sufficient vitality, should be returned to the cavity. We must bear in mind the danger of a greatly weakened intestine, if returned to the abdomen, being attacked and broken down by *B. coli communis*, resulting in gangrene, perforation and general peritonitis.

In the very old, the minimum degree of general anesthesia is very much desired, so that the injection locally of Schleich's solution, along the line of incision, has proved of great advantage by reason of its local effect. Dr. Bodine, of New York, operates almost entirely under cocaine as a local anesthetic, and attributes much of his success to this fact. Dr. Wyeth, of New York, has also been employing it with very satisfactory results. When the heart is weakened, as is frequently the case in the very old, the use of oxygen alternating with ether is an excellent precaution. It should be borne in mind, too, that old people do not stand confinement to bed for any length of time, so it is of the greatest importance to get your old patients out of bed and in an invalid chair in not longer than four or five days. Turn them to the sound side in 24 hours after operation. Oftentimes the success of your case may be determined by your being able to get your patient out of bed in a few days. Do not be afraid to give the stomach absolute rest for the first 24 hours, your patient will be the better for it. Another point in detail, is the handling of the redundant or relaxed tissue of the abdomen in the very old. To prevent it from folding over and displacing the gauze and resting on the wound, is often difficult. This may be accomplished by fixing a strip of adhesive plaster between the median line and the wound, drawing the lax tissue well toward the sound side and fixing the other end of the adhesive strip well over to the sound side.

The subject of this paper was suggested to my mind by reason of a patient upon whom I recently operated. The patient, Mrs. G., aged 84, made a perfect recovery. Her extreme age caused me to write to quite a number of very prominent surgeons, asking for their limit in successful strangulated hernia cases, and such comments as they wished to offer. It is almost the unanimous

opinion that advanced age is not a bar to successful operation for strangulated hernia, if surrounded by proper precautions; also many of them pointed out the danger of taxis. The following is a list of the various surgeons heard from and their oldest patients successfully operated upon:

Dr. Ranschoff, Cincinnati, patient about 75; Dr. B. Merrill Ricketts, Cincinnati, patient 76; Dr. P. S. Conner, Cincinnati, patient 83; Dr. Joseph Rilus Eastman, Indianapolis, patient 71; Dr. Edwin Walker, Evansville, Ind., patient 82; Dr. Smythe, Memphis, Tenn., patient 77; Dr. J. B. Murphy, Chicago, patient 66; Dr. William J. Mayo, Rochester, Minn., has operated on five patients over 80 for strangulated hernia; Drs. Cartledge and Bullit, Louisville, patient 75; Dr. John Young Brown, St. Louis, patient 70; Dr. William B. Coley, New York, patient 80, cocaine used as local anesthetic; Dr. DeForrest Willard, Philadelphia, operated on a patient aged 95, the patient lived for three years after operation; Dr. Ochsner, Chicago, oldest patient 81; Dr. Oliver, Indianapolis, Ind., oldest patient 78; Dr. M. F. Porter, Fort Wayne, oldest patient 70; Dr. Arthur D. Bevan, Chicago, oldest patient was 70.

I now come to the report of the case in point:

Mrs. G., aged 84, had suffered for about 15 years from an irreducible femoral hernia of the right side. On March 23, 1904, while walking the floor at 7 o'clock in the evening, the hernia suddenly became strangulated. An examination disclosed the fact that it was strangulated, and the milder means were resorted to, to see whether or not reduction were possible, but it was soon determined that such efforts were futile, and operation was decided on, and at 2.30 a. m., seven and a half hours after strangulation, the patient was on the table. Schleich's solution was used locally, and inhalations of ether and oxygen were alternately given. The tumor was found to be quite large, and rather a long incision parallel with, and just below Poupart's ligament, was made, exposing the sac, when it was found that the ring was so tightly constricted as to require nicking at several points in order to release the sac, which was opened and found to contain a large mass of omentum, firmly adherent to the neck of the sac. Posterior to the omentum was found a knuckle of small intestine, tightly constricted, which was found to be in a good condition and not adherent, and returned to the cavity. The adhesions between omentum and sac and surrounding tissues were broken up. The omentum was pulled well down below the point of adhesions, transfixed, ligated, and cut off. The same steps were taken with the sac, and the stumps returned to the abdomen. Several plans for closing the ring have been advocated, but the two deserving special mention are the pursestring and the Bassini methods. Personally, I prefer the former, or closing by pursestring, which method was used in this case.

This patient made an uninterrupted recovery, and was able to walk to her dining-room at the end of about 17 days, and this, in spite of the fact that all during her case she was suffering from a bad Colles' fracture that had not done well, and was giving her much pain.

Indian Doctors of Old.—Undoubtedly the American Indian in his primeval state was a fine specimen of physical manhood. Dr. E. J. Kempf, who has made a careful investigation into frontier history has found that before the Indians were contaminated by the white race they were never afflicted with small-pox, measles, tuberculosis, gout, scurvy, insanity, nervous diseases, nor any other of the ills and blood affections which have in late years made such terrible inroads upon the numbers and vitality of the red men of this country. The only bodily afflictions which Dr. Kempf reports to the *Medical Record* that he found among the aborigines were fevers and diseases produced by cold, such as pleurisy, pneumonia, rheumatism, dysentery and wounds from accidents or battle. Naturally, the remedies of the Indians were simple and few in number. When sick an Indian refused all kinds of stimulating aliments, but drank profusely of cold water. In addition to this, in proper cases the Indian resorted to sweating, purging, vomiting and bleeding, and finally, when all remedies seemed to be ineffectual, the medicine man was called in to try his amulets and incantations on the patient. These methods of cure are still resorted to among blanket Indians who are removed from the influences of civilization. But before we smile or condemn these practices we should consider our own history. It was only a few generations ago that our ideas of medicine were almost as crude as those of the Indians. The more intelligent of the white people then, of course, did not resort to magic and incantations, but the concoctions which they manufactured to cure diseases almost pass belief. Oliver Wendell Holmes, in his "Medical History of Massachusetts," has made a permanent record of some of the practices then prevailing among the colonists. Governor Winthrop was a devout believer in the efficacy of sow-bugs, while Rev. Cotton Mather used upon his sick friends such absurd and foul pellets and medicaments as no Indian ever dreamed of.—[*Kansas City Star.*]

SPECIAL ARTICLES

SOME MEDICAL AND SANITARY EXPERIENCES IN A PORTION OF THE PHILIPPINES.¹

BY

BENJAMIN J. EDGER, JR., M.D.,
of Fort Brown, Texas.

Captain, Medical Department, U. S. Army.

I approach the discussion of this subject with no small degree of temerity, not only because of its breadth, but also of the difficulty medical men experience in delving into the innermost depths of Filipino customs and surroundings. It might be thought an easy matter after becoming well acquainted with intelligent Filipinos to be able to observe and talk with them on any subject connected with their future physical welfare, but although their desire to recover from illness and their firm belief in the power of drugs and the skill of the American physician is of the highest, no one is able to get at the whole story, even though the questioner speaks their native language or is able to converse with them in their adopted tongue—Spanish. There is always a feeling important points are being held back from you. It is believed such was the condition of affairs, especially with those mixed up in the insurrection, and this was nearly every one, in the provinces where it was my good fortune to study them from every standpoint, socially, medically, etc.

Take for example, being called to see a case of lateral or posterior sclerosis and attempting to go into the family history of such a patient. Probably the father, brothers or cousins would be officers in the insurrecto columns from the very town in which you were speaking, and having command of hundreds of guns. In all likelihood their relatives would be in a ravine or in a camp as yet unknown or undiscovered by the American officials, on the very outskirts of the town. These facts would be all well known to your patient, and the moment attempts at eliciting a family history were begun, expressions, such as "All the relatives were dead," or "In Manila for the last 20 years," or some other negative or distracting answer would be given. They were always on their guard about such matters, and it is safe to say, continuously suspected American medical men were inquiring into their private or family affairs for the purpose of disposing of them or getting the information for the military authorities. In some instances the latter was probably the case, but in the majority the relation of the patient and medical adviser, I doubt not, was aimed at being preserved. It would be interesting reading to note how often a family or previous medical history was developed in the insurrecto relative class of cases. To get one, I am sure, required more than ordinary tact and was well nigh impossible with a native who had any previous educational advantages whatever.

As might be expected there is a wide chasm in the beliefs and customs of the educated and the ignorant natives, the latter being in the great majority; and of course a correspondingly wide chasm in the ease with which their maladies are approached. So far as my knowledge and observation went, I was able to come to what I think a proper conclusion, that there was certainly a form of slavery existing among what is conceded to be the most highly developed race, "The Tagalogs." It is surprising to note the influence of the wealthy inhabitants, and the respect and the homage paid to them by those not blessed with riches. At a large birthday reception given by a wealthy Filipino who had been a patient of mine, and to which I was invited with the other army officers of the station, there was not a native of the city who, on entering and departing from the feast, did not kiss the host's hand after almost kneeling to the ground. The occasions have been many when wealthy and middling class Filipinos have brought their "criados," or servants, to me for professional advice, and would state in an off-hand way that the patient was indebted to them to such and such an extent for clothes and board, and request my opinion as to when their charges would be ready to go to work again, as it was feared the increase of the sum already due for board

and clothes and medical attendance, being augmented during their illness would be more than could be worked out in the lifetime of the servant. A poor native man sick or well in the Philippines is of value as long as he is able to work. He cancels his debt of work to the wealthy man, he is accustomed to look up to, when he is hopelessly diseased or dies. The laboring native is responsible, I have been told, for all live stock, horses, caribous, and implements in his possession, and their death or destruction always means an increase of the laborer's debt, and hence the period of days, months, or years he must serve the man who has put the animate or inanimate tools in his possession.

The hygienic condition surrounding such a people must necessarily receive consideration in a paper with this title, but justice could only be done and the real state of affairs understood by an exhaustive writing in the sanitary direction alone. It is hoped the few words given under each heading will at least give some idea of what men educated in American colleges must contend with in trying to deal conscientiously with sick Filipinos when called upon. First as to the people themselves, my experience has been as previously stated almost solely with "Tagalogs," and from a medical man's standpoint, may be divided into that among the intelligent and that among the ignorant. In general this first division includes the rich, and middling wealthy classes or self-supporting class. The second division, which unfortunately is in the majority, includes the poor laboring man or peasant, who although he may have his own hut, shack, or house, is entirely dependent on the other class for the piece of land he is allowed or made to cultivate and for everything else he possesses.

The Filipino physician and the practicante or advanced medical student and druggist belong to the first class, and between them have both classes entirely in their control, and I may add, seldom if ever in a charitable way. In fact I do not think I would be far wrong in stating that nearly all cases are either sent or brought to the American medical man through their agency. One thing is almost certain that the ordinary peasant or poor man, of his own accord, has up to this time been too much possessed of fear for all classes of Americans to consult an American physician.

The majority of poor natives I have seen have been through the native practitioners. The latter in the majority of cases exhaust their various combinations or skill, demanding all kinds of fees, and when they arrive at the conclusion the patient is going to die or is not progressing under their treatment they advise consulting the American. In this manner pneumonia is seen on the seventh and ninth days after a diagnosis of fever has been made and the patient allowed to roam around; cough is looked upon as a pulmonary tuberculosis; or a fractured rib is diagnosed as a severe pleuritic pain in the chest and painted with iodine; or a ganglion on a tendon sheath is thought to be malignant; severe cases of dysentery are diagnosed hemorrhoids without the faintest attempt at an examination; wounds are simply spoken of as such, there being apparently in the opinion of the native medical man nothing in what is underneath, whether it be a compound fracture of the knee with a ruptured anterior tibial artery, necrosis of the tibia with sinuses leading down to the bone, or what not.

These are a few of the many errors I have seen very good Filipino physicians and practicante make, and in my opinion all due to their lack and unwillingness to make proper physical examinations, and their ever-prevailing custom to treat symptoms. It is not in quite a few cases, I believe, due to their incompetency as I have heard of their doing some clever surgical work such as cesarean section. Their knowledge of hygiene is nil. One of the foremost physicians of San Pablo, Laguna Province, while we were looking over the sanitary condition of that city, described to me in a most detailed and elaborate manner that the cause of malaria was a miasm or a peculiar something coming out of the ground especially at night, and attacking the people while they sleep. He had heard at some time or read in some place that leprosy was contagious and apparently knew the six cases we discovered in his native city should be segregated, but it apparently never occurred to him to do it, or else he was unmindful, as Filipinos generally are, of the welfare of others. He was among the first

¹ Published by permission of the Surgeon-General, U. S. Army.

to make an appeal to allow some of the lepers to go every other day to their homes to visit their relatives. One morning I was called by this same physician to see a case of bubonic plague in a Filipino woman, aged about 40. He lost no time in exposing a left-sided inguinal bubo well advanced in the stage of supuration, but as yet unbroken. Examination showed her suffering from a badly infected lacerated wound behind the left inner malleolus. The cleansing of the latter and the opening of the bubo led to her complete recovery.

Principally through American army officers the Filipino race has been shown we are clean and mean to keep our surroundings clean, but I doubt whether the real meaning of it all was apparent to one out of a thousand Filipinos. When the native physicians and practicanes were seen going on in the same old unsanitary way after having everything elaborately explained to them, the outlook certainly was not favorable for the people of the islands, as far as cleanliness is concerned. One thing to their credit is the manner in which they sell quinin in capsules to their fever patients, which certainly proves a great boon to many, although as mentioned, the diagnosis of malarial fever is never established.

It has often been remarked by many white men in the Philippines that the bodily cleanliness of Filipinos is as thorough as in any race of people. If cleanliness be attained without the use of soap, I agree with this assertion, as there is not a stream anywhere throughout the island where I was located, where the surrounding inhabitants could not be found daily scrubbing themselves with a small rock and making free use of the running water. Afterward, and almost daily, they are seen in freshly starched and cleaned suits and dresses of all colors, from the head down to the smallest one of the family. Let any kind of disease come upon them, however, and, in the opinion of all, water for any purpose is a most dangerous substance. By most strenuous arguments, I have been enabled in some few cases to have native patients bathed for fevers, and those suffering from other maladies given cleansing baths.

The question of diet has been one which has given me as much concern as anything in the whole category of disadvantages attending the treatment of Filipinos. Even in typhoid fever in the better classes, one is lucky who separates them from their rice and fish diet, no matter how often and thoroughly the nature of the disease is explained, and what is demanded. Fresh milk in these cases is very often out of the question. Although goat's milk and cow's milk may be gotten in some places, we depend mainly on condensed milk or strained soups made from rice, chicken, or caribou meat, when the rationale of feeding this class of food can be gotten into the native brain. Too often in dysentery cases the patients are treated by the native doctors with large and frequently repeated doses of opium, and not the slightest attention or consideration given to diet. In treating poor Filipinos my main dependence was placed in the persuasive powers of the practicanes to carry out the proper measures, but in the great majority of cases it was plainly in evidence their efforts were fruitless. An equally important subject which demands the attention of advanced medical men in the treatment of disease, and which is almost if not entirely lacking in the Filipino race, is that of sanitary surroundings. Even in the finest houses of one of the wealthiest cities of Luzon, Lipa, Batangas Province, the lavatory and sink are in close proximity to the kitchen. Not until the American occupancy was the effort ever made to dispose of the excreta, even by the wealthy classes, hogs being supposed to look after this part of the program. Now almost in every town, holes are dug, and a modified dry earth system is in operation.

Nipa huts, although generally built high above the ground or the water in the villages, have bamboo floors, permitting a circulation of air at all times, but the presence of caribous, pigs, horses, cats, dogs, chickens, and other animals beneath the floors pollutes the soil and vitiates the air to such an extent as to nullify any advantage which could possibly come from the arrangement. Air space for individuals is not considered, the occupants of one house having barely enough room to turn around in while sleeping. It is small wonder that a Filipino is constantly seen scratching some part of his body, as being without knowledge of the dissemination of disease, vermin, such as pediculi, and skin affections, such as scabies, tinea circinata,

tinea versicolor, pemphigus, ecthyma, etc., have fine invitations to take hold of them at all times.

Filipinos were great believers in the use of chamber-pots, being afraid to get out of their houses at night. Many insurgent camps were at the heads of streams on the highest mountains, and as many of the insurgent officials had their families with them, the fine, clear, cool mountain streams, which many of our soldiers believed could not by any possibility be contaminated, and drank of freely, contained the eggs of many classes of intestinal worms, but principally *Ascaris lumbricoides*. The cases of round worms I have seen in Filipinos are almost innumerable, and their absolute inattention and ignorance of the source of these parasites cannot be told them. The many cases also seen in soldiers are undoubtedly due to their confidence in the nature of the water in the mountains, not thinking about or overlooking the many possibilities of the Filipinos being in the immediate vicinity, suffering from all classes of intestinal diseases, and the Filipino disregard of the welfare of others.

One is impressed with the variety of diseases seen in the Filipino native. Beside those previously mentioned, may be cited the many cases of simple goiter of all sizes seen in probably one woman in five, and in many men; pulmonary tuberculosis; coxalgia; fatty, fibroid, and ovarian tumors; pseudo-leukemia; congenital and acquired hernia; tuberculous glands in various regions of the body, especially the neck; venereal diseases; beriberi; harelip; paralysis; ear affections; skin diseases, etc. I have never seen a case of cancer in a Filipino.

Obstetric practice was not very extensive in the Philippines, as this branch of the art was given over to the oldest and seemingly filthiest of women among the poorer classes, and to the native physicians and the practicanes in the better classes. After delivery, the mother has a rope or twisted apron tied tightly around her waist above the umbilicus for an abdominal binder. Vulva pads are also used. The treatment of the umbilical cord is nearly always the same in all classes. After being cut and tied with any sort of a string, sterile and antiseptic methods being unknown to the majority of those who are or should be expected to know, some ashes from a cooled wood fire are dusted on and a light binder thrown around the child. After the cord drops off it is regarded as a charm by almost all the ignorant class and, done up in a small sac, is very often worn around the neck with their cross. I have often found these fixed up, after this fashion, in the insurgent cuartels or camps in the mountains.

Upon one occasion I was called to see a rather refined young Filipino woman, a primipara, who had been delivered several days previously of a fairly good-sized male child. She was suffering from puerperal convulsions. Entering the room, I noticed the old midwife and another young girl; each had hold of either end of a twisted sheet, which encircled the patient's abdomen immediately above the umbilicus, and they were pulling as hard as they could, making a waist ordinarily of about 25 inches, one of about 12. Upon inquiry, the information given me was that this procedure prevented the blood from the seat supposed to be diseased—the uterus—from getting into the upper part of the body to cause the spasms, which they had noticed started with twitching of the muscles of the face and fingers. As this same performance was gone through in a subsequent epileptic case seen by me, the inference was natural that the treatment for convulsions was identical, whatever their nature. Fortunately, the patient with puerperal eclampsia recovered, notwithstanding the fact that, contrary to my orders and pleadings, these same two women were found swinging on each end of their improvised abdominal tourniquet every time I was called in to see the woman in a convulsion.

In April, 1902, a Filipino member of the sanitary corps of San Pablo came to my house and told me his wife, a multipara, having had five children previously, had been in labor for 48 hours, and described the child as having one arm born up to the shoulder for 36 hours. He further stated that the native physicians had been to see her and had stated their inability to deal with the case, and held out a grave prognosis. Bed clothes are seldom in evidence with Filipinos, although the coolness of the nights demands them for Americans, so that upon entering a screened-off place of the room the patient was seen to be having severe pains at about three-minute intervals and the upper extremity of the child, gangrenous, black, and studded with

blebs, born as described, almost to the shoulder, and swollen so as to occlude the vulva orifice, and about four times the size of an ordinary child's forearm. As soon as anyone gets sick in a Filipino family, one part of a room is screened off by means of screens or sheets, a roof of sheets put over it, and the patient put within, so as to avoid the very bad effects of the wind, which is prevalent in the Filipino mind. They believe the less air a patient has the better. A diagnosis of transverse position of the fetus, with the head to the right and back toward the accoucheur, was easily made. Heart sounds not to be heard. Meconium was plentiful on the "patate" or mat generally used by nearly all orientals to sleep upon. After chloroforming the woman, a podalic version was easily accomplished, and although the child was born dead, the mother made an uneventful recovery.

A further illustration of the knowledge or ability of some native practicante, and especially one who had considerable practical experience, according to his own story, in the San Juan de Dios Hospital of Manila, was furnished me in a case of lateral sclerosis of the cord, which was brought to my attention.

The man had the disease for several years, ascribing it to his association with bad women. It had been told me before entering the house that the patient had not passed his urine for almost 48 hours, and if the outlines of the bladder on the abdominal wall reaching almost to the umbilicus, speak for anything, this must have been the case. From about 20 different points over the abdomen below the umbilicus was exuding blood, which was done by leeches, put on by order of the practicante, with the idea of extracting the urine by these channels. Along the course of the femoral artery of both legs were large blisters, produced by cantharides, put on with the same object. The very easy introduction of a catheter and the withdrawal of an enormous amount of urine, allowed the patient to get up and walk around to the great amusement of the whole family, who really believed there was no hope for him. First Lieutenant William J. L. Lyster, Assistant Surgeon, United States Army, saw the patient with me.

From a surgical standpoint, the Filipinos seem to have considerable vital resistance, else more must necessarily die of septicemia and pyemia, resulting from the utter disregard of all aseptic principles by those natives supposed to be qualified to administer to their wants. Of course, little help in carrying out the best kind of asepsis can be expected in their own homes, and in the improvised hospitals they must be constantly watched, to prevent them from taking off their dressings.

In San Pablo, Laguna Province, the existence of a fairly good Municipal Hospital allowed me to transfer most of the surgical patients from the Military Hospital as soon as was safe. My first visit to the Municipal Hospital resulted generally in finding splints, and most of the dressings off gunshot fractures, and attempts made at walking around, notwithstanding many words of good advice on the evil consequences of their actions.

It is very much harder to induce even an intelligent Filipino to submit to operation I think than an American, as he is always hopeful the malady, by some good chance, will pass away. Many of the sick natives have been suffering from hemorrhoids for years and using the stock prescription of the native physicians of extract of belladonna, iodoform, and vaselin during all this time. The patients operated upon by me for this condition never finished talking about their change, some having suffered from this complaint as long as ten years.

The following cases exhibit the great vitality possessed by Filipinos:

G. C., a Tagalog insurrecto, was shot on March 18, 1902, receiving a perforating abdominal Krag-Jørgensen wound; left side. The wound of entrance was immediately over the junction of the cartilaginous and bony portions of the tenth rib with fracture thereof. The wound of exit was in the mid-axillary line about an inch behind and immediately below the twelfth rib. He was put on a native pony and brought into the Military Hospital, San Pablo, about four hours after the receipt of the wound. He had an extremely rapidly running, weak pulse, swelling of the whole abdominal cavity, and dulness in the flanks. It was clearly evident the man was suffering from internal hemorrhage, and after anesthetization I made an incision from the wound of entrance along the left linea semilunaris for about four and a half inches. As soon as the peritoneum was incised, blood was seen to fill up the whole abdominal cavity, and was welling out in profusion. Digital examination showed the lower one and a quarter inches of the enlarged spleen shot away, and the warm blood could be felt exuding from this point. The splenic region was quickly packed off with a plentiful supply of sterile gauze, the whole abdominal cavity flushed out with sterile water until the fluid came clear and free from pieces of splenic substance, and the

intestines carefully examined for perforation with a negative result, as was to be expected from the course of the bullet. Through-and-through silkwormgut sutures were introduced, the lower two being left untied, and the drain brought out in the lower end of the wound. Three days later the drain was removed and the abdominal cavity again flushed out, the last two sutures being tied at this time. The man made an uneventful recovery, and left the hospital April 7, 1902, well.

A. G., acute synovitis of the ankle-joint. The patient was enjoined after getting appropriate treatment, to remain in his house and rest, but instead, he went to Manila, where he remained for nearly a month with the same lead-water and laudanum dressing he had put on the part at my hospital. He returned with a pronounced limp, and removal of the dressing showed his foot riddled with suppurating sinuses, and probing revealed necrosed, loosened bone at their endings. Amputation was done at the middle of the leg. Union by first intention was obtained in this case, but he had to be constantly watched to prevent tearing off the dressings.

There is much of interest which a practitioner in the provinces of the Philippine Islands, especially if he is connected with the military organization of a station may see aside from his every-day routine duties in a military hospital. It does not take the inhabitants long to observe the American soldier is treated on diametrically opposite lines from what the native is accustomed. One day it would be known a soldier was sick in the hospital, and probably the next, seen lined up in a squad ready to march out on an expedition against their rebellious fellow countrymen. They observe our funerals are of less frequent occurrence than theirs, and they ascribe it to something superior in American medicine, and to those who are employed in the sanitary and medical part of the work, and no amount of argument could convince them to the contrary. They refuse to believe specially selected young men for an army should be free from disease and proof against death.

From a professional as well as every other standpoint the most interesting time of my service in the Philippines was during the cholera epidemic which raged so virulently in 1902. In one city under my sanitary control the population was decimated, no less than between 1200 and 1300 deaths, occurring in a period of six weeks. It was no unusual sight to see whole families of as many as father, mother, four, five and six children wiped out in a single day. The exact number who succumbed to this scourge, will probably never be known, as the deaths which occurred were, on account of a strong racial trait to deceive, in many instances never reported, especially by the more ignorant natives who lived in the outlying districts.

Despite well-organized rules and methods in vogue, these unfortunate people in the majority of instances disregarded everything we could say or do for their welfare, and even went so far as to accuse us of poisoning their water-supply. Very often the priest would be influenced by his religious precepts and encourage the holding of funeral parties and receptions, and the deaths of a good number of people were traced to these gatherings. We could not depend on his support and in the end were compelled to ignore him entirely. A curious fact about these epidemic times was that the wealthy people were seldom affected, and I never saw a Chinaman with cholera. In the case of the Chinese, many of whom are the principal merchants all through the islands, I ascribe their singular freedom from the disease, to the fact that they habitually drank tea instead of water. The wealthy classes in the cities and towns, where I was stationed, in nearly every case, had rain-water cisterns connected with their dwellings and of course escaped temptation to imbibe the water from the springs, rivers and other contaminated sources.

A beautiful illustration of the effectiveness of quarantine measures was given during the cholera epidemic in the brigade commanded by General J. Franklin Bell, U.S. Army, during the days which culminated in the breaking up of the insurrection, headed by the insurrecto General Malvar, in Batangas Province. Cholera was known to be raging all around, but there was not a single case in the zone where the natives were concentrated in the towns and cities, and no one allowed to come in or go out. With Malvar's capture the country was virtually opened up, it being impossible to control their goings and comings, and from this time on the disease gained a foothold which will not soon be forgotten by those who were brought into direct contact with the many, many unfortunates who succumbed to the malady.

A perfect quarantine among these people is almost impossible, and will be until the ignorant are better educated, can be made to understand the full meaning of spoken words and the enforcement of laws. These are but a few of the many things which came to my notice as well as to the majority of medical officers who served among these people during 1900 to 1902. The peace conditions, certainly, in the localities where my experiences were gained were far from satisfactory in those days, and as a consequence, many important details have been necessarily omitted on account of having been forgotten, not having been noted at the time because of other duty with expeditions or on marches after the insurrectos. Constant association and influence of Americans is bound to have its beneficial effects on the Filipino. He advanced from almost a savage state to the better advanced, progressive Spanish methods by force. It is impossible to tell what he will do in coming years when given the advantages of free American ways and liberality. The changes which have come to my notice in the last two years are startling, and with a continuance of the good work, the future of those islanders cannot be anything but bright.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 11, 1905. [Vol. XLIV, No. 6.]

1. Symptomatology, Pathology and Treatment of Choreiform Movements. WILLIAM G. SPILLER.
2. Convulsive Tic. HUGH T. PATRICK.
3. Hysterical Movements. HOWELL T. PERSHING.
4. The Radical Operation for Empyema of the Frontal Sinus. W. FREUDENTHAL.
5. Present Status of Antituberculosis Work in the United States: Suggestions for a More Effectual Cooperation of Authorities, Philanthropists, Physicians and Laymen. S. A. KNOFF.
6. The Association of Optic Neuritis and Facial Paralysis. EDWARD A. SHUMWAY.
7. A Bacteriologic Study of the Blank Cartridge. DAVID H. DOLLEY.
8. The Present Status of Surgical Intervention in Retrodeviations of the Uterus. LUCY WAITE.
9. Bloodless Perineal Prostatectomy under Local Anesthesia. MARTIN B. TINKER.
10. Immunity. Chapters III and IV.

1, 2, 3.—See *American Medicine*, Vol. VII, No. 24, p. 926.

4.—See *American Medicine*, Vol. VII, No. 26, p. 1011.

5.—See *American Medicine*, Vol. VIII, No. 3, p. 98.

6.—See *American Medicine*, Vol. VIII, No. 7, p. 270.

7.—See *American Medicine*, Vol. VII, No. 15, p. 581.

8.—Surgery in Uterine Retrodeviations.—L. Waite asks:

1. Are operations necessary? 2. Are they safe? 3. Have they proved successful often enough to warrant their continuance? She answers all these questions practically in the negative. Uncomplicated retrodeviations produce no symptoms. The uterus is normally mobile. It cannot be claimed that it is in a more normal position fixed in the abdomen by suspension than when pathologically fixed in pelvis, especially as it is a pelvic organ. It is the complications and not the deviation which should be treated. Alexander's and similar operations can be performed only in uncomplicated cases and therefore are not needed at all. In regard to the second question, the gravity of the operations is out of all proportion to the results obtained. In abdominal procedures, statistics reveal many cases of sepsis, hernia, interference with labor, intestinal strangulation, etc. Next in point of dangerous results is vaginal fixation. Shortening the round ligament is the least objectionable, but fails in a large percentage of cases. As to the third question, the greatest objection to ventrofixation and suspension is that they are a "success orthopedically," in too many cases thus entailing the disastrous results enumerated above. [H.M.]

9.—Bloodless Perineal Prostatectomy under Local Anesthesia.—M. B. Tinker advocates this method in the aged and debilitated. Spinal anesthesia is unsafe in the hands of the average man. He has not heard of a single death from infiltrations of weak solutions of anesthetic drugs. For the superficial tissues he uses beta-eucain, 1 to 500, with enough adrenalin chlorid to make 1 to 120,000; at a depth of 1 in. to 2 in. he injects from 30 m. to 60 m. of a 0.5% solution of eucain with adrenalin. The adrenalin renders the parts bloodless, prevents loss, adds to the efficiency of the anesthesia, and lessens congestion and pain after the operation. Taking the tuberosity of the ischium

as a landmark, the needle is inserted an inch in front and internal to this. Injecting small quantities as it is pushed forward, the point is carried downward and outward toward the front of the base of the tuberosity until it strikes the bone. The stronger solution is then injected in the region of the ischio-rectal fossa in front of the tuberosity. In order to insure absolute painlessness, the proposed line of incision is also injected. A sound is introduced into the bladder and partially withdrawn so that the tip remains in the prostatic urethra. It requires from three to five minutes to thoroughly numb the parts. During the interval the urethra may be irrigated. In the further steps of the operation the writer follows the method of Young.¹ Exposure of the anterior part of the capsule and enucleation along the sides is carried out in an area that can be thoroughly infiltrated. The deeper enucleation may require, in sensitive patients a little nitrous oxid or primary ether anesthesia. This part of the operation need not consume five minutes. [H.M.]

Boston Medical and Surgical Journal.

February 11, 1905. [Vol. CLII, No. 6.]

1. A Case of Chylous Cyst of the Abdomen. MAURICE H. RICHARDSON.
2. The Active Treatment of Gonorrhea in Its Early Stages. FREDERIC J. COTTON.
3. Glycosuria in Pregnancy. JAMES MARSH JACKSON and JAMES R. TORBERT.
4. I. K. I. Method of Sterilizing Catgut. F. W. JOHNSON.

1.—Chylous Cyst of the Abdomen.—Maurice H. Richardson reports that a boy of 11 suffered from gradually increasing abdominal distention for about a year. He became extremely emaciated, the lower ribs were prominent, and it was evident that a large amount of fluid was encysted within the abdominal cavity. A confident diagnosis of tuberculous peritonitis was made and laparotomy was advised. Richardson was much surprised to find no evidence of tubercle, but on the contrary a large retroperitoneal cyst, with a white fragile wall containing many bloodvessels. The cyst filled the peritoneal cavity and there was strong suspicion that the condition was one of hydronephrosis. The fragile sac, however, was ruptured and a whitish fluid poured out showing it to be a chylous cyst. It was connected in no way with the mesentery and was entirely posteritoneal. The sac was emptied of its fluid and the walls gradually shelled out, a complete removal being effected. The opened peritoneum of the posterior abdominal wall was replaced, the abdomen closed and the boy made a perfect recovery, completely regaining his health and strength. Richardson says the effect upon a conservative mind of being mistaken in a diagnosis so apparently conclusive, is to throw healthy doubt upon the infallibility of one's opinion. [A.B.C.]

2.—Active Treatment of Gonorrhea in the Early Stages.—F. J. Cotton employs a combination of the modern irrigation methods with the still more modern germicidal treatment, believing the combination has definite advantages over either used alone. The practical detail of this method is about as follows: 1. In cases in which treatment is begun at the first appearance of discharge: Immediate gravity irrigation with permanganate of potash 1 to 6,000, as hot as can be borne comfortably, in large quantity, followed by syringe injection of 5% solution of protargol or argyrol held in for 5 or 10 minutes. This procedure is repeated twice a day in the same way, save that at the third injection the silver solution is pushed up to 10% and is held in 15 or 20 minutes. After 3 days the interval is lengthened, the routine is carried out but once a day. At 10 days to 2 weeks the process is usually apparently gone, save for some shreds, and treatment is interrupted to test results. 2. In case there is already a discharge, ardor, and a stiff urethra: Permanganate alone is usually used until conditions improve enough to give the protargol proper access to the urethra wall. Before this it is nearly useless and may be irritant. Usually the protargol can be profitably added to the treatment at the second or third treatment. These cases are not, as a rule, fit to test as to cure before 2 or 3 weeks. 3. In case there is already a posterior infection: The treatment is the same, except that about every fourth treatment a posterior irrigation with permanganate is added. This is usually sufficient and Cotton has never

¹ Journal of the American Medical Association, October 26, 1903.

become convinced of the utility of using silver proteids in the posterior urethra. These posterior cases last longer, and unless the outlook is encouraging, it has often seemed unwise to attempt treatment, even of the anterior process, more than once a day. In any of the cases, if a discharge recurs after ceasing treatment to test results, or in any case in which the disease is not apparently about well within 3 weeks, it is advantageous to substitute irrigations of silver nitrate 1 to 8,000 running up to 1 to 2,000 or 1 to 1,500, or occasionally corrosive sublimate 1 to 15,000 or 1 to 10,000. [A.B.C.]

3.—Glycosuria in Pregnancy.—James M. Jackson and James R. Torbert say it has been possible to divide the cases into two classes: (1) Showing a temporary glycosuria during some part of the pregnancy when no other symptoms existed, and in which the glycosuria was small in amount and varied but little; and (2) showing a glycosuria present in which the amount was larger with a tendency to increase, and other symptoms existed. A number of illustrative cases are reported and the authors conclude about as follows: We call attention to the importance of a systematic examination of the urine of all pregnant women. A low specific gravity does not prevent sugar being present; with a low specific gravity and low solids sugar is frequently met with in the urine. A temporary glycosuria frequently exists during the later months of pregnancy; this may be due to either glucose or lactose, and the recent work of Commandeur and Porchet has demonstrated the fact that this is surely physiologic and that these cases go on to the termination of pregnancy without interruption. When a glycosuria exists due to glucose, and when the amount of sugar is variable, and other symptoms of diabetes exist, when diacetic acid or acetone appear in the urine, the interruption of pregnancy is advised for the possible benefit to the mother. [A.B.C.]

4.—Claudius' Method of Sterilizing Catgut.—F. W. Johnson has employed catgut prepared after the I. K. I. method for more than a year, and during that time has had no wound break down and only one stitch-hole abscess. He states that in every instance in which he has seen the method criticised, the user and not the method was at fault. First of all, clean, strong gut should be selected. Before sterilization, no matter what process is employed, each strand of gut should be thoroughly stretched. In the I. K. I. method of sterilization, the gut should be wound on wide reels if possible, and too much gut must not be put on any one reel. The gut must be wound on some form of spool or reel, else the method will prove a failure. Before using, the gut should be swashed through sterile water—not allowed to soak in it. The advantages of this method are the absolute certainty of a sterile gut, ease of preparation, healing by first intention, and an animal suture material that will not slip and that will tie like silk. The solution is: Iodin, one part; iodid of potassium, sufficient quantity to saturate, and distilled water, sufficient to make 100 parts. The catgut should remain in this solution for eight days. I. K. I. gut should not be used in plastic work in the vagina, as iodine there irritates the mucous membrane, making it an excellent culture medium for microorganisms. [A.B.C.]

Medical Record.

February 11, 1905. [Vol. 67, No. 6.]

1. The Attractive Features of Graduated Tenotomies upon the Eye Muscles. AMBROSE L. RANNEY.
2. On Some Relations of Medicine and Surgery to Jurisprudence. CARL BECK.
3. Choice of a General Anesthetic and Selection of Method of Administration. VICTOR C. PEDERSEN.
4. Cryoscopy of Cerebrospinal Fluid in Epidemic Cerebrospinal Meningitis. JOHN H. BAILEY.
5. Foreign Body in the Bronchus: Removal with the Aid of the Bronchoscope: Recovery. SIDNEY YANKAUER.
6. A Spindle-cell Sarcoma of the Bowels Operated on Successfully. J. B. BOUCHER.

1.—Attractive Features of Graduated Tenotomies upon the Eye Muscles.—A. L. Ranney gives the histories of 20 illustrative cases in which by graduated tenotomies he has restored to perfect health patients apparently suffering from incurable maladies. His experience leads him to consider eyestrain, which may exist without any refractive error, capable of inducing conditions of the utmost gravity, often apparently having

little or no association with the eyes. Among these are asthenopia, epiphora, wry-neck, epilepsy, insanity, nervous prostration, chorea, progressive muscular atrophy, loss of the intellectual faculties, uncontrollable neuralgia, insomnia, and uncontrollable vomiting. Even glycosuria may be relieved by correction of heterophoria, as apparently the close anatomic relationship of the diabetic center and of those controlling the eyes causes irritation of the former when the latter are called upon for abnormal activity. These cases require careful study, and frequently demand the methodic use of prismatic glasses for purposes of diagnosis in order to ascertain latent muscular errors. Tenotomies should never be suggested or performed too hastily, and those who have the largest experience are the slowest to operate, but the author condemns efforts to cure genuine heterophoria by the use of prisms.

2.—Relations of Medicine and Surgery to Jurisprudence.—C. Beck says the medical profession is a noble one, but that its members are apt to neglect their duties as citizens as far as they are not of a hygienic character, and their indifference to legal points is one of the most conspicuous sins of omission in this direction. The law requires of the physician only that he should exercise reasonable skill and knowledge, but disappointed or litigious patients often demand much more than this, and involve the practitioner in legal contests. The various complications and sequels occurring in the course of the treatment of fractures afford a fertile field for the dissatisfied, and the röntgen ray has furnished a means of diagnosis and observation during the progress of these cases that cannot be disregarded, especially as it is beginning to find a place in the court-room as well. The matter of giving professional testimony in accident cases is extremely important, and requires good judgment to estimate the degree of disability, and to detect malingering. Complicated medicolegal questions also arise when chronic diseases like osteitis, arthritis deformans, or malignant growths develop after an injury. Great difficulty in recognizing the etiologic factor is found in the wide field of the so-called traumatic neuroses, and it is sometimes impossible to determine whether an injury was not simply an exciting cause for the manifestation of a disease which had existed before in a more or less latent stage. The most precise scientific knowledge alone is not sufficient, but must go hand in hand with common sense and self-control.

3.—Choice of a General Anesthetic and Selection of Method of Administration.—V. C. Pedersen discusses the question of general anesthesia, both in respect to the qualities of the several agents and anesthetic sequences used, and in regard to the method best suited for various types of cases. In the selection of anesthetics for routine use it is recognized that nitrous oxid is the safest known anesthetic, especially when administered with oxygen. Ethyl chlorid promises rivalry in this connection, but its employment is too recent to warrant a fixed statement at the present time. Ether is the next safest, and perhaps when the length and severity of ether operations are compared with that of operations suitable for the preceding two agents, ether is the safest of all. Ether has many advantages over chloroform, and is five times safer. The various mixtures of chloroform and ether, in point of safety, occupy a middle place between the two drugs themselves, the relative danger being greater, the higher the percentage of chloroform. The conditions covering the selection of anesthetics for particular patients are discussed under 11 heads so concisely as not to permit of abstract.

4.—Cryoscopy of Cerebrospinal Fluid in Epidemic Cerebrospinal Meningitis.—J. H. Bailey has made a cryoscopic study of 69 specimens of cerebrospinal fluid, and though the results are not yet available for practical purposes they have scientific value. Using T as a symbol for the total freezing-point of the cerebrospinal fluid, some of the conclusions reached are as follows: Upper limit of T is $-.815$; lower limit, $-.50$; a variation of $-.315$. The vast majority of cases, however, 79%, ranged from $-.52$ to $-.64$, a variation of only $-.12$. Average T is $-.575$, very close to the normal freezing-point of blood. T oscillates much less than the freezing-point of urine. The greater part of T is due to the sodium chlorid content. T varies not only in specimens from different cases, but, also in specimens from the same case at different times. T is not of

any prognostic significance; some of the patients that recovered showed a high T, others a low T; while the same is true of several cases that terminated fatally.

5.—Foreign Body in the Bronchus; Removal with the Aid of the Bronchoscope: Recovery.—S. Yankauer, by means of a bronchoscope 7 mm. in diameter, introduced through an inferior tracheotomy incision was able to remove an orange-pit from the right bronchus of a child 10 months old. Recovery was uneventful. A very small amount of chloroform was used, the anesthetic being discontinued as soon as the trachea was opened.

6.—A Spindle-cell Sarcoma of the Bowels.—J. B. Boucher's patient was a woman of 38 with a painful swelling in the right inguinal region, and symptoms of beginning cachexia. On operation it was found that the mass consisted of a spindle-cell sarcoma involving the cecum, several inches of the ascending colon and the neighboring glands. Six inches of the small intestine, all of the ascending, and half of the transverse colon were resected, including the glands, and the intestinal stumps united by a lateral anastomosis. Recovery was uninterrupted, and the patient's health a year after the operation is still excellent.

New York Medical Journal.

February 4, 1905. [Vol. LXXXI, No. 5.]

1. Some Observations on the Diagnosis of Renal Calculus, with Special Reference to Diagnosis by Means of the Röntgen Rays. ALEXANDER B. JOHNSON.
2. Binasal Hemianopsia: A Case of Neurotic Optic Atrophy, with Binasal Hemianopic Fields. WILLIAM T. SHOEMAKER.
3. Insects: The Role They Play in the Transmission of Disease. HENRY ALBERT.
4. Gonorrhea in Its Female Pelvic Relations. ELY VAN DE WARKER.
5. The Practical Value of Litten's "Diaphragm Phenomenon" in Diagnosis. WILLIAM N. BERKELEY.
6. Report of a Case of Cerebrospinal Meningitis, Lumbar Puncture, Purulent Cerebrospinal Fluid, Perfect Recovery. SIGMUND A. AGATSTON.
7. Dry Gangrene Following the Application of Carbolic Acid Dressing Covered with Oiled Silk. VERTNER KENERSON.
8. The Nausea of Seasickness. CHARLES W. HOGG.

1.—Renal Calculus.—A. B. Johnson gives some observations on the renal calculus, with special reference to diagnosis by means of the röntgen rays. He says that the positive diagnosis of kidney stone by the röntgen rays is reliable and of great practical value. The negative diagnosis is reliable and valuable up to a certain limit. If pictures of a proper quality are obtained, calculi of oxalate of lime and phosphates can be excluded. Pure uric acid calculi cannot. Pictures of a proper quality can be obtained with ease in children and slender adults of both sexes. Such pictures can usually be obtained by repeated trials in well-nourished adults. When patients are unusually stout, when the abdomen is very thick and the buttocks are large, the conditions are extremely difficult, and only occasionally will a satisfactory result be obtainable with the present form of apparatus. [C.A.O.]

2.—Binasal Hemianopsia.—W. T. Shoemaker reports a case of optic atrophy, following or attended in course by a low-grade optic neuritis. It forms a good example of binasal hemianopsia. As to the field defects, the writer believes them to be due to optic nerve disease. The wellmarked arterial sclerosis is thought to be a factor in the primary causation. Of 19 cases cited by the author exhibiting nasal hemianopic fields, demonstrable inflammatory disease of the optic nerves was found in 12 cases. [C.A.O.]

3.—Insects in Transmission of Disease.—Henry Albert discusses the diseases transmitted by insects, and the insects responsible for such transmission. He shows how such transmission may occur and calls attention to the agents which tend to eliminate the insect factor in the spread of disease. [C.A.O.]

5.—Litten's "Diaphragm Phenomenon."—W. N. Berkeley describes this sign as the visible descending and ascending wave associated with the respiratory movements of the diaphragm in the lower zone of the thorax. The excursion in normal adults is usually between 2 and 5 inches. His practical conclusions are as follows: 1. To students of physiology the phrenic wave is useful as a demonstration of the respiratory movements of the diaphragm. 2. When unbroken and over 3 inches in extent on both sides, it is a good indication of healthy lungs, and should be incorporated as such in life insur-

ance examinations. 3. As an easy and practical substitute in many cases for the expensive and laborious röntgen-ray examination of the movements of the midriff, when such an examination is desired (Cabot). 4. When diminished markedly on both sides, low down in the thorax, and more marked behind than in front, it is an excellent sign of asthma and emphysema. 5. When absent or nearly absent on one side only, it is a useful confirmatory sign of a variety of conditions which may be suspected from other signs, particularly pleurisy and early tuberculosis. 6. When absent on both sides no conclusion of any kind is really justifiable, unless the patient has been previously known to have had good waves. [C.A.O.]

6.—Cerebrospinal Meningitis.—S. A. Agatston reports a case of cerebrospinal meningitis in a boy of 16, in which 35 cc. of a thickly purulent cerebrospinal fluid was drawn off. Cultures of this showed a pure growth of the meningococci of Weichselbaum. His recovery was perfect. [C.A.O.]

7.—A case of dry gangrene following the application of carbolic acid dressing covered with oiled silk is reported by Vertner Kenerson. An application of 1 to 50 carbolic acid on a light dressing was ordered for the purpose of aborting a felon. In a few hours it was diluted to 1 to 100. At this time, without orders, the dressing was covered with oiled silk. Dry gangrene followed within 24 hours. The author says that carbolic acid is the best penetrating disinfectant in those infections that do not proceed from an open wound, as it has real penetrating power through unbroken skin, but it should never be covered with any material that will prevent evaporation, and should be applied with a light dressing. [C.A.O.]

Medical News.

February 11, 1905. [Vol. 86, No. 6.]

1. Report of a Sporadic Outbreak of Typhoid Fever at Lawrence, N. Y., Due to Oysters. GEORGE A. SOPER.
2. Hematuria as a Symptom of Hydronephrosis; Nephrectomy: Cure. L. BOLTON BANGS.
3. Two Cases of Tracheal Stenosis from Newgrowth. GEORGE EMERSON BREWER.
4. The Management of Acute General Peritonitis. J. GARLAND SHERILL.
5. The Clinical Manifestations of Uterine Fibroids as Indications for Early Operative Intervention. ARNOLD STURMDORF.

1.—Typhoid Due to Oysters.—G. A. Soper presents his final report on the investigation of a sporadic outbreak in which the water and milk supplies were eliminated as factors and the infection traced to pollution of oyster beds and oyster floats by imperfectly purified sewage. Out of 31 cases, 21 were satisfactorily explained by eating or handling infected shellfish and by comrade infection. The disease may have been brought to the resort in the first place by summer visitors convalescing from an attack. At the sewage disposal plant, bacteria were increased in the effluent, colon bacilli being found as readily as in the affluent. Examinations of oysters from the floats show that probably 60% were polluted on the inside and 80% on the outside, making them dangerous even to handle. [H.M.]

2.—Hematuria a Symptom of Hydronephrosis.—L. Bolton Bangs states that with the exception of Israel, authors make little mention of hematuria as a symptom of hydronephrosis. Of 13 cases that have been reported in recent years Israel reported 9 of these in a series of 40 cases of hydronephrosis. Bangs' patient was a male of 19, who had enjoyed good health until the present trouble which began about a year before the patient came under the author's care. He began to complain of malaise, some nausea, lumbar pain, sediment and occasional blood in the urine. Urination was frequent and the blood appeared at irregular intervals, but was specially prone to occur after jolting or riding over a rough road. The urine was segregated and the urines thoroughly examined. The urine from the left side was deficient in amount and it contained considerable blood. A mass could be palpated in the left hypochondriac region. Operation showed a large left hydronephrotic kidney. All save the upper pole of the organ was rendered practically functionless by the hydronephrosis. The patient's condition was alarming and the upper pole of the kidney was left in the hope that it would be of value. A sinus persisted for several months. The urine collected from this showed but little urea was being excreted by this remnant. A

second operation was performed and the remainder of the kidney was removed. A serious and alarming feature of the last operation was hemorrhage, apparently from the remnant of the kidney itself. The patient made a good recovery. [A.B.C.]

3.—Tracheal Stenosis from Newgrowth.—George E. Brewer reports 2 cases. In the first, the patient was a youth of 11, in whom a papilloma caused obstruction and dyspnea necessitating operation for relief. Five years previously there had occurred extensive papillomatous degeneration of the laryngeal mucosa, necessitating tracheotomy. At the last operation a large papillomatous mass just above the old tracheal opening was seen completely plugging the lumen. It was removed, and a tracheal tube was inserted for 36 hours. The patient made a good recovery. In the second patient, a man of 52, an adenocarcinoma of an accessory thyroid body caused dangerous stenosis and dyspnea. Three years ago the patient first noticed signs of dyspnea and during the past 6 months the trouble was becoming increasingly dangerous. A laryngoscopic examination revealed an oval mass encroaching upon the tracheal lumen. Corresponding to this an oval mass could be palpated at the root of the neck. Pressure on this caused increased dyspnea. A course of potassium iodid had been tried without improvement. A median incision was made, the isthmus of the thyroid ligated and severed, and tracheotomy was performed. The tumor which was found to be an adenocarcinoma of an accessory thyroid body was adherent to the trachea, esophagus, recurrent laryngeal nerve and internal jugular vein. It was removed and the patient made a good recovery. [A.B.C.]

4.—Management of Acute General Peritonitis.—J. Garland Sherrill says two forms of this disease are seen: 1. Acute septic peritonitis, in which the poison is so intense that the patient dies from a prolonged toxemia before local changes have progressed to the point of pus formation. 2. A general suppurative peritonitis, in which pus is found free in the general peritoneal cavity without any localization of the process. Treatment is considered in detail for both varieties. In case there is no leak from the alimentary tract to account for the infection, treatment may be by gastric and intestinal lavage; and in case streptococcal infection is the cause of trouble, anti-streptococcal serum should be tried. These cases should be considered surgical with the two exceptions above mentioned. Operation should be done as a preventive measure before peritoneal infection and as soon after its occurrence as is possible, in some instances of prolonged shock before reaction is complete. The operation should be done as rapidly as is consistent with thoroughness, and above all things, incomplete surgery should not be done. [A.B.C.]

5.—Early Operation for Uterine Fibroid.—Arnold Sturmdorf says: Recent studies demonstrate that uterine fibroids can exhibit, aside from their established proneness to direct sarcomatous degeneration, a clinical malignancy, differing only in quality from that characterizing the classic types of cancerous affections. It is but a short time since appendicitis, gastrointestinal perforations, gallbladder disease, pancreatitis, and adnexal abscess were treated by poultice and opium; when extrauterine pregnancy was treated by morphin and electricity, and cures were reported. At the present time, to diagnose any of these conditions is to establish the indications for radical intervention. Our knowledge of uterine fibroids places them in this same category; for just as in the conditions mentioned, treacherous calms will ultimately reveal themselves as incubation periods of serious potentialities, and a grave responsibility rests upon those who counsel delay, until what earlier would have been a safe operation of choice, has become, as a result of their counsel, a dangerous undertaking of necessity. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Dysentery in Manchuria.—W. G. Korenchewski¹ has had excellent opportunities of studying dysentery among the Russian soldiers in the Far East, and he now reports some of his

investigations, promising fuller details at a later date. Many apparently innocent diarrheal attacks have been exposed as dysentery by the finding of the Shiga-Kruse bacterium, which is now generally recognized as the specific agent. In 65 cases, only 8 did not show this bacterium. Clinically, it is the custom in Manchuria to distinguish four varieties of dysentery: The mildest form resembles a simple colitis or gastroenteritis, and is usually seen at the outset of an epidemic; another variety presents the typical bloody diarrhea, frequently runs a chronic course, sometimes ends fatally, and tends to relapses; a third form greatly resembles in some respects malarial fever, the discharges being mucous or mixed with some blood, and the fever running a malarial course; finally, the fourth variety is chronic dysentery, lasting months and even years, accompanied by all the horrors of this scourge. All this applies to bacillary dysentery. Quite apart from this stands the amebal form, of which the author saw only three cases. The examination of stools for bacilli and amebas will usually settle the diagnosis. Still more reliable is the agglutination blood test, which is positive in bacillary dysentery and always negative in the other. Epidemics usually begin with mild cases, gradually gaining in severity, as if the bacilli increase their virulence by passing through successive hosts. The disease spreads either by immediate contact or through the medium of drinking water. In the treatment, the main reliance was placed on the antidysenteric serum of Shiga, and its efficiency stands demonstrated beyond doubt. From 20 cc. to 40 cc. or 60 cc. is the dose for mild and severe cases, though sometimes 100 cc. was necessary. The action is unmistakable. The disease runs a shorter course, and individual symptoms, such as the severe abdominal pains, are promptly relieved. [L.J.]

Infantile Osteomalacia.—L. Bérard and Nordmann¹ report a case of this rare condition. The child was normal at birth and walked at 10 months. About six months later she began to complain of fatigue and stopped walking voluntarily. At four years of age she commenced having pains in the legs, which steadily increased in severity. The deformities were at first like those of rachitis, but later the characteristic softening of the bones developed, with spontaneous curvatures and fractures. The röntgen ray showed the characteristic picture of osteomalacia, i. e., an absence of the shadows cast by normal bone. Cases of precocious osteomalacia such as this cause a rejection of the ovarian theory concerning its etiology. The authors are unable, however, to throw any light upon the true cause of the disease. [B.K.]

Individual Prophylaxis against Yellow Fever.—Mosquito nets, fumes from eucalyptus leaves and ordinary insect powders have been found of little avail in protecting against mosquito bites. E. von Bassewitz,² practising in Porto-Alegre, in Brazil, has found the pulverized leaves of *Chrysanthemum cinerariifolia* and *Chrysanthemum rosea*, when rubbed into the skin, the best protective against the bites of *Stegomyia fasciata*, the mosquito known to convey yellow fever virus with its bite. This powder in an unadulterated state will keep the hungriest mosquito from biting, and if they come in contact with it they die as a result. As the powder is unsuitable because of cosmetic reasons, Bassewitz invites chemists to discover the active principle so it may be worked up into soaps, vaselins, etc. [E.L.]

Erythema Infectiosum.—H. L. K. Shaw³ says the description of this condition has appeared only in German literature, and the disease as such has not been recognized in America. It may be defined as a feebly contagious disease occurring chiefly in children, with very slight subjective symptoms, and characterized by a maculopapular rose-red rash, more pronounced on the cheeks, legs, and outer surface of the arms. The age most commonly affected is between 4 and 12 years. Both sexes are equally affected, and attacks are most frequent in the spring and early summer. The specific agent is unknown, the period of incubation being from 6 to 14 days. The rash on the face, where it first makes its appearance, is diagnostic. The cheeks present a symmetric rose-red efflorescence. The skin is hot to the touch, swollen, but is not

¹ Lyon Médical, December 11, 1904.

² Münchener medizinische Wochenschrift, 1904, II, 1299.

³ American Journal of the Medical Sciences, January, 1905.

¹ Russki Vrach, November 13, 1904.

sensitive and does not itch. The color disappears on pressure and quickly reappears. The whole appearance is suggestive of erysipelas. The rash fades from the face in four or five days, appearing on the body the second day of the attack. Desquamation does not occur. Subjective symptoms are conspicuous by their absence. The disease most likely to be taken for erythema infectiosum is röteln. The former is essentially different from the so-called "fourth disease." Erythema infectiosum has clinical features distinct enough to justify its classification with the acute exanthems. Two colored plates well illustrate the affection. [A.G.E.]

Sodium Chlorid and Hydrops.—R. Massalongo and G. Zambelli¹ report the results of their experience in the treatment of edema and effusions with a diet free from sodium chlorid. In parenchymatous nephritis, heart disease, ascites of sclerosis of the liver, peritonitis, and serofibrinous exudates, the retention of the sodium chlorid seemed to have an important relation to the development of edema and ascites. They conclude that in all cases in which there is edema or effusions a diet free from sodium chlorid should be employed. [J.H.W.R.]

Röntgen Treatment of Leukemia.—Fried² reports the cases of two leukemics, respectively, 59 and 46 years old, in whom the symptoms of leukemia were decidedly improved after röntgen treatment. The leukocytes diminished from 98,000 in one case to the normal point, in the other, from 132,000 to 31,400; the red blood cells and the hemoglobin increased markedly; the spleen diminished in size. The subjective conditions of both patients improved, and the first patient's body-weight increased 4 pounds during the 26 days he was under treatment. Whether or not a definite cure of the disease is possible with the röntgen-ray treatment the author is unable to say; nothing unpleasant was noted during the period of treatment in either patient. [E.L.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Humane Treatment of Malignant Disease.—Physicians as a class usually take the pessimistic view when confronted with a condition that is apparently malignant. Not infrequently these patients are sent away without anything more than a placebo and morphin, the latter often causing almost as much misery as it relieves; the practitioner often thinks it not even worth while to consult a surgeon. We all recognize the fact that the outlook in most cases of malignancy is discouraging, and that in the majority of cases the disease is incurable, but we also believe that if the profession were willing to take a more optimistic view when dealing with these patients that much suffering might be relieved and many more permanent cures result. Too many of these discouraged patients turn to quacks or patent medicines that not only give no relief, but rob them of their little savings and often increase their miseries. In a recent paper, John C. Munro³ sets forth in a very forceful way the necessity for more general resort to surgical advice in these cases, and the advantages to the patient both in saving and prolongation of life and in relief of suffering. He cites numerous cases from his own experience and that of other surgeons in which extensive malignant disease has been permanently cured by operation, even when the outlook seemed at the time almost hopeless. The physician rarely hesitates to refer his patient with an external malignant tumor to the surgeon at once. It seems a simple affair to remove something outside of a body cavity. As a matter of fact it is not infrequently simpler to remove an internal growth in the early stages. Is not early carcinoma of the pylorus, sigmoid or gall-bladder less formidable than carcinoma of the tongue, neck, lid or nose? In many cases of newgrowth involv-

ing internal organs, it is impossible to make a positive diagnosis.

To operate for diagnosis without exhausting all other means first, is wrong; but it is more wrong to withhold the possibility of correct and available knowledge if by so doing we give our patient one chance in a thousand for relief. More than the pathologist, almost, the surgeon unearths mistaken diagnoses. What surgeon does not learn that unless he can absolutely make a diagnosis of inoperative malignancy, especially when dealing with the abdominal cavity, it is safer to explore for absolute confirmation?

Munro adds that when he thinks he can make the absolute diagnosis that condemns the patient to death, then most of all it is better to explore. What surgeon has not operated for supposed malignant disease in the abdomen only to find an apparently benign tumor that was easily and thoroughly removed. In the face of discouragements every now and then, a patient is entirely relieved of distress for weeks and months until death comes quietly from general malignant toxemia, a form of euthanasia, that would have been impossible without operation. Munro says:

As I grow older, I am more willing to operate when there is even the smallest outlook for relief. I doubt if any surgeon dreads these cases more. I have had too many sad and disappointing experiences. Indeed, could I consult my own pleasure, I would never see another patient with malignant disease. On the other hand, every now and then in the midst of this malignant Sahara, there comes most unexpectedly, an oasis of permanent cure or long relief from suffering followed by a painless final illness and I am forced to discipline myself with the query whether one such happy outcome is not worth dozens of discouraging ones.

At present surgery offers the only encouragement for permanent or temporary relief in these cases. Carcinoma, wherever situated, should be considered a surgical disease and, as the outlook for success depends upon early resort to operation when available, the case should be referred to the surgeon and he should be the judge as to the advisability of surgical treatment.

REVIEW OF LITERATURE

Carcinoma of the Ureter.—W. F. Metcalf and H. E. Safford¹ report the case of a man of 47, from whom a calculus, weighing 1.25 gm. (19 gr.) was removed from the juxtavesical portion of the ureter. Nephrectomy was also performed. In the pelvis of the kidney was an adenomatous growth not unlike that found in cases of villous pyelitis, but the epithelium showed evidence of transition into a more cylindric type. At the location of the calculus was also adenomatous tissue, but at several points it had undergone transformation into a distinct adenocarcinoma. The malignant growth is considered by the writers as undoubtedly due to the continued irritation of the calculus. They also believe the epithelial changes in the pelvis of the kidney were caused by the calculus which for a time lodged at that point. Notes of six other cases are given, in only one of which was the stone found in situ as the probable cause of the growth. The cardinal symptoms of carcinoma of the ureter are pain, hematuria and tumor. Treatment is, of course, operative and the possibility of malignant change in seemingly benign tumors and as a result of calculus should be borne in mind. With a certain diagnosis of malignant disease of the ureter, immediate nephroureterectomy is the only safe course. In the case reported the patient died of exhaustion following recurrence of the growth and a second operation. [A.G.E.]

Operation for Fixing the Movable Kidney.—Andrew Fullerton² begins his incision a little to the vertebral side of the angle formed by the erector spinae and the last rib, and extends it four inches in the direction of the anterior superior spine. The kidney is exposed and pushed up to but not out of the wound, and a small puncture is made in the true capsule. Into the puncture a probe or director is inserted and a large "blister" is gradually separated from the posterior (vertebral) and outer surfaces of the kidney. In this way a horseshoe-shaped flap of capsule can be separated, so that the base is just above the center of the horizontal axis of the kidney. A blade

¹ Wiener klin. Therapeutische Woch., No. 50, p. 1385.

² Münchener medizinische Wochenschrift, 1904, II, No. 40, 1772.

³ Boston Medical and Surgical Journal, 1905, Vol. ciii, p. 61.

¹ American Journal of the Medical Sciences, January, 1905.

² British Medical Journal, December 24, 1904.

of a blunt pointed pair of scissors is inserted into the puncture and a flap is cut with the base upward and in the plane indicated. A finger is now inserted under the external arcuate ligament and the tissue on its deep surface is peeled up to get rid of the pleura should it descend lower than usual. A slit is now made in the ligament mentioned about a third inch above the lower margin parallel to its fibers and extending the whole available distance between the quadratus lumborum and the last rib. The last dorsal nerve is to be avoided. A pair of artery forceps is passed through the slit and the flap of renal capsule is grasped, drawn through, spread out, and anchored to the ligament with formalin catgut or silk sutures. Fullerton has performed this operation on the cadaver, and in three instances on the living subject. He is satisfied with the result. [A.B.C.]

Edebohls' Operation.—A. D. Atkinson¹ thinks that results show Edebohls' operation is applicable in only a very limited number of cases of medical nephritis. In chronic interstitial nephritis, in late or contracted forms of parenchymatous and diffuse nephritis, the results do not warrant operative procedures. Edebohls' theory of revascularization of kidney substance by decapsulation has not been proved. The best results have been obtained in movable kidney with albumin and casts. Benefit and actual cure have been obtained in acute and early stages of chronic parenchymatous nephritis when pain is present and suppression of urine threatens the life of the patient. [H.M.]

Clinical Effects of Surgical Anesthesia and Operations on Anemic Patients.—H. T. Hutchins² states that 60 women, each showing a hemoglobin percentage of 50 or less, have received a general anesthetic for operative purposes, the times varying from 20 minutes to 3½ hours, and that of these, 56 had uneventful recoveries. Of the 4 fatalities severe heart lesions complicated 2, in the third the patient had bled till her hemoglobin registered 15%, and in the fourth the anesthetic had been given 2½ hours before the patient showed any signs of immediate collapse. The patients, as a rule, have taken the anesthetic well. There has been no respiratory distress, and in neither patient dying on the table was respiratory failure primarily the cause of death. The following convalescence has been satisfactory in the great majority and in no case was it thought that the anemia was prolonged by giving the anesthetic. Preliminary tonics raised the hemoglobin percentage in the 6 cases in which it was tried. [H.M.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Extirpation for Intractable Prolapse.—C. Martin³ extirpates both uterus and vagina. The operation is tedious and bloody and attended with a good deal of shock. Convalescence is slow with suppuration, and he recommends it only when other measures have failed. Removal of the uterus alone does not cure rectocele and cystocele. The aim is to create a fibrous diaphragm three or four inches in depth resembling that of the male pelvis. An incision is made from the posterior lip of the cervix to the perineum with lateral incisions from it encircling the ostium vaginae, meeting about a half inch behind the meatus. The mucous membrane of the posterior and lateral vaginal walls is dissected off and turned forward. Douglas' pouch is transversely incised and the uterine fundus drawn down. The broad ligaments are divided from above downward, either internal or external to the ovaries and tubes. The fundus is drawn down, exposing the uterovesical pouch, the peritoneum at the bottom of which is divided transversely and the bladder stripped off the cervix with the finger. The mucous membrane of the anterior vaginal wall is next dissected off and removed with the uterus. All bleeding controlled, the abdominal cavity is closed by a pursestring suture through Douglas' pouch, the back of the bladder and top of the

broad ligaments. The broad ligament and pelvic fascia of one side is sutured from above downward to that of the other side. The rectum and bladder become firmly attached to this wall. [H.M.]

Ureter and Bladder Resection in Cases of Extensive Carcinoma of the Uterus.—After grasping the ureter in a Pean clamp, Depage and Mayer¹ divide it anywhere from 2.5 cm. to 5 cm. (1 in. to 2 in.) above its opening into the bladder. The point of division depends upon the extent of the infiltration. The upper end of the ureter is then cut obliquely, a sufficient portion of the organ freed from peritoneum so that it can be brought in contact with the bladder very readily. At the most suitable point on the bladder a buttonhole opening is made, into which the ureter is introduced, having near its oblique end a silk suture, both ends of which are armed with a Hagedorn needle, both of which are passed through the bladder wall from within outward about 15 mm. (¾ in.) from the buttonhole opening. From the opening in the bladder the ureter is made to tunnel the peritoneum over this organ; the serosa is sewed over the ureter by means of a continuous silk suture. If the opening in the bladder is too large the continuous suture can take up some of the muscular coat of the organ. They say it is unnecessary to distend the bladder or to introduce a metal catheter. In several of their cases they resected a part of the bladder because of the infiltration of the tumor. [J.F.]

Heart Disease and Pregnancy.—F. S. Hone² believes routine examination of the heart in all labor cases will often reveal unsuspected valvular mischief. The most important points for prognosis are the state of the muscular wall and the amount of cardiac enlargement. The way in which compensation has hitherto been maintained will probably be the best guide. Other points to be considered are the nearness in time of the causal disease, the social condition of the patient, and the number of the pregnancy. Frequently during pregnancy hearts, apparently without valvular disease, break down, while those with valvular disease may go through the ordeal without symptoms. When the heart is dilated, all are agreed as to the necessity for rest, cardiac tonics, etc. The debatable point is as to inducing labor. There would be strong reasons for it if there had been previous failure of compensation without pregnancy, but after the midterm it is better to try to restore compensation and await events. In many such cases labor comes on prematurely of itself, others go to full term and through labor without trouble. In such cases the first stage of labor should not be unduly prolonged. It may be shortened, if necessary, by artificial dilation. Bearing down should be discouraged, and the forceps applied under chloroform. Bleeding should be encouraged in the third stage on account of the retraction of the uterus forcing so much blood into the systemic circulation. Venesection may be done if the natural hemorrhage is insufficient. [A.G.E.]

Rupture of the Uterus and Its Treatment.—S. A. Nikonow³ reports 5 original cases and makes the following suggestions as to management: Beside the usually recognized forms of uterine rupture during labor, there occurs a less frequent form, in which the organ is torn away from the anterior vault. This form is purely traumatic in origin. Exceptionally, rupture of the uterus takes place gradually and slowly, without much bleeding and shock. The diagnosis of rupture is not difficult, as a rule. The prognosis ought to be better than is usually taught. Mortality should not exceed 40% to 50%. As to treatment, the child should not be delivered until the patient is prepared for a major operation. In case the latter is impossible, we should, after extracting the child, at least pack the tear through the vagina, or suture the tear from below. In most cases supravaginal hysterectomy is the operation indicated. [L.J.]

Belastungslagerung.—L. Pincus⁴ describes the fundamental type as formed by the inclined plane and compression (Belastung)—factors which are each of complementary significance. An adjuvant in regard to the maintenance of the bodily

¹ Maryland Medical Journal, November, 1904.

² Johns Hopkins Hospital Bulletin, November, 1904.

³ British Gynecological Journal, November, 1904.

¹ Arch. f. klin. Chirg., 1904, Bd. lxxiv, Heft 1.

² Australasian Medical Gazette, October 20, 1904.

³ Russki Vrach, November 13, 1904.

⁴ British Gynecological Journal, November, 1904.

strength is found in methodic respiratory gymnastics. The inclined plane, used alone, is less effective; it successfully paralyzes the prejudicial influence of deficient bodily nutrition upon absorption. Compression must never be used, except in association with the inclined plane. Either may be used continuously or with intermissions. Compression may be intravaginal or abdominal; both are better. It is an appropriate substitute for narcosis, for diagnostic purposes. Its peculiar field is in chronic exudations without rise of temperature, even during menstruation. It is the best means of reposing a retroflexion. In exudates in the parametrium or near the pelvic floor, a quicksilver colpeurynter should be used with abdominal compression as an adjuvant. When the lesions are high, intravaginal compression elevates the organs (air colpeurynter, Staffel tamponade), while abdominal compression (shot-bag, potter's clay) is the active therapeutic agent. Ambulatory treatment is the rule with chronic exudations, with the author's quicksilver air colpeurynter and an elastic abdominal bandage. This permits gradual compression and relaxation and massage. Surgical treatment is not justifiable till *Blastungslagerung* is tried. If compression is not beneficial, pus is present. If at the same time, even with only moderate feverish changes, the patient loses strength, perforation is imminent. [H.M.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPELMAN E. LINDAUER

EDITORIAL COMMENT

Harmfulness of Warm, Moist Inhalations in Tuberculous Laryngitis.—Many years ago, on fanciful etiologic and therapeutic grounds, Krull advocated the use of inhalations of the vapor of hot water (so-called steam inhalations) in the treatment of tuberculous laryngitis. The treatment was found to be harmful and was abandoned—apparently for good. Recently, however, there seems to have been a revival of this ill-advised practice. The well-attested usefulness in acute catarrhal laryngitis of inhalations of warm water vapor, medicated with compound tincture of benzoin and paregoric, as advised by J. Solis-Cohen,¹ seems to have misled a number of physicians into expecting equally good results in a totally different condition, only superficially resembling acute laryngitis. In nonulcerative tuberculous laryngitis—and nobody seems to have been sufficiently thoughtless to advise the use of steam in ulcerative conditions—as in acute catarrhal laryngitis, there are, it is true, hoarseness and pain, and the laryngoscope reveals more or less thickening and redness. But the underlying pathologic conditions are essentially different. Acute catarrhal laryngitis is the result of an irritative cause that has passed away; tuberculous laryngitis is the chronic result of a continuous cause. By its soothing and relaxing effects the warm, moist inhalation favors the subsidence of the acute inflammation, and the absorption of any effused products. But relaxation in the chronically inflamed tissues of a tuberculous larynx favors the spread of the morbid process. Soothing applications are indeed useful, but these are to be sought in such agents as suprarenalin, menthol, orthoform, ethyl-iodid, anesthesin, iodoform, even cocain as a last resort, if need be—not in moist heat. Dry heat is said to be useful, and is not known to be harmful. Mild astrin-gent applications by spray or topically, as zinc sulfo-carbolate solution, 1%, glycerol of tannin, cupric sulfate, 1%—and mild sorbefacient and disinfectant applications, as iodine and carbolic acid in glycerin (iodine 1 to 3 parts, potassium iodid 1.5 to 5 parts, glycerin 500 parts), or silver vitellin (5% to 25%) solution, are also of service. In some cases chromic acid (1% to 10%) solution, in some cases lactic acid (5% to 80%) solution, in some cases guaiacol (10% to 25%) in olive oil, with perhaps the addition of menthol (5% to 10%), even in

some cases of tissue thickening, formaldehyd water (1% to 10% of the commercial 40% solutions), may be applied. In still other cases insufflation of powders is better. The parts are to be cleansed with a spray of solution of hydrogen dioxide, followed by some mild alkaline solution, and then agents such as finely pulverized calomel, boric acid, suprarenal extract, morphin, iodoform, orthoform, and tannin may be blown in. A single drug, or a mixture of two or more may be used, according to indications. Ulcers demand special treatment. But the main purpose of this note is not so much to point out the many ways at command for the relief of the symptoms of tuberculous laryngitis, as to sound a warning against a harmful practice, unaccountably revived after a half century of merciful desuetude, and to the injury of many sufferers.

REVIEW OF LITERATURE

Treatment of Streptococcic Infection by Antitoxic Serum.—Alexander Foulerton¹ refers to the prejudices against the use of large injections of antistreptococcic serum, which has arisen in the minds of some practitioners from the idea that the use of this class of serum is especially liable to be followed by certain toxic symptoms, the appearance of cutaneous eruptions with slight rise of temperature, and transient arthropathies. Such unfavorable symptoms are common to the use of any kind of horse serum, and other things being equal, are not more likely to follow the injections of antistreptococcic serum than the injection of an antidiphtheric serum; in fact the most severe constitutional disturbances were seen following the use of a serum which was, for all practical purposes, a normal horse serum. The reason these symptoms have been more especially noticed in the serum treatment of streptococcic infection is doubtless because it is frequently necessary to give large and repeated doses, and possibly, also, the patients who require treatment with antistreptococcic serum are in such a condition that they are especially liable to react to horse serum. In any case it is probable that the toxic symptoms following the use of a serum are of no particular consequence. He is not aware of a single case in which definite harm to the patient has resulted. Whatever the dangers may be, large doses for the successful treatment of streptococcic infection are necessary. The dose of 5 cc. of antistreptococcic serum is useless, and failure ascribed to the serum is in some cases doubtless due to small dosage. [A.B.C.]

The Action of Atropin on the Intestines.—N. E. Ridet² studied the action of atropin on the intestinal canal, experimenting with isolated intestines as with living animals (rabbits and cats). His numerous experiments have led him to the following conclusions: 1. Solutions of atropin, weak and strong, regulate and reinforce the motility of the isolated intestine. Weak solutions act chiefly on the longitudinal muscles, strong solutions on the circular. Concentrated solutions produce tetanus of these muscles. 2. In the living animal atropin also increases the excitability of the intestinal musculature. 3. Atropin evidently excites the motor nervous apparatus (Auerbach's plexus), but also acts directly on the muscles, at first on the longitudinal, later on the circular. 4. After atropinization of the animal, the inhibitory action of the adrenals on intestinal movements is no longer noticeable. [L.J.]

Resorption of Atropin, Salol, and Rhubarb.—Inonye and Koshiwado³ tested carefully the power of the stomach to absorb certain drugs, cats and dogs being used for the experiments. They found that atropin sulfate in solution was never absorbed, that salol on the contrary might be broken up into salicylic acid, and phenol by the gastric mucus, and thus be absorbed. Rhubarb, contrary to the usual opinion, was never absorbed from the stomach. Herschell's test can, therefore, they assert, be used to determine gastric motility. [T.S.G.]

Methylene-blue in Mental Diseases.—A. P. Rappaport⁴ reports on the use of methylene-blue as a sedative in psychiatric

¹ The Lancet, December 31, 1904.

² Russki Vrach, October 16, 1904.

³ Arch. f. Verdauungs Krank., x, 615.

⁴ Obosrenie Psichiatril, December, 1904.

¹ Inhalation: Its Therapeutics and Practice, Philadelphia, 1867.

practise. His 35 observations do not bear out the enthusiastic praise of other authors. The remedy has many disagreeable features. It colors the mouth cavity intensely, produces blue urine and blue feces, and thus causes the mental patient all sorts of suspicions and worries. Untoward effects are many and frequent, local as well as general. The hypnotic effect is inconstant, and the sedative action entirely unreliable. In conclusion the author throws out a suggestion: Being a germicide and showing marked affinities for the central nervous system, methylene-blue might perhaps be a suitable remedy against hydrophobia, the virus of this disease also has an elective affinity for the central nervous organs. [L.J.]

Suprarenal Gland in Acute Esophagitis.—After trying various means to relieve the pain of swallowing in acute esophagitis, due to irritant poisons, Janowski¹ had all such patients allow a dram tablet of suprarenal to dissolve in the mouth, or to take 5 to 10 drops of a 1 to 1,000 solution before each meal. This not only gave more relief at the time than any other means, but had a decided influence on the duration of the inflammation, and also influenced favorably the accompanying gastritis. The author recommends the method also in cases of carcinoma of the esophagus. [T.S.G.]

FORMULAS, ORIGINAL AND SELECTED.

In Acute Myocarditis to Sustain the Failing Heart.—Lemoine² employs the following prescription:

Extract of strophanthus . . . 0.0005 gm. ($\frac{1}{15}$ gr.)
Extract of tritium repens . . enough to make 1 pill

One pill is to be taken each morning and evening. In rare instances 3, or even 4 pills may be prescribed. He has also prescribed it in liquid form; strophanthin, $\frac{1}{150}$ gr., dissolved in a tablespoonful of water and taken twice daily. In cases of collapse he advises repeated hypodermic injections of camphor and ether:

Camphor 0.5 gm. ($\frac{7}{16}$ gr.)
Ether } of each 4. gm. (1 dr.)
Distilled water }

He injects from 1 cc. to 3 cc. every 24 hours. Spartein sulfate and strychnin sulfate injections may be added with probable advantage to the patient. [E.L.]

In fissure of the anus Katzenstein³ applies the following ointment:

Cocain hydrochlorate 0.05 gm. ($\frac{1}{4}$ gr.)
Extract of belladonna 0.05 gm. ($\frac{1}{4}$ gr.)
Ichthyol6. gm. (1½ dr.)

[E.L.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

Ocular Galvanization.—It has recently been shown that galvanic currents of considerable strength may be used for an extended period with good results in the treatment of affections of both motor and sensory nerves. Such currents may be applied to the head without danger, provided the strength of the current is fairly constant and the apparatus is in perfect condition. This has led to the renewed consideration of the treatment of certain ocular diseases by electricity, which lately has fallen into disuse. The general verdict of ophthalmologists in regard to the value of the electric current in optic atrophy has coincided with Noyes' statement that "Electricity has failed to vindicate its pretensions to any real value, although, by its capacity for exciting phosphenes it fosters the hopes of a credulous incurable." Formerly the strength of the current used by ophthalmologists was seldom greater than 2 milliamperes, and in extreme cases not over 3 milliamperes. This subject has recently been reviewed by Ludwig Mann,⁴ who reports a series of cases which he has treated with encour-

aging results by the employment of currents of an average strength of 10 milliamperes. Mann states that inasmuch as the electrochemic molecular constitution of a nerve is changed by the application of the galvanic current, and the nerve does not immediately return to its former electric tone, it is quite conceivable that with repeated applications of the treatments permanent structural change may be produced. The necessary conditions for success in the treatment of a nervous organ are that it must be electrically irritable, and that the change of electric irritability must be demonstrable immediately after the application of the current. That the optic nerves fulfil in a marked degree the first condition is without doubt, and there is repeated proof that normally they fulfil the second condition. It is well known that the field of vision and color sensation are both altered immediately after the application of the electric current. Ocular affections are so irregular in their course, and the chances for error from carelessness, fatigue, etc., are so many, that positive conclusions cannot be reached until many painstaking experiments have been made, and the effects of electric currents on ocular disease carefully systematized. In an abstract of Mann's article,¹ it is stated that Mann has treated 12 cases of eye disease by galvanization, and every care was taken to render the observations thoroughly reliable. The cases included 1 of arteriosclerotic atrophy, 1 of neuritic atrophy, 1 of hemianopsia, 2 of retrobulbar neuritis, 3 of intoxication amblyopia, and 4 of tabetic atrophy. One case of tabetic atrophy, and 1 of intoxication amblyopia showed no improvement, but the other 10 cases all gave positive results. The subjective changes were marked, and nearly all the patients declared they could see more clearly. The central vision was examined and found to improve at each sitting. Between the sittings there was some retrogression, but not back to the initial point. On Snelling's tables an improvement of from $\frac{5}{20}$ to $\frac{5}{15}$ would be observed at a sitting. In a case of tabetic atrophy treated from May 5 to July 21, the acuity of vision rose from $\frac{5}{25}$ to $\frac{5}{15}$. Still more marked improvement was obtained in a case of arteriosclerotic atrophy where the vision rose from $\frac{1}{40}$ to $\frac{1}{5}$ during one month. Improvement both in the color sense and in the extent of the visual field was also observed. A further proof of the effect of treatment was obtained by measuring the sensitiveness to light by means of a condenser before, during, and after the application of the galvanic current. It was found repeatedly that the sensitiveness to light rose steadily during the application of the current, fell to some extent, though not to its former level, so soon as the current was discontinued, and then began to fall gradually.

Myopia Associated with Corneal Opacities.—It has been known for a half century that central corneal opacities are frequently associated with myopia. This myopia is commonly progressive and accompanied by disease of the intraocular tunics, resulting in impairment of visual acuity. Among the writers on this subject are von Graefe, Petersen, Cohn, Magnus, Gelpke, Nicati, Fortin, Chauvel, Widmark, Panas, and de Lapersonne. Recently H. Frenkel² has published a very thorough bibliographic review of this subject and has added the results of his personal observations in a great number of cases. Von Graefe attributed the production of the myopia to the extra convergence in holding objects close to the eye to increase the size of the blurred retinal images. His belief is in a way substantiated by the observations of Petersen and Fortin in a number of cases of unilateral opacities. In a large percent of their cases they found myopia in both eyes. On the contrary, in the unilateral cases of opacity examined by Frenkel the myopia was most frequently unilateral and not always in the affected eye. Moreover, in no instance of

¹ Arch. f. Verdauungs Krank., x, 508.

² Bulletin Général de Thérapeutique, 1904, cxlviii, 319.

³ Bulletin Général de Thérapeutique, 1904, cxlviii, 320.

⁴ Zeit. für Diät. und Physik. Therap., November, 1904.

¹ British Medical Journal, December 3, 1904.

² Annales d'Oculistique, September, 1904.

unilateral opacity with bilateral myopia was the defect equal in the two eyes, nor could it be definitely attributed in both eyes to the opacities. It is Frenkel's belief, therefore, that accommodative strain is a prominent cause of myopia. He concludes that if the opacities of the affected eye do not markedly prevent useful vision at close range, this eye becomes speedily myopic. If the opacities greatly obscure vision, preventing satisfactory use of the affected eye in close work, the myopia develops in the sound eye. He calls attention to the fact that regular or irregular astigmatism by blurring retinal images may induce myopia. Reference is made to the theories of Panas and de Lapersonne in regard to the association of inflammations of the cornea and anterior segment of the eyeball with pathologic changes in the choroid and retina of the posterior pole and resultant progressive myopia. As a result of his bibliographic studies and extensive clinical investigations, Frenkel offers the following conclusions: In at least a third of the cases of corneal opacities obscuring the pupillary area, there is induced a myopia, very likely to become progressive. Opacities of both eyes are generally followed by a bilateral myopia. Unilateral opacities most frequently cause unilateral myopia. This myopia may occur in the diseased or sound eye, according to which is used for close vision. The degree of myopia is, in a measure, dependent on the duration of the opacity. The myopia is axial and not due to exaggerations in the corneal curve as in keratoconus. The practical lessons from these investigations are the great importance of prophylactic treatment of phlyctenular disease and other inflammations of the anterior ocular segment likely to produce corneal opacities, and the proper optic treatment and hygienic measures directed toward preventing the progress of the myopia. Without reference to the cases of irregular astigmatism, it has been shown that the corneal opacities produce a distinctly measurable astigmatism of from 1.5 to 2 D.

REVIEW OF LITERATURE

Nevi Pigmentosi and the Pigment Tumors of the Conjunctiva.—Hermann Ulbrich¹ reviews the present state of knowledge on this subject. While opinions are divided as to whether the pigment of tumors and maculas is the product of cellular changes (metabolic pigmentation) or of hematogenous origin, the vast majority of reported cases supports the latter view. Opinions also differ as to what portions of the corneal layers belong to the conjunctiva. Ulbrich's position is that the conjunctiva does not end at the limbus and he relegates tumors which originate at the limbus to the conjunctiva, and not to the cornea. He proposes the anatomic designation of general conjunctival tumors, with necessary subdivisions, as including the tumors of the conjunctivæ palpebrarum and bulbi, of the limbus and superficial corneal layers. Congenital pigment maculas, generally designated as cyanosis bulbi, are better described by Hirschberg's term of maculomelanosis of the sclera, explaining that the former designation should be reserved for vascular anomalies in congenital cardiac troubles. In pigmentation following traumatic lesion, Hirschberg proved that small intercellular pigment collections owed their origin to decomposition of iris cells. Referring to nevi of the conjunctiva, the generally held opinion as to their origin in the lymphatic vessels was attacked by Unna, who explained that the course of the nevus cords in the skin did not correspond with that of the lymphatic vessels, that the cords were not concentrically laminated and did not show any vacuoles. He believes to have proved a direct connection of the nevus cell cords with the epithelium, in some places also with the outer hair cells of the organ of Corti and even with the glandular ducts. There was a metaplasia of soft ameboid elevations without a spinous coat of epithelial fibers, but showing, in proof of their origin, light-colored cones, and the faculty of remaining in direct contact with their neighboring epitheliums. Unna, however, was contradicted by a large number of other authorities. Pathologic

anatomists incline to the old view, dermatologists to that of Unna. Unna's position is especially important in regard to its unavoidable conclusions, for while formerly malignant tumors originating from nevus were classed among sarcomas, Unna upholds their epithelial nature and classes them among carcinomas. The nature of pigment maculas, which frequently appear in conjunction with a tumor, is not cleared up even by histologic examinations. If, in accordance with one theory, this pigment anomaly is recognized as tending to the enlargement of the tumor, it is surprising to note the large number of successful operations, and for this reason others assume that these maculas are only a pigmentation of portions of normal tissue. If the latter assumption is correct, a large portion of conjunctival sac might be preserved and in some cases the enucleation of the seeing eye be avoided. It is a fact, however, that the pigmentation of the epithelium does not necessarily depend upon the pigment contents of its substratum. The scarcity of recent reports on melanocarcinoma of the conjunctiva does not point to a decrease in the number of cases, but to the fact that pathologists at the present time generally look upon cases as sarcomatous which were considered carcinomatous ten years ago. The clinical statistics worked out by Ulbrich demonstrate that melanotic tumors of the conjunctiva offer a more favorable prognosis for surgical treatment than any other malignant tumor at other parts of the body. It is not advisable, generally speaking, to proceed too radically, as only in rare cases is there any danger of a neoplasm after enucleation. The best way is extirpation, with conservation of the bulbus, even if the tumor has grown to somewhat large dimensions and the conjunctiva has acquired an extensive pigmentation. If, however, the tumor commences to grow rapidly, energetic action is indicated.

Removal of the Lens in High Myopia.—H. D. Bruns¹ has removed the lens nine times for this condition, with satisfactory results. There are three classes of myopes for whom the operation is to be considered. 1. Extreme myopes of elderly or middle age, in whom the pathologic changes do not exceed the production of conus. In these patients the operation is unnecessary except for particular reasons. As a rule the danger of extraction will outweigh the benefits conferred. 2. Extreme myopes of elderly or middle age in whose eyes extensive pathologic changes have taken place. Here the operation is virtually contraindicated. 3. Extreme myopes between the ages of 10 and 25. The prophylactic value of operation is here very high, and it can be safely and painlessly done by cautiously repeated discissions. Only one eye should be operated on at a time, and a long interval should elapse before the other is thus treated. Notes of several cases are given. [A.G.E.]

Metastatic Carcinoma of the Ciliary Body.—W. Uhthoff² reports a case of carcinoma of the ciliary body, the first case of the kind that he has been able to observe, although his experience in eye diseases numbers now more than 30,000 cases. He has been able to discover only about 40 such in literature. The case was at first considered one of syphilitic gummatous affection of the ciliary body with secondary iridocyclitis, and treated accordingly, but the tumor increasing in spite of this, the diagnosis had to be changed to carcinoma; the primary seat could not be discovered during life. The postmortem examination confirmed this diagnosis; permission for a complete autopsy was not obtained, but Uhthoff feels certain that the primary seat was situated in the gastrointestinal tract, and scouts the idea of a primary lesion of the ciliary body. [E.L.]

The Action of Adrenalin on the Eye.—In his dissertation, N. T. Kolusko³ formulates the action of adrenalin (1 to 50) on the eye as follows: Three drops, applied to the conjunctiva, cause a contraction of its vessels without loss of sensitiveness; the stronger the vascular injection, the weaker this effort. The pupil dilates somewhat, but dilation is transient. Accommodation is not affected, neither could any effect be noted on retinal and choroidal vessels. Nearly the same results follow the injection of adrenalin under the conjunctiva. Intraocular pressure is not influenced by weak solutions of the drug. If

¹ New Orleans Medical and Surgical Journal, October, 1904.

² Deutsche med. Woch., 1904, xxx, 1423, No. 39.

³ Medizinskoje Obosrenie, lxii, No. 18.

¹ Zeitschrift für Heilkunde, September, 1904.

adrenalin is introduced before the instillation of atropin or cocain, the specific effect of the latter is intensified and appears more promptly. The drug is useful in acute conjunctivitis, in phlyctenular inflammation, and in iritis (combined with atropin). [L.J.]

Metastatic Gonorrheal Ophthalmia.—W. G. Sym¹ differentiates this from the form due to direct infection. It affects both eyes at the same time; the condition might be called severe, but never violent. There is but little swelling of the lids, not an excessive hyperemia, and what there is, is of the conjunctiva alone. The discharge, which is not copious, is rather thin, dilute mucoid, perhaps mucopurulent, and contains few or no gonococci. Ulceration of the cornea is rare and insignificant, and may be due to some interloping germ. He reports two cases. Possibly gonococci could be found in the conjunctival and subconjunctival tissue, but this is probably a purely toxic affection. A similar type of disease has been produced by introducing into the eye a dead culture of gonococci, which seems to point to a toxin as the causative factor. [H.M.]

The Molar Teeth and Patellar Reflex in Hereditary Syphilis.—G. F. Suker² considers these subjects in relation to the presence of interstitial keratitis. He says that the incisor and bicuspid teeth are usually considered as signs in congenital syphilis, though the first permanent molars give as distinctive evidences as any of the others. Unless the incisors and bicuspids are very pronounced in their manifestations, they soon lose their distinctive character; this is not true of the molar. The points of interest in the latter are four yellowish protuberances corresponding to the cusps of the tooth. They are set in from the free edge of the tooth, are excavated and not covered by enamel. The importance of this tooth in deciding on the cause of interstitial keratitis is said by the writer not to be stated in textbooks of ophthalmology, hence this reference to the subject. [A.G.E.]

The "Pressure Bandage" in Detachment of the Retina.—E. Asmus³ relates the details of three cases of retinal detachment, which he treated successfully without the so-called pressure bandage. He mentions a patient of Förster who recovered without bandage of any kind. His three patients presented normal tension of the eyeball, perfectly clear vitreous, and they came under treatment immediately after the occurrence of the detachment. In all three the cause was thought to have been an exudation from the choroid; all three healed with deposition of pigment through the detached portions of the retina. The second patient had the myopia fully corrected some time after restitution, without recurrence. The treatment he advises is rest in bed in a dark room, pressure with cotton and bandage to immobilize the eyes, laxatives, and potassium iodid; in some cases he thinks diaphoretic measures useful. [E.L.]

Transplantation of the Cornea.—It is an established fact that portions of the cornea may be successfully transplanted from the eye of one animal to that of another, even belonging to a different species. But the question still remains: What becomes of the transplanted piece? Does it turn into a scar or does it retain its transparency? G. T. Surow⁴ made a long series of experiments, transplanting corneal pieces from rabbits to roosters and vice versa. All these experiments failed. Better results were obtained by transplanting corneal pieces to the eyes of hens. Here the new corneal portion not only healed well, but also preserved its transparency, at least in some parts. This may be explained by the high vitality of the tissues in birds. Moreover, their eyes possess an osseosclerous ring which obviates the injurious effect of intraocular pressure on the transplanted piece. Care must be exercised in order not to mistake a very thin scar for "transparent" corneal tissue. [L.J.]

The Retina in Tabetic Amaurosis.—P. Marie and André Leri⁵ show that the optic atrophy or degeneration of tabes does not take origin in the retina. They find a considerable number of multipolar cells distributed in the tissue of advanced cases. Careful examination of the neurons derived from 11 specimens

shows that in the retina the optic fibers occupy a narrow layer, but this diminution, common to all elements, is not as marked as that occurring in consequence of injury or tumor of the geniculate body of the optic tract. Charcot, Virchow, and Vulpian agree with, and Popoff, Monter, and others deny certain of these conclusions, more especially the facts in relation to the retinal source of tabetic disease of the visual apparatus. [T.H.E.]

Syphilitic Primary Lesion on the Ocular Conjunctiva.—Gutzeit¹ reports the case of a man of 19, who, 14 days before coming under observation, saw a spot on the lower half of his left eyeball; the whole bulb soon reddened and became swollen; there was slight disturbance of vision and some discomfort. The cause of the condition was thus explained by the patient: Some dirt got into his eye while sharpening a ploughshare; he had to stop work and upon an old woman's advice he permitted her to lick his eye several times with her tongue. The examination showed the left eyelid swollen, the bulbar conjunctiva congested, and its borders elevated over the corneal margin. Below the lower edge of the cornea the conjunctiva was the seat of an irregular white spot, which could not be wiped off. The swelling of the conjunctiva became so marked the patient could not open his eye and in a few days the spot became harder and more elastic. It gradually healed under iodoform applications. Several weeks later the preauricular and inframaxillary glands enlarged; later a maculopapular eruption appeared and the adenitis became general. Antisyphilitic treatment was ordered and the eyeball recovered within six weeks. Six months later a grayish-red discoloration on the lower side of the eyeball with a white scar and some astigmatism from contraction were the only remaining signs. A review of the literature of extragenital chancres revealed the fact that only 21 cases are on record in which the primary lesion was situated on the bulbar conjunctiva. [E.L.]

Some Forms of Muscular Incoordination.—H. F. Hansell² says we occasionally meet with muscular anomalies which are not dependent upon ametropia, and which are against the rule or unexplainable by the relation of accommodation to convergence, or any other theory of the etiologic relation of optic errors to muscular incoordination. Among these are non-ametropic squint. By this he does not mean that eyes are necessarily ametropic, but whatever defect of refraction may exist is quite a secondary matter. After describing an illustrative case, Hansell says that double vertical deviations are important, if not numerous, and their presence should be suspected in all cases of hyperphoria. The examiner too frequently rests content with the findings of one eye only, when he should not be satisfied until he has subjected each eye to exactly the same tests. Under the head of muscular anomalies against the rule are classed exophoria in hyperopic refraction, esophoria in myopic refraction, downward tendency of the squinting eye in internal strabismus, and upward deviation of the squinting eye in external strabismus. The causes for squint against the rule are not always easy to discover, though the fault lies in the innervation of the muscles. The etiology of the defective innervation is still unsettled. Only general laws can be formulated for the treatment of these cases, as each case is a law for itself. The oblique muscles should not be left out of consideration in the measurement of these cases. They probably bear an important part in the production of irregular muscle anomalies. [A.G.E.]

Relation between Trigeminal Neuralgia and Recurring Corneal Erosion.—M. Bartels³ believes in the neurogenic origin of recurring corneal ulcers. He relates the cases of two patients, both of whom were nervously inclined, who began to have corneal ulcers after slight traumatism to the eye. The ulcers recurred every 8 to 14 days, and as long as treatment was directed to them alone, could not be prevented. Closer examination revealed in each case tenderness at the exit of all three branches of the nervus trigeminus of the same side, especially marked over the supraorbital foramen and close questioning brought to light the fact that slight pain over these points, as well as redness of this side of the face always pre-

¹ Edinburgh Medical Journal, August, 1904.

² Medicine, September, 1904.

³ Münchener med. Woch., 1904, xxx, 703.

⁴ Dissertation, St. Petersburg, 1904.

⁵ Il Policlinico (Rome), No. 58, 1904.

¹ Archiv für Dermatologie und Syphilis, 1904, lxi, 349.

² Medicine, December, 1904.

³ Münchener medicinische Wochenschrift, 1904, li, 746.

ceded the corneal inflammation. He deduces a causal relation between the two phenomena from this, and states that the primary injury called forth a trigeminal neuralgia through direct implication of the supraorbital nerve terminals. After curing the neuralgia the corneal ulcers did not reappear. He puts his patients to bed, applies flaxseed poultices constantly to the foramina, and gives sodium salicylate internally; he cures most of the cases in from three to eight days; in very bad cases he injects Schleich's No. 2 solution into the foramina. He recommends galvanism, applying the anode to the nerve. His two patients were cured of neuralgia and corneal ulcers by this treatment. [E.L.]

Hemorrhage into the Vitreous Treated by Hemolytic Serum.—Elschnig¹ employed Romer's procedure in a case of hemorrhage into the vitreous. He injected a hemolytic immune serum into the vitreous body of one eye in a man of 34, who suffered from hemorrhage into the vitreous of both eyes. An inflammation reaction soon followed, rendering it necessary to enucleate the eyeball. It was found that the entire choroid was the seat of a nonpurulent inflammation, and that the vitreous and the retina were necrotic. [J.H.W.R.]

Centers of Pupillary Reaction.—A. Marina² discusses the importance of knowing these, for diagnostic and other reasons. The dilating apparatus is fairly well understood. But where is the center of inhibition of dilation, and how and why does the pupil react to light? The ciliospinal center is conceded to be the source of iridal dilation; arising from the eighth cervical, and first thoracic, the fibers pass along with the rami communicantes along the thoracic cervical sympathetic and the inferior cervical sympathetic ganglions until they arrive at the superior ganglions, whence they leap to the gasserian mass. A junction is formed with the carotid plexus, and with the first trunk of the trigeminal nerve in the orbit, and thence to the ciliary ganglion; passing with the long ciliary nerves, the ultimate point in the bulb is reached by piercing the sclera, to innervate the dilator muscle of the iris. According to Lodato, dilation is the result of direct nervous excitation, and not by reflex vasomotor effects. Dilation of the pupil, in darkness, is believed to result from a diminution of tonicity in the sphincter, and the consequent increase of dilator force. [T.H.E.]

Iritis Resulting from Bee Sting.—R. Hilbert³ reports the case of a woman of 63, who was stung by a bee on the upper lid of the left eye. During the following night the eye was very painful and became much swollen. She suffered from diarrhea and felt very sick. The next day both lids were puffed out, the left cheek edematous and bluish red. After the sting, which was still embedded in the tissues, was removed the eyelids were separated revealing beneath them conjunctival and ciliary injection. The aqueous was somewhat turbid, there was a small hypopyon and keratitis punctata. The iris was greenish in color, the pupil small and sluggish, but dilated upon repeated instillations of atropin, proving there were no adhesions. The patient was still suffering from shock. Under treatment, which consisted of atropin, warm boric solution constantly applied and a dark room, the swelling disappeared, the hypopyon and keratitis were absorbed within eight days and the iris resumed its natural blue color; it was fully six weeks before the patient was entirely well. [E.L.]

Retinal Embolism, Homonymous Hemianopsia, and Double Optic Neuritis in Cases of Anemia.—C. O. Hawthorne⁴ records four cases of anemia, each of which was complicated by evidences of a lesion in some part of the visual apparatus. In two of the cases, and probably in a third, the responsible lesion was a thrombosis; in the fourth, the usual condition of double optic neuritis, he believes, may reasonably be ascribed to the same cause. All the patients were women suffering from simple anemia. Hawthorne discusses at length the arguments for and against the complications, namely, retinal embolism and homonymous hemianopsia and double optic neuritis, being all direct or indirect consequences of the

defective quality of the blood. He reaches the conclusion that the only alternative suggested is that of chance or coincidence and this is not likely when the case records are studied in detail. The unusual occurrences in these four cases find in thrombosis an adequate and inclusive interpretation; a rival suggestion that has an equally comprehensive claim is not easily supported. Brief notes of the four cases are given. [A.G.E.]

Mercuric Chlorid, Ichthargan, and Silver Nitrate in Trachoma.—W. T. Gortalow¹ made a comparative series of clinical experiments with these three remedies, using sublimate in the strength of one grain to the ounce and the other two in 1% strength. As a result he found that ichthargan gave a higher percentage of cured and relieved cases than the other two remedies. It may be used over long periods, rarely causing irritation or argyrosis. Expression of the granules materially assists the treatment and should be performed after the inflammatory reaction has subsided. Pannus is well influenced by 1% solutions of ichthargan. However, when all is said, ichthargan can be looked upon only as a valuable adjuvant in the treatment of trachoma and nothing more. [L.J.]

Metastatic Gonorrheal Ophthalmia.—Metastatic gonorrheal ophthalmia is differentiated from the ordinary form of gonorrheal ophthalmia by not being caused by direct infection, by affecting both eyes together, by the slight degree of inflammation which accompanies it, by the slight smarting, the slight swelling of lids, the slight degree of hyperemia which affect the conjunctiva only, and by the thin discharge, which is not copious and contains few or no gonococci. Corneal ulceration is rare, and at best, insignificant. The condition is analogous to gonorrheal iritis and arthritis. W. G. Sym² reports two cases of this rare condition: The first occurred about three months after the infection had started, and at a time when the discharge had almost ceased. It was associated with multiple arthritis; both complications improved under protargol and corrosive sublimate lotions, but had a curious tendency to relapse. It never developed into an iritis, although corneal ulcers appeared several times. The second case was a similar one; in its discharge a few gonococci were found. A number of joints became implicated in this case, and gave considerable trouble before the case cleared up. [E.L.]

Ocular Hemiplegia.—Brissaud and Péchin³ say that in cerebral hemiplegia with so-called conjugate deviation of the eyes there is not so much a matter of ocular deviation as of a true ophthalmoplegia—in contrast to the sensory hemianopsia. In ocular hemiplegia, there is loss of lateral movement only. The distinction between ocular deviation and simple loss of function is to be made, in view of establishing the clinical picture. [T.H.E.]

Effects of Eyestrain.—A. L. Ranney⁴ concludes a long article in which he gives the notes of 10 illustrative cases to show the varied and serious conditions that may have their origin in eyestrain. Among them are wry-neck, progressive deformity of the head, arms and hands, complete nervous prostration, and loss of power of walking, accompanied by severe spinal pain. Ranney says a knowledge of the possible effects of eyestrain upon mental and physical development cannot be too widely disseminated. The detection of eyestrain in youth is an important step in preventive medicine; in its detection the study of facial expression and head posture is destined to become an important aid in diagnosis. The prescribing of glasses is of vital importance, though genuine heterophoria may exist with refractive errors. No child should be allowed to begin education until it is known that its eyes are properly fitted for the work. [A.G.E.]

Optic Neuritis in Paratyphoid Fever.—G. Flatau⁵ records an instance of bilateral optic neuritis in the course of paratyphoid fever. The attack was grave, and caused by the organism of species B. The neuritis was identical with that usually observed in the course of typhoid fever. As the patient improved, the eye condition disappeared. [E.L.]

¹ Wiener klinisch-therapeutische Woch., 1904, p. 1198.

² Il Policlinico, (Rome), No. 64, 1904.

³ Wochenschrift für Therapie und Hygiene des Auges, 1904, vii, 261.

⁴ The Practitioner, December, 1904.

¹ Russki Vrach, October 23, 1904.

² Edinburgh Medical Journal, 1904, xvi, 126, August.

³ Il Policlinico (Rome), No. 53, 1904.

⁴ Medical Times, January, 1905.

⁵ Münchener medicinische Wochenschrift, 1904, II, 1245.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 8.

FEBRUARY 25, 1905.

\$5.00 YEARLY.

An attempt to rescind the Anatomy Act of Pennsylvania is made by a member of the State Legislature, Mr. Henry C. Troxall, of Williamsport, Lycoming county. It is to be done by means of a proviso inserted in the original law that by a petition of any 10 taxpayers of the poor district in which the poor person deceased had residence the dead body shall not be given to the Anatomic Board of Pennsylvania. There are at present eight medical and three dental schools in the State which require the cadaver for purposes of instruction and the number annually needed is about 1,000. At present and under the wording of the law the supply is about equal to the demand. The proposed amendment of Mr. Troxall would almost completely nullify the law and bring back the distressing condition of affairs prior to 1883. The existing law has worked admirably and to the entire satisfaction of the medical institutions as well as to the entire people. The new requirement is seemingly not motivated upon religion or sentiment—the present law thoroughly providing against any criticism or injustice in those directions. The directors of the poor may say that it is a shame for human bodies to be used for dissection purposes, and some of their friends, the undertakers, may cry amen to the contention, but the financial necessities of these gentlemen are hardly an excuse for a return to the scandalous conditions which killed anatomic and medical progress before the present humane law was enacted. Every physician and society of the State should use all possible influence with their representatives at Harrisburg to secure their votes against the shameless amendments proposed by Mr. Troxall.

The Pace That Kills.—We hear a great deal nowadays—some truth, much twaddle—concerning this subject. Like many another scapegoat, it bears unmerited burdens, but its legitimate load is well worth occasional weighing. The latest weighmaster hails from New York, where, we are told, deaths from heart disease and from nephritis have risen from 13.5 per 10,000 in 1868 to 29.6 per 10,000 in 1904. Much of this increase is attributed to changed conditions of life, and the arguments therefor are sufficiently sound to be at least partially convincing. We work, play, and eat under forced draught, as marine engineers would put it, and in the last-named industry rapid stoking and inferior fuel leave

troublesome clinkers in the grate. The rank and file, however, need not worry. Hard work in making an actual living is rarely pathogenic and still less often fatal. It is the man who would add to his possessed fortune, small or large, who must go the killing pace. Looked at squarely, it is the eternal hurry for wealth, or dissolution in the spending of it, that dominates the picture. Let this point be clear or faulty, perspective will breed discontent and alarm in the man with moderate competence or less. The results of unnatural living must not be attributed to the "simple life."

The Work of the Phipps Institute.—The first annual report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis is in many ways distinctly encouraging. The records are incomplete, as might be expected from the first year of an institution beginning in cramped, temporary quarters, and a total of 2,039 patients to be looked after in the midst of confusion incident to organization, but they form a basis for valuable deductions. The case records alone make 10 volumes of 1,000 pages each. Of the patients treated, 254 were in the hospital, which has 52 beds, and the remainder in the dispensary; 537 showed improvement. Numerous tables of statistics regarding the patients and the work make up the first 118 pages of the report; the remainder consists of the five public lectures delivered during the year under the auspices of the institute. At the close of the year the medical staff numbered 16, and the nursing staff 10. The institute has abundantly proved its value in the fact that in all, 1,458 poor people applied for treatment. Many of these could not even pay for the few drugs considered necessary. The treatment and education of this many tuberculous people otherwise not reached, is of paramount value to the city of Philadelphia. Beyond this, however, Dr. Flick is inclined to place as the best of the year's work the training of medical experts and special nurses. The supply of nurses for the hospital was a serious question, finally solved by opening a training-school for girls who had been cured at the White Haven sanatorium. In this way an occupation is made for cured tuberculous patients and women are trained for the care of other unfortunates. To our mind, than this no higher proof could be furnished of the efficacy of modern treatment of the disease and of the lack of

danger in caring for the tuberculous under proper conditions. Indeed, we would have hesitated to place these girls in the hospital as nurses, but the experience of Dr. Flick is sufficient guarantee of safety in so doing. Actual demonstration of this safety should prove valuable in the educational literature of the disease; we trust special mention will be made of this point in future reports of the institute. As a whole, the first year's work of the Phipps Institute is an earnest of great good that is to result from the combined untiring efforts of Director Flick and the beneficence of Mr. Phipps.

Prevention of Venereal Diseases.—Our slow progress, if progress it be, in checking the spread of venereal diseases, often discourages physicians in the further prosecution of prohibitive measures. The question of personal morality is so closely associated with the problem that many for that reason do not care actively to combat illicit practices; because of the inherent opposition of human nature to "preachments," the moral method had best be confined to certain individuals who are amenable to such arguments. For the rank and file, other means must be employed, and these should be assiduously practised by physicians. The Ohio State Board of Health is commendably employing the circular letter and leaflets adopted by the conference of the State and Provincial Boards of Health of North America. To each physician is sent a circular letter setting forth briefly the enormous social and financial ravages of venereal diseases, with the request for a yearly statement of the number of cases of gonorrhea and syphilis treated. Accompanying the letter is a leaflet to be given each patient treated. The possible results of these diseases are briefly stated, and a few general directions for their management are appended. Special emphasis is put upon the possibility of communication to innocent persons. This is a point made prominent by the discussion in the conference before the circulars were adopted. One speaker believes the term "venereal" is a barrier in the public mind with respect to these diseases, and that the young would be more easily approached regarding them if the idea of gross immorality were dissociated; it is not a necessity for infection. If not for the guilty, then for the sake of the innocent should physicians keep up the combat.

More Gossip, and Worse, about Cuba's Sanitary Delinquency.—In a recent editorial, unfavorable comment was made on the work of one member of the New York *Herald's* commission to investigate sanitary conditions in Cuba. If the performance of this commission had been as good as the modest average to be expected of American sanitarians, his certification by the *Herald* as sanitary expert might have passed unchallenged by *American Medicine*. Unfortunately for the medical profession and for all concerned in the *Herald* investigation, two of the three commissioners furnish in their correspondence convincing evidence of unfitness for the particular inquiries which they have undertaken. The commissioner whose correspondence relates especially to Havana is more prolific than his Santiago colleague of the insolent remarks which serve so admirably as head-

lines. That certain Cuban officials are headlined in an American newspaper as "kindergarten engineers," is a lesser insult to Cuban engineers than to another liberal profession owning fellowship with the *Herald* commissioner who let slip the opprobrious epithet. This commissioner, in one of his earliest letters, points out, as a source of yellow fever peril to the United States, a condition of population which may eventually occur in Cuba, and which the Cubans are doing their best to bring about. The argument is not unique; on the contrary, it is familiar in nursery hygiene, and stated in this connection, may help to indicate the commissioner's professional sagacity. He finds that Cuba is steadily accumulating a nonimmune population, and the contingency of a yellow fever outbreak in such a population presents to him cataclysmal features. More recently this commissioner has discovered signs of imminent disaster to Cuba and to the United States. These are scareheaded: "Big Reservoir Incubator for Yellow Fever," "Ideal Culture Bed for Deadly Mosquitos in Heart of Havana's Water-supply," "Four Boats Blackened with Hatcheries." Whoever writes a scientific subject for the daily press takes chances of misrepresentation in the headlines, but the screaming absurdity of these headlines does no injustice to the text of the article. The commissioner reports his discovery on February 2, of four neglected skiffs, half filled with water, in the Palatino reservoir. They lie under "a six foot proof stone wall," in the "southmost corner of the reservoir, the warmest, most windless, and most sheltered corner in the enclosure." Upon the water of two of these boats "floated the larvas and empty pupa shells of millions of mosquitos." The sides of the boats, above and several inches below the water line, were "incrusted and gray, disgustingly scurfy with old crusty patches of dead mosquitos and their pupa shells." The water in the boats "teems with larvas and chitinous casts of mosquitos. The water of the reservoir at this point contains "many empty larval shells resembling the transparent cast-off shells of locusts, also an occasional mosquito's wiggle tail." Over this "ideal yellow fever incubator," in the 4 o'clock sunshine, hovered the *Herald* commissioner and "a small swarm of mosquitos." To thousands of the *Herald's* readers this description of a "perfect breeding farm" for *stegomyia* will seem quite appropriate, and they will agree with the commissioner, being no better informed than he, that his discovery condemns the Cuban nation as "organically, fundamentally and instinctively apathetic, paralytic and incapable in the most vital affairs"—"wanting in that sanitary sense and energy, so fearfully and indispensably necessary for Cuba's and for our own safety." Other hundreds of the *Herald's* readers will conclude, as we do, that this commissioner, having a good opportunity to learn something possibly worth while about the Palatino reservoir, failed in two columns of eight point type to record a single observation in any way related to the health of Cuba.

A New Hygienic Talisman: The Cuban Quarantine Electric Shield.—After this outpouring of ignorant faultfinding, the *Herald* commissioner offers in the same issue a sham libation of praise to the "Cuban

Quarantine Electric Shield." If it were not inconsistent, his sputtering about the "living electric shield against yellow fever," which is "nevermore to sleep, nor slumber as fighting weapon," would still be offensive. It becomes a fair mark for American criticism when it is discovered that this sloppy paeon serves only to introduce the claim that extraterritorial inspection and notification originated in New York through the initiative of a former health officer of the Port of New York. The time is said to have been 1892, and the occasion was the outbreak of cholera in Hamburg. The medical inspector sent at that time to Hamburg to look out for the sanitary interests of New York, is said to have been the first official employed for such a purpose. The results, it is said, were so satisfactory, that the federal government at once adopted the practice, and the distinguished Rudolph Virchow pronounced a blessing upon the "New York method." Now, without insisting upon the correctness of our own impression that Dr. Nash went to Hamburg in 1893, we say confidently that the employment of medical inspectors outside her political limits was established by the State of Louisiana earlier than 1892. The shortlived National Board of Health used precisely this system during the yellow fever epidemic in 1878, to the great satisfaction of all the Southern States, except Louisiana. The adaptability of medical inspection and notification to international hygiene was favorably considered by international conferences at Rome in 1885, at Constantinople in 1882, at Washington in 1881, at Vienna in 1874, and at Constantinople in 1866. The Paris conference in 1851 made regulations including the employment by all signatory powers of medical inspectors in the Orient, and the practice continued for five years following the Paris conference. Supposing the former Health Officer of the Port of New York to be, as he certainly should be, more familiar than the *Herald* commissioner with the history of maritime quarantine, he would decline to have his name associated with a tale so ancient.

Membership in the American Medical Association, Conditional upon Membership of the Inethical Local Society.—Complaints similar to that alluded to in our columns recently are multiplying. In a small city, for example, several members proposed the following amendments to the by-laws:

On and after the first day of February, 1905, no member of this society shall accept the position of club, society, or organization physician, or agree to do any medical or surgical work for any club, society, or organization at a less rate than the regular or customary charge for like services rendered by other physicians for patients not members of such club, society, or organization.

Further, in no case shall any physician agree to attend the families of the members of any club, society, organization, or families of employees of any corporation or firm at a less price than the regular rates charged for like services rendered by other physicians to families of persons not members or employees of such club, society, organization, corporation, or firm.

Nothing in this section shall be construed as preventing any member from attending the worthy poor at a less rate or to give free service to those who are too poor to pay anything, or from acting as city, county, or town physician, health officer, or under any political appointments.

Any violation of this By-law shall be considered unprofessional conduct, and render the member guilty thereof liable to suspension or expulsion from this society, as the society may determine.

Any member who shall offer to pay or shall pay a commission in consideration of having any case referred to him or who shall propose any arrangement or agree to any arrangement for compensation, for professional services, not known to the patient or to the party by whom such compensation is paid shall be deemed guilty of unprofessional conduct.

All active members shall sign the Constitution and By-laws, and failure to do so for 60 days after due notice from the Secretary by registered mail shall be considered as a resignation. Each signature to the Constitution and By-laws shall be subscribed under the following words, to wit: I understand the requirements of the Constitution and By-laws of the El Paso County Medical Society and agree to be governed by the same.

After a thorough and frank discussion the amendments were tabled for five years. The society then attempted to save its own self-esteem by passing the following resolution:

It is the sense of this society that all contract practice, unless the remuneration for services approaches the minimum charges for similar work in private practice, is pernicious and the society condemns it.

It was evident both in the discussion and by the vote of the society that contract practice was so common among the members that the majority would not and could not pass a working resolution against it. Thus the members of the society who are against professional disorganization from unethical practice must retain their membership in the unethical local society in order to belong to the national organization. Suppose the ethical members of the local society resign and form a new one, and then send delegates to the State and national societies? What would be the action of these bodies? It is evident that a decisive rule of action should be adopted by the American Medical Association.

The Exchange of Professors between Different Countries.—There has been considerable comment on the plan that Harvard has arranged, for an exchange of university professors with the University of Paris, and Harvard has also taken the initiative in a similar negotiation with the University of Berlin. The announcement that Emperor William II has directed the German Ambassador to the United States to lay before President Roosevelt an official suggestion for exchange of university professors between Germany and the United States is certain to attract still further attention to the advantages which may be gained from such an arrangement between different countries. It emphasizes the fact that human knowledge is not the property of any one country, people or language, but is a property of universal value, and many people of all nations recognize its value and are striving to attain the best possible that they and their countrymen may share in its benefits. In the past men learned in whatever branch of knowledge have been frequently invited to give lectures at universities in many countries besides the one which happened to be the home of their own university. This has been specially true of scientists and particularly of men engaged in study of the sciences pertaining to medicine. Not only have eminent teachers been invited by learned societies and university faculties to give occasional

courses of lectures upon the subjects in which they were specially proficient, but we have in medicine a number of endowed lectureships, of which the Lane lectures at San Francisco and the Herter lectures in Baltimore are examples. While men of special learning in our own country have frequently been called upon to deliver these lectures, a considerable proportion have been given by men from foreign universities. Medical students, specially in Germany, have long been accustomed to avail themselves of the advantages of instruction along different lines of work by going from one university to another at different times during their medical career and often taking the lectures which count for their degree at three or four different universities. This plan has been followed to a less extent by students in America, but the ambitious students among our countrymen have always sought the best sources of knowledge and American students are to be found in the clinics, laboratories and lecture halls of the best foreign universities in increasingly large numbers every year, in spite of the fact that there has been such great improvement in the opportunities for medical study at home in recent years.

The very great gain from seeking knowledge at first hand from great authorities can scarcely be overestimated, and we earnestly hope that arrangements will be made by which the exchange of university professors suggested will become an accomplished fact, and will be extended to include eminent teachers of all nationalities. Probably few men who have attained great eminence in any line of thought or work, have not been influenced by other minds to a very great degree in the early part of their career, and are not indebted either directly or indirectly to the inspiration which comes from such associations. Very many who would earnestly desire to avail themselves of the opportunity of listening to the world's greatest teachers, are prevented from doing so by the expense or some other reason, and such an exchange of eminent teachers would extend their influence many fold, and ought to be of inestimable value in advancing human knowledge. But the advantages are not alone to the students; the presence of a very distinguished professor from abroad in any community attracts the attention of the public to the branch of knowledge which he represents, and helps them to the understanding and appreciation of its bearing and importance, and in this way indirectly, also may be of greatest value.

"Kinesipathy" is the fine-sounding word whereby the osteopaths and masseurs are trying to creep into decent society. A New York City Senator from the Kinesipathic Bowery has introduced a bill into the State Legislature to "control," that is to legalize and rehabilitate, the motley "Mechano-Neural," Massage, and Osteopathic Company. A board is to be appointed to examine and license—and the rest. Philologically the pathy is well named—morbid energy, or active morbidity—but the petitioners know little and care less for etymology. Another exhibit of diseased activity is shown by the similar movement to legalize the practice of ophthalmology by men who know little, or little of

optics and less of medicine. We are surprised that two of our New York contemporaries gave space, refused by *American Medicine*, for a specious plea to further this delusion, and Dr. Van Fleet, who has long and valiantly fought against such unprofessionalism, writes that an active member of the American Ophthalmological Society is in favor of this legalization of quackery. It is hard enough to conquer the open foes of medicine but harder when traitors appear in our own ranks. There can be no compromise; the treatment of disease is the work of medical men possessed of scientific and all-round training. Knowledge of massage and of spectacle making does not fit one to practise medicine, and any indulgence in that error will prove expensive to the community.

EDITORIAL ECHOES

The Tuberculous Hog.—Let us take the hypothetical case that there are gathered together in this hall today 20 men who were raised together in the same town and completed the common school education together. Supposing immediately at this period 10 at once start into their life work, and the other 10 go on for higher education. Of the first 10, 1 becomes a laborer, 2 go into business, 2 into a trade, 1 a salesman, 1 a butcher, 1 a hog shipper, and 2 others begin farming. Of the 10 going in for higher education, 1 studies for the ministry, 2 for law, and 1 of these represents the people, 2 as school teachers, 1 for engineering, 2 for human medicine, and 1 for veterinary medicine. Supposing this is the first time they have met since that time, and all of them have become proficient in their respective callings, and that none has much more than yellow newspaper knowledge concerning the fields of any of the others. A few days before, the farmer had marketed a number of hogs through a hog shipper, and when these were killed the veterinary meat inspector found that they were all in a very badly advanced stage of tuberculosis, although very fat. The veterinarian believes the internal organs of one of these hogs might be interesting to the physicians who are having a meeting that afternoon, and he consequently takes them there for exhibition. At this meeting there happen to be also these 20 men. The farmer is told that his hogs were tuberculous, and he is absolutely astounded and believes it incredible, for he had always thought and, in fact, knew, that his hogs were healthy, and never suspected anything the matter with them; the hog shipper had been buying hogs for many years, and had never seen any tuberculosis in hogs; a local butcher had killed hogs bought of this same man and had seen this same condition in the organs, but had never known that it was tuberculosis, consequently selling the pork off the block to the consuming public. Some of the physicians were surprised to know that the hog had the disease at all. And mind you, not one of these 20 beside the veterinarian knew or suspected, or had ever thought the hog had the disease that they knew was decimating the human family—not even the farmer who had produced the hog, not even the hog shipper who had bought and sold hundreds of such animals, not even the local butcher who had in his own hands these disease-saturated organs, and not even the physicians who had treated hundreds of cases of tuberculosis in the members of their own race, and had fruitlessly searched for the cause of some of them; and, of course, the others who were not directly interested more than as mere consumers. Less than three months ago I read an article by a very able physician who had made a special study of human tuberculosis, and he stated

that it was impossible for the hog to acquire the disease. And in my four years' work as inspector of meats I have seen no less than 10,000 such animals, to say nothing of the like proportion, 200 other federal inspectors have seen. The high-bred, high-priced, pedigreed animals and those in a prime fat and apparently healthy condition are often as thoroughly saturated with the disease as is the scrub. But some people believe that a very fat animal or person is not healthy. While in Chicago I saw an inspector condemn and render an animal for this disease that was one in a prize carload lot of cattle at the International Live Stock Exposition. Again, at abattoirs where there is federal inspection, all animals are inspected before death as well as afterward, and among the 750 hogs which he discovered to be tuberculous after being slaughtered, we were not able to discover on our antemortem examination a single hog that we could say positively was tuberculous, and we were not able to even suspect more than 50.—[Burton R. Rogers, D.V.M., in *Bulletin of Iowa Institutions*, October, 1904.]

BOOK REVIEWS

Bacteriology and the Public Health.—By GEORGE NEWMAN, M.D. Third edition, illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

While nominally a third edition of the author's work formerly given a slightly different title, this is essentially a new book. New chapters have been added and the others rewritten. The work aims to set forth our present knowledge of bacteria as they are related to the public health. Laboratory methods and technic are recorded, but in addition the subject is viewed broadly, particularly as it concerns the every-day problems of health and preventive medicine. As a result, the book is one that will prove of especial value to those interested in general hygiene, as every physician should be, and particularly to medical officers of health. Chapters are devoted to bacteria in water, the air, soil, milk and other foods, sewage, and in the production of fermentation. One chapter is devoted to tuberculosis as a type of bacterial disease, and others to the etiology of tropic diseases, immunity and antitoxins, and disinfection. An appendix of 35 pages deals with special technic. Within the 488 pages of text is contained a great deal of practical information that should be within reach of every physician. It is a book that makes for improved health in the way of preventive medicine; for works of this type there is always room.

A Manual of Electrostatic Modes of Application. Therapeutics, Radiography, and Radiotherapy. By WILLIAM BENHAM SNOW, M.D. Third edition. A. L. Chatterton & Co., New York, 1904.

The scope of this book is very well described in its title. The text is clear and the illustrations are good. The section on radiotherapy is exceptionally full. The author is to be commended for his conservative estimate of the scope of electrotherapeutic measures.

Atlas and Epitome of General Pathologic Histology.—By DOCENT DR. HERMANN DÜRECK, Munich. Authorized translation from the German. Edited by Ludvig Hektoen, M. D. Philadelphia, New York, and London: W. B. Saunders & Co., 1904.

This latest addition to Saunders' medical hand-atlases fully sustains the standard of the series. Dr. Dürk has eschewed critical discussion of disputed points and given generally accepted views of pathologic processes. Because of this the text is very satisfactory, and furnishes a basis for the comprehension of different theories regarding processes which from their nature will probably never be made entirely clear. That the editor has made very few additions, and these only words of explanation, is sufficient guarantee of the value of the text for the English reader. Dr. Hektoen expresses his belief that this book will prove of more value than the volumes on special pathology, which received universally favorable comment. As in all the atlases, the illustrations are the feature of this work.

It contains 176 colored drawings on 80 lithographic plates, and 36 figures in black and colors. The illustrations are explained by legends which include all the points intended to be brought out. The appearances of actual specimens are shown instead of combining microscopic fields, a method to be commended. Seldom are so many first-class instructive illustrations grouped in one book; a careful study of them makes the text almost of secondary importance. Tumors are considered at length, 150 of the 369 pages of text being devoted to this subject. The publishers have done their work well.

Appendicitis and Other Diseases about the Appendix.—By BAYARD HOLMES, M.D. Fully illustrated. D. Appleton & Co., New York, 1904.

This book is a portion of the author's forthcoming volume on the Surgery of the Abdomen. Following appendicitis the subjects of Peritonitis, Intussusception, Perforating Typhoid Ulcer, and Carcinoma of the Intestinal Tract are discussed in detail. It follows out the plan adopted in his *Surgery of the Head* which appeared 18 months ago, and presents in full the more important and the more imminent conditions calling for surgical relief. The work is largely based upon the author's experience, and each topic is illustrated by abundant clinical reports. It presents the unclouded picture of the disease with all its threatening possibilities and shows in an orderly and logical manner the attitude of the physician toward the first and each subsequent manifestation of the disease. It puts before him the dangers which threaten the patient, and calls attention to the errors into which the attending physician is likely to be led. It gives in a forceful and masterly way the picture of the disease and the indications for its treatment which a logical mind with large experience and extensive reading is bound to assume.

The Brain of the Sheep. Part IV. Physiology Practicums.—By BURT G. WILDER, B.S., M.D. Third edition, Revised. 1904.

This Part of the Practicums has been completely revised. Three new figures and directions for removal and preservation of the brain have been added. The work is now one of the most concise and clear of the small treatises devoted to this subject. To the reviewer the separation of the sheets and plates seems unhandy, but Dr. Wilder still finds the practical advantages of this arrangement greater than the inconvenience, and the test of years of teaching must ever be final. In the same way, the simplified nomenclature which has aided him in a quarter century's successful career as a teacher, is still retained. He has no sympathy with the reactionary tendency of some to employ inconvenient or noncorrelated names, and believes that it will not last. In this edition he has replaced *conarium* by *epiphysis* and, in the names of the encephalic cavities, *oe* by *e*. In enclosed pages of notes for his classes we note the employment of rules of spelling that are insistently advocated in this journal. It is gratifying to find these principles upheld by a teacher of such eminence, and the fact goes to show that common-sense spelling is of greater practical value than the archaic and barbarous methods obstinately adhered to by the so-called purists.

The Surgery of the Diseases of the Appendix Vermiformis and Their Complications.—By W. H. BATTLE and E. M. CORNER. Chicago: W. T. Keener & Co., 1905.

The authors have endeavored to present a working summary of the immense amount of literature upon the subject considered. In addition, personal views are freely expressed. They summarize the views held by physicians and pathologists, and then place the surgeon's view before the profession in a practical manner. As a result, the book of 200 pages of text contains a great deal of information regarding the surgical aspect of the disease, particularly for young practitioners. But little is said as to the decision for or against operation, except that the decision should be formed within 48 hours of the onset of the attack. The larger part of the book is devoted to a consideration of the complications of the disease. Notes on illustrative cases are a valuable feature. Full credit is given American surgeons for their work in this line. "On the other side of the Atlantic, the surgeons have led in the adoption of almost

every surgical measure that has been utilized for appendicitis." The type employed is very good and the binding is substantial.

Anatomy of the Brain.—By J. F. BURKHOLDER, M. D., Professor of Anatomy in the Illinois Medical College. Chicago: G. P. Englehard & Co. 1904.

The author has produced a book of 174 pages, describing the anatomy of the brain of the sheep, which he employs for class demonstration. The text is placed first, and followed by 36 full-page plates, five of them colored, from drawings by the author. The Basel association nomenclature has been followed as closely as possible. In an introduction Dr. H. H. Donaldson speaks of the value of the study of the brain as an anatomic training for medical students and of the accessibility and essential correspondence with the human brain, of that organ from the sheep. In this connection he mentions the pioneer work of Professor Burt G. Wilder, of Cornell. Dr. Burkholder's description is well written and the plates are excellent.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Diseases of the Nose, Throat and Ear, and Their Accessory Cavities.—By SETH SCOTT BISHOP, M.D., D.C.L., LL.D., Author of "The Ear and Its Diseases"; Honorary President of the Faculty and Professor of Diseases of the Nose, Throat and Ear in the Illinois Medical College; Professor in the Chicago Postgraduate Medical School and Hospital; Surgeon to the Postgraduate Hospital and to the Illinois Hospital; Consulting Surgeon to the Mary Thompson Hospital, to the Illinois Masonic Orphans' Home, and to the Silver Cross Hospital of Joliet, etc. Third edition. Thoroughly revised, rearranged and enlarged. Illustrated with 94 colored lithographs and 230 additional illustrations. 564 pages, royal octavo. Price, extra cloth, \$4.00 net; sheep or half Russia, \$5.00 net. F. A. Davis Company, Philadelphia.

Essentials of Bacteriology.—By M. V. BALL, M.D., formerly Resident Physician at the German Hospital, Philadelphia. Fifth edition, thoroughly revised. By Karl M. Vogel, M.D., Assistant Pathologist at the College of Physicians and Surgeons (Columbia University), New York City. 12mo volume of 343 pages, with 96 illustrations, some in colors, and 6 plates. W. B. Saunders & Co., Philadelphia, New York and London, 1904. Cloth, \$1.00 net.

Essentials of Nervous Diseases and Insanity: Their Symptoms and Treatment.—By JOHN C. SHAW, M.D., late Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School. Fourth edition, thoroughly revised. By Smith Ely Jelliffe, Ph.D., M.D., Clinical Assistant, Columbia University, Department of Neurology; Visiting Neurologist, City Hospital, New York. 12mo volume of 196 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York and London, 1904. Cloth, \$1.00 net.

A Treatise on Bright's Disease and Diabetes. With Special Reference to Pathology and Therapeutics.—By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania; one of the physicians to the Pennsylvania Hospital; Fellow of the College of Physicians of Philadelphia, etc. Second edition, illustrated, including a section on the Ocular Changes in Bright's Disease and Diabetes.—By GEORGE E. DESCHWEINITZ, M.D., Professor of Ophthalmology, University of Pennsylvania; Ophthalmic Surgeon in the Philadelphia Hospital, etc. P. Blakiston's Son & Co., Philadelphia, 1904.

Manual of Operative Surgery.—By JOHN FAIRBAIRN BINNIE, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas City Medical College, Kansas City, Mo.; Fellow American Surgical Association. With 559 illustrations, a number of which are printed in colors. P. Blakiston's Son & Co., 1905. Price, \$3.00 net.

Aequanimitas. With other Addresses to Medical Students, Nurses and Practitioners of Medicine.—By WILLIAM OSLER, M.D., F.R.S., Professor of Medicine, Johns Hopkins University, Baltimore. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$2.00.

The Surgical Diseases of the Genitourinary Tract, Venereal and Sexual Diseases.—By G. FRANK LYDSTON, M.D., Professor of the Surgical Diseases of the Genitourinary Organs and Syphilology in the Medical Department of the State University of Illinois. Second revised edition. Illustrated with 233 engravings and 7 colored plates. Extra cloth, \$5.00 net; sheep or half Russia, \$6.00 net. F. A. Davis Company, Philadelphia.

A Directory of Institutions and Societies Dealing with Tuberculosis in the United States and Canada.—Compiled by LILIAN BRANDT. Published by Committee on Prevention of Tuberculosis of Charity Organization Society, New York, 1904.

Transactions of the Twenty-sixth Annual Meeting of the American Laryngological Association, held at Atlantic City, N. J., June 2, 3 and 4, 1904. Published by the Association, 1904.

The Diseases of Society. (The Vice and Crime Problem).—By G. FRANK LYDSTON, M.D., Professor of Genitourinary Surgery, State University of Illinois. J. B. Lippincott Company, Philadelphia and London, 1904.

Textbook of Insanity, Based on Clinical Observations.—By R. VON KRAFFT-EBING, M.D., late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized translation from the latest German edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis, Mo., etc. With an introduction by Frederick Peterson, M.D., President of the New York State Commission in Lunacy. Royal octavo. Price, extra cloth, \$4.00 net; half Russia, \$5.00 net. F. A. Davis Company, Philadelphia.

AMERICAN NEWS AND NOTES

GENERAL.

The Mosquito Theory is Very Old.—Sir Henry A. Blake, governor of Ceylon, announced at a meeting of the Asiatic Society that Singapore medical books of the sixth century described 67 varieties of mosquitos and 424 kinds of malarial fever caused by mosquitos.

Health Conditions in Mexico City.—Recent news from Mexico City states that owing to improved sanitation, better drainage, and inspection of meat, milk, etc., the mortality in that city has decreased in the past year, the number of deaths being 16,439, which is 688 less than in 1903. The deathrate is now 41 per 1,000, which is an improvement over the deathrate in former years, which rose to 49 per 1,000. Disease of the digestive tract and pneumonia figure largely in the causes of mortality, and especially among the ill-fed and ill-clad lower classes. The mortality among the middle classes is relatively low.

Physicians and the Hall of Fame.—In an editorial by Dr. H. Winnett Orr, editor of the *Western Medical Review*, published in Lincoln, Neb., a vigorous stand is taken in favor of nominating certain eminent deceased physicians for the Hall of Fame. The regular election will take place during the present year, and it is advocated that the following names of physicians should be presented to the board of election, and an appeal is made to the profession to advocate these or other physicians for honorary place: Benjamin Rush, David Ramsay, John Cullen Warren, J. Marion Sims, and Oliver Wendell Holmes.

Medical Treatment for Truant Pupils.—Investigations conducted by Dr. Daniel P. MacMillan, supervisor of the truant department in Chicago, during several years prove that many of the boys run away from school because they are discouraged on account of their inability to keep pace with their classmates. He declares further that the reason a majority of these truants cannot keep up with their classes is that they cannot see well or hear well. Nearly all of the bad boys brought to the department for examination have sensory defects. Supervisor MacMillan declares that before any great improvement can be made by the child, these sensory defects must be remedied. Therefore, as a first step in curing boys of truancy and delinquency, he will urge their parents to take them to a surgeon and submit to an operation on the affected eye, ear, or throat.

Reorganization of the Red Cross.—News from Washington, D. C., states that in pursuance of the terms of the act of Congress providing for the reorganization of the Red Cross Society, the incorporators of the American National Red Cross Society met at the State Department February 8. Permanent organization was effected through the election of the following permanent officers: President, William H. Taft; treasurer, Charles H. Keep, assistant secretary of the treasury; councillor, Louis A. Pradt; secretary, Anita Newcomb McGee; executive committee, Surgeon-General W. K. Van Reypen, U. S. N., retired; Assistant Secretary of State Francis B. Loomis; Judge Advocate General George B. Davis, U. S. A.; Medical Director John C. Boyd, Commissioner James R. Garfield, Miss Boardman, Surgeon-General Wyman, Marine-Hospital Service. This committee was authorized to proceed at once with the organization of branch Red Cross societies in every State and Territory of the union.

No Pure Food Bill Will be Passed by Congress the Present Session.—A correspondent writing from Washington to the *Boston Transcript* recently, says: For practically all the present session of Congress the pure food bill, which the House passed a year ago, has been before the Senate, where the chances for its final passage are very slender. The opposition which it is encountering shows in a striking manner to what extent the United States Senate affords a lodgment for the influence of a lobby of whisky rectifiers, proprietors of patent medicines, manufacturers of adulterated foods and beverages, and promoters of profitable drug trade frauds. This lobby has been very industrious all winter, and it seems about to accomplish its purpose, although a majority of the senators doubtless favor the proposed legislation, or at least feel that something ought to be done. The chief opponents of the bill are certain senators representing States which have a considerable number of firms that the proposed legislation would affect unfavorably.

Army Medical Corps Examinations.—Preliminary examinations for appointment of Assistant Surgeons in the Army will be held on May 1 and August 1, 1905. Permission to appear for examination can be obtained upon application to the Surgeon-General, U. S. Army, Washington, D. C., from whom full information concerning the examination can be procured. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had

at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country, at points where boards can be convened. In order to perfect necessary arrangements for the examinations of May 1, applications must be complete and in possession of the Surgeon-General on or before April 1, and for the examination of August 1, on or before July 1. There are at present 20 vacancies in the Medical Corps of the Army.

The Leper Colony of Molokai.—Dr. William C. Wile of Danbury, Conn., who has achieved special prominence by reason of his investigations of that dread disease leprosy, in pursuance of which he has spent a great deal of time of late in the leper settlements of Hawaii, says: "The unfortunate victims of the leper colony on the island of Molokai now number about 1,100. They are well cared for and have everything done for them that can alleviate their pitiable plight. From the period of infection, which occupies about two years, the leprosy patient may have his existence prolonged from four to six years, rarely longer than the latter period. Curiously enough, the taint of leprosy is not always transmitted; a child of a leprosy father and an uninfected mother may grow up in good health. One noteworthy feature of the colony is the heroism often displayed by nonleprosy husbands, who go to dwell in the disease stricken settlement, to be by the side of a wife who is marked for death; and of as equally devoted wives, who take the same risks. Indeed, I think the number of women who do this unselfish deed is greater than in the case of men."—[*Washington Post*.]

Miscellaneous.—Southern: *The Georgia Practitioner* is the title of a monthly publication which appears for the first time under date of January 15. The *Practitioner* contains a number of well-written editorials and original articles, is bright and sprightly, and deserving of success.—**Western:** *Medical Bibliography* is the title of an article from the pen of Dr. H. Winnett Orr, editor of the *Western Medical Review*, published at Lincoln, Neb. The article lays stress upon the necessity for a better system of medical bibliography, and to the article is appended a bibliography of all articles which have been written by physician citizens of Nebraska. This was a commendable and laborious undertaking, and is doubtless highly appreciated by the medical profession in Nebraska.—**Eastern:** A new hospital at Montclair was recently opened for the reception of patients. The hospital is thoroughly equipped with all modern conveniences, and is especially well fitted up in the surgical department. The first floor is devoted to dispensary work; there is a well-furnished museum, and the main floor of the building contains the offices of officers of the institution, the two wards for male and female patients, and rooms embracing the operating pavilion, sterilizing room, etherizing room, etc. The upper floor has 11 private rooms which are well furnished.

Let the Good Work Go On.—In the January number of the *Record of Christian Work*, an excellent monthly periodical published by W. R. Moody, at Brattleboro, Vt., subscription \$1.00 per year, and which will not advertise nostrums and quacks, is contained the following editorial: In an advertisement in the *Saturday Evening Post* we have noticed the statement that the periodical keeps its "advertising columns as clean as its editorial pages." We have never before seen an advertisement expressed in this way, but it is undoubtedly true that many of our leading secular periodicals adopt the same course as that claimed by the *Saturday Evening Post*. It does not pay for a reputable paper, purely on the business side, to lend its columns to announcements that are anything but high class. We have on several occasions deplored the fact that many of our religious weeklies, that ought to maintain as high a standard as any papers published, admit to their columns advertisements which would not be accepted in the periodicals referred to. It is quite true that the religious press refuse advertisements of popular brands of whisky; but frequently we find them advertising patent medicines that contain a large percentage of alcohol and have been repeatedly proved to be as injurious in their effect as whisky. It is to be hoped that this evil may be remedied and that the religious press of the country may not lend itself to the nefarious and fraudulent announcements which many of these patent medicines make public through their columns.

Japanese Army Mortality.—The *New York Evening Post* of February 2 contains the following editorial: The statistics of the mortality in General Oku's army, published this morning, would seem incredible had not Major Lewis L. Seaman prepared the American public for the astonishing figures. No nation and no army ever made such a record before. From May 6 to December 19, during seven and a half months of the hardest kind of campaigning, there were actually only 40 deaths from disease out of 24,642 cases. Not more than 193 men came down with typhoid, hitherto the scourge of all modern armies, and practically all of the beriberi patients were restored to health. American and European army surgeons must doff their hats to the Japanese. Take our own record in 1898. We put about 275,000 men in the field during a similar period—from May 1 to December 31—of whom no less than 4,965 officers and men died of disease—nine-tenths of them in peaceful camps within our own territory. Doubtless, General Oku's army was

not as large as our levies of 1898; perhaps he had only half as many men. But when one considers the relative conditions of the two armies, it is now more than ever plain that several thousand of our war victims were needlessly destroyed by their own folly or because of the incompetence of their officers. When the exact strength of Oku's army becomes known, the figures published this morning will doubtless afford still more striking lessons, with which, be it noted, our general staff has already begun to concern itself.

Fumigation of Vessels from Southern Ports.—According to *Public Health Reports*, Assistant Surgeon Lloyd, writing from Callao, Peru, under date of October 11, states concerning vessels bound for various ports in the United States, from the ports of South America: I think that vessels which lie at the dock during the night at plague-infected ports ought to be fumigated to kill vermin on arrival at a port in the United States. Vessels which do not dock and which are fumigated here, are probably safe risks, provided there is no chance for subsequent infection. Because of the comparatively short distance between this port and Ancon, Canal Zone, vessels do not dock here when north bound. Some dissatisfaction has been expressed in San Francisco because vessels bound to New York were received in New York without fumigation, while those of the Kosmos line were being fumigated in San Francisco. I wish to say that the fumigation in San Francisco has usually been at my suggestion, and because the Kosmos steamers have not been complying with the regulations here in a satisfactory manner until quite recently, whereas I have had no such trouble with the steamers for New York. These steamers have frequently taken our bills of health and been fumigated by request when they were on their outward voyage and did not require a bill of health. I believe we are justified in continuing sulfur fumigation until the coast towns of Chile, Ecuador, and Peru are placed in better sanitary condition, and I have suggested to many people concerned that we will be glad to remove restrictions from their commerce so soon as this is done. I believe, however, that Peru will shortly begin the work of general sanitation. I have no assurance that Chile as yet entertains any such idea, and I have it on good authority that matters are even worse in Chile than in Peru and Ecuador. I do not wish to be understood as disparaging the efforts of the present sanitary authorities. Their outgoing quarantine is perhaps as rigid as circumstances will allow.

EASTERN STATES.

Boston's Mortality.—The deathrate in Boston was not high for the week ended February 18, but pneumonia is still prevalent to a large extent, and is reported to have caused 46 deaths. The number of deaths reported to the Board of Health for the week is 223, as against 224 the corresponding week last year, a decrease of one death, and making the deathrate for the week 18.93. The number of cases and deaths from infectious diseases is as follows: Diphtheria 38 cases, 3 deaths; scarlatina 31 cases, no deaths; typhoid fever 14 cases, 2 deaths; measles 5 cases, 1 death; tuberculosis 42 cases, 31 deaths; smallpox 2 cases, no deaths. The deaths from pneumonia were 46; whoopingcough, 1; heart disease, 26; bronchitis, 7; marasmus, 5. There were 5 deaths from violent causes. The number of children who died under a year was 36; under 5 years, 45; persons over 60 years, 66; deaths in public institutions, 58.

President Eliot and Football.—In the report of President Eliot, of Harvard University, recently made public, he points out certain evils from the game of football. He says in part: The game of football has become seriously injurious to rational academic life in American schools and colleges, and it is time that the public, especially the educated public, should understand and take into earnest consideration the objections to this game. Some of the lesser objections to the game are its extreme publicity, the large proportion of injuries among the players, the absorption of the undergraduate mind in the subject for two months, and the disproportionate exaltation of the football hero in the college world. Many serious injuries occur which are apparently recovered from in good measure, but which are likely to prove a handicap to the victim in later life. In speaking of the football athletes, he says: The alert, nimble, wiry, tough body is, for professional or business purposes in future life, a better one than his; and the mental qualities of the big, brawny athlete are almost certain to be inferior to those of slighter, quicker-witted men whose moral ideals are at least as high as his. What then are the sources of the grave evils in this sport? They are (1) the immoderate desire to win intercollegiate games; (2) the frequent collisions in masses which make foul play invisible; (3) the profit from violations of rules; (4) the misleading resemblance of the game to war as regards its strategy and its ethics.

NEW YORK.

Would Prevent Exhibition of Incubator Babies.—The Society for the Prevention of Cruelty to Children is endeavoring to stop the exhibition of babies in incubators, and it is likely that a bill to that end will be passed by the Legislature. Under its provisions, those placing infants in incubators on exhibition in any public place will be held liable for a misde-

meanor. This measure would put a stop to the incubator shows which infest Coney Island and surrounding resorts every summer.

Hungry Children Fed by Salvation Army.—Colonel Cox, of the Salvation Army, is quoted as stating that the number of children fed at the various stations each morning in New York City averages about 600 or 700, and the number has remained about constant at this figure since the beginning of the experiment. Some weeks ago it was deemed necessary by the Salvation Army to provide breakfast for these numerous children, in view of the fact that many were required to attend school without breakfast.

Fighting Tuberculosis.—The first report of the State Hospital for the Treatment of Incipient Tuberculosis, established by the Legislature at Raybrook, in the Adirondacks, was presented to the New York State Medical Society recently. Although the institution has been open only since July 1, 1904, indications point to success. Of the 82 patients admitted, 11 have been discharged as cured. Of the remainder, 5 have not been in the hospital long enough to justify any conclusions; 19 have apparently recovered; the disease of 34 has been arrested, and all the rest show improvement. Dr. John Prior, the superintendent, says: The law creating this institution, and under which it has been in operation for a period of six months, seems to be eminently satisfactory. It contains many new features which have never before been tested. The requirements for admission and the methods designed to limit treatment to incipient cases only will be adopted and tried by several other States in the near future. Thus far it seems unnecessary to advise any changes in the organic law.

PHILADELPHIA, PENNSYLVANIA, ETC.

Will Combat Pneumonia.—The officers of the Public Health Department say that all buildings in which a case of pneumonia is discovered should be disinfected. They regard the disease as contagious, and advocate that physicians take precautions to prevent its spreading. The department will ask the Legislature to pass a law that will compel disinfection in houses where pneumonia exists. There were more deaths last year from pneumonia than from tuberculosis. The advisory board of the department is preparing a circular telling the public how to avoid the disease.

The Pennsylvania Society to Protect Children from Cruelty ended the year 1904 with a deficit of \$8,380; 1,196 cases were referred to the society, an increase of 8% over 1903; 3,414 children were involved in the cases referred, an increase of 25%; 659 children were committed to the society, an increase of 27%; 129 of these children were returned to their parents or relatives, an increase of 25%; 57 were replaced under supervision in free homes found for them, an increase of 470%; 314 out of 773 females referred to the society in the last 7 months of the year were placed under supervision. To accomplish thoroughly the object for which the society exists it needs contributions amounting to at least \$6,000 above its present income.

Report of the Phipps Institute.—The report of the Phipps Institute for 1904 shows that the total number of registered patients was 2,089, of whom 1,130 were native born, 769 were foreign born, and 140 gave no nativity records. Many of the foreign born had been in this country so short a time that it was assumed they had the disease when they landed here. The number of negroes admitted was about 6½% of the whole number, but the proportion of negro admissions to white admissions was greater than is the proportion of the negro population to the white population of the city. The longest stay of any patient in the hospital was 286 days, and although a most advanced case, had improved steadily. A table of results of treatment shows that the number of cases improved was 537; unimproved, 583; not recorded, 884; terminated in death, 153. The report contains also a paper on The History of the Tuberculosis Work at Saranac Lake, by Dr. Edward L. Trudeau; one on The Home in Its Relation to the Tuberculosis Problem, by Dr. William Osler; Pulmonary Tuberculosis, by Dr. G. Sims Woodhead, of London, Eng.; The Administrative Control of Tuberculosis, by Dr. Herrman M. Biggs; and Specific Therapy of Tuberculosis and Vaccination against the Disease, by Dr. Edward Maragliano, of Italy.

WESTERN STATES.

Early Diagnosis of Tuberculosis.—The Illinois State Board of Health has just issued, for distribution to the physicians of the State, a circular on "The Early Diagnosis of Tuberculosis," which will bring to the physician in concise and systematic form, all of the information on the diagnosis of the disease to be obtained from a most exhaustive review of American or foreign medical literature.

To Check Reckless Marrying.—The lower branch of the Legislature of Montana has passed a bill, the purpose of which is the restriction of reckless and ill-advised marrying. Excepting the case of the innocent party to a divorce suit, brought on

statutory grounds, divorced persons are forbidden to marry again, but the provisions of the bill do not prevent the parties to the action for divorce from remarrying each other at any time.

Mortality and Morbidity in Chicago.—The Bulletin of Chicago's Health Department says: Since the first of the year there have been 76 deaths from diphtheria, 42 from whooping-cough, and 30 from measles, as compared with 63 from diphtheria, and 1 each from measles and whooping-cough during the corresponding period last year. On the other hand, there have been only 12 deaths from scarlet fever, as against 27 last year, and both bronchitis and pneumonia show marked reductions—the respective figures being 164 and 184 for bronchitis, and 748 and 827 for pneumonia.

Is It Smallpox or Itch?—News from Lima, Ohio, under date of February 17, says that a mass meeting of indignant citizens, headed by the Merchants' Protective Association, was held that night to protest against the quarantining of the city. The meeting was the result of the Board of Health's action stopping all public gatherings, closing schools, churches, etc., and quarantining the city because of alleged cases of smallpox. Two factories, employing 1,000 persons, were shut down. Many physicians declare that the alleged smallpox cases are nothing more than itch. Resolutions were adopted demanding the reopening of the schools, churches, etc.

May Surgeons Operate without the Consent of the Patient?—In Chicago, the Appellate Court's decision affirming a finding of \$3,000 damages against Dr. E. H. Pratt, charged with operating upon a patient without her consent, will be taken to the State Supreme Court. Judge Tuley heard the evidence in the lower court in 1897. Judge E. O. Brown, of the Appellate bench, handed down his opinion. After the operation the patient's condition became critical, and she is now a patient in the Kankakee Insane Asylum. The decision of the Appellate Court is that any surgeon who performs a major surgical operation without the consent of the patient is liable to damages. The consent of the nearest relative does not relieve the surgeon of the liability.

Labor Organizations to Fight Tuberculosis.—Tuberculosis farms to be established in different sections of the United States by labor organizations for the treatment of union workers afflicted with tuberculosis have been advocated by President George W. Perkins of the Cigarmakers' International Union. The Cigarmakers' Union for a month has had under consideration the establishment of such an institution for the benefit of that organization. By a narrow margin the members voted against a plan submitted. A new plan, now in preparation, probably will be adopted. The new scheme is broadened to include other international unions. Perkins' suggestion is for at least four of the largest unions in the country to join hands. According to the plan, farms would be located in North Carolina, the Adirondack Mountains, in the Middle West and on the Pacific coast.

Mortality of Michigan during January, 1905.—The total number of deaths reported to the Department of State for the month of January was 3,084, corresponding to a death rate of 14.2 per 1,000 population. This rate is higher than that for the preceding month, which was 13.0 per 1,000, but lower than that for January, 1904, which was 14.7 per 1,000. By ages, there were 573 deaths of infants under 1 year of age; 181 deaths of children aged 1 to 4 years, and 960 deaths of elderly persons aged 65 years and over. Important causes of death were as follows: Tuberculosis of lungs, 188; other forms of tuberculosis, 34; typhoid fever, 37; diphtheria and croup, 56; scarlet fever, 16; measles, 14; whooping-cough, 3; pneumonia, 352; diarrheal diseases of infants under 2 years of age, 64; meningitis, 38; influenza, 120; cancer, 142; accidents and violence, 139. There was an unusually large number of deaths from smallpox during the month.

House Disinfection.—The Illinois State Board of Health is preparing to make an elaborate series of investigations on aerial disinfection by formaldehyd to ascertain definitely the value of a process which has recently been recommended by the State Board of Health of Maine. The method consists simply of the pouring of the formaldehyd solution or potash permanganate, any open vessel serving satisfactorily as a container, and the only requirement being that the formaldehyd solution is of good and reliable quality and used in proper proportion to the potash permanganate. According to the results obtained by the investigators of the Maine Board, the generation of formaldehyd gas from the combination of formaldehyd solution and potash permanganate is thoroughly reliable and the apparatus required is available in any home. In very few cases did bacteria continue to live after the disinfection, and those which did were of a comparatively harmless character. One explanation of the superior germicidal power of this method is that the combination of the solution and permanganate results in the immediate generation of the total amount of gas, the full strength being directed in a very short time as a disinfecting agent.

FOREIGN NEWS AND NOTES

GENERAL.

Disease in the Russian Army.—Recent news from St. Petersburg states that Russia may have to face a new difficulty in the spring. The authorities are showing considerable alarm at the possibility of a genuine cholera epidemic with the advent of warm weather. Although the winter has decreased the number of cases at Tiflis and other infected places in the south and also at Omsk, in the steppe region beyond the Urals, sporadic cases have appeared at various other places, and the authorities are taking the most rigorous measures to prevent its spread in the spring to St. Petersburg, Moscow and other centers. The sanitary officials are preparing to clean up the cities and are issuing warnings to the people to boil the water, etc. Typhoid is now practically epidemic in St. Petersburg.

Florence Nightingale and Nursing.—An exchange says: On October 21, 1854, Florence Nightingale left London with a band of 38 nurses for service in the Crimean war, and now in recognizing the jubilee of that event Sarah A. Tooley has written a life of the illustrious heroine (Macmillans). The book opens with the story of the dinner given to the military and naval officers who had served in the Crimean war, when it was suggested that each guest should write on a slip of paper the name of the person whose services during the campaign would be longest remembered, and every paper bore the name of Florence Nightingale. Beside the record of her life, the volume gives some account of her books—her "Notes on Nursing" in particular, of which more than 100,000 copies have been sold.

Some Influence of Food.—A French medical journal recently gave the effects of different foods on temperament. According to this authority, a diet consisting largely of pork will make a person pessimistic. Beef, if eaten month after month, will make a man strong, energetic, and audacious, while a mutton diet, if continued for any length of time, will make one melancholy. The person who eats much veal will gradually lose energy and gaiety. Eggs and milk used freely will make a woman healthy and vivacious. Butter used too freely will make one phlegmatic and lazy. Apples, this journal says, are excellent for brain workers, and anyone who has much intellectual work to do should eat very freely of apples. Potatoes, on the other hand, will make a person dull and inactive. Mustard is cited as a preservative of the memory even to an advanced age.

Russian Doctors Favor Reform.—It is stated that a remarkable series of resolutions was passed on February 10, at a conference of physicians, residing in the government of Moscow. The resolutions, which will be presented in the Moscow Zemstvo, indorse the demands which the St. Petersburg workmen formulated January 22, and express indignation at the methods of the bureaucracy, "whose aim is the suppression by violence of all attempts of the nation to secure political liberty." It is set forth that the physicians are determined to aid the Liberal movement, although they cannot strike, because they cannot leave the people without medical aid. The physicians express the opinion that the war should be stopped as quickly as possible, and say that to this end the Zemstvo ought to refuse to contribute further money to the medical service in the Far East, "thus actively opposing a continuance of the war which is both foreign and perilous to the interests of the Russian nation."

New Cancer Hospital for Heidelberg.—The Frankfort *News* says that the erection of the institute for cancer investigation, to be in the immediate vicinity of the Academy Hospital, at Heidelberg, will be begun as soon as possible, and its completion is expected in the spring of 1906. It will be the first large institution of its kind in Germany, and probably in Europe, where scientific investigation will be combined with treatment of patients. While the lower floor will serve exclusively for making bacteriologic, pathologic, and other researches, and while the entire equipment will reflect the most modern scientific knowledge, the second floor will accommodate about 40 patients, who may expect temporary or permanent relief. The first impetus for this institute was given by an unknown party, who nine months ago donated the sum of 150,000 marks (\$35,700) for this purpose, on condition that it should be used exclusively for a hospital at Heidelberg devoted to cancer investigation. Other unknown donors have increased the fund to about \$60,000.

To Study the Diseases of Fish.—The Vienna Veterinary Institute has just opened a laboratory for the examination of diseased fish. The new department has at its head Professor Fiebinger, who will also lecture on the subject. Breeders have already sent to the laboratory fish suffering from smallpox, enteritis and other quite human ills, in addition to specific piscine diseases like crayfish plague. An endeavor has been made to transplant the diseases named from fish to man and vice versa, but hitherto with only partial success in the case of tuberculosis. Professor Fiebinger frequently had excellent results by recommending to breeders the draining of waters

and removing from the soil what was considered to be the germ of the disease. The institution of a laboratory where expert investigation can be brought to bear on piscicultural questions has, therefore, been highly welcomed. Could not a place be found in London for a similar institution, where the investigation of, say, oyster diseases, might be scientifically carried on? —[*London Standard.*]

OBITUARIES.

Frank Cowan, aged 60, February 12, at his home in Greensburg, Pa. He graduated in medicine from Georgetown University, Washington, D. C., in 1869. Before that he had studied law and was admitted to the bar in 1865. He was at one time one of President Johnson's secretaries. He was engaged for a time in journalism, traveled extensively, and was a wellknown author. He published several volumes of verse, and a book about insects.

Alexander Ramsay, aged 54, February 12, at his home in Kensington, Philadelphia. He was born in Ireland, came to the United States at an early age, and had one time served as a policeman. He was graduated in medicine from the Medico-Chirurgical College, Philadelphia, and for ten years was connected in a professional capacity with the insane department of the Philadelphia Hospital. He had a large practice in Kensington.

Israel T. Hunt, aged 65, while temporarily demented, fell from a second story window at his home in Boston, February 16, which resulted in his death. He was a native of Nashua, N. H., and had lived in Charlestown for 12 years. He is well known as a medical examiner for life insurance companies. He was graduated from the medical department of Harvard Medical School in 1870.

John H. Grannis, February 17, at his home in Saybrook, Conn. He was a graduate of the medical department of Yale University, in 1869. He was widely known in medical and military circles throughout the State. He served in the ranks of the Federal army during the Civil war, and was at the battle of Gettysburg.

Freeman Dwight Case, aged 50, February 7, at his home in Ash-tabula, Ohio, from septicemia. He was a graduate of Cleveland Medical College, in 1870; member of the American Medical Association, and an organizer and member of the executive medical board of the Ash-tabula General Hospital.

Peter R. Johnson, aged 77, February 13, at his home at Sag Harbor, Long Island. He was a graduate of Columbia College and the College of Physicians and Surgeons of New York City. He retired from practice several years ago; had traveled extensively, and lived for a time in Algiers.

Mary Alice Brownell, aged 49, formerly a practitioner in Newark, N. J., January 30, in the Rochester City Hospital, after an operation. She was a graduate of the University of Michigan department of medicine and surgery, in 1885, and a member of the American Medical Association.

Humphrey B. Anderson, aged 46, February 8, at his home in Traverse City, Mich. He was a graduate of the College of Medicine, Detroit, Mich., in 1888. A member of the American Medical Association, and a charter member of the Grand Traverse Medical Association.

E. M. Scheide, aged 36, January 25, from pulmonary tuberculosis, at Blooming Prairie, Minn. He was a graduate of the College of Medicine and Surgery of the University of Minnesota, Minneapolis, in 1894.

Alfred Lindsay Shapleigh, aged 35, on February 3, in Shanghai, to which place he had gone as a medical missionary. He was a graduate of Harvard University medical school, Boston, in 1894.

Emmett A. Sprowls, aged 30, February 1, in Elgin, Ill. He was a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1898, and formerly practised at West Alexander, Pa.

James McGregor Stevenson, aged 57, January 31, from pneumonia, at his home in Denfield, Ontario. He was a graduate of McGill University medical department, Montreal, in 1884.

Howard Edgar Bowman, aged 39, February 1, from pneumonia, at his home in Hills, Ia. He was a graduate of the State University of Iowa, College of Medicine, Iowa City, in 1894.

Sidney M. Abbay, aged 67, of Centerville, February 6, at the sanatorium at Franklin, La. He was a graduate of Tulane University medical department, New Orleans, in 1886.

Richard G. Lightie, February 7, at the home of his mother in Searcy, Ark., from pneumonia. He was a graduate of the Kentucky School of Medicine, Louisville, in 1898.

Albert O. Mudhenk, aged 30, February 6, in Denver, from tuberculosis. He was a graduate of the Medical College of Ohio, Cincinnati, in 1903. He was of W. Alexander, Ohio.

Frederick P. Tuxbury, aged 37, February 5, at his home in Denver, Colo., from acute nephritis. He was a graduate of the Dartmouth Medical School, Hanover, N. H., in 1899.

George K. Rodebaugh, aged 27, February 6, at his home in Columbus, Ohio, from nephritis. He was a graduate of Jefferson Medical College, Philadelphia, in 1901.

John B. McEwen, February 6, from pneumonia, at his home in Oxford, Miss. He was a graduate from the University of Michigan medical department in 1861.

John H. McBrayer, aged 60, January 30, from nephritis, at his home in Shelby, N. C. He was a graduate of the Atlanta (Georgia) Medical College, in 1882.

William H. Risk, aged 72, February 7, at his home in Summit, N. J. He was a graduate of the University of Pennsylvania medical department, in 1866.

Rubin L. Shimer, aged 72, February 13, at his home in Redding-ton, Pa. For many years he had been a widely known practitioner in Washington, D. C.

Charles Birtwell, recently, at his home in Lawrence, Mass. He was a graduate of the New York University medical department, in 1884.

George W. Yokum, January 30, at his home in Beverly, W. Va. He was a graduate of Jefferson Medical College, Philadelphia, in 1854.

Alonzo I. Hunt, February 13, at his home in Hamilton Square, N. J. He was a widely known physician.

William S. Wheelright, aged 60, February 5, at his home in Belleville, Wis., from cerebral hemorrhage.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 17, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Jan. 21-23.....	1	
Illinois:	Chicago.....Feb. 4-11.....	26	2
	Galesburg.....Feb. 4-11.....	1	
Kentucky:	Louisville.....Feb. 2-9.....	2	
Louisiana:	New Orleans.....Feb. 4-11.....	8	
Four imported			
Michigan:	Detroit.....Feb. 4-11.....	1	
Missouri:	St. Louis.....Feb. 4-11.....	41	2
New York:	New York.....Feb. 4-11.....	3	1
Ohio:	Dayton.....Feb. 4-11.....	1	
Pennsylvania:	Altoona.....Feb. 4-11.....	1	
Imported from portage			
Tennessee:	Lancaster.....Jan. 28-Feb. 4.....	1	
	Memphis.....Feb. 4-11.....	3	
	Nashville.....Feb. 4-11.....	2	

SMALLPOX—FOREIGN.		Cases	Deaths
Argentina:	Buenos Ayres.....Nov. 1-30.....	18	
China:	Shanghai.....Dec. 24-Jan. 7.....	15 cases, foreigners; 130 deaths, natives	
Ecuador:	Guayaquil.....Jan. 13-25.....	17	4
France:	Paris.....Jan. 21-23.....	4	
Germany:	Bremen.....Jan. 14-21.....	7	
Great Britain:	Hull.....Jan. 21-28.....	20	1
	Leeds.....Jan. 28-Feb. 4.....	7	1
	Newcastle-on-Tyne.....Jan. 1-23.....	2	
India:	South Shields.....Jan. 21-28.....	7	
	Bombay.....Jan. 10-17.....	62	
	Calcutta.....Jan. 7-14.....	2	
	Karachi.....Jan. 8-15.....	1	
	Madras.....Dec. 31-Jan. 13.....	4	
Italy:	Lecce Province.....Jan. 12-23.....	95	
	Palermo.....Jan. 21-23.....	31	5
Norway:	Christiania.....Jan. 21-23.....	2	
Russia:	Warsaw.....Dec. 8-10.....	4	
Turkey:	Constantinople.....Jan. 22-29.....	9	

YELLOW FEVER.		Cases	Deaths
Ecuador:	Guayaquil.....Jan. 18-25.....	8	
Mexico:	Coatzacoalcas.....Jan. 28-Feb. 4.....	1	
	Juchitan.....Jan. 29-Feb. 4.....	2	
Panama:	Colon.....Jan. 23-29.....	1	1
	Panama.....Jan. 1-23.....	13	4

CHOLERA.		Cases	Deaths
India:	Calcutta.....Jan. 7-14.....	106	
Russia:	Don Territory.....Dec. 31.....	2	
	Gov. of Astrachan.....Nov. 14-Dec. 27.....	4	
	Gov. of Baku.....Nov. 14-Dec. 21.....	168	278
	Gov. of Erivan.....Nov. 14-21.....	324	279
	Gov. of Samara.....Dec. 21-27.....	1	
	Gov. of Saratov.....Nov. 14-Dec. 27.....	19	8
	Trans-Caspian Ter.....Nov. 14-Dec. 24.....	40	
	Volga Province.....Nov. 14-21.....	69	
Turkey in Asia:	Van.....Dec. 31.....	27	12

PLAGUE.		Cases	Deaths
Brazil:	Para.....Jan. 1-9.....	1	
Egypt:	Suez.....Jan. 7-14.....	5	4
	Tukh District.....Jan. 7-14.....	4	3
India:	Bombay.....Jan. 10-17.....	208	
	Calcutta.....Jan. 7-14.....	33	
	Karachi.....Jan. 8-15.....	61	54
Mauritius:	.....Nov. 4-Dec. 1.....	97	60
Russia:	Ural Territory.....Dec. 26-28.....	34	35
Straits Settlements:	Singapore.....Dec. 24-31.....	5	

Changes in the Medical Corps of the U. S. Army for the week ended February 18, 1905:

HOLMES, THOMAS G., contract surgeon, is relieved from temporary duty at Fort Sheridan and will rejoin his proper station at Fort Wayne.

MURPHY, WILLIAM F., [sergeant first class, now at Rahway, N. J., upon expiration of furlough granted him from Fort Du Pont, will be sent to Fort McDowell with instructions to report for transportation to Manila, P. I., on the transport sailing from San Francisco about February 28.

WELLS, Major GEORGE M., surgeon, is relieved from duty in the Philippines Division, and will proceed to San Francisco, Cal., reporting by telegraph to the military secretary of the army for further orders.

A board of officers to consist of Major Guy L. Edie, surgeon; Major Charles F. Mason, surgeon; Captain Deane C. Howard, assistant surgeon, is appointed to meet at the Army Building, Washington, D. C., at as early a date as practicable, for the examination of officers of the medical department for promotion or advancement.

TURNBULL, First Lieutenant WILFRED, assistant surgeon, will report to Major Guy L. Edie, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement.

The board of medical officers appointed March 19, 1903, is dissolved.

A board of medical officers to consist of Colonel Charles L. Heizmann, assistant surgeon-general; Major William H. Arthur, surgeon; Major William C. Borden, surgeon; Major Walter D. McCaw, surgeon; Major James D. Glennan, surgeon; Captain Carl R. Darnall, assistant surgeon; First Lieutenant James Carroll, assistant surgeon and First Lieutenant Harry L. Gilchrist, assistant surgeon, is appointed to meet at the Army Medical Museum Building, Washington, D. C., at the call of the president of the board to determine the results of preliminary examinations of applicants and for the final examination of candidates for admission to the medical corps of the army. The board will be governed in its proceedings by such instructions as may be communicated to it by the surgeon-general of the army.

O'CONNOR, First Lieutenant RODERIC P., assistant surgeon, is relieved from duty at Malate Barracks, Manila, P. I., and will report to the chief surgeon of the department, for duty in his office and as attending surgeon, headquarters department of Luzon.

SLAYTER, JOHN T. H., contract surgeon, is relieved from temporary duty at Nueva Caceres, Ambos Camarines, and will proceed to Ambulong, Batangas, for duty, relieving Contract Surgeon Calvin D. Snyder, who will proceed to San Pedro Tunisan, Laguna, for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended February 18, 1905:

WILLIAMS, R. B., passed assistant surgeon, detached from the Naval Hospital, Norfolk, Va., February 14, and ordered to the West Virginia—February 10.

DUNN, H. A., assistant surgeon, detached from the Naval Hospital, New York, N. Y., February 20, and granted leave for six weeks—February 14.

BAGG, C. P., surgeon, detached from the Naval Hospital, Mare Island, Cal., February 21, and ordered to the Naval Station, Guam, L. I., sailing from San Francisco, Cal., February 25—February 15.

BACKUS, J. W., assistant surgeon, ordered to the Naval Hospital, Portsmouth, N. H., and to additional duty on the Southern—February 15.

BOGAN, F. M., passed assistant surgeon, detached from the Decatur and ordered to the Naval Hospital, Yokohama, Japan, for treatment—February 16.

MUNSON, F. M., assistant surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the Naval Station, Guam, L. I.—February 16.

Changes in the Public Health and Marine-Hospital Service for the week ended February 15, 1905:

GASSAWAY, S. M., surgeon, bureau letter of February 3, 1905, granting Surgeon Gassaway leave of absence for ten days from February 9, amended to read ten days from February 14—February 9, 1905.

WERTENBAKER, C. P., surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Havana, Cuba, for duty in the office of the United States Consul General—February 6, 1905. Granted leave of absence for twenty days from January 22—February 9, 1905.

WICKES, H. W., passed assistant surgeon, leave of absence for one day granted. Passed Assistant Surgeon Wickes by bureau telegram of January 28, revoked—February 13, 1905.

FRICKS, L. D., passed assistant surgeon, to report to Surgeon G. W. Stoner, Immigration Depot, New York, N. Y., for duty—February 14, 1905.

EARLE, B. H., assistant surgeon, granted leave of absence for seven days—February 13, 1905.

FOWLER, J. B., acting assistant surgeon, granted leave of absence for thirty days from March 7—February 13, 1905.

RICHARDSON, S. W., pharmacist, relieved from duty at Boston, Mass., and directed to proceed to Wilmington, N. C., and report to the medical officer in command, for duty and assignment to quarters, relieving Pharmacist Malcolm McKay—February 9, 1905.

McKAY, MALCOLM, pharmacist, upon being relieved at Wilmington, N. C., by Pharmacist S. W. Richardson, to proceed to Boston, Mass., and report to the medical officer in command, for duty and assignment to quarters—February 9, 1905.

Board Convened.

Board convened to meet at Fortress Monroe, Va., for the purpose of making an investigation as to the cause of the damage to the launch Spray. Detail for the Board: Surgeon J. B. Stoner, chairman; Acting Assistant Surgeon H. W. Keatley, recorder—February 9, 1905.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

TREATMENT OF DISEASE BY MUSIC.

BY

WILLIAM M. EDWARDS, M.D.,
of Kalamazoo, Mich.

To the Editor of *American Medicine*.—In a communication to *American Medicine* for December 17, 1904, Dr. Ephraim Cutter says he is informed there is now being built in Kalamazoo, Mich., a hospital for the treatment of disease by music. I regret that Dr. Cutter's information is erroneous. I have been connected with the principal hospital in Kalamazoo for more than 20 years, am familiar with the practice of medicine in our city, and know nothing personally nor can I learn anything, of a hospital of the character mentioned. In the minds of many, Kalamazoo, like Utopia or "The Land of the Miz," is in the mysterious nowhere, and I presume some one in planning his musical hospital felt quite at liberty to locate it at Kalamazoo.

There are many popular superstitions and delusions about insane people, among them the belief that music has some peculiar influence upon this class that it does not ordinarily exert upon other persons. The inexperienced are led to think that with music in the wards of an asylum, mental symptoms may be obliterated. We are popularly told of wonderful, almost miraculous, cures performed through this agency, and the thrifty dealer exploits his wares through the press with tales of the benign results following the use of pianos given by him to some hospital. As a fact, music has the same effect upon insane as upon sane people, certainly no special curative influence. Delusions of unworthiness or persecution, flights of ideas and pressure of activity, are not permanently removed or allayed by music. Insane people, to a very large degree, are susceptible to the same influence as sane persons, and music in a hospital for insane fills the same place that it does outside. Patients are entertained, pleased, soothed and relieved by it, and the piano, organ, asylum band or choir, stand in the same relation to the asylum population that the orchestra, opera, or music festival does to the world at large. The daily routine of life is broken by a concert or recital, and patients receive benefit as the tired professional or business man is diverted by the comic opera, or the society woman entertained by the afternoon musical. Practically, all asylums are supplied with musical instruments, with competent performers among nurses or patients, but music has no occult or special influence upon insane patients.

A CHRONOLOGY OF THE TREATMENT OF POST-PARTUM HEMORRHAGE.

BY

SAMUEL F. BROTHERS, PH.G., M.D.,
of New York.

The *American Medical and Surgical Recorder*, between 1822 and 1828, makes the following references:

In 1825, potassium nitrate and refrigerant drinks were recommended; also the sudden application of cold to the abdomen, steady pressure externally on the uterus, and the introduction of the hand into the cavity of the uterus. Gorat cut off the end of a peeled lemon, expressed it within the uterus, and allowed it to remain until expelled.

Mojon, in 1827, pressed out the blood from the umbilical vein of the placenta still in utero, and injected through this, about a pint of cold water, acidulated with vinegar. If necessary, it was repeated after the first injection was allowed to escape. This year, also, transfusion was recommended.

In 1828, the remedies suggested were the mineral acids, phosphoric acid, tincture of cinnamon, tincture of opium, alum and iron sulfate, locally cold and warm applications, injections and filling the uterus with lint, sponge or towel.

The *American Journal of the Medical Sciences*, from 1828 to 1848, recorded the following:

Hauff, in 1832, recommended musk in doses of .52 gm to .65 gm. (8 gr. or 10 gr.) every quarter or half hour.

The *Medico-Chirurgical Review*, 1848 to 1851, made no references to the subject.

From 1853 to 1868, the *American Journal of the Medical Sciences*, had these accounts:

Rankin, in 1853, used cold applications to the vulva, and gave .19 gm. (3 gr.) of sugar of lead and .03 gm. ($\frac{1}{2}$ gr.) of opium every hour or so, followed by 1.25 cc. (20 m.) of ergot every half hour, and brandy and water; he also resorted to friction of the abdomen with spirits and water. He finally carried into the uterus a piece of alum attached to a string.

In 1856, Von Schreier, of Hamburg, used tincture of iron chlorid 50 to 100 drops to 89 cc. (3 oz.) of water as injections.

In the *Transactions of the New York State Eclectic Medical Society* for 1871, Dr. Molesworth recommended a special syringe for the douches.

In the *Transactions of the American Medical Association* of 1876, iron persulfate injections were said to produce septicemia, unless antiseptic solutions followed at intervals for a few days. Recommendations were made to grasp the uterus and hold it, to introduce ice, and also to leave an inverted lemon in the uterus (as done in India). The introduction of the hand was not recommended. Dr. Larrabee, of Kentucky, advised tincture of iodine, pure or diluted, and ergot injected into the muscular tissue of the arm. Ergot by the mouth and pressure were used as prophylactics. In using pure iodine the parts were smeared with starch to prevent excoriation. Dr. Sims, of New York, advised the use of solution of subsulfate of iron on a uterine tampon.

In the *American Journal of Obstetrics* for 1880, Dr. H. T. Hanks advised electricity to the fundus, and used hot water injections.

In Volume xiv, 1881, Dr. Mundé reported using in intra-uterine hemorrhage .65 gm. (10 gr.) of Dover's powder, and Dr. Robert Barnes, of London, advised rest, beside the usual remedies.

In Volume xv, 1882, Dr. Thomas More Madden, of Dublin, considered flooding after labor a preventable accident, as a rule, by administering a course of tincture of sesquichlorid of iron during the last two months of pregnancy, insisting upon good feeding and sanitary surroundings, avoiding lacerating the cervix with the forceps, and replacing an inverted uterus. In rupture of the uterus, he applied strong solutions of perchlorid of iron on a sponge. When hemorrhage was anticipated, he ruptured the membranes early, and preferred a slow labor thereafter; he used ergotin hypodermically, and used the irrigator in preference to the siphon syringe; the use of turpentine was also spoken of, as well as compression of the aorta, transfusion and the hypodermic injection of ether in dram doses.

The *American Medical Digest* for 1882 reports recoveries after injections of tincture of chlorid of iron 3.75 cc. to 15 cc. (1 dr. to 4 dr.). John Bassett (England) advises the administration of iron with an alkali if the patient is thin, and with an acid if stout. Hern (*Révue de Médecine*) used an inhalation of five drops of amyl nitrite. In funic hemorrhage, Croom advised preservation of the membranes and immediate delivery. Dr. Bischoff thought solution of sodium chlorid made alkaline, with a few drops of potash solution, preferable to blood transfusion. Dr. J. Chenon, of France, used capsicum in .16 gm. (2½ gr.) doses. Lawson Tait recommended removal of the uterine appendages.

A napkin soaked in whisky was advised for emergencies in *Gaillard's Medical Journal*, 1885.

The *International Medical Annual* for 1891 advised plugging the uterus with antiseptic (carbolic or iodoform) gauze and the use of hydrastis and of hydrastinin hydrochlorid in 5% to 10% hypodermic solutions.

The 1892 *Annual* advised calcium chlorid thrice daily for a couple of weeks before delivery; when hemorrhage has occurred, salt or creolin injections are used, and bimanual compression; eversion of the uterus into the vagina is practiced, so bleeding vessels may be caught or controlled by an India rubber ring or by a bandage around it, the uterus being reinverted when under control; flicking with wet towels and administering strychnin and other remedies; traction on the cervix with a vulsellæ, so as to kink the uterine arteries; raising the lower end of the bed on to a table; the left hand intro-

duced into the uterus, and the fist closed, the right palm being compressed over this, through the abdomen. Then large salt injections into the bowel. Platon used uterine injections of oxygenated water. Dr. Misrachi advised hypodermic injections of caffeine dissolved with sodium benzoate; three or four four-grain injections are given at once.

In *Sejous' Annual of the Universal Medical Sciences* for 1893 A. Philip reported the use of a rubber apparatus inflated with water. Meisels, of Budapest, uses cornutin.

Dr. Atthill, of England (*Treat's Annual*, 1898), advised ergot and strychnin "during pregnancy" when there was a history of hemorrhage. Dr. Routh, before the British Medical Association, said that he treated concealed secondary hemorrhage with ergot hypodermically; by dilating the uterus with the hand, or with bougies or dilators; removed clots and pieces of placenta, and packed the uterus with gauze. Ritchie gave tincture of nux vomica in large doses some weeks in advance, and used a crystal of ammonia-iron-alum. Byers emptied the bladder. Donald evacuated the bowels by calomel and salines. Williams removed a small fibroid tumor. Kerr delayed expulsion of the placenta as a prophylactic. Murdoch Cameron cureted. Routh was glad injections of iron were entirely abandoned. Schaeffer was opposed to absorbent, but made nonabsorbent gauze with guttapercha and iodoform or airoil.

Enrico Sava (*Ibid*, 1899) drew the fundus forward so as to rest on the symphysis pubis, and fixed it with a very tight abdominal binder just above. Dr. Gundrum recommended 3.75 cc., (dram) doses of fluid extract of senecio aureus in parenchymatous hemorrhage.

Dr. Charles Maygrier (*Ibid*, 1900) advised artificial delivery of the placenta; in the after-treatment, absolute rest, head low, pelvis elevated, hot blankets and hot-water bottles, and elastic bandages on the extremities.

Bertino (*Ibid*, 1901) injected a 2% to 10% gelatin in 1 to 100 sodium chlorid solution.

In *American Medicine*, November 5, 1904, D. B. Hart said one must avoid undue delay and undue haste. If the hemorrhage is from the passive portion of the genital tract, he employs pressure or stitches.

MODERN TREATMENT OF SPINAL CURVATURE.

BY

J. J. LEISER, M.D.,

of Seattle, Wash.

To the Editor of *American Medicine*:—A review on the modern treatment of spinal curvature from the proceedings of the Pennsylvania State Medical Society, printed in *American Medicine*, prompts me to produce the following article which was written but not published 16 years ago.

The preceding winter—1888—a London surgeon, whose name I forget, gave a special demonstration to a small number of American doctors, of his application of the plaster jacket for spinal deformity. He used hammock extension, and he remarked: "I seem to get better results than do my colleagues who use the suspension plan of extension." He did not attempt any theory or explanation for the better results, but it appears easy to me. His hammock was a simple strip of canvas 12 in. to 16 in. wide, as long and strong as the usual recreation hammock. A cross-bar at its head was grasped by the patient who lay, belly down, for support and position. The position was a very strong anterior curve of the whole body. As a result of such strong curve of the spine the body of the vertebrae was relieved of weight-pressure, which was transferred to the transverse processes. I need not dwell upon the advantages of this shift; the theory warrants it as well as this surgeon's experience. In the hammock position one applies the plaster bandage in the usual manner, but it appears to me much neater to enforce the strength of the jacket by extra layers of bandage up and down each side of the spine and then building it much lighter than ordinary.

We all know it is easy to apply the extension apparatus, or a plaster jacket, to the extended spine but it is foolish to claim that they will do the extension act, except in recumbent

patients. Whatever hope we have is in relieving the body of the vertebrae at the expense of the transverse and the spinous processes carrying the weight.

AN UNUSUAL CASE OF POSTPARTUM TEMPERATURE.

BY

LEWIS M. GAINES, M.D.,
of Atlanta, Ga.

The occurrence of a rise of temperature during the puerperium, is always a suggestive phenomenon, and one not calculated to increase the complacency of the conscientious obstetrician. It may be assumed as a safe deduction from the principles of modern obstetric science that a temperature of more than 100.4°, which persists longer than 24 hours, should be regarded as almost certain evidence of infection, unless strong proof to the contrary is present. The old belief in the establishment of lactation as a cause of such a rise of temperature, still clings with invincible tenacity to the mind of the laity, and "milk fever" is by no means an uncommon diagnosis of the physician of the present day, despite the incontestable proof that no such morbid entity exists, and that the normal puerperium should be afebrile.

In spite of the likelihood of a rise of temperature being associated with infection, and although the assumption of an infection should always be made until the most positive proof is forthcoming of some other cause, a certain number of cases do present themselves in which some other etiologic factor is at work.

To emotional causes may justly be ascribed a sudden rise of temperature in women of neurotic temperament, who have been subjected to undue excitement, grief, or fright. The rise is extremely transitory, only persisting a few hours. Indeed, it is by its very brevity that we are entitled to make such a diagnosis.

Budin and Galtier have shown that now and again a postpartum rise of temperature may be due to autointoxication from the intestinal tract, and that the condition may closely simulate puerperal infection. The diagnosis is only established by the return to an afebrile condition, and the continuance of a normal temperature following a copious bowel movement—usually the result of free purgation.

In such conditions as inflammatory troubles about the breasts, intercurrent diseases, whether acute or chronic, and old suppurative pelvic processes, failure in diagnosis can only be due, in the large majority of cases, to gross carelessness in making a thorough and painstaking physical examination. Williams very aptly says that malaria and typhoid fever are often made the scapegoat to shield the practitioner, who has neglected aseptic precautions in the conduct of his case. While, in the vast majority of cases, the diagnosis of either of these two diseases is open to question, they do occasionally occur. The presence of malaria can only be confidently asserted when a microscopic examination reveals the presence of the malarial organism. Typhoid fever should, in the majority of cases, be diagnosed by its symptoms and physical signs, and if these are not positive, the Widal test should be employed when possible.

The case which I report below presents peculiarities which make it singularly difficult to arrive at any diagnosis, and render it properly unusual in the light of present knowledge. This case occurred during my term of service as house physician at the Providence Lying-in Hospital, Providence, R. I., and I desire to acknowledge my obligations to the authorities of that institution for permission to report the case.

Mrs. M. S., primipara, aged 33, entered the hospital July 13, 1904. She considered herself nearly at full term, and having had some indefinite pains in her back, made all haste to get to the hospital. She had only been married about a year, had had no miscarriages, and had not only during her entire life previous to her pregnancy enjoyed perfect health, but since the onset of pregnancy had continued in excellent physical condition, suffering almost no discomfort.

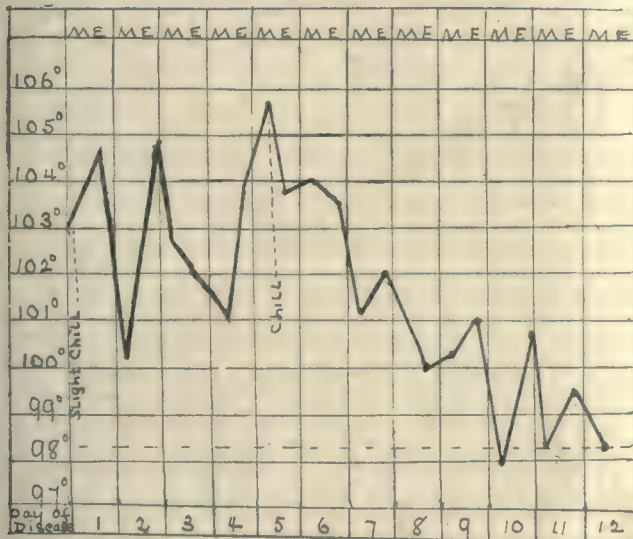
Examination showed a large, well-nourished woman, giving every indication of robust health. The examination of the urine, including microscopic, was negative. The abdomen was quite large, the fundus uteri occupying a position about 4.5 cm. below the ensiform. The child was outlined by external pal-

pation to occupy the L. O. I. A. position. No internal examination was made at this time.

The patient remained at the hospital, under continuous observation, for 26 days before labor began. During this time her health was perfect, and she enjoyed the freedom of the grounds.

Labor began August 8, at 2 a.m. The pains gradually increased in severity, but by 8 p.m. the cervix would barely admit the little finger. The membranes ruptured August 9, at 8.45 a.m., the pains having become almost unceasing and very aggravating. At this time the cervix just admitted with ease the index finger, and was very rigid. Toward evening of the same day the patient began to show signs of exhaustion, and as progress was so very slow, she was prepared for artificial delivery. At 10.30 p.m. the cervix, which would barely admit two fingers, was manually dilated, the head at once descending to the level of the ischial spines. Tarnier's axis-traction forceps were applied, and at 11 p.m. a healthy living child, weighing 10 pounds 2 ounces, was extracted. A second degree perineal tear was unavoidable. This was at once thoroughly repaired. The placenta was expressed at 11.25 p.m., and presented no abnormalities. A hot intrauterine douche of sterile salt solution was given. The patient was etherized during delivery, and took the anesthetic well. At the conclusion of the operation the pulse was 122.

Six hours after delivery the patient had a slight chill, and a temperature of 103°. There was slight abdominal distention, and the fundus, which was about the level of the umbilicus, was displaced somewhat to the right, but not tender. Twelve hours after delivery, voluntary efforts at urination having been unsuccessful, the patient was catheterized, and 226 cc. of clear urine obtained, which on examination showed a trace of albu-



min and an occasional hyaline and finely granular cast. Beyond this the urine remained practically normal in quantity and composition throughout the puerperium.

The accompanying daily chart shows the remarkable temperature for which nothing could be found which would offer a reasonable explanation. At the onset of the fever, the patient had a slight chill, and again on the fifth day a shaking chill of marked severity. Their relation to the temperature is noted on the chart. Repeated examinations of the heart and lungs were absolutely negative.

Beyond slight tenderness due to moderate distention, the abdomen presented nothing of moment. The involution of the uterus proceeded without interruption, though somewhat slowly, there being a very slight degree of subinvolution when the patient was discharged between three and four weeks later. The lochia was somewhat scanty, but absolutely normal in odor and appearance. The perineal laceration healed by first intention, and at the time of the patient's discharge, the condition of the uterus was practically normal (there being only the slight subinvolution noted), and the cervix presented a moderate bilateral laceration, with some eversion of the anterior lip.

Examination of the blood for the malarial organism was fruitless. The leukocyte counts were as follows:

August 10.....	15,000	August 15.....	9,600
August 11.....	9,200	August 16.....	8,400
August 13.....	7,800	August 19.....	10,200

During the continuance of the fever the patient's symptoms were only those attributable to a prolonged febrile condition. The tongue became dry, the mouth and lips parched. At times the patient complained bitterly of headache, and of muscular pains in the back, as well as of great general weakness. Sleep was fitful, and at times there was slight nocturnal delirium. The general mental condition was somewhat depressed.

The pulse was extremely irregular in rate, varying from 80 to 130 per minute. At times the rhythm was also markedly irregular, the volume small and the tension low.

The respirations, which for the first four days of the fever were about 26 to the minute, went up to 35 during the fifth, sixth, and seventh days, gradually sinking to 25 by the tenth day. There was no cough or expectoration, and no pain was complained of about the chest. Lactation did not appear.

After the subsidence of the fever on the twelfth day the patient gradually regained her strength, and was discharged in good condition on the twenty-sixth day of the puerperium.

It is a matter of regret that it was impossible in this case to obtain a culture from the uterine cavity. Could this have been done, following the excellent technic of Williams, it would have been even stronger evidence than now exists against the possibility that this was a case of sepsis. While absence of odor from lochia is no proof whatever that there is no infection, the fact that it was not suppressed, that the wound which was bathed in it healed by first intention, that involution proceeded in a quite satisfactory manner, and that a thorough vaginal examination at the time of discharge proved entirely negative, giving no indication of an infective process having ever existed in the pelvis—these facts apparently furnish strong evidence of there having been no infection present.

The possibility of pneumonia following ether was carefully considered, but in the absence of any definite symptoms or physical signs, together with the continued absence of leukocytosis, taken in connection with the previous robust condition of the patient, such a possibility could not be affirmed. As there were no data for a positive diagnosis, this case is submitted in the hope that it may prove instructive as representing a class of cases exhibiting fever during the puerperium, due to some pathologic process not yet fully understood.

TUBERCULOSIS: ITS PATHOLOGY AND TREATMENT.¹

BY

B. H. DETWILER, M.D.,
of Williamsport, Pa.

The consensus of opinion seems to be that pulmonary tuberculosis is a contagious disease, caused by the tubercle bacillus in a suitable soil, curable in the earlier form and modified by treatment in all of its stages. The treatment is sunlight, air, food and outdoor life. These, however, can be modified with advantage. *First*.—The tubercle bacillus cannot be developed without a seed-bed, or the whole world would be tuberculous. This seed-bed is prepared by predisposition of heredity, chronic catarrh and bronchitis, measles, whoopingcough or any disease producing great lowering of vitality, and upon this preparatory or seed-bed, tubercle bacilli are planted and developed crop after crop until the lung structure is destroyed. Without this preparatory place of implantation the bacilli are innocuous, no matter how abundant they may be. Hence, isolation of the tuberculous is not absolutely essential, but these points of entrance for the bacilli must be guarded. In order to diminish the number of bacilli every precaution demanded by the medical public should be enforced, the sputum disinfected or destroyed, and thorough cleanliness, with sunlight, encouraged. The prime cause of this facility of seed-bed implantation is heredity. Children are not born tuberculous, but pertussis, rubeola, or bronchitis, with its resultant thickened bronchi will afford the ideal point of entrance to these destructive agents. These invasions are seldom of much moment, with quiescent periods following each crop until the citadel is stormed. Could physicians realize that if all children were taught to sleep and breathe properly, thereby developing a larger, stronger and more efficient breathing and oxidizing capacity, there would be few of these terrible fatalities. Tuberculosis due to heredity is not often infantile, but becomes manifest during different stages of life and environment. Even with a tuberculous heredity, with a normal chest development and outdoor life for a child there will not be a seventh of the total world mortality credited to this charge.

¹ Read before the Lycoming County Medical Society, December 9, 1904.

The fact that tubercle bacilli cannot develop unless there is a properly prepared nidus, or seed-bed, eliminates the danger of infection or contagion and demonstrates that the cause of hereditary tuberculosis is not the direct transmission of the bacillus itself, but a sequel of heredity and intensifies the importance of securing a better development of respiratory capacity in our children as well as in those who have moderately developed pulmonary tuberculosis even beyond the typical early stage. Nature holds in reserve a larger respiratory capacity than is in daily use and hence can compensate for a partial loss of respiratory area with increased efficiency by deep inspiration. No one anticipates restoration of dead cells by any other material than connective tissue. Cells coalesced by adhesion of tuberculosis are no longer supplied with oxygenated blood, hence they are necrotic, and can only be eliminated by softening and expectoration or by sclerosis. The tubercle bacillus is the primary factor, but it does only enough damage to make possible the entrance of more destructive organisms; for instance streptococci and staphylococci which become parasites when tissue has been prepared for them.

They cannot attack normal tissue, but they are the combined cause of inflammation of these organs and tissues, and often lead to death; or nature may wall in an entire colony and shut them off from healthy tissue by deposits of lime on the outside of the tuberculous mass.

Dr. Flick says:

The microorganisms which produce tuberculosis are independent entities, each of which lives through a life history of its own. They must have a beginning and an end, and can only maintain their kind by reproduction. They need certain soil, certain temperature, and certain environments for growth and development. Even while dormant, they must have certain protection against their many enemies.

Science has not yet revealed what predisposition is. Some hold it is an absence of something from the system which, if present, would fight off the disease. Others hold that it is the presence of something in the tissues which constitutes the soil for the microorganisms. It has been demonstrated that a living organism has within itself powers of self-defense against parasitism, and that these powers grow with use. When the body is in a perfect state of health and all its machinery is running at a normal rate of speed, it has great power of destroying disease by its own fluids. This power is due to phagocytosis. Exactly what constitutes this we do not know, but we do know that common cause of disturbance of phagocytism is overwork; in fact, all diseases are more readily contracted after fatigue.

Pulmonary tuberculosis is a specific inflammation of pulmonary tissue, caused by the implantation of tubercle bacilli, which cause infiltration, caseation, fibrosis, calcification and ulceration.

There are three stages—incipient, developed and advanced; acute, and chronic. Sajous states among the causes of tuberculosis:

Finally, it is to be noted that, while the bacillus of Koch is the specific agent necessary for the development of pulmonary tuberculosis, one or more of the general and direct predisposing causes before mentioned must have prepared a suitable soil for the bacillus to become inimical to the patient.

The number of bacilli in any specimen of sputum means little. In incipient cases sputum may be crowded, yet show little evidence of active process, as the germ has the ability to multiply in its own secretions, with its saprophytic bacilli instead of the lung tissue. The process of degeneration is a result of nutritional failure. The center of the mass which is farthest removed from nourishment undergoes necrosis, subsequent softening with breaking down or absorption of moisture and calcareous deposit, the whole enclosed with a fibrous deposit built up by leukocytic force, making it a foreign body. Should this be disturbed or broken down in the process of years, a fresh infection would take place, going through the original process. Should it be bronchopneumonia of acute tuberculosis, it is an invasion similar to the chronic, but lacking the picture of the more definite arrangement into tubercles. When arrested, it is due to a protective layer of epithelioid and a similar layer of leukocytes, forming a foreign body. Otherwise the pus coccus, by liquefying the tissues, produces the poison, giving chills, fever, sweats, emaciation, and other known results. When the sputum is thin, viscous, evenly distributed with bacilli and a noticeable reduction of corpuscular elements, fail-

ing to stain well, the phagocytes show little resistance to invasion of tissue.

Patients often imagine that these results are due to "cold settled on the chest," when followed by cough, loss of strength and appetite with fever and emaciation, not realizing that the exposure is not the cause, but that overwork and other causes, by enfeebling the system, permit the invasion of the bacilli with no phagocytic protection.

Sajous states in most inflammatory diseases there is an excess of leukocytes, except in tuberculosis, when there is a diminution, and this may account for the occasional want of defense in rapidly wasting tuberculous patients.

The prognosis in the early and second stages in sanatorium life is toward recovery; shown by the fact that 23% recover and 50% are able to resume their usual family and business responsibilities. However, the time test of recovery should not be less than 10 years. Of the balance, the total world mortality makes its record of a seventh from this class, all residents of the temperate zone exclusively. In the far North, where people live in snow houses, or in the equatorial South, where no protection is required except from rain, children rarely have tuberculosis. When these same people crowd into the homes of civilization, none are less prone to resist this microbic invasion. Sanatorium experience with proper elevation gives improvement and recovery in 73% of adults, however few can afford this expensive battle for life—probably only 5%. The balance can work, wait and die. This balance claims our attention and sympathy. Sunlight, air, food and outdoor life are free for all; but the children, who are weighted with the incubus of heredity and diseases of childhood, what is to become of them? If the theory of necessity of a seed-bed for proper incubation of tubercle bacilli is accepted as a medical truth, and that these bacilli are in the air that we breathe and food we eat, and innocuous unless the proper nidus be prepared for their implantation in our lungs, why have this seed-bed? A normal strong lung will not respond to a microbic invasion, and a weak feeble lung, by proper education can be made a normal lung by early instruction in breathing, sleeping with pure air, abundant tissue-forming food and an outdoor life. Build up a normal lung in heredity, and tuberculosis of the rising generation will be where the diseases of the heated term are now relegated by the profession to the general instruction of the school children in their daily curriculum of the importance of physical as well as mental education. The present generation should have State aid in securing sanatorium help. These need not be expensive structures, nor in the sunny West, balmy South, nor in the distant mountains, but on our own mountain slopes, sheltered from the north and west winds, with proper altitude. Each county should have its own elevated, sheltered sanatoriums. Not expensive structures, but simply an aggregation of cottages, each to hold three or four inmates, each sanatorium group to have its physician and nurses. The inmates to be of the grade that can help themselves, do their own cooking, securing their supplies from their homes, or when indigent, the county or State to furnish supplies. Those unable to care for themselves to be assisted by the county authorities until they have recovered or crossed to the great majority. Those who are so far advanced in this exhausting disease that the outdoor life does not bring them up to the normal leukocytic defense, will require powerful cell tonics, such as are now offered by animal therapy which by their tonic action on the protoplasm will enable the normal phagocytic action to be resumed, and in many cases to bridge over a hopeless case to convalescence.

Extensive Epidemic of Influenza in Berlin.—According to *Public Health and Marine Hospital Service Reports*, beside the usual catarrhal illnesses of the season influenza prevails to an unusual extent. Medical authorities report that there has not been for many years so extensive an influenza epidemic in Berlin as during the present winter. It seems that the germs of the disease enjoy the distinction of being more infectious and more poisonous than usual. The *genus epidemicus* is this year an especially unfavorable one. In many families all the members are affected with influenza. Fortunately the disease is not very malignant, and the number of illnesses following afterward and so frequently spoiling the prospects of speedy recovery are apparently not excessive.

ORIGINAL ARTICLES

RELATION OF PATHOLOGY TO OTHER SCIENCES.

BY

J. ORTH, M.D.,

of Berlin, Germany.

Professor of Pathology, University of Berlin.

Whoever has to speak of pathology in general, as is my task, must first determine what he includes in pathology, for the ideas, which are evoked by this term, are not always the same. The opinion is common that pathology is synonymous with "science of disease," "nosology;" but this, as Rudolph Virchow has attempted to prove repeatedly, is not true. Doubtless disease, or rather the diseased individual, is the most important object of consideration of pathology; it is, however, not the only one. The conception of pathology is much more comprehensive. To pathology belongs, on the one hand, every deviation from the normal structure and the normal composition of the body, and, on the other, every deviation from the normal function of its parts. It therefore includes every variation, from what we consider the type of an organism. Variation from type is, however, not disease. Disease is, as Boerhaave was the first to say: "*Vita praeter naturam*," and life presupposes activity. When there is no functional activity, and thus no deviation from normal function, there can be no disease. But not even every functional variation from the normal indicates disease. The variation must be pernicious in character, if it is to bear the name of disease. When there is no detriment, there is no disease, although whenever a variation from the normal exists, we have to do with a pathologic condition, no matter whether the variation is morphologic or functional.

Purely morphologic variations without detrimental influence on the rest of the body are found, especially among anomalies and malformations, and who will deny that these belong to the realm of pathology? An individual with a supernumerary nipple, a person with polydactylism, a woman with uterus septus or bicornis, all are pathologic, although none are sick. Thus, while the biologic phenomena of the diseased state form the greater part of the realm of pathology, they do not complete it. Its limits must be extended much further, but how far, is the point of contention.

Many may consider the statement of Virchow a witty paradox when he says that the development of new species really belongs to the realm of pathology, as a new species must find its origin in a variation or deviation from the preceding type, and variation from type is pathologic. Thus the whole teaching of evolution, the science of phylogeny, is to be considered part of pathology. I share throughout Virchow's opinion, and in my work on inherited and congenital diseases, recently published, I have again given this fact expression that we must presuppose a variability of the embryonal protoplasm, and that variation or deviation from the previous type either acquired or inherited or even arising from external influences, is the necessary preliminary to the formation of a new species, subspecies, or variety. I would not, however, like to go so far as to call everything arising in this way pathologic, no more than I can consider it pathologic when, by immunization, a man is made better than he was before. Such a man varies from the type of normal man, but is not pathologic, because the variation is useful and appropriate. Only variation which is inappropriate or useless is pathologic. I realize that it may often be difficult to determine the limits of the inappropriate and useless and thereby pathologic, especially in the development of varieties and races. Thus, I would not hesitate to class the Crested Polish fowl with its exencephalocoele as pathologic, while I would exclude those breeds which the animal breeders have

made for useful purposes from pathology, no matter how near the pathologic the products of skill might be.

Variations from type occur in inanimate as well as animate nature; there are malformed crystals just as there are malformed plants, animals, and persons, but we are not accustomed to speak of a pathology of crystals or stones, but only of plant, animal, and human pathology, for only with living beings can we rightly speak of useless, inappropriate, or pernicious variations from the normal.

Human pathology, undoubtedly the most momentous and important for us, has made but little use of plant pathology as yet, although there can be no doubt that many conclusions for general pathology as for general anatomy are to be drawn from botany. The reaction of plant cells to unusual conditions, and the morphologic and functional disturbances, which occur under such circumstances, are easier to observe, and may well serve as guides to the understanding of similar processes in animal or human cells. Experimental pathology has already made use of plants in its investigations, but only recently have we begun to give more attention to the spontaneous diseases of plants, especially since we have learned how great a role parasitism plays in vegetable as well as human pathology. At the head of the parasitic problems of human pathology of the present day stands that of the etiology of tumors; here cancer cells, here cancer parasites, so sound the battle cries, and a parasitic new formation in the vegetable kingdom, the club root of turnip, did not only have to furnish the paradigm of cancers in man and beast, but some investigators have even gone a step further and see in *Plasmodiaphora brassicae* the parasite of club root, the exciting cause of animal tumors or at least a close relation of such cause.

Very different is the relation of human to animal pathology, not only on account of the closer relation between man and animal, by reason of which a comparison of observations between animals, especially the higher vertebrates, and human pathology is more permissible, but also because the questions to be decided experimentally must be proved in the main on animals.

Even though a complete agreement between the phenomena of human and animal pathology cannot exist, as the function and construction of the animal body and its organs do not entirely agree with those of man, even though many diseases which attack man do not occur in animals, still analogies are not wanting and the similarity is greater the higher the group among the vertebrates to which the animal in question belongs. An especial advantage of comparative animal pathology is that the necessary material is not only easier to obtain than the human, but that particularly by voluntary killing of pathologic animals accurate morphologic investigations can be made at any desired stage and on perfectly fresh tissues free from cadaveric changes. Especially valuable conclusions can be drawn in those diseases, which are common to man and animals, the zoonoses and the anomalies of formation, the simpler ones as well as the monsters in the narrower sense.

A somewhat neglected realm of comparative pathology has recently attracted the attention of pathologists in more and more increasing degree; namely, tumor formation in the lower animals. From their construction we may expect to draw valuable conclusions in regard to the pathology of human tumors, not only in the morphologic but also in the genetic direction. One point especially comes into consideration, which also plays an important part in the utilization of animal pathology in other directions, the possibility of purposeful inoculation experiments from animal to animal.

Unfortunately the great value of experimental research for all branches of pathology is not sufficiently known among the laity and attempts through governmental interference to lay difficulties in the way of experimental investigation (vivisection as it is called by

the laity, scientific animal torture according to its opponents), are constantly being made, not seeing that misuse of it, even if it should occur, is considerably outweighed by its undeniable value. Pathologic anatomy, bacteriology, pathologic chemistry and above all pathologic physiology cannot fulfil their scientific value without animal experiment. A large part of the progress in pathology is bound up with experimental research. Every advance in pathology has sooner or later been of use to man. Could our progress in the pathology of the infectious diseases, and our progress in the prevention and treatment of them have been made without experimental pathology? The explanation of the origin of tumors must also finally arrive by experimental investigations and just there it will be of especial value to be able to carry on the experiments on the same kind of animal in which the tumor naturally occurs. If we should succeed in finding a specific, probably parasitic cause, the possibility of demonstrating the pathogenicity of this disease producer on animals of the same sort is incalculable. But such experiments presuppose exact knowledge of the pathology of the animals experimented upon, that is, comparative pathology and many discussions of the present day have turned on the point whether changes which were found after the experiment, were results of the experiment or chance pathologic findings to which the experiment had no genetic relation. If one does not know what kind of tumors occur in the organs of the animal which he is using for experimental purposes, he will easily fall into the danger of considering new formations as the result of the microorganisms injected by him and will report of having produced a tumor when merely a spontaneous newgrowth existed.

So far I have considered animals only as passive objects of experimental pathology. I have spoken of animals and plants merely as the most important subjects for comparative pathology. There are, however, much closer relations between pathology and botany and zoology. Both these sciences have had increasing importance for pathology, as surer proof was brought that the most important causes of disease belong to the plant and animal kingdoms.

Investigation of the causes of disease, of the different conditions which form the basis of deviations from normal types, belongs as much in the realm of pathology as the study of these deviations and their development itself. The etiology and pathogenesis are a part of pathology, and it is especially through them that pathology has its closest relationship with the other sciences. Mechanics, general and cosmic physics, geology not less than geography, inorganic as well as organic chemistry, social and military history, sociology and commercial science, etc., must all be considered for the enlightenment of the etiology of disease and the explanation of the appearance of disease, especially in regard to time and place (historic geographic pathology). But above all stand zoology and botany, for the most important and most common diseases are produced by living beings, by parasites.

It is an old statement in pathology that a parasitic relation exists in disease. For a long time the disease as such was thus personified; it was spoken of as an organism within the organism, a parasite, which as Wunderlich said, was anthroposed or phytomorphosed in every way. To it was ascribed an existence, a growth, limbs and organs, a power of endeavor and of thought, even a sickness, death and finally a corpse. Pathology has done away with this conception. It is true that we still speak of the disease, of cholera, typhoid fever, pneumonia, etc., and that in practical medicine we still speak of treating this or that disease, a treatment for syphilis, for diphtheria or some other disease is recommended as if we spoke of something tangible, independent. But all this is only for convenience of expression, and we know very well that what we call a disease is not an entity but only a group of phenomena which have for

their basis a common cause. There are really no diseases but merely sick men, diseased organs, diseased tissues, diseased cells, and it is the cause of these disturbances which brings about the special phenomena which we observe in the diseased part.

This cause may be a parasite. Centuries ago the opinion was occasionally expressed that diseases were caused by living beings, which disturbed the life processes in the human body. In the middle of the last century the view that there must be contagium vivum was victoriously upheld by Henle, but only in the last decades of the nineteenth century was actual proof brought forward that by far the commonest causes of disease are living organisms which live parasitically on or in the human body. The disease is not the parasite, but one parasite or many parasites cause those variations from the normal structure and function of parts of the body, which in their entirety we call disease.

By parasitology a close union is made between pathology and the described natural sciences and thus with general biology.

The great biologic question as to the origin of the lowest being is related principally to the human parasites. In spite of the statement of the great English physician Harvey "*Omne vivum ex ovo*" the doctrine of spontaneous generation which ruled for thousands of years had not vanished from science, and in the beginning of the last century natural philosophy treated with preference on the beginning of life, and some are not lacking in our day who believe that they see in the doctrine, that the tissues of our bodies break up in decomposing, into small organisms, an expression of the immortality of the life principle.

That the large intestinal worms do not arise from the dirt of the intestinal canal, from saburra, but that for them Harvey's rule holds, has been shown by both zoologists and pathologists. For the smallest beings we may mention the chemist, L. Pasteur, with the physician, Robert Koch, the former of whom conclusively disproved the spontaneous generation of microorganisms; the latter as the discoverer of the methods which permitted us to ascertain simply and surely the constancy of form of a microorganism and to give incontrovertible proof that in every single microorganism the law of generation was true, not entirely in Harvey's sense, but in the more general form: *Omne vivum e vivo ejusdem generis*.

But it is not only general biology which has been furthered by the parasitology of the physician, but also special biology and the systematic classification of parasitic animals and plants. Just here is plainly shown that pathology cannot in any way be separated from the other natural sciences, as it is not only the receiver which makes practical use of scientific discoveries, but also the producer which by its own effort, and through independent performances, furthers science. The modern development of bacteriology, the determination and elaboration of exact methods of investigation, the morphology and biology of bacteria, have not been entirely developed by botanists, but it has been and still is physicians and pathologists who may claim a large part of the results as due to their efforts.

The same relation in working together exists between pathology and zoology in regard to the parasitic animals. Here the points of contact of the two sciences are doubled, for on one hand, the change of generation of many human parasites, their occurrence in different hosts, as well as the fact that animals may be the simple conveyors of parasites, required the human parasitologist to bring the animal world into the realm of their investigations; on the other hand, the morphology and systematic study of the parasitic animals themselves has been ascertained with considerable assistance from pathologists. In the first class I will only recall the joint work of pathologists and zoologists on trichinosis in determining the relation of this disease in pigs and other

animals to that in man; malaria and the role which anopheles play therein; the recent investigations on the conveyance of plague and other infectious diseases by animals. Names of physicians like Kuechenmeister, Darwin, and others have given human parasites their final place in zoology. I wish also to call attention to the very recent investigations concerning protozoa as disease producers, one of the most burning questions of modern pathology, a question of extreme importance, and also of correspondingly great difficulty. Unfortunately, investigations on the parasitic protozoa remain still in their infancy, but even on this question the pathologists of Europe and North America may demand recognition of their zealous work.

Closest and most numerous are, of course, the relations of pathology to anatomy and physiology. Just as the study of the normal, typic man is divided into anatomy and pathology with physiologic chemistry, so also is pathology (apart from etiology and pathogenesis) made up of pathologic anatomy and pathologic physiology with pathologic chemistry. Just as health and disease pass imperceptibly into one another, so there can be no sharp line drawn between pathologic and normal anatomy, normal and pathologic physiology. These studies are not different sciences, but branches of the same scientific tree with the same stem, the same roots. Their methods of investigation are mainly the same. Discoveries in one generally mean progress in the others.

The time is not long past when instruction in pathologic anatomy in our universities was in the hands of the professor of normal anatomy, and when men like Joh. Fr. Meckel, Johannes Müller and others enriched and fostered normal as well as pathologic anatomy. Pathologic anatomy is only conceivable on a basis of normal anatomy, and a glance at the history of medicine shows how every progress in normal anatomy has produced an increase in the knowledge of pathologic anatomy. Only the flourishing of anatomy in the sixteenth century made the development of pathology to a separate science during the ensuing century possible. But here also pathology was not only the receiving but frequently the producing science. Pathologists not only enriched anatomic and histologic methods, but contributed largely to the development of accurate anatomy, the general as well as the special. Who does not think in connection with "general anatomy" of Rudolph Virchow, the man who coined the famous words "*omnis cellula e cellula*" corresponding to Harvey's "*omne vivum ex ovo*?" That saying while resting in great part on pathologic observations, is equally true for pathologic and normal anatomy.

In connection with special anatomy it will suffice to refer to the progress in the anatomy of the brain, especially to the course of its fibers, in order to show how much pathology has contributed to the knowledge of normal structure. The great progress which the finer brain anatomy made in the last decades of the last century is due in large part to pathologic observations, medical investigations, methods conceived by physicians, and the result of investigations has been brought forward in connected form, especially by medical writers.

The same is true, but even to a higher degree, of physiology, the pathologic branch of which has unfortunately not received the deserved recognition and fostering in every place as a separate science, but which nevertheless has not been neglected by scientific medicine.

A large part of our knowledge of human physiology has been obtained by the observation of functions changed by disease as they appear as symptoms of disease in man or are produced artificially by experiment on animals. Where would the physiology of the brain be, if pathology had not made clear the position of the centers and the course of the tracts from the constantly recurring symptoms and lesions, and pathologic experiment had not proved the correctness of the conclusions which were drawn from human observations?

What would general cellular physiology be, if observation of the behavior of cells under varying life conditions had not given us information concerning the processes under normal conditions? Is not general cellular physiology rather a product of cellular pathology? Was it not a pathologist, R. Virchow, who introduced the idea, that the cell is the final form element of all vital phenomena and who arrived at this conclusion not least through pathologic observations?

From the deviations one recognizes most readily the law. There is no problem of general biology which has not received enlightenment and explanation from the experiences of pathology. The doctrine of heredity, to name only a few of these problems, plays no small role in pathology, and many cases of pathologic heredity throw a clear light on the subject and nature of heredity in general. The latest discoveries of pathology in the realm of hematology, the doctrine of agglutinins and precipitins, has already led to most valuable revelations respecting the general biologic question of the blood relationship of animals with one another, and of animals with man. The blood of anthropoid apes and man shows similar behaviors, but differs from the blood of other animals.

Especially numerous and close relations exist between pathology and that branch of biology which treats of the development of the human and animal body, and these relations are daily becoming closer and more numerous, as more and more frequently it can be proved or at least made probable, that pathologic phenomena of all kinds form the basis of ontogenetic disturbances of the greatest variation.

An important difference exists between normal and pathologic anatomy, insofar as the genetic consideration plays a much greater role in the latter than in the former. Finished conditions form the basis of descriptive anatomy. Pathologic anatomy must always consider phases of development and none of its observations can be understood if their origin cannot be explained and if the original condition and the further development of its changes cannot be determined. The original condition, however, leads more and more frequently back to the time of embryonal development. It is to the eternal merit of Joh. Fr. Meckel, the anatomist and pathologist, of Halle, that he showed for the first time in the case of a malformation of the intestinal diverticulum that the essential part of the variation from the normal consists in this, that a condition which is normal for a certain period of embryonal life, but which should only have a transient existence, is retained and is always recognizable in later stages of development, even though changed by the progressive growth of the part. This demonstration was the more important and valuable, as it treated of a theme which had hitherto been the ground of the most remarkable genetic theories. The apparently planless variation from type was explained as the work of demons or devils or as a freak of creative nature (*lusus naturæ*). Now, it was shown for the first time that also in the realm of malformations, order and law governed the process, and not arbitrariness and freakishness, and that we must consider the embryonal development of these malformations if we would understand and explain these methodic processes.

Thus was founded the doctrine of imperfect development and growth, and as the basis for the explanation of malformations (Hemmung's Missbildungen) it has been especially fruitful, as the fissures about the face, malformations of the female genitals, and congenital malformations of the heart will show, but that they have not yet closed the list is shown by the recent investigations of cystic kidneys, which have proved these to be due to a checking of the development of the embryonal organs. These examples show that disturbances of embryonal development are not only of importance in causing variations from the type, such as malformations, but also for disease processes in the narrower sense,

which originate most readily in malformed parts or organs. The idea that congenital heart disease was due to endocarditis in fetal life was largely due to the knowledge of the susceptibility of the malformed part to secondary so-called chronic inflammation. This is true not only of the macroscopic conditions like those mentioned, but it also favors the idea that incompleteness in the formation and the later development of a part cause a local disposition to disease. But this is only one side of the relationship between disturbances of development and disease. Another, perhaps even more important, is that which treats of the development of tumors on a basis of disturbance of development. The tumors of undescended testicles, the origin of new formations from displaced adrenal fragments, are as familiar to pathology and as surely established as the occurrence of dermoid cysts, which can only be explained on the basis of the history of development. The wellknown theory, according to which all tumors depend on disturbances in embryonal development, still lacks sufficient proof. Both pathologists and embryologists have been successful in showing, however, that one tumor at least, the dermoid of the ovary, only finds a satisfactory explanation in the presence of derivatives of all three embryonal layers, thus indicating a very early disturbance of development. These tumors are closely related to malformations and pass without sharp division into true monstrosities. The study of all malformations, not only those due to impeded development and which no one attempts to deprive pathology of, is not to be separated from the study of normal development, for the origin of malformations goes back to the earliest embryonal period, and not only malformations of the whole body, but anomalies of its single parts can only be understood and their origin explained in the light of normal developmental processes.

On the other side, experimental teratology, which is doubtless a branch of pathology, has made most important advances in the knowledge of the laws of normal development, the laws which govern the details of the regular formation of the embryo. Here also no sharp line can be drawn between pathology and embryology. Pathology takes its place alongside of embryology, with equal right and equal importance.

Thus we see pathology placed centrally among the biologic sciences, bound inseparably to all of them, not subordinate to any, but their equal, receiving help from all sides, but giving as much in return. Lastly, it must be stated that it is the problem of life which forms the subject of pathologic work. Even though it wanders in its own ways, and possesses its especial questions, it is finally led to the general question of every biologic investigation.

Points of contact with philosophy are always presented by these general biologic problems, and we need only name Lotze, the physician and philosopher, and his work on "General Pathology as a Mechanical Science," to find the close relationship between philosophy and pathology personified in modern times. Metaphysic consideration of empiric assertions is necessary, as Kant has taught, to draw general conclusions and formulate general rules and laws from the observation of nature. Biology, and not least, pathology, lead everywhere to the limits of our knowledge of nature, where fixed knowledge finds its end, where we must, with du Bois Reymond, acknowledge our ignorance of what lies beyond, but where philosophic contemplations point a higher and more general way out of our difficulty. These limits to our knowledge are not lasting, however, for pathology. We will not remain in ignorance as long as the knowledge of healthy and diseased life progresses, and the boundaries of natural science and philosophic contemplation of the problems are being extended. Increasing knowledge of facts must be the basis of philosophic contemplation, if this would have real value.

There was a time in pathology when philosophic conceptions outweighed all other considerations, and

when it was believed that all the problems of general biology and those of general pathology could be solved by pure reasoning. This period of natural philosophy was as unfruitful for real progress in pathology as the period of dogmatism in the middle ages, when Aristotle and Galen were looked upon as the sum of all wisdom, and pathology was nothing more than philology, as all scientific work consisted principally in criticising and commenting upon the Greek writings.

This changed only after we emancipated ourselves more and more from the old dogmatic belief and through original investigations laid a true scientific foundation for pathology. The maxim of the great Morgagni, "*Nulla autem est alia procerto noscendi via, nisi quam plurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere et inter se comparare,*" as well as his other, "*Non numerandæ sed perpendendæ sunt observationes,*" had to receive general recognition before pathology was enabled to take its place among the other natural sciences. This place it had lost, for in the renaissance of science in the sixteenth century pathology stood in close relation to the other natural sciences; and medicine was for centuries the bearer of all natural science and included all other sciences within itself so that not only did the teachers of other sciences belong in many cases to the medical faculty, but zoology and botany, physics and chemistry were taught by physicians. We need only recall Halber and his great teacher Boerhaave, who successively occupied the chairs of botany and chemistry, of practical and theoretic medicine, and attained fame in all these branches. All this has changed in the course of time; the children have separated from their mother and have further developed themselves, and their development to great sciences has proceeded more rapidly than that of pathology. The time is not long past when the emancipated looked down on pathology and would not recognize it as an equal science. Did not Virchow find it necessary, before the congress of German naturalists, in 1867, to insist on the scientific equality of pathology, and to demand that the so-called exact natural sciences should recognize pathology as an equal companion.

In fact, as pathology (excepting in purely etiologic studies) cannot do without physics and chemistry, as she also strives to refer pathologic phenomena to physical and chemic laws, so she has given something to these sciences and even to the present time has furnished workers which have assured themselves a lasting place in the history of exact sciences. Is not the mention of the name of the physician, Robert Mayer, the discoverer of the law of conservation of energy, and of Helmholtz, who began his professorship in Königsberg with lectures on general pathology, sufficient proof? The literature of röntgen, radium and other light rays shows sufficiently how to this day pathology takes part in the investigation of physical problems.

These investigations lead to another especially important field, that of chemistry. Questions which were determined in the chemic laboratory of my institute, the proof, namely, that by the effect of radium rays on cancer tissue, impediments which stood in the way of the action of preexisting cytolytins are set aside are nothing but chemic questions. Thirteen years ago I stated in a rector's address, that only pathologic chemistry on a basis of cellular pathology could take us further in the study of infectious diseases, that the chemistry of bacteria, the normal and pathologic chemistry of the cells was the problem of the future. This statement can be enlarged upon; in whatever branch of modern pathology we seek progress, we finally always meet chemic questions, and it needs no prophet to tell us that the greatest progress of pathology in the immediate future will be along the lines of chemistry. In all directions pathologists have united with chemists to further the study of the chemistry of proteids. Physicians and pathologists have furthered the knowledge of precipi-

tins, agglutinins and lysins of various sorts, not only in their practical but also in their purely scientific relations, and have begun to study these substances along different lines.

Pathology stands in close relation not only with that group of physical sciences which treat of life processes and living organisms but also with the exact physical sciences. To these also many bridges lead, over which the connecting links flow in both directions, pathology giving as well as receiving. A separation of pathology from the other sciences could therefore only be made by force, for pathology forms an integral part of the science of life, biology. I do not consider it just therefore that in this Congress, bacteriology which draws its greatest importance from that part which belongs to pathology, which is thus, principally a part of pathology, has been placed by itself in Division C, "Physical Sciences (Naturwissenschaft)" and pathology in Division E, "Useful or Utilitarian Sciences." Is bacteriology not an eminently useful science? Has it not found the most widespread use in medical practice? Have not other branches of pathology, and especially pathologic anatomy, been reproached because it has done little for the prevention and treatment of disease, while bacteriology has done much in this direction? Yet bacteriology is put under physical sciences and pathologic anatomy with the rest of pathology among the utilitarian sciences! On what grounds can we consider human pathology as a different sort of science from the pathology of plants? If we class plant pathology with plant morphology and physiology as a part of biology (as is right) one must do the same for human pathology and place the biologic sciences in the closest relation with human anatomy and physiology. Human pathology is as much natural science and a separate branch of biology as is phytopathology, and pathology is no more a utilitarian science than normal anatomy and physiology. Is medical activity conceivable without anatomy and physiology? As little as without pathology! Has pathology only importance through its relation to practical medicine? Not at all! Pathologists also prosecute their scientific studies without regard as to whether their work will be of immediate practical value or not. They also follow the inner motive toward knowledge and truth. They wish to satisfy that desire for increased knowledge which is in every human breast, to share in disclosing the secrets of nature. If the acquisitions of pathology have had a greater and more immediate effect on medical treatment than those of anatomy and physiology, that does not alter its scientific quality in the least; because it was also useful and has never injured other sciences or lessened their scientific value. No one will value chemic and physical sciences less because they have been the basis of the wonderful advance in technic and industry, as displayed to the wondering eyes in this exposition. Pathology rejoices in its relation to practical medicine and would neither miss nor lessen it, for as physics and chemistry constantly receive from practice stimulus to new endeavors and progress, so also pathology needs uninterrupted relation to medical art. But it remains first of all an independent physical science, which in its three branches, pathologic anatomy, physiology and chemistry, stands on an equal plane with normal anatomy and physiology and physiologic chemistry; with them and etiology forming the scientific basis for practical medicine.

But as for ages past a certain socialistic or rather humanitarian spirit has ruled in medicine (and to medicine pathology must always belong) so that with all pride over scientific demonstrations the real and true joy over scientific progress was not reached, if only wisdom and knowledge were furthered, something of value has been accomplished for the general good. May it also remain so in the future. Pathology will then be recognized as a natural science, but it will be its pride and joy in the future to be and to remain a utilitarian science.

NEPHROURETERECTOMY FOR TUBERCULOUS DISEASE WITH A DESCRIPTION OF A NEW TECHNIC.

BY

EDWARD REYNOLDS, M.D.,
of Boston, Mass.

The propriety of subjecting tuberculous disease of the kidney to operation is still so far a mooted point that it would seem fitting that a paper on the complete extirpation of the ureter in tuberculous disease should be prefaced by some consideration of the main question as to whether tuberculosis of the kidney should, or should not, be considered a surgical disease and an indication for operation, but since any detailed consideration of the relative advantages of the surgical and nonsurgical treatment of renal tuberculosis would be far too extensive for consideration with any other point in a paper subject to discussion, I mean merely to preface my real text by a brief summary of my own views and experience upon this preliminary point.

I believe most firmly that the indiscriminate application of nephrectomy to all cases of renal tuberculosis is to be earnestly deprecated as likely in the long run to do more harm than good, and that cases fit for operation are to be selected only by careful study and usually only after long preparatory treatment.

I am accustomed to separate my cases broadly into two classes: First, those in which the course of the disease is rapid and the constitutional failure marked, *i. e.*, the profoundly tuberculous. Such patients usually have tuberculous foci outside of the urinary apparatus. I believe these patients should take such chance as they may have under open-air hygiene, that in them operation is but rarely indicated, and then not with the idea of radical cure, and only for the relief of otherwise irremediable suffering of extreme degree. I wish to be placed on record as disbelieving in operation for such cases, though I have myself operated once under these circumstances. The case is the first reported in this series of nephroureterectomies. In this case the suffering was incessant, and evidently due to almost continuous blocking of the ureter by tuberculous material. The ureter proved to be greatly enlarged throughout its entire extent and almost completely blocked by tuberculous detritus. There was immediate relief of suffering, and the patient gained greatly in constitutional condition, but died at the end of two years from miliary tuberculosis of the intestines. In one other case which I saw in consultation, I advised a nephrectomy, which was performed by the attending surgeon. This was a woman of great wealth, who had pursued for some years every form of hygienic treatment which could be devised, but who was steadily losing in condition. She had a profoundly tuberculous kidney and slight pulmonary lesions. After a nephrectomy, she improved rapidly to a fair degree of health, which, by a continuance of the most careful hygienic methods, has now been maintained for nearly three years. I wish to repeat here that in this class of cases the indication for operation is rare and should be guarded by the most careful conservatism. I can hardly omit a word about the prognosis under constitutional care alone. I have subjected all those of my patients, whose circumstances made it in any way possible, to careful out-door hygiene before subjecting them to operation. I have myself seen but one patient attain a final and complete cure without nephrectomy. She was in the very early stages of the disease, and has been wholly well for nearly eight years. I have seen two patients whom I thought had a prospect of radical cure by operation, attain, under constitutional care and minor vesical treatment, a degree of health which was sufficiently good to induce them to decline the knife. In the quite large number of patients whom I have seen, but considered unfit for operation, I have known of the after-result in but a small proportion since, even in private work, I

have, of course, returned these patients to their original attendant. In those I have heard from, there has been usually considerable and long continued improvement, but with the exception of the one case referred to before, no radical cure.

My second class of cases is those in which the progress of the disease has been slow, in which the constitutional condition is fairly good, and in which the tuberculosis is not only limited to the urinary tract, but can be conclusively demonstrated to be limited to one kidney, its ureter, and perhaps the bladder. In this class of cases I believe that by a combination of nephrectomy and constitutional care we may usually expect a radical cure, using this term in as definite a sense as can ever be applied to tuberculous disease. The selection of this class of cases means in practice that we should not operate unless an exhaustive physical examination limits the tuberculosis to the urinary tract, nor until a ureteral catheterization has demonstrated the secretion of tuberculous pus from one kidney, and the excretion of a normal urine free from pus and containing a normal amount of the urinary solids from the other kidney.

In the cases in which the bladder is still free from disease when the patient comes under observation, this demonstration may be made at once, though I am inclined to believe that even here it is wiser to wait for the six or eight weeks which are necessary for a satisfactory negative result from the inoculation of the ureteral sediments in a guineapig before operating, devoting this interval to getting the patient into the highest possible condition by open-air hygiene. In the cases in which the bladder is the seat not only of tuberculosis, but, as is usually the case, of a marked inflammatory complication, it is necessary to restore the bladder to a substantial normal before a ureteral catheterization can be safely undertaken.

I am accustomed to begin the vesical treatment by continuous irrigation of the bladder through a double current catheter, the toleration of which by the patient requires usually a training of many days, and sometimes weeks, of intermittent washings, at first for an hour two or three times daily, and then with decreasing intervals until the patient is able to tolerate the lavage through the entire 24 hours, and this with the increasing pressure attained by raising both the irrigator and the outflow until the irrigation of a fairly well-distended bladder can be tolerated for the 24 hours. By the time this has been attained the bladder will usually present nothing abnormal other than the isolated tuberculous papules or ulcerations. These should then be lightly cauterized with the bead of solid silver nitrate, fused on the end of a wire and this treatment continued until the mucous membrane of the bladder is in a normal condition. This course of treatment may often occupy months, and should be accompanied by the most careful attention to general hygiene. Indeed, if previously satisfactory progress begins to fail, it is usually wise to send the patient away to a sanatorium or other open-air cure for a time. The relief of symptoms attained early in the treatment is usually so great that the patient is willing to persist in spite of its tedium. This process of treatment also affords an excellent opportunity for a full trial of the effect of constitutional care, and of course only those patients in whom that ultimately fails should be subjected to the knife.

To summarize my experience I may say that from among the considerable number of cases of urinary tuberculosis which I have seen, I have selected eight as suitable for operation; of these, two have been already referred to as exceptional cases of generalized tuberculosis which, nevertheless, demanded operation. Of the remaining six, two were subjected to nephrectomy, one to nephrectomy with a subsequent ureterectomy, three to nephroureterectomy.

The first was a case of 18 years' duration when first seen in 1896. The patient, a woman, was operated upon in 1897, after

more than a year of preparatory treatment. The ureter was dissected out as far as it showed any signs of abnormality. The convalescence was prolonged by the appearance of a sinus in the lower angle of the wound, and complete relief from urinary symptoms followed only after several months. She has been entirely well for six years. The second case was one of hemorrhagic miliary tuberculosis of one kidney with a presumably healthy ureter. The patient was seen in 1898, much exsanguinated by hemorrhage, she rapidly gained in condition after the operation, and has remained perfectly well ever since, with the exception of an extrauterine pregnancy for which I operated at about six months last year. The third patient was operated on in 1899 by simple nephrectomy after extended treatment of the bladder without entirely satisfactory result. There was but moderate relief of symptoms, and two months later I was obliged to do a ureterectomy for suppuration about the much diseased ureter. In this case but little of the preparatory treatment was under my direct care, and I saw her but once or twice after the second operation. She received considerable vesical treatment at intervals from her physician, and when heard from a year ago, four years after operation, had gained flesh and strength, and was having but little trouble in urination. I have never felt that the case was an entirely satisfactory one. None of these patients were able to make any considerable alteration in their ordinary methods of life.

The remaining three cases in which the patients were treated by primary complete nephroureterectomy are reported at the end of this paper. All were advanced cases of urinary tuberculosis without disease elsewhere. All made uninterrupted recovery, and two are in excellent health today. The third, a child, after nearly a year spent in the open air, returned to the confined air of school to have a probably tuberculous abscess in the tract of the operation, from which she has now recovered, but is still undergoing open-air treatment.

To summarize: The two patients who were subjects of tuberculosis elsewhere were distinctly benefited by the operation. Of the six remaining cases, one patient who was under my personal care only during the operative period, suffered from a prolongation of symptoms, probably of vesical cause, but was reported in improved health at the end of four years. Of the remaining five cases, four patients are in perfect health after intervals varying from 18 months to 7 years, one has had a subsequent tuberculous abscess, but is again convalescing. All eight made the most surprising gain in weight, color, and strength in the six months following operation.

I am, then, a believer in the advisability of radical operation for selected cases of unilateral tuberculous disease, and with that profession of faith feel free to proceed to the second point of my text—that whenever a renal tuberculosis is held to indicate a nephrectomy the operation should be accompanied by complete extirpation of the ureter as well; and to a description of the method which I myself employ in this operation, and which I think adds to both its ease to the surgeon and safety to the patient. In reaching these conclusions I have been guided less by theory than by experience, and as upon these points my experience in other forms of suppurative disease of the kidney has been equally valuable I wish to include those cases here.

After an experience of nine nephrectomies done for tuberculous and other suppurative disease without extirpation of the ureter, or with extirpation of only its upper portion, and of seven complete nephroureterectomies, I have become convinced that the incomplete operations show a longer period of persistence of symptoms as compared with the complete cases, while in two out of the nine incomplete operations I have been obliged to perform a subsequent ureterectomy. The superiority of the complete over the incomplete operation has in my experience been especially marked in cases in which the operation was performed for tuberculous disease. I have repeatedly and unexpectedly found the ureter thickened and tuberculous from end to end, and hence my conclusion that whenever renal tuberculosis indicates a nephrectomy it indicates a complete extirpation of the ureter as well, both for greater security from subsequent reinfection and on account of the much greater rapidity and more complete nature of the convalescence.

The comparative infrequency with which the com-

plete operation has been done is probably referable to a surgical timidity, to a belief that its performance renders the operation unduly difficult for the surgeon or dangerous to the patient, and though this was, I confess, my own earlier opinion I have been converted to the opposite view by a wider experience and I think an improved technic.

My first nephroureterectomies were done by removing the kidney through a low anterior incision between the ilium and the edge of the ribs, and detaching the ureter from its surroundings with the hand by touch alone until the vaginal vault was reached, puncturing the vault with a pair of scissors, pushing the disinfected end of the divided ureter into the vagina and completing the operation from below; but the blindness of this procedure, the danger of breaking a friable and infected ureter, the difficulty of detecting an accidental tear of the peritoneum and the occasional great difficulty in forcing a passage through the base of the broad ligament in this blind manner soon led me to the use of a second incision for the ureterectomy along the edge of Poupart's ligament; and then gradually to the large wound formed by the juncture of these two incisions, which I soon found was necessary for difficult cases; then came the attempt to lessen the size of the enormous wound so inflicted by the use of retractors to enable me to limit its lower extension, and the facility of exploration so gained, led finally to the sudden perception that the use of the pillow, traditional to nephrectomies was the chief obstacle to the ureterectomy (if not to anterior nephrectomy as well), and so brought me to the adoption of a dilation-by-gravity posture and the procedure which I now use.

The patient is placed upon her side on a hard table with the legs extended nearly in line with the body, and she is rolled as far backward as is possible without losing negative pressure in the abdomen, the existence of negative pressure being shown by the appearance of a transverse concavity in the outline of the abdominal wall. The greater the amount of abdominal adipose the farther backward the patient may be rolled without losing the advantage of gravity, a thin patient getting it best when almost exactly on the side, while a stout patient must be rolled a little backward and may even need to have the hips raised from the table by a cushion that the abdomen may be left pendant. (The position of advantage is not always easy to attain, and the matter of the best position for the individual patient must be studied carefully.)

The position having been ascertained, the patient is wedged carefully in that position by small, hard pillows adjusted against the back, and may sometimes need the hand of an assistant or a strap around the upper thigh to prevent her shifting. Considerable care is necessary in effecting the position, and its maintenance must be watched throughout the operation. If the make of the table permits, it should be so tilted that its foot is somewhat higher than its head end. The patient being in position, and the operator standing or sitting facing the abdomen, the incision should begin about half an inch in front of the lower costal cartilages, running downward and outward in a line parallel to their edge, to terminate about on a level with the anterior superior spine of the ilium, and about an inch inside it, *i. e.*, toward the median line of the abdomen. The upper point should be so selected that the incision when made is about three and a half inches to four inches long. As soon as the division of the three layers of the abdominal muscles and transversalis fascia has exposed the retroperitoneal fat, the knife is laid aside. The forefingers then separate the peritoneum from the abdominal wall backward until the perinephritic fascia and kidney are recognized by the touch. A short abdominal retractor is then made to elevate the posterior edge of the wound below the ribs, when, under the influence of gravity, the cavity opens widely, and the delicate perinephritic fascia being recognized both by sight and touch, is seized by long artery forceps and torn widely by the fingers to a length sufficient to expose the kidney thoroughly. The kidney is then freed by the fingers from the perinephritic fat and adhesions, if any, in which it lies imbedded, the retractor is removed from the wound, and the anterior edge being pressed downward, if the vessels are of normal length, the kidney is usually easily delivered by pressure behind it through the abdominal wall, especially if guided by the fingers in the wound into such a position that it will present by one pole, and that its pedicle will lie at the upper angle of the wound.

In the occasional case in which the vessels which form the pedicle of the kidney are so short as to prevent its easy delivery, if it is pressed toward the posterior side of the cavity and at the same time gently elevated (*i. e.*, drawn upward as

the patient lies upon the table) by two fingers of an assistant, the renal vessels will be brought into view lying below the tumor, *i. e.*, toward the median line, and may then be tied and divided in situ. So far the operation varies from the ordinary nephrectomy through an anterior incision only in that the separate structures may be readily recognized by sight and that in the case of a short pedicle it is easy, instead of difficult, to tie the vessels in situ. After the delivery of the kidney and the division of the vessels, the kidney should be fastened to the edge of the incision by including the stump of the renal vessels and a bit of skin at the edge of the wound in the grasp of an artery forceps in order to prevent the weight of the kidney from dragging injuriously upon the ureter during the remainder of the operation. If the position has been well taken the large cavity from which the kidney was removed now opens widely and can be inspected throughout as easily as if it were a surface wound, for hemorrhage or ragged shreds of tissue which, if found, should be removed to promote first intention.

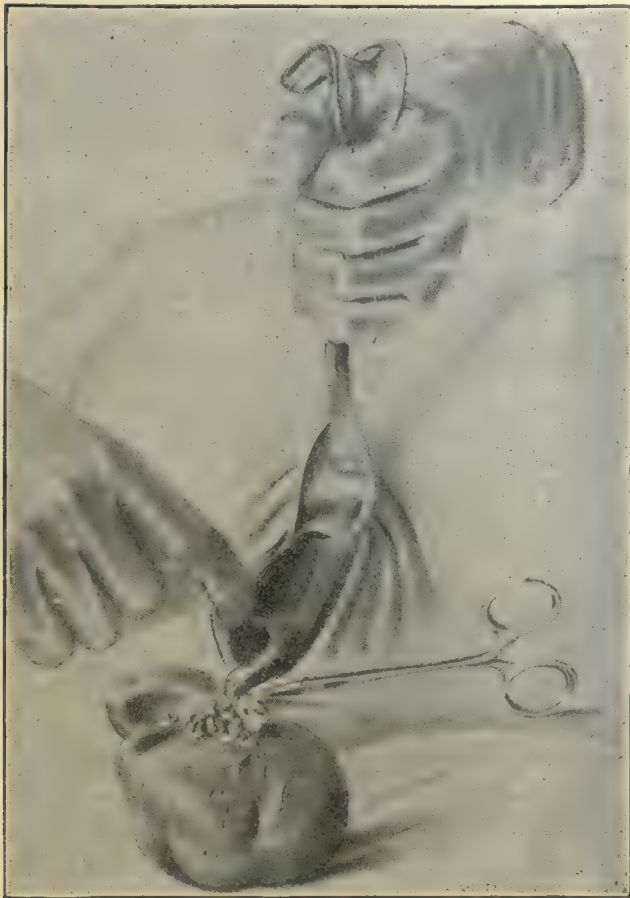
In a recent case in which I injudiciously attempted to deliver a large kidney with a rather short pedicle without first dividing the vessels in situ the renal artery tore across in the delivery of the kidney. The vein was immediately clamped and cut, and the retractor being reinserted and the clot scooped out, the large artery was seen projecting into the cavity and seized by forceps without the slightest difficulty or delay, a marked contrast to the difficulty with which the same accident is controlled when the cavity is not opened by gravity.

The operator's attention is now turned to the ureter. The fingers separate the peritoneum from the lateral abdominal wall along the course of the ureter, and with it as a guide, as far as it can easily be reached. Nothing is gained by freeing the peritoneum beyond the ureter and toward the median line, but on the outer side the separation should be very free, indeed, carried almost on to the anterior wall, both to gain working space and for a reason which will be apparent later. When this peeling process has been carried as far downward as is at first easy, a medium width Sims speculum with a flat and very long bill should be passed downward between the peritoneum and abdominal wall and made to draw the latter strongly upward, *i. e.*, toward the ceiling. If the position is good, this new cavity will at once become widely distended and the ureter will be visible, still attached to the peritoneum, to the point at which the separation of the latter from the abdominal wall is ended, which will probably be a little below the brim of the pelvis. (Fig. 1.) The free part of the ureter is now seized by the fingers, put lightly on the stretch, and detached from the peritoneum by stroking motions of the fingers as far as it is as yet visible. The pelvic peritoneum is next detached from the side wall of the pelvis as far forward as may be necessary to give working room and downward to the base of the broad ligament. This free separation of the peritoneum is necessary, because no finger is long enough to reach the base of the bladder from the lower angle of this wound if passed along the lateral wall of the pelvis. The bill of the speculum is next passed into this new cavity, pulling almost directly upward (the patient is still lying a little inclined toward her back), and as it is passed in, the peritoneum is watched carefully, and if necessary, freed sufficiently to do away with any danger of tearing it by the speculum. The freed portion of the ureter is then raised to the lower angle of the wound and again put lightly on the stretch, but this time, of course, diagonally across the lower cavity of the wound.

It is now kept stretched (very lightly) as the finger separates its lower end farther from the peritoneum. By this means as each succeeding portion of the ureter is freed from its attachment, it rises toward the wound along the side wall of the pelvis without ever being beyond the reach of the first and second fingers of the hand placed in the lower angle of the wound (an operator with short fingers will of course need a slightly longer incision than one whose fingers are long, but this difference is a trifling one). When the ureter has been freed to the point where it curves forward through the broad ligament, it is below the peritoneum, and the fingers must now separate the tissues about the ureter in a transverse direction, *i. e.*, in the direction of the muscular fibers of the broad ligament. These must be opened on both sides of the ureter widely enough to admit the end of the speculum and give working room. The tip of the speculum is then passed into this slit and opens it, and if the position is good, this can be done by sight. If the slit in the broad ligament made by the fingers is not readily visible, or if on opening it, the new cavity does not dilate, the position should be readjusted until successful gravitation is obtained. At first thought it would hardly appear as though the speculum would reach so far, but firm, downward traction on the speculum, *i. e.*, toward the feet, will move the angle of the wound far enough down to bring the junction of the ureter and bladder within reach of the speculum and finger. The ureter is again put cautiously upon the stretch, and on freeing it with the finger from the surrounding tissue, its junction with the bladder comes into view. The ureter should then be seized with forceps (preferably curved on the flat) at a point as close as possible to the bladder wall, the tips of the forceps projecting slightly beyond the ureter, so that a loop of silk or catgut can be passed beyond the tips of the forceps and made to tie the ureter tightly just where it enters the bladder. If the position is good, and sufficient room has been made, it is now easy to pack a little gauze about the ureter, shift the forceps a quarter

of an inch away from the ligature, cut the ureter below the forceps under the guidance of the eye, and disinfect the stump with a drop of 95% carbolic as it lies in the midst of the gauze. During this process, however, slight traction must be maintained upon the ligature lest the cut stump should slip out of sight behind the gauze, hence the necessity for a very tight tie, and a fairly long stump above it. The position of the patient being good, it is now easy to inspect the whole wound from the ribs to the bladder, and it should be carefully searched for bleeding points and ragged pieces of tissue. As all the separation has been by tearing, the wound is likely to be wholly dry by the time the operation is completed, but ragged shreds of tissue should be carefully searched for and removed. If this is done, the wound may usually be sewed up without drainage and first intention confidently looked for, except, perhaps, in one class of cases which is to be mentioned in a moment, but before the last stitches are tied the abdomen should be strongly compressed by an assistant to expel air and close the cavity. After the wound is closed and the patient on her back, the sides of the wound are in contact and will rapidly catch together. Surprisingly little shock or traumatic reaction follows.

In those advanced tuberculous cases in which even the lower part of the ureter is enlarged, friable, and imbedded in



Nephroureterectomy.—Delivery of kidney and exposure of ureter.

dense and friable inflammatory tissue (probably often more or less infected from within) it is often necessary to resort to the long incision along Poupart's ligament in order to avoid tearing the ureter and so infecting the surrounding tissues.

I have seen one case in which the ureter was so far diseased that it broke whenever it was touched (Case I). In such a case there is of course no escape from infection, and it is probably safer to prolong the incision downward almost to the pubes in order to bring the whole natural course of the ureter within easy reach and then to open widely into the vagina for drainage.

In this class of cases I am inclined to believe in always opening the vaginal vault for drainage, and when an enlarged and thickened vesical end of the ureter is easily palpable from the vagina before operation the procedure of Bovée and Montgomery, who free the lower end of the ureter per vaginam before making the abdominal wound is worthy of consideration, both because the vault must be opened eventually for drainage, and because in this class of cases the last part of the operation from above is always decidedly difficult, as it is not in cases in which the ureter is fairly strong.

Even in these cases the use of dilation by gravity is of great value in the remainder of the operation, and in operating for other suppurative disease and for the large majority of tuberculous cases in which the lower end of the ureter is comparatively normal, I think that the complete operation from above under gravity dilation will be found at once a far less severe operation than the older method of dissection through a large wound; and more rapid, safer, and more conducive to first intention than ureterectomy by the combination of the vaginal and abdominal routes.

Bovée's¹ article of a year ago in which he reports 17 cases of complete nephroureterectomy, 15 of them American, as being all the reported cases which he can find in the literature of the world, is my reason for adding to this paper a report of seven complete operations, which were not included in his list, but since several of the cases have been already reported in another connection I here economize space by giving only the operative details in full. I omit all cases in which the ureterectomy was incomplete or done at a second sitting for persistence of symptoms. I have had no mortality from the operation.

CASE I.—Mrs. A. L. S., aged 37, was sent by Dr. C. E. Parker, of Princeton, Mass. Family history of tuberculosis. She has had tuberculous glands in the neck, and has an ankylosed hip. Urinary symptoms have been of only 10 months' duration. She is weak and thin. On examination, tuberculous patches were found in bladder, and tubercle bacilli in bladder sediment. There were tubercle bacilli and very little evidence of renal activity in right ureteral urine. Left ureteral urine normal. Operation March 27, 1900. Kidney exposed by posterior incision. Very firmly imbedded in friable adhesions which oozed freely when touched. In bringing it to the surface the ureter was torn off. After removal of the kidney, the ureter was found a mere mass of tuberculous material as large as the thumb, breaking whenever touched. Incision extended nearly to the pubes along Poupart's ligament, peritoneum was peeled back, ureter exposed during its entire length, and removed piecemeal. Vaginal vault was opened, wound packed with gauze. Profound infection of the wound was gradually recovered from. Patient went home in four months in very good general condition, with the wound nearly healed, but a small fistula still persisting. Urinary frequency was much decreased. Pain absent. The fistula failed to heal, and after 15 months' persistence opened into the intestines, forming a dissecting digestive fistula, probably connected with the duodenum. The discharge contained abundant tubercle bacilli, and she died of general miliary tuberculosis of the intestines about two years after operation. The case was an unfavorable one, but the nephroureterectomy was justified by the relief from continual and tormenting suffering which was obtained.

CASE II.—Mrs. J. H. W., aged 56, was seen with Drs. Franz Pfaff and E. P. Gerry. Family history negative. Urinary symptoms of many years' duration, the patient unable to remember the beginning of frequency. For two years almost incessant suffering from urination. Patient thin, worn, and mental condition suspiciously near melancholia from excessive suffering. On examination chronic general inflammation of bladder of low grade. Right ureteral orifice impervious to small catheter. Not examined with filiform. Bladder urine showed large amount of pus, numerous degenerated renal cells, hyaline and granular casts, some with renal cells, blood, and fat adherent. Left ureteral urine normal, except for an occasional hyaline, granular and brown granular cast, some with renal cells adherent. Urea 1.77% as opposed to 1.01% in the mixed urine. Operation June 4, 1901. Kidney exposed by anterior incision, vessels tied off outside. Ureter dissected to brim of pelvis through this incision, a second incision made along Poupart's ligament, ureter, which was thickened throughout, rapidly freed to the bladder, vaginal vault opened, and cut end of ureter passed into vagina. At this moment the patient collapsed very badly, although only 35 minutes had elapsed since the beginning of the first incision. For a time death on the table seemed imminent. A few provisional sutures were hurriedly passed into the edge of the incisions, the wounds and vagina were packed with gauze, and the patient put to bed. Under large doses of strychnin she finally reacted, the gauze was removed and the stitches tied in 48 hours. The convalescence was apyretic, the wound united by first intention throughout. At the end of a week she was etherized and the stump of the ureter divided against the bladder wall, but the wound in the vaginal vault was left open, as there were slight evidences of suppuration about it. From this time on the patient absolutely refused any further vaginal examination, and two weeks later passed into an acute mania, with violent aversion to me, so that I did not see her again. She gradually recovered from her mania. She was much troubled with urinary frequency for about a year, at the end of which time it spontaneously grew better, and she has since been entirely well. The kidney, examined by Dr. William F. Whitney, showed nothing but chronic diffuse nephritis. The ureter,

¹American Gynecology, April, 1903, Vol. xi, No. 4.

which, owing to the collapse, was left in the vagina attached to the bladder, was necrotic when removed. It is, however, probable that the inflammatory condition was localized about the lower end of the ureter, and it is possible that a vaginal resection of this portion of the ureter would have answered all the requirements of the case, but the patient's mental condition precluded any more careful study before operation, and in the opinion of her physicians, as well as my own, rendered it imperative that she should have prompt relief from her incessant suffering by whatever surgical method was likely to be most certain in its results.

CASE III.—Miss M. P. P., aged 11, was sent by Dr. E. S. Wood. Family history good; no previous tuberculosis. Present symptoms of 10 months' duration. General condition good. On examination bladder was found generally inflamed; several tuberculous looking ulcerations. Blood, pus, and abundant tubercle bacilli in the sediment. Guinea-pig was inoculated with positive result. After three months' treatment of the bladder there were still some tuberculous areas. Patient was sent into the woods to live in the open air under the care of a nurse and to return for further treatment in the autumn. On her return the bladder was much improved, and after a short period of local treatment was rendered normal. The ureters were then catheterized. The left ureter yielded a normal urine, the sediment of which was inoculated into a guinea-pig with absolutely negative result. Catheterization of the right ureter yielded no result, the catheter clogging with blood, but as the bladder and left kidney had been shown to be normal, while the mixed urines still contained large quantities of pus, blood, and tubercle bacilli, the disease was thought to have been satisfactorily located in the right kidney. January 22, 1902, right kidney was exposed by anterior incision and removed very much enlarged. Large, hard, extensively diseased ureter was exposed nearly to the bladder through a second incision along Poupart's ligament; but the small size of the child's abdomen and pelvis rendering it difficult to dissect out the lower part of the ureter through this wound, the two incisions were made into one. The ureter was tied off against the bladder wall, the stump disinfected, and the wound sutured from end to end. First intention and prompt recovery followed. The patient was sent to the mountains of North Carolina to live in the open air, where she rapidly regained health and strength. She again spent the summer in her camp in the Maine woods. In October, 1902, a guinea-pig was inoculated with the sediment of her urine with negative result, and an examination of the bladder a little later showed a few slightly inflamed areas, but no evidence of tubercle bacilli. These rapidly disappeared under treatment, and she has maintained good health. The kidney and ureter were examined by Dr. William F. Whitney, and proved to be very extensively broken down by characteristic tuberculous disease.

In September, 1903, she returned to school, and in December consulted me for a slight limitation in the motion of the right hip. As this was evidently of psosatic origin I referred her to Dr. R. W. Lovett, who thought it necessary to immobilize the hip. It finally proved to be an extraperitoneal abscess along the tract of the ureteral scar. The tissues had undoubtedly been extensively infected and the return to school probably resulted in the recrudescence of some quiescent tubercle. Large quantities of pus were evacuated, she was sent into the woods again, and under open-air care is now once more in good condition.

CASE IV.—Mrs. F. F. P., aged 39, was sent by Dr. Richard C. Cabot. Family history good. No previous tuberculosis. Duration of urinary symptoms, two years. General condition good. On examination bladder was found generally inflamed, a few small tuberculous-looking spots. Pus and abundant tubercle bacilli in the urine. After three months' treatment of the bladder it was substantially normal. The ureters were catheterized. The urine from the left kidney showed no pus, and the sediment was normal with the exception of an occasional hyaline or brown granular cast. The urine from the right kidney was full of pus and tubercle bacilli. On September 19, 1902, the right kidney was removed by anterior incision, the vessels being ligated *in situ* (this was done by the use of the retractor, but with difficulty in reaching the vessels, owing to the bulging of the peritoneum into the wound, the patient lying on the pad). The kidney having been delivered, the ureter was found very much thickened, about the size of the little finger. The incision was continued downward to about the middle of Poupart's ligament, the retractor being used for the exposure of the lower part of the ureter. (In dissecting the lower portion of the ureter free partial dilation by gravity was obtained in spite of the presence of the pad. This case was the one which suggested the change of method.) The ureter was tied off below the broad ligament, but slightly above the bladder, stump disinfected with carbolic, wound sewed up throughout, but small wick left to end of ureter and removed the next day. First intention throughout, rapid recovery from operation. Eight weeks later, urinary frequency continuing, bladder was again examined and found tuberculous. After three months' treatment, nothing further seen in bladder, but inoculation of guinea-pig proved slight trace of tubercle still existed. After much study tuberculous pus was found persisting in lower end of the right ureter, *i. e.*, the intermuscular portion and about a half inch above it (left at time of operation). This was carefully cauterized with a small bead of silver nitrate fused on the end of a fine wire. This patient still suffers somewhat from a contracted bladder, due undoubtedly to long-continued

inflammation, but inoculation of a guinea-pig with the urinary sediment has been twice negative, and the patient is today in a most satisfactory state of health.

CASE V.—Miss B. W., aged 15, was brought by Dr. A. L. Miner, of Bellows Falls, Vt. Family history good. Urinary symptoms of 10 years' duration. General condition good. Catheterization of ureters showed large hydronephrosis on the left side; right kidney normal. September 29, 1902, patient was placed on right side without pad, and in dilation posture. Four-inch incision was made along margin of ribs to point one inch anterior to anterior superior spine. Kidney was found flaccid, soft, and very thin. Ureter was much dilated from the pelvis of the kidney to within an inch of the bladder. Dilation of wound by gravity was easily effected. (Hydronephrotic cases are especially well adapted to this procedure.) Ureter was dissected out with ease until the bladder wall was brought into sight, tied off with catgut, divided, and treated with 95% carbolic; wound closed, with the exception of gauze wick to stump of ureter (unnecessary), removed next day. First intention throughout. Rapid recovery and continued good health. Specimen was sent to Dr. William P. Graves. Pathologic diagnosis, hydronephrosis.

CASE VI.—Miss B. B., aged 34, was seen with Dr. F. B. Harrington, of Boston, and George W. Ewing, of Peabody, Mass. Family history negative. Urinary symptoms of one year's duration. Abundant tubercle bacilli in urine. On examination trigonum was found thickly dotted with small papules, probably tuberculous. Both ureteral orifices were obscured by marked inflammation of trigonum. Remainder of bladder essentially normal. Vesical end of left ureter palpable. After nearly two months' treatment, trigonum was sufficiently normal to make ureteral orifices visible. Ureters catheterized. The right ureteral urine was normal, the left contained much degenerated pus and abundant tubercle bacilli. Operation, June 1, 1903. Enlarged kidney exposed by anterior incision with gravity dilation. Pedicle was thought to be long enough to warrant delivery, but in the manipulations the renal artery was torn across; vein clamped and cut, artery readily found spouting into wound. Ureter much dilated, evidently containing considerable amount of fluid, friable, and very adherent, separated with considerable difficulty to junction with bladder, lower two inches imbedded in friable, tuberculous-looking material. Friable condition of ureter necessitated moderate downward extension of wound. Vaginal vault opened, ureter turned into the vagina and divided against bladder wall. On account of nature of periureteral tissues, wound was packed with gauze from above and below; no sutures. Gauze removed in 48 hours. Wound suppurated throughout, and the patient has passed through a sharp attack of sepsis with for some days much intestinal distention, but her condition never gave me anxiety; healing by granulation was rapid; she was markedly free from further urinary symptoms, and is today in the best of health.

CASE VII.—R. M., aged 35. Free Hospital for Women. Urinary symptoms seven years. General condition good. On examination, bladder normal; urine from left ureter normal; urine from right ureter, much pus, numerous plasma cells and renal cells, many pseudocasts; examination for tubercle bacilli negative. Operation March 3, 1903. Dilation posture. Anterior incision three inches. Kidney delivered through opening, and renal vessels tied outside. Peritoneum peeled away along course of ureter and ureter freed as far as broad ligament. Layers of broad ligament separated and surface of bladder exposed. Ureter tied off close to the bladder with chromicized catgut. Stump cauterized with carbolic acid. Muscles sutured in layers with silk. Skin wound closed with subcutaneous catgut stitch. Length of operation, one hour. Normal convalescence. Discharged from hospital April 5, well. Patient now reports excellent health, with marked gain of weight and strength. Pathologic diagnosis, pyonephrosis, with stone in pelvis.

THE SOCIETY OF SANITARY AND MORAL PROPHYLAXIS: ITS OBJECT AND AIMS.¹

BY

PRINCE A. MORROW, M.D.

of New York City.

Emeritus Professor of Genitourinary Diseases in the University and Bellevue Hospital Medical College, New York.

We have met here, this evening, for the purpose of discussing the wisdom and expediency of forming a Society of Sanitary and Moral Prophylaxis. The object is to organize a social defense against a class of diseases which are most injurious to the highest interests of human society. A free discussion is, of course, an essential preliminary to any well-considered action, especially when such action proposes to deal with what is confessedly the most difficult of all the problems of social hygiene. Practical prudence demands that we should

¹ Read at the inaugural meeting of this Society at the New York Academy of Medicine, February 9, 1905.

fairly face these difficulties and give due weight to their consideration.

It would be presumptuous in me to attempt to define—certainly to limit—the scope of work of the proposed society. I shall endeavor to indicate as briefly as possible the lines along which this prophylactic work may be undertaken, and direct attention to certain measures which are available and promise to be effective in limiting, at least, the evil we wish to prevent.

First, as to the motives of this movement.

Within the past few years there has been a marked awakening of interest on the part of the medical profession in the prophylaxis of the class of disease comprehended under the general term "venereal." This increased interest has been due to a more accurate knowledge of the enormous extent and prevalence of these diseases, to a more thorough comprehension of the wide range and far-reaching character of their pathologic effects, and especially to a clearer recognition of their important relations to the health and productive energy of the family, the vitality and the vigor of the descendants and the physical progress of the race.

Two International Congresses for the prophylaxis of syphilis and venereal diseases, in which every civilized country of the world has been represented, have been held in the city of Brussels. These deliberations crystallized into the conviction that the system of reglementation employed in most continental countries was insufficient as a means of prevention, and that the whole subject should be studied anew, from a broader standpoint and with special reference to the social conditions involved in the causation of these diseases. Especial recognition was given to the fact that moral as well as medical issues were involved in the problem of prevention.

It was recommended by the last Congress that societies of sanitary and moral prophylaxis should be organized in all countries for the study of the best means of every order—moral, legislative, social as well as medical—to be employed in the prophylaxis of these diseases. Such societies have been organized in various countries—Germany, France, Italy, Spain, Holland, etc.

I had the honor of being delegated by the Secretary-General of this Congress to form a similar society in this country. The difficulties encountered have been too numerous to specify. Efforts have been directed chiefly to an exposure of the social danger of these diseases, especially those which flow from their introduction into marriage, with a view of developing a sentiment in favor of this prophylactic work.

One word as to the need of such an organization.

I shall not expatiate upon the pathologic importance of these diseases as a danger to the public health, but direct attention for a moment to one phase of venereal morbidity which gives to these diseases their superior significance as a social danger. I refer to infections in marriage—a class of infections to which the qualitative "criminal" applies with especial fitness.

Dr. William Osler, of the Johns Hopkins Medical School, than whom there is no more clear-headed or conservative authority—in a recent article on preventive medicine, describing the infectious diseases which are the greatest scourges to the human race, such as cholera, yellow fever, smallpox, pneumonia, tuberculosis, leprosy, etc., says of the group of venereal diseases:

"These are in one respect the worst of all we have to mention, for they are the only ones transmitted in full virulence to innocent children to fill their lives with suffering, and which involve equally innocent wives in the misery and shame. Physicians and the public have each solemn duties in this matter . . . etc."

The social danger from this source is magnified by the frequency and gravity of marital infections. Four-nier's statistics, embracing women from every walk of life, show that no fewer than 20%, or one in every five, of all women having syphilis, were infected by their husbands soon after marriage. The frequency of gonor-

rheal infection in married life cannot be computed, but we can form some idea of its gravity from the number of women whom it makes subjects for the operating table. Dr. Grandin, of this city, has recently stated that gonococcic infection is responsible for 60% of all gynecologic operations performed by surgeons.

A prominent gynecologist said to me recently: "I have just completed my four hundredth hysterectomy—most of them for suppurative pelvic inflammation. I am positive that fully 75%—almost all of them in married women—were the result of gonorrheal infection."

Physicians are habituated to these horrors, and accept them as the deplorable, but inevitable, experiences incident to their professional work. The public never hears of them.

It is evident that these diseases will continue their ravages, poisoning legitimate unions, and wrecking the health and lives of innocent women and children, unless some effort is made to arrest their spread. It is vain to look to our constituted authorities to take the initiative in this prophylactic work. Each incoming administration of the Health Department, with a facile acceptance of the policy of its predecessors, looks upon these diseases as a sort of "*noli me tangere*"—something not to be touched, to be left severely alone. Officially, these diseases do not exist.

This statement of fact is not intended as an arraignment of the health officials for dereliction of duty; there is some justification for this policy of inaction. Obligatory notification, which is the first essential to any scheme of sanitary control, does not appear practicable. The causes and communicative mode of these diseases cannot be reached by the health authorities. Sanitary methods find their especial application in dealing with environmental conditions which are beyond the reach of the individual. But in this class of diseases the cause is within the control of the individual. Prevention is, therefore, largely a question of personal hygiene, of individual prophylaxis. The moral effect of this sanitary nihilism is, however, unfortunate, as the public is apt to base its estimate of the significance and danger of infectious diseases upon the attitude of the health authorities.

In view of these facts it is not surprising that there exists among many members of the medical profession, who are fully alive to the significance of this peril, a feeling of pronounced pessimism as to the utility of preventive measures. They are discouraged in advance; they say: These diseases have always existed, they will always exist, it is vain to attempt to exterminate them. To this it may be answered, that because we cannot hope to exterminate an infectious disease, we should make no effort to limit its spread. Whatever may be the ideals of sanitary science, the practical result of preventive measures is mitigation, rather than extermination of disease.

It should be remembered that only a few years ago this same spirit of scepticism was manifest in regard to the prevention of tuberculosis. It was thought impossible to control a disease, the contagion of which was effected in the ordinary relations of family and social life; and its obligatory notification was opposed by the medical profession. But an aggressive campaign was instituted, the people were enlightened as to its dangers to the public health, and the special means by which the disease germs were spread. Sanatoriums with increased facilities for treatment were provided, with the result that already its spread has been arrested and its mortality largely diminished.

It is precisely along these lines that the prophylaxis of venereal diseases should be undertaken. It should be a campaign of education, a crusade against ignorance.

It may be said that there is one peculiarity in the communicative mode of venereal diseases which would seem to render them especially susceptible to educa-

tional prophylaxis, namely, the element of volition in their causation.

Other infectious diseases are communicated unconsciously and involuntarily, but the man who contracts a venereal disease voluntarily exposes himself to contagion. It is by his voluntary act that the infection is carried into married life and communicated to his wife and children. It is communicated ignorantly, perhaps, but nevertheless by the free will and act of the individual. An intelligent prophylaxis demands that we bring to bear inhibitory influences and agencies, which act upon the volition, the *morale* of the individual. In other words, they must be addressed to his intelligence and moral sense.

Another special indication for this education comes from the fact that there exists in all classes of the public the densest ignorance, as to the danger of these diseases and their modes of communication, direct and indirect. It is the testimony of all physicians who have had the largest experience, that ignorance is responsible for a large proportion of exposures to infection, especially among young men, and for a still larger proportion of the infections communicated in married life.

As the educational feature is of the greatest importance, I may be pardoned for indicating methods, which may be modified or improved by the more mature deliberation of this society.

This education should be addressed, first of all, to the rising generation. It is designed as a preservative against exposure. What should be its character and scope? Certainly young men should not be taught all there is to be known; only that which they should not be ignorant of. There is no greater illusion than that the mind of the average young man, no matter how innocently or rather ignorantly he has been reared, is a blank page so far as matters of sexual life are concerned. In the absence of sound sanative and wholesome knowledge the seeds of error are implanted by older and dissolute associates, and yield dangerous fruit. The two most dangerous errors to be counteracted are, so far as exposure is concerned, first, the idea almost universally prevalent among young men that sexual indulgence is a physical necessity, essential to their health. They should know that continence is compatible with the highest physical and mental vigor. Physiology clearly teaches this, and the experience of athletes, sportsmen, scholars and others is absolutely conclusive upon this point. They should be taught that the reproductive function is given for a higher purpose than mere sensual gratification, that it is susceptible of control, discipline and proper direction.

The second dangerous error, is the ignorant contempt for venereal diseases. They should be taught the veritable danger of venereal infection, that it may entail the most serious and far-reaching consequences, which may ruin their health and unfit them for marriage. Also they should be impressed with the imminence of this danger, that it is almost inseparable from intercourse with bad women, since practically all are diseased.

So far as the communication of these diseases are concerned, they should know that they are contagious during a prolonged period, that they are contagious after apparent cure, when active manifestations have ceased. They should also know the multiple modes of syphilitic infection and its hereditary consequences. In this connection it may be said that a knowledge of the communicative mode of all preventable diseases, tuberculosis, typhoid fever, etc., should form a part of the general education of the community. This sexual education should be progressive and adapted to the age of the individual. To be effective as a preventive of exposure, it should be timely and imparted at an age before exposure is likely to take place.

What are the difficulties in the way?

The chief obstacle to the dissemination of this prophylactic enlightenment inheres in the very name and nature of the diseases themselves, or rather in the

atavistic impregnation of the public mind with the idea that the knowledge of the reproductive system and its disease is shameful and even demoralizing, that such knowledge is not proper or fitting for the young. The entire system of our educational machinery is organized upon a basis of silence and secrecy in regard to the reproductive function which, from a biologic point of view, is the most important function of the human body. It would appear that the aim of parents and instructors is to give the young, when launched into the world, a brevet of ignorance of all matters pertaining to sex and sexual hygiene.

But a sentimental objection, based upon conventional prejudice does not constitute a valid obstacle. The practicability of movement is demonstrated by marching; the practicability of this prophylactic education has been demonstrated in other countries, it may be done here.

For this purpose our educational institutions should be utilized. The teaching of sexual physiology should form an integral part of the course of instruction of boys in the higher grade of our public schools. The teaching of alcoholic physiology is made mandatory by the law in every public school in the United States; certainly a knowledge of sexual physiology is no less important.

To the young men of our colleges and universities, a chapter on venereal pathology should be added to that of physiology. All that is essential for the student to know may be communicated in a single lecture, and this most authoritatively by a medical visitor appointed for that purpose.

It is evident, however, that education through this agency will only reach a limited class. It should be made available to the great body of young men of the working class and the larger general public. This education must be collective and conveyed through lectures and conferences, by means of pamphlets, tracts, printed slips, and other agencies for reaching the public.

The medical profession cannot alone and unaided accomplish this educative work. Physicians possess the scientific knowledge, but for the practical application of this knowledge—to disseminate it among the people, where it is most needed, and where it will be productive of good, the consent and cooperation of the public is required. In this educational propagandism much can be accomplished by the physician in his individual capacity, but his opportunities are limited. Certainly the public can never be enlightened by papers read before medical societies and through discussions in medical journals.

All these facts emphasize the need of organizing a society, which shall be the medium of communication between the medical profession and the public, a center for the diffusion of this enlightenment. It should disseminate dignified and discreet literature containing the needed information, clothed in simple language and intelligible to the layman. This should be impersonal, bearing the seal of the society's approval and the stamp of its authority.

No one indulges the illusion that education will prove an infallible preventive of incontinence, but it is confidently believed that it will prevent a vast number of ignorant and reckless exposures, especially among the young. Its chief value will be in safeguarding marriage from the introduction of these diseases by men who are ignorant that they are bearers of contagion.

Prophylaxis by Treatment.—I shall touch but briefly upon this purely medical measure, the value of which in arresting the spread of venereal diseases by sterilizing sources of contagion is fully appreciated by the profession. The special danger of these diseases is that they are contagious during a prolonged period—syphilis for two or three years, and chronic gonorrhea practically indefinitely. Not one in 10 of venereal patients is sufficiently treated or definitively cured. Efficient treatment shortens the contagious period, and prevents numberless infections. Venereal patients are now de-

barred from general hospitals; no special hospitals are provided, and the dispensaries are insufficient and inconvenient, and for many patients prohibitory. When the conditions of treatment demand that a patient should give up half a day, which is often equivalent to a loss of his position, he is apt to go without treatment. To meet the necessities of such cases, night classes should be held, and every encouragement by free and gratuitous treatment to the poor should be given—not, perhaps, so much in the interest of the individual patient, as in the interest of others whom he might infect from his uncured disease. In protecting the individual by vaccination, we protect the community from smallpox; in sterilizing the syphilitic by treatment, we protect the community from the great pox.

Moral Prophylaxis.—Venereal diseases are the only diseases which have a moral, or rather an immoral basis. Moral as well as medical means are concerned in their prophylaxis. Unquestionably the most valuable measure is the correction of immorality, which is the cause of these diseases. In this prophylactic work there is between the clergy and the medical profession identity of aim, mutuality of interest, and there should be cooperative action. In other words, moral training should be reinforced by hygienic training, their interdependence cannot be too strongly insisted upon. Many of our college presidents have begun to recognize that hygienic education forms a part and a most essential part of the moral training of young men. Religious teaching can be safely committed to the clergy, but it is observed that as human nature is constituted, an appeal to the spiritual or ethical side of a young man's nature is less likely to prove effective than an appeal based upon hygiene or the care of his health. The injury to his moral nature the individual may not be sensible of, but he may be painfully conscious of the physical injury, which is something material and tangible—something to be feared. In all matters relating to the functions of the body, or their exercise under conditions which cause disease, the individual is more susceptible to considerations of a hygienic character.

Many excellent members of the clergy do not sympathize with this movement, because they look upon "the diseases of vice as the best guardians of virtue," but under existing conditions of ignorance are they guardians of virtue? We have only to look at what Bishop Gaylord has termed, "the amazing and unparalleled existence of vice in young men of college and university schools" as an answer. The only way to make these diseases effective guardians of virtue is to expose their true significance and real danger, to substitute a wholesome fear, for the ignorant contempt in which they are now held, the fear of infection, the fear of microbes, to appeal to an enlightened self-interest. After all, fear is the protective genius of the human body, and the basis upon which all hygienic precepts are inculcated.

Social Prophylaxis.—There can be no comprehensive system of prophylaxis which does not take cognizance of the chief agency by which these diseases are propagated. Prostitution is the chief source, the hotbed in which these diseases germinate, and from which they are transplanted into family and social life. This society does not embrace in its objects the legalization of prostitution or the sanitary surveillance of prostitutes with a view to making fornication safe. Prostitutes should be treated and cured, if possible, like all victims of these diseases, but the State in issuing a certificate of health, which is equivalent to a license to practise this vocation, proclaims the doctrine unhygienic, as it is immoral, that debauchery is a necessity for men.

I have alluded to this point only because I have found that the lack of sympathy with this movement on the part of the influential moral element of the community is based largely upon a distrust—not so much of our motives as of the methods to be employed. Instinctively,

the prevention of venereal diseases is associated in their minds with reglementation. Apart from objections on moral grounds, this system is condemned by its practical results. In principle, it attempts the solution of a problem by ignoring the principal factor in the equation. Its practical defects are that the medical examination fails to detect disease; the detention in the hospital is insufficient for a cure; those cured are incessantly reinoculated; not more than 10% of public women can by any possibility be subjected to sanitary surveillance; it fails to reach the larger and more dangerous class of clandestine prostitutes, and it entirely ignores the masculine spreader of contagion.

The key to the solution of this problem is not to make prostitution safe, but to prevent the making of prostitutes. From this point of view the study of the underlying causes, the bad social conditions, of which prostitution is largely the product, would properly come within the scope of this society's work; also the auxiliary causes, the affluents and active agencies of prostitution, proxenetism in its various manifestations, the cadet system, the white slave trade, the purveyors of prostitution, under whatever guise they work.

The making of prostitutes can be prevented by throwing additional safeguards around female minors, especially unprotected girls, as well as by establishing reformatories and homes for the reclamation of women who wish to reform. Every woman reclaimed from this life, in addition to her social salvation, represents the suppression of a possible source of numberless contaminations of others. I should also add that it is no less important to safeguard male minors. The evil of prostitution can never be corrected so long as the morals of young men are considered a negligible quantity, and the "sowing of wild oats" is recognized as a harmless and pardonable pastime.

This society should concern itself with the repression of social institutions, which are distinctly evil in their tendencies, such as the Raines Law hotels, which are an example of bad legislation, that in attempting to correct one evil, has substituted another infinitely worse. There is no more powerful agency in the ruin of young women; they furnish not only opportunity and convenient accommodations, but alcoholic drinks, to which a large proportion of men and a still larger proportion of women owe their initial debauch.

It will be seen that the prophylaxis of these diseases is preeminently a socio-sanitary problem, complicated with all the complex interests of our social life. Health, morals, sex relations, economics, are involved. Like all social problems it should be treated upon the basis of scientific sociology. Facts should be collected, causes and conditions carefully studied, their value and real significance determined and the resulting knowledge should be used to educate public opinion, for we must recognize that evils depending upon social conditions can only be corrected by the cooperation of the community at large. Experience proves that such social work can best be accomplished by an association of private individuals in a corporate capacity.

As I have elsewhere said: "In a sanitary movement which is complicated by so many varied social interests, the united and associated effort of all the social forces that work for good, is essential. We should enlist the cooperation of the heads of schools and colleges who are entrusted with the education of the young and who can institute needed reforms in the system of instruction; of the clergy who can render invaluable aid in the moral training of young men; of jurists who can intelligently frame legal measures of protection; of sociologists who can render material service in remedying social conditions which favor the spread of these diseases; of philanthropists and public-spirited men generally."

In Germany the Society of Sanitary and Moral Prophylaxis numbers nearly 4,000 members, with 20 branches; in France it has nearly 1,000 members. Both

these societies include in their membership ministers of State, high public functionaries, priests, clergymen and men engaged in social work beside practically all medical men of prominence in any department of medicine.

This brings us face to face with the final difficulty which, it is hoped, will disappear, when our objects and methods are better understood. Can we secure the co-operation of the best lay element of the community, the men who make and mold public opinion? It must be confessed that there is on the part of even the most public spirited of these men a decided disinclination to personal engagement in this work, and yet their cooperation is vital to the success of the movement. They say "these diseases do not interest us," "they are not respectable," "the whole subject is unsavory," "beside, the prevention of disease is the business of doctors." One might as well say that questions of morality concern only the clergy. We can arouse the interest of these men in our undertaking only by impressing upon them the humanitarian aspects of the situation. We must make an appeal based upon the protection of the innocent, who do not voluntarily expose themselves and who are powerless to protect themselves. We must show the magnitude of this peril as a social danger, a serious menace to that most important of all human institutions—marriage. The divorce evil has recently brought into especial prominence the importance of marriage as the fundamental basis of the moral and physical welfare of the nation. This subject now engages the thoughtful attention of high dignitaries of Church and of State. They view with the most lively concern the dangers which come from rupture of the marriage relation, but they entirely ignore the existence of diseases which defeat the supreme object for which marriage was instituted—the creation of the family, the raising of children—gonorrhea by its inhibitory influence upon conception, syphilis by its blighting and destructive effect upon the product of conception. The social aim of marriage is not simply the procreation of children, but of children born in conditions of health and physical stamina; it is to produce a race well formed and vigorous. Syphilis so vitiates the creative principle that the children who escape with their lives are dwarfed, degenerate, stamped with physical and mental inferiority, and capable of transmitting the same class of organic defects to the third generation.

In the further evolution of hygiene its office will not be restricted to the care of the health of the existing population, but embrace in its objects the health of the descendants. The final service of preventive medicine to humanity will be the prevention of the hereditary spread of disease by the sanitation of marriage. It is only by enlightening and hygienically advising the people, and by excluding from marriage diseases which unfit men and women for marriage and parentage that we can prevent the mass of disease and misery thus engendered in the descendants.

The first step in this hygienic departure should be the absolute exclusion from marriage of diseases which are transmitted in full virulence to the offspring and thus constitute the most powerful factor in the depopulation and deterioration of the race. This result, I believe, can be largely accomplished by that hygienic education which it should be the office of this society to disseminate among the people; and if this education prove insufficient, an enlightened public sentiment will doubtless sustain and sanction coercive legislation by imposing a penal responsibility for this crime. If this society can accomplish nothing more than to safeguard marriage from these criminal infections, the fulfillment of this humanitarian mission alone will amply justify its creation.

Finally, this society should be a permanent organization. In order to correct evils, which have so many elements of vitality and permanence, there must be put forth active, continuous, and sustained effort. The emotional waves of excitement which from time to time

sweep over the community and find expression in a campaign of violence against some revolting manifestation of vice do little permanent good. Violent measures, which are necessarily spasmodic and intermittent, always defeat the object in view.

This society should steer clear of the Charybdis of hysterical excitement on the one hand and the Scylla of cynical indifference on the other. Above all, it should turn on the searchlight of knowledge and dissipate the fogs of ignorance, which is the chief barrier to progress.

THE ABUSE OF PURGATION BEFORE AND AFTER OPERATION.¹

BY

I. S. STONE, M.D.,
of Washington, D. C.

Surgeon to Columbia Hospital.

SYNOPSIS.

Hypercatharsis should always be avoided. Its local and general effect. The "flat intestine" rarely necessary. A sterile diet with suitable laxatives sufficient. Perfect rest for the intestines (absence of peristalsis) is desirable. The early administration of purgatives often causes reversed peristalsis. These should not be given until normal peristalsis has been restored. Enemas generally produce sufficient stimulation and in the normal or downward direction. The danger of ileus, paresis, and postoperative adhesions is greatly overestimated.

In abdominal work, surgeons have always been greatly embarrassed by certain complications having their origin in the alimentary canal. Not only have we the immediate results of anesthesia to consider, and the restoration of the abdominal viscera to their normal functions, but the ever present and important subject of peritoneal infection and its results. How to avoid extreme nausea and vomiting, all forms of intestinal obstruction and peritoneal adhesions, or to minimize their danger, should be, and probably is, the constant aim of every surgeon. We have for some years had the conviction that the methods generally used in the preparation of patients for abdominal operations were exceedingly drastic and often perilously enervating. In recent years we have modified our treatment, with a view of causing less distress both before and after operation, and we are confident that our patients suffer less than before. The chief aim in our preparation of patients is, of course, to enable them to bear the test of operation and to make a safe and speedy recovery. Next, we may with good reason add as far as possible what may be to the comfort of the patient during her residence in the hospital, which includes preliminary, operative, and postoperative treatment. In this paper we propose to discuss some of the previously mentioned annoying and dangerous symptoms, and to make suggestions which have as their object some diminution of them. Among the very important considerations in every case in which an abdominal section is proposed is the question, how shall the patient's bowels be prepared? In my opinion the present methods have become stereotyped to some extent, for it is an almost universal rule to produce hypercatharsis. Purgatives have been used like other useful drugs, without rule, rhyme, or reason, save to satisfy the demand that the patient give up everything in the intestines. We fear very little thought has been given what this costs our weak and exhausted patients who are already debilitated by infection or protracted illness of any kind.²

¹ Read before the Southern Surgical and Gynecological Association, December 13, 1904, at Birmingham, Ala.

² At a recent meeting of surgeons was noticed the lengthy discussion of the time an operation should require and the quickest way to get the operation completed and the patient back to her room without a word about the previous condition of the patient or how to conserve her strength and enable her to bear the ordeal of the knife.

Excessive purgation causes the discharge of a greater quantity of fluid by the bowel than is given by the mouth. Whence comes this fluid? Does it consist of infectious serum and come from the peritoneal cavity by transudation directly through the intestinal walls? Or does it diminish the amount of fluid in the cavity, and if it does how do we know such a proposition is based on facts? Again, is it not possible that the fluids thus discharged may have been intended for excretion by way of the kidneys, for scanty urine is always associated with hypercatharsis. Beside such excessive discharges of serum must produce a relative amount of exhaustion, as the bloodvessels have furnished the greater part of the fluids in question. The idea that every patient subjected to abdominal section should be purged, and drastically purged at that, has held firm sway almost everywhere, and even now we find in our hospitals only two classes of patients so far as the preparation for operation is concerned?

It is either a "major" or a "minor." If a "major," we may expect the patient with only minor surgery, such as a ventrosuspension of the uterus or a conservative operation upon the tubes or ovaries, to have just as vigorous purgation as one in need of resection or who has extensive peritonitis.¹ The belief that if a little purging will do good, more purging should do more good, seems to have been the rule. The exhaustion produced by excessive purgation invariably causes its relative effect upon the circulation, and such treatment will bring the patient to the operating table with a quick pulse of 120, when previous to the purgation it was perhaps not over 100. This means incalculable harm to any patient who must remain upon the operating table from one to two hours, or even longer. If there is need for hypercatharsis in any case, and from 10 to 20 movements are thought necessary—in resection or anastomosis, for instance, why is it considered the proper thing to practise this outrage upon any one requiring a minor pelvic or abdominal operation? In a vast majority of the abdominal operations as done at the present time, there is no need of the perfectly flat intestine, and no necessity for calomel and saline purgation to produce this result. I am unwilling to make patients suffer such unnecessary discomfort, for I have often heard them declare that the pain and distress after operation was expected, but the "preparation" was far worse than anything else, and that they could never submit to it again. It is time to call a halt in what may be called meddlesome interference with the alimentary canal. It is "interference" in a large number of the minor abdominal cases, and is it also "interference" in very ill patients to purge the greater part of the bowel which is comparatively healthy, in order to reach a very small portion which is diseased, or temporarily incapacitated?

It was perfectly natural that some opposite method should succeed the extreme measures proposed by Clark and others who used the "opium treatment" for all of the varieties of abdominal pain and inflammation. Hence our rule to drain the peritoneal cavity from the inside by drainage-tubes, and from the outside by purgation. The pioneers in abdominal surgery taught us to use the short incision, and to rely entirely upon the sense of touch for the separation of adherent surfaces. It was impossible to inspect satisfactorily the entire extent of this work and the resulting injury to the tissues, our chief information being derived from the amount of hemorrhage. The drainage-tube was supposed to care for this hemorrhage, and purgation was relied upon to limit the amount of intraperitoneal exudate and fluids of all kinds. In the light of the present advanced position which surgery and pathology have assumed, may we not justly claim that hypercatharsis has no place and no justification when applied to such cases as come to us for abdominal section, if thereby we seek to assist our

operation by causing a transudation from the peritoneal cavity to the intestinal canal.

Preliminary Treatment.—When the patient is first examined by the house physician he should expose the abdomen in order to ascertain the amount of distention. If distention is marked and depends upon some pelvic or abdominal inflammation due to infection, a different method should be pursued from that applied in an ordinary case of constipation. Here an opportunity to discriminate between the varieties of distention. Obviously we may detain any patient without serious or dangerous disease until the conditions are perfectly satisfactory before we proceed to operation. There is time for the use of appropriate remedies and diet which will bring about a better condition of the alimentary canal than can be obtained by the rapid method of giving calomel and salts and completing the preparation within the 24-hour period previous to operation. The foregoing refers to the duties of the house physician especially, for with trained assistants much valuable time may be saved. It is very important to avoid purgation in thin flabby-skinned patients. It may be found upon inquiry that such patients have been purged before attention is called to them, and we frequently have purgation withheld in such cases, relying upon enemas given on the morning of operation. It is a common experience to note the presence of large pus tubes or any kind of old suppurative mischief within the pelvis of a woman with a flat abdomen. On the other hand an immensely distended abdomen is noticed in a neurotic patient who has perhaps very little disease in the pelvis. When we have only a short time (the 24-hour period) in which to prepare patients, we use the method popularized by Ochsner, giving two ounces of castor-oil followed the next morning by enemas sufficient to empty thoroughly the large bowel. This amount of oil produces an average of four movements, which is quite sufficient for most patients, and will enable the average operator to proceed without difficulty, if he is careful about placing his sponges and is fortunate enough to have a competent anesthetizer.

Emergency Cases.—The question may be asked "how shall we treat the alimentary canal in acute inflammatory conditions?" In a very large number of our patients, salines or other purgatives have been administered in quantities sufficient to satisfy the most exacting, and we can only give an enema just before operating. On the other hand if such treatment has not been given, we may find that opium has been administered to enable the patient to bear transportation to the hospital. In such cases we have to choose between the two extremes. Either one of two dangers is to be dreaded; great distention (meteorism), or loss of time while waiting for the bowels to act, which often means more peritonitis or infection. In many instances it is better to operate early without catharsis than to wait an indefinite period for an empty bowel which may require sufficient time for greater infection and far more exhaustion. This applies especially to the acute infectious diseases, but there are also other conditions which justify such a course. It is a common experience to witness the loss of valuable time while waiting for the action of cathartics. Hours occasionally pass while waiting and sepsis and toxemia often pursue their ravages with great rapidity during this period of delay. I never hesitate to operate promptly in acute appendicitis if opportunity offers within the 24 or 48-hour period, without purgation and with only the emptying of the large bowel by efficient enemas, and I have had no complication or difficulty whatever as a result. In the presence of the graver forms of peritoneal infection the rule is practically the same, for it would be the utmost folly to expect purgatives to be retained and to have their usual effect, and we must here decide to act promptly or else adopt the rest treatment of Ochsner.

Postoperative Complications.—The complications following celiotomy have been considered of especial impor-

¹ In a recent textbook, an emphatic protest was made against this practice. Reed's Gynecology, p. 101.

tance and we believe are regarded with greater apprehension than after any other surgery. The prevailing sentiment nearly approaches a superstition, for we fully realize the uncertainty which has always been known to attend and follow in the wake of any abdominal operation. It is unnecessary at the present time to review the many suggestions made by nearly as many surgeons having in view a diminution of the perils of postoperative abdominal surgery. It is not our purpose to comment at length upon these dangers, but to try and open the door of hope to those who see a possible ileus in nearly every abdominal section, and who are not even comfortable after performing a minor operation. It may be asserted without fear of successful contradiction that a great deal of unnecessary anxiety has been felt by many and perhaps most surgeons regarding postoperative ileus, paresis, and peritoneal adhesions. Peritonitis has been called the "fury of abdominal surgery." It would be a fortunate event if we could dispose of the lesser "furies" mentioned.

Paresis and Ileus.—It may be taken for granted that nature provided for the period of rest for the abdominal viscera, which we observe to some extent after every celiotomy. This suspension of peristalsis should be considered most beneficent, and fortunate, and of the greatest value, instead of a danger to be avoided. If viewed in this light it is easy to dispose of the many inventions which have tortured our patients in the shape of purgatives, which have been recommended for the prompt induction of peristalsis. Some of these remedies may be mentioned as curiosities; croton oil, for instance, not to mention the drugs of less drastic nature, which have been practically abandoned.

How to avoid an extreme degree of paresis and meteorism, which occasionally occurs in practice, often when least expected, is a most interesting question. Its prevention is difficult, and perhaps, often impossible, but we may do much by causing the minimum amount of interference with the normal conditions found within the peritoneal cavity. Our methods of treatment and prevention should at least not become responsible for the condition we wish to avoid. It has been almost conclusively shown by experiment that peristalsis is readily induced when the bowel contains a certain amount of solid matter (bolus), whose presence favors and assists the action of excitants. It goes without saying, that a perfectly flat bowel will require a longer time after operation before it can recover its muscular tonicity and normal movements, therefore a perfectly empty intestine is not desirable for this reason. There is also room to question the wisdom of excessive purgation for this additional reason, for some cases of experimental ileus are seen in the flat bowel, and we believe the moderately filled intestine is not so easily inverted or so given to any form of obstruction as either of the extremes, the absolutely empty, or the greatly distended bowel.

Reversed Peristalsis.—This condition has caused great difference of opinion among surgeons. Some fail to recognize its presence, and deny its existence as a cause of vomiting after anesthesia and operation. I believe this condition is frequently the cause of persistent vomiting, and which is generally not favorably influenced by any known drug, unless eserine proves of value. My reason for mentioning this symptom is to condemn the use of any and all purgatives given by the mouth for its relief.

Postoperative Adhesions.—Beside the dangers mentioned, the possibility of the formation of peritoneal adhesions must be considered. I fail to understand why a perfectly natural if not a physiologic process should be considered a pathologic condition. The invariable presence of light adhesions and exudation of lymph which occurs after any interference with the peritoneum, whether in the presence of infection or not, should, and I believe does indicate an effort at repair, instead of the contrary.

It may be accepted as fact that it is only when the

peritoneum has sustained a severe lesion by trauma or infection that a permanent fixation follows adhesion. That the primary office of adhesive inflammation is a conservative one is no longer questioned, and such belief is borne out in practical experience. Under fairly favorable circumstances, postoperative adhesions disappear, which is certainly fortunate if not so apparent. The same may be said of lymph flakes, which have generally been regarded as foci of infection. I never detach them, and I am content to remove only the large loose pieces which are already separated, and which can no longer be of service.

Treatment after Abdominal Section.—As indicated, perfect rest is favored after the abdomen has been opened for intraperitoneal disease. The method which secures the greatest degree of comfort to an inflamed synovial membrane may with reason be applied here. If rest is applicable in one instance it may be in the other. First I wish to direct attention to the vomiting after anesthesia. If surgeons agree upon any one point, it is that remedies have no favorable effect to stop vomiting. Lavage or stomach washing acts beneficially in this way; its office is mechanical, and rest is the result. We let the stomach severely alone until vomiting ceases, or until the immediate effect of the anesthetic has ceased, and give no purgative until the normal peristalsis returns. Food is given just as soon as it can be retained by the stomach, and purgatives are not given until after the second day, and possibly not until the fourth or fifth day. On the second day about the time we may expect peristalsis (and we may nearly always observe it by this time) an enema is administered. If necessary, the enemas are repeated daily, and not infrequently the patient recovers without having taken a single dose of any cathartic by the mouth.

As a laxative castor-oil holds the first rank. Its use before operation leaves no irritation, and its use after operation will not produce watery stools or weaken the patient. If a sensitive stomach refuses it, any laxative pill or the pulv. glycyrrhiza, compound will answer every purpose. We no longer prescribe calomel and salts and do not expect them or any other purgative to prevent peritonitis if the operation has not had the happy result expected. The perfect reliance placed upon purgation after abdominal operations by many surgeons is a matter of surprise to us. Some are not even content after a resection or an anastomosis until the bowel proves its competency by resisting the force of many and repeated stools. We hope this radical practice may soon cease, for it is rational and safe to permit the wounded intestine to assert itself in its own way and time. Our rule is to induce peristalsis by the use of suitable enemas, and we are satisfied that a downward or normal peristalsis is promoted in this way rather than by the use of any purgative given by the mouth.

Views of Other Surgeons.—Beside the wellknown preliminary treatment of Dr. Ochsner, which in the main we heartily endorse, two very interesting papers by Dr. Craig, of Boston, have recently appeared, and also one by Dr. Brown, of this city, which are valuable for the information contained therein, and which have, to some extent, fortified my conservative views upon the management of abdominal sections. Dr. Craig has forcibly presented the claims of eserine as a peristaltic stimulant to be used soon after the patient recovers from the anesthetic for the purpose of inducing prompt intestinal movements in the downward direction. He has been strongly impressed with the necessity for vigorous peristalsis in all cases and appears to believe ileus, paresis, and adhesions, are to be feared in every instance. He goes even further and proposes to turn his patients from side to side, and to have them turn themselves as soon as they recover consciousness. He also opposes the use of calomel and saline purgation, either before or after operation.¹

¹Am. Jour. Obst., April and September, 1904, and Trans. Southern Surg. and Gyn. Assn., 1903.

I heartily endorse the views of Dr. Craig regarding the use of purgation as generally applied, but I must take issue with him as to the necessity for such great anxiety as he appears to feel about peristalsis. Nor do I favor frequent turning of patients for the purpose of preventing adhesions or for any other reason save the important one of giving them rest and comfort by so doing. As to the use of eserine I have tried it and find that it is at times valuable and we believe it has a future. Our experience with the use of the drug will be duly reported. Finally, we take pleasure in giving to Dr. Brown our renewed thanks for his paper of last year, and while we differ with him about the use of opium after operation, we are sure that the principle asserted will hold good.

CONCLUSIONS.

Excessive purgation should be restricted because it is enervating to the general system. It produces great irritation to the mucous lining of the bowel. It may add to some of the dangers we are most anxious to avoid; ileus and paresis. Purgatives have very little effect in limiting the amount of extraperitoneal exudate and fluids. Instead of calomel and saline purgation, bland evacuants such as castor-oil should be used before abdominal section. The use of suitable bland nonfermentative foods is desirable until just before operation in weak patients. After operation limit peristalsis; give only small quantities of food and drink by mouth. Rarely give opium. Enemas should be administered to relieve distention and cause peristalsis in downward direction. After normal peristalsis laxatives should be given as required.

ON CYSTOSCOPY.

BY

HENRY DAWSON FURNESS, M.D.,

of New York City.

Instructor in Gynecology, New York Postgraduate Medical School and Hospital.

In defective vision we know that something is wrong with the eye, the optic nerve, or that portion of the brain which records visual impressions, and we are not satisfied until we have formed some idea as to the cause of the trouble, for only in this way can a rational form of treatment be instituted. The use of the ophthalmoscope is not general, but the knowledge of its usefulness is well known, and the general practitioner who is up-to-date, is not slow in having it used for his benefit. In these days, a conscientious man is not satisfied to drop an anodyne solution into the ear for earache until, with the aid of head mirror and speculum, he has learned the nature of the trouble and its extent.

In nasal obstruction one uses the speculum and reflected light to discover the cause of the decrease in size of the nasal cavity; whether due to spur, swollen turbinates, polypi, etc. In nose bleed, the rational method is to seek the source of the hemorrhage, and if possible, treat it locally, rather than tamponade one whole nasal cavity. In purulent discharge, a direct examination is made to discover the source; whether it is from an atrophic rhinitis, an ulcer, the accessory sinuses, etc. Should a man come to you with hoarseness, you would not be satisfied with a simple diagnosis of laryngitis, for though your diagnosis of laryngitis might be correct, it might not be the whole diagnosis, for syphilis or tuberculosis might be the causative factor, and a simple examination with the laryngoscope would, in many instances, clear up the whole matter. A small tumor falling between the vocal cords and preventing their closure, or a paresis of the cords, would give much the same symptoms, but more persistent.

So when there is blood or pus in the urine, why should we be satisfied to call it hematuria or pyuria, which are only symptoms? Some of us speculate, and

it is often merely a speculation as to the origin of the blood—judging from the symptoms, the character of the urine, and the condition of the red blood cells. In pyuria, we were formerly taught that if the urine was acid, that the pus came from the kidneys, or the pelvis of the kidney, and that the pus was from the bladder when the urine was alkaline (in tuberculous cystitis, that it was acid); this rule is by no means lacking in exceptions to prove it, the reverse being often true. We were taught that pus, voided with the first portion of urine, was from the urethra, that with the middle portion and evenly mixed from the kidneys, and that that coming away with the last portion of the urine was from the bladder. When epithelial cells are present in the urine, some claim that they can differentiate those from the bladder, from those of pelvic origin, but in most instances this is impossible. In many cases the urine contains cells that in no way resemble those found in the urinary passages, and we are forced to think of tumor; we cannot determine the location of a tumor from the examination of urine voided *per vias naturales*.

In the use of the cystoscope and endoscope, which are applicable in almost all adults, we have the means of determining not only the location of the hemorrhage, the pus, or the atypic cells, but in many instances of getting a direct view of the cause of these symptoms when they are situated in the urethra (endoscopy), the bladder, or at the ureteral orifices. Should nothing be found in these locations to account for the symptoms, the ureters can be easily catheterized, and the side from which the trouble arises definitely determined by collecting the urine separately from each kidney. If for any reason the kidney on one side is to be removed, we are able through the cystoscope and ureter catheterization to determine if another kidney exists on the opposite side and if so, whether it is likewise diseased, or functioning properly. With a ureteral catheter we can often determine the site of an obstruction to the ureter, and if this obstruction is a movable body, often cause its passage by injecting fluids, especially oils, above the mass; by tipping the catheter with wax, we may get an impression of a stone. In many operations it is essential to mark the ureter to avoid injury, as when it has been displaced, from tumor, cyst, or other cause; the introduction of a stiff catheter is of immense service. In case the ureter should be damaged, it is readily recognized, the injury can be repaired over the catheter as a splint, and the instrument left in for a day or more to carry the urine away without its coming in contact with the repaired portion. I have seen this accident and this treatment, which was entirely satisfactory. The first autopsy I ever did was on a patient who had died from retention, due to the inclusion of both ureters in the sutures bringing together the folds of the broad ligament after a hysterectomy; here, ureter catheterization before operation would undoubtedly have prevented a death.

Beside the use of the cystoscope and ureteral catheterizations for diagnostic purposes, we can use these instruments, fitted with proper accessories, for such operations as snaring away polypoid growths, cauterization, removal of foreign bodies, and for making local applications to the bladder wall. By the aid of the ureteral catheters the pelvis of the kidney can be irrigated with antiseptic solutions and many cases of pyelitis be cured in a much shorter time than by medical treatment; it is especially indicated in those cases which do not respond to medicinal treatment.

There are three general forms of instruments used. The Kelly, which is a straight tube, cut off square or obliquely on the bladder end and provided with an obturator for introduction. The older form was used with light reflected by a head mirror, but the newer instruments are provided with a small light at the bladder end of the instrument. With this instrument we are dependent on atmospheric dilation of the bladder as

obtained by the elevated dorsal position, the Sims or the knee-chest, all disagreeable for the patient. The urine is constantly coming down and filling the lower end of the tube, or causing air bubbles in same; this urine has to be removed with an aspirating syringe, or cotton pledgets, which is inconvenient for the examiner and painful to the patient. It is a good instrument for treatment, but inferior as a diagnostic one. Cullen's modification carries the light on a beak; the instrument, when the obturator is in place, having much the same shape as a male sound.

With the Kelly cystoscope and reflected light in many cases of chronic cystitis the bladder wall appears dull gray and lusterless, while the same mucous membrane seen through a water-dilating instrument is found to be quite congested.

In the air dilation instruments, or those using air introduced under slight pressure, a tube form is used, provided with a beak carrying a small incandescent light, and a plain glass window at the external end of the instrument. This gives only a limited view of the bladder, only slightly larger than the end of the tube; the exaggerated dorsal position, the Sims, or the knee-chest is indicated; the bladder end of the tube becomes clouded with urine or air bubbles, requiring removing of the ocular, and cleansing of the cystoscope; the window becomes clouded with condensed moisture; the air introduced is painful, and becomes more so as it becomes heated. The advantages claimed for these instruments are that the picture is direct, and of natural size; that the bladder wall can be treated locally; and that the ureters can be catheterized in an infected bladder without introducing the infection into them. Caspar claims that catheterization of a healthy ureter through an infected bladder, even when water was used in the bladder, has never been attended in his hands by pyelitis or ureteritis.

The air dilation instrument is of advantage when pus or blood accumulates so rapidly as to cloud the fluid used in the water cystoscopes. Dr. M. C. Millet,¹ of Rochester, recently detailed a new method. It depends on the fact that a column of clear fluid will transmit light. He uses an ordinary air dilating cystoscope, but fills the bladder with water. It is essential that no air space exists in the lumen of the cystoscope; should there be any air at the ocular end of the cystoscope, this small amount can be made to pass into the fundus of the bladder by depressing the lower end of the cystoscope below the level of the bladder end. I have not used it on a patient, but have demonstrated that the method is rational.

In the water dilation instruments there are two principal types; the one that gives a direct and enlarged image, and one that gives an inverted enlarged image, the latter being obtained through the use of a prism in the bladder end of the instrument. With the former all of the bladder, except the fundus and anterior wall (and the portion just behind the prostate, when this is enlarged) can be seen, while with the latter, that portion just opposite the internal urethral orifice on the posterior bladder wall escapes observation. If only one instrument is to be had, the direct vision one is the better, for most of the diseases encountered are on the inferior and posterior walls of the bladder, and ureter catheterization with the direct view instrument is easier than with any other form of instrument.

In the prism cystoscopes the catheter emerges from a tunnel in the instrument, which opens just in front of the prism on the concave side of the instrument; some of the instruments are provided with a slide bar that regulates the direction of the tip of the catheter. They are made as single barrel, double barrel, and often an irrigating attachment is added. The Nitze, Nitze-Albarran, the Caspar, and the Bierhoff are types of these instruments.

In the air dilating cystoscopes the catheter barrels are made into the shaft of the instrument (Bransford Lewis), or are inserted into the lumen of the cystoscope with the window.

In the water direct view the catheter barrels (single or double), are made into the instrument (shaft) Brenner; in the Snell instrument there is a removable catheter tube fitting into the under side of the instrument, so that the catheter can be left in the ureter after taking out the cystoscope, or so that another catheter can be introduced by replacing the catheter tube after disengaging the first catheter. The Kollischer-Schmidt is made on the same principle, except that instead of a tube, a slide bar is used in a groove on the lower surface of the instrument; by removing the slide bar the catheter is disengaged from the cystoscope, and the instrument can be removed or another catheter inserted. In the Tilden Brown type of instrument, the cystoscope is introduced with an obturator in place; after its removal a telescope with two ureteral catheter barrels on the under surface is put in place. The space between the catheter barrels is sufficiently large for irrigating purposes. This is the instrument with which I am most familiar, and one that has given me satisfaction. The catheters can be left in place after removal of the cystoscope; the telescope is first withdrawn, the catheters being fed through it as fast as the instrument comes away; after the removal of the telescope the shaft is gently extracted, causing but slight pain from the free edge passing over the floor of the urethra.

The water-dilating instruments, with removal telescopes, can have the direct view system of lenses, with or without catheter barrels; the prism set (made so that telescope revolves in order not to have a window cut on the concave side of instrument, just back of beak) and the retrograde set; by removing the telescope and using the elevated dorsal knee-chest, or Sims' position, a direct view can be obtained of the bladder walls; by inserting a glass window in the ocular end of instrument and introducing air under pressure through one of the irrigating stopcocks, this form of air-dilating instrument can be obtained. In purchasing an instrument it is advisable to get one that can be used in all these different manners. When using the instrument without water as the dilating medium it is necessary to have a so-called "cold lamp."

Most men who have never seen cystoscopic work are under the impression that it is attended with great difficulties, whereas most of the cases are easy. Even the introduction of the ureteral catheters is not often attended with marked difficulty. When we have a diagnostic method which gives such good and positive results in the location of disease, it behooves the progressive general practitioner to become acquainted with the use of this instrument, and to derive the benefits of its use. Instead of treating patients in a slipshod manner, and with only a vague idea as to the seat and nature of the pathologic lesion, he will be enabled to make his therapy rational.

SUSPECTED EMBOLISM OF THE SUPERIOR MESENTERIC ARTERY.

BY

JAMES A. NYDEGGER, M.D.,

of Stapleton, N. Y.

United States Public Health and Marine-Hospital Service.

J. C., aged 45, was admitted to United States Marine-Hospital, Stapleton, N. Y., October 10, 1904, for small weeping fistulas of the perineum. He had been operated on for similar trouble in Liverpool, England, in December, 1902, and remained in the hospital under treatment until April, 1903. The present trouble dates back several years, but about a month ago his perineum became tender and painful, and there was a discharge of pus, slight in amount, from two or three small openings.

Physical Examination.—Heart, lungs, liver, spleen, etc.,

¹ Journal of the American Medical Association, October 15, 1904.

normal. To the left side of the anus and about an inch behind, there are a number of quite extensive scars, apparently the result of a former operation. The scars cover an area of about two and a half inches. The tissues in this area are very much thickened, elevated, knotty and intensely hard. There is a small opening, which will admit a probe, on the inner side of the right buttock near the perineal line. From this opening there is a slight discharge of thin, watery pus. A probe can be introduced into a sinus leading from the opening backward for a distance of one and a half inches under the skin toward the anus. Nothing abnormal was detected about the anus or in the rectum. The patient was operated on October 12. A small sinus was found to lead back about an inch from the opening, but was not connected with the rectum. The sinus was cut up, cureted and closed. The wound healed. On October 23, a slight discharge was detected coming from the neighborhood of the operation. Another small pocket containing thin pus was found under the skin in the indurated area mentioned. This was opened under Schleich solution and cureted. November 1, another small opening was detected in the perineum, and was opened, cleaned and put in condition to heal. Still there was a weeping from two or three small points about this area, and suspecting the condition to be tuberculous in nature, with extension from the perirectal space, where such trouble in this part usually begins, we decided to do a second operation, and remove the entire involved tissues and an area of sound tissues around the margin, like we had done in a case of this nature on which we operated a short time previously with excellent results.

On October 23, under a general anesthetic, the involved area, which was about 2 in. in length by 1½ in. wide, was dissected out. There was much thickened and indurated tissue. Three or four short subcutaneous sinuses were found. In the dissection, the skin and superficial fascia, etc., were removed down to the subfascial fatty tissue. Flaps were fashioned in the shape of a T, and these were brought together with chromicized catgut and reinforced with adhesive strips, thus closing over the entire denuded area. The patient did well. There was no rise in temperature. The stitches held, and on the sixth day following the operation, when they were removed, there was only a slight gaping at the intersection of the flaps. November 28, there was a small healthy granulating surface at the point of intersection of the flaps. December 2, patient has been up and about the ward for several days, and is in good condition. About 7 p.m., while standing, passing his water, he was suddenly seized with a severe and agonizing pain in the right hypochondriac region. The patient was examined at once and was believed to be suffering with an attack of biliary colic. There was some vomiting and thirst, vomiting coming on about an hour after the seizure. Morphine was administered hypodermically, also a high enema of warm salt solution. Toward midnight the pain grew less, as also the vomiting. Temperature was slightly subnormal. Early on the morning of December 3, the patient was reported worse. He was found restless and nervous, and had slept but little. Pulse was 135 per minute and weak, but not wiry. Respiration was increased. Regurgitation of a dark watery fluid, containing coffee ground-like material, was occurring every few moments. The abdomen was much distended and tympanitic. The seat of the pain had shifted down to the lower half of the abdomen, and was about equally manifested on both sides. There was marked rigidity of the recti muscles and tenderness was elicited over the lower part of the abdomen on pressure. All fluids by the mouth were discontinued. Patient complained of great thirst. Cracked ice and brandy in small amounts were ordered, also high enemata of saline solution. Ice bag was applied to abdomen. One p.m., no vomiting since liquids were stopped. The pulse is much weaker. Ordered strychnin sulfate 2 mg. ($\frac{1}{30}$ gr.). Pain is paroxysmal, like colic. Temperature is slightly below normal; facies pale. At 1.30 p.m., cyanosis marked, very weak rapid pulse, with a sense of suffocation. Was ordered .01 gm. ($\frac{1}{4}$ gr.) morphine, and atropin .6 mg. ($\frac{1}{10}$ gr.). At 1.45 p.m., a vomiting spell came on and patient sat up in bed; there was marked cyanosis, he vomited a basin three-fourths full of a dark coffee-colored fluid, the heart ceased to act and death ensued.

Necropsy, four hours after death. Rigor mortis beginning; is well advanced in upper extremities. Pupils are moderately dilated and equal. Mouth, teeth, and beard are stained with a dark fluid. Cadaveric lividity is noted in the dependent parts, and is especially marked in the neck, face, and scalp. There is a small, healing, granulating wound in the perineum, resulting from operation for tuberculosis of the skin, done on October 23. There is thick subcutaneous fat over the abdomen, which is greatly distended. Chest muscles are of a normal red color. On opening the abdomen there is a free outflow of a dark sanguineous fluid. The intestines are well covered with omentum, which is well filled with fatty tissue, and is of a dark grayish-brown stained color. Upon reflecting the omentum upward, coils of the small intestine appear and are very dark and possess a glistening surface. There is a large amount, some 1,200 cc., of dark sanguineous fluid free in the abdominal cavity. The stomach contains about a pint of dark coffee ground-like fluid. The mucous coat has some small areas of capillary engorgement. The pancreas is normal. The gallbladder is partially filled with a dark thick fluid. The gall ducts are normal. The duodenum is normal, except that it contains a considerable

amount of dark fluid like that found in the stomach. Going from above downward, and beginning about the junction of the duodenum with the jejunum, the intestine becomes at once quite black and glistening, and presents this same appearance throughout its entire length, and is highly distended with gas. The intestine contains a dark colored fluid, like that already described. The appendix is normal, save for its dark color. The cecum, ascending, and greater part of the transverse colon are greatly distended, and are black and glistening, like the small intestine already described. The descending colon, sigmoid flexure, and rectum are normal. Heart is normal. The lungs are congested.

When first seen, on the morning of December 3, an intestinal obstruction was strongly suspected, and an exploratory laparotomy was considered, but as the condition of the patient was bad, the operation was delayed, hoping his condition would improve sufficiently to undertake it.

A careful examination of the intestines at the necropsy failed to reveal any evidences of a gross obstruction. Likewise no twist of the mesentery could be found. An incipient gangrene of the intestine so distinctly marked as to its blood supply, immediately suggested an obstruction of the vessels supplying the parts. Most unfortunately the mouth and upper two inches or so of the superior mesenteric artery had been interfered with in the dissection, and no trace of an embolus in its lumen could be demonstrated; though I feel that one is justified in holding to the opinion that such a condition must of necessity have existed to have produced the symptoms and gross appearances in the parts of the intestine deriving their blood supply from this artery. In this case death resulted in 18 hours from the beginning of the seizure. The only apparent source of the embolus was from the wound in the perineum, which while possible, would hardly seem probable, for at no time was there visible infection or suppuration, save in the small subcutaneous sinuses mentioned in the perineum.

Virchow first described the characteristic postmortem appearances which follow this lesion, and since then records of cases have been rather numerous. Several cases in which the superior mesenteric artery was found at autopsy completely occluded by coagulated fibrin are mentioned by Tiedeman in a work published as early as 1843. Dr. Osler, in his extensive experience, mentions but three instances as having come under his observation. In his first case the superior mesenteric artery was blocked at its orifice by a firm thrombus. In the second case the artery contained a firm brownish-yellow clot, and there were many recent warty vegetations on the mitral valve. In the third case, autopsy showed an aneurysm of the aorta at the diaphragm, and the artery, half an inch from the origin of the sac, was blocked by a portion of the fibrinous clot of the aneurysm.

Watson has analyzed the symptoms in 27 cases; in 18 there was pain, usually colicky and violent; diarrhea occurred in 14; and abdominal distention in 12. In a majority of the cases the heart or the abdominal aorta was diseased.

J. W. Elliott reports having operated in two cases of infarction of the bowel (thrombosis of the mesenteric vein) in one of which he successfully resected 48 in.

Thirst which was pronounced from the beginning in the case I report, is not referred to by either Dr. Osler or Dr. Watson. In the former's three cases, while all terminated fatally, two of the patients lived over a week after the seizure, and the third patient, while it is not stated definitely, is inferred to have lived for a considerable time. In the case I report, death supervened in 18 hours.

The symptoms of thrombosis of the superior mesenteric artery have not been determined apart from embolism, and it is doubtful if the affection proves fatal unless the extent of artery involved is very considerable or the formation of the thrombus is very rapid, for the anastomosis is gradually made compensatory.

The superior mesenteric artery, according to the experiments of Litton, though not anatomically, is func-

tionally a terminal artery, and the scant anastomosis of the small pancreaticoduodenalis artery, and a branch of the hepatic with the first branch of the superior mesenteric, and the middle colic artery with a branch of the inferior mesenteric, are not developed with a sufficient rapidity in case of extensive embolism to insure the integrity of the circulation.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 18, 1905. [Vol. XLIV, No. 7.]

1. Chylous Ascites with Eosinophilia: An Analysis of Reported Cases. L. NAPOLEON BOSTON.
2. The Environment and Visual Requirements of Railway Enginemen and Firemen: Personal Observations from an Engine Cab. NELSON MILES BLACK.
3. The Sanatorium Treatment for Incipient Pulmonary Tuberculosis: Its Aims, Methods and Results. FREDERICK L. HILLS.
4. Pulsating Exophthalmos: Successive Ligation of Both Common Carotid Arteries: Death. HOWARD F. HANSELL.
5. Intermittent Exophthalmos, with Report of a Case. WM. CAMPBELL POSEY.
6. An Encouraging Case of Locomotor Ataxia. GUY HINSDALE.

1.—**Chylous Ascites with Eosinophilia.**—L. N. Boston names a variety of conditions responsible for the effusion of chyle into the peritoneal cavity, as traumatism, heart disease, venous thrombosis, adhesions, pressure of tumors, etc. Chyliform ascites is due to degeneration of epithelial cells, leukocytes, and tissue debris, and is found when there is either cancerous or tuberculous nodules of the peritoneum. The writer tabulates the distinctive features of the two fluids. He has also tabulated 128 cases as to age, sex, existing abdominal conditions, treatment, and result. Of these, there are 24 complicating carcinoma, 17 resulting from tuberculosis, 11 accompanying cardiovascular conditions, 8 due to disease of the liver, 7 following puerperal sepsis, 4 from congenital cysts, 3 following infection with *Filaria sanguinis hominis*. Obstruction to the thoracic duct was observed postmortem in 11 cases, and the duct or receptaculum was ruptured as the result of traumatism in 7 cases. He reports at length a case with eosinophilia. [H.M.]

2.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

4, 5.—See *American Medicine*, Vol. VII, No. 25, p. 972.

6.—See *American Medicine*, Vol. VII, No. 25, p. 973.

Boston Medical and Surgical Journal.

February 18, 1905. [Vol. CLII, No. 7.]

1. The Prognosis of Epilepsy. WILLIAM ALDREN TURNER.
2. A Study of the Birthrates, General Deathrates, and Deathrates from Cancer for the New England States for the Year 1900. WILLIAM F. WHITNEY.
3. The Effect of Tubal Abscess upon the Position of the Ureter. ERNEST BOYEN YOUNG.
4. The Surgery of Meckel's Diverticulum. JOHN W. KEEFE.
5. Perilous Calms of Appendicitis. ROBERT WALLACE HARDON.

1.—**Prognosis of Epilepsy.**—W. A. Turner gives statistics of the estimated percentage of cures before and after the introduction of the bromid treatment, showing that this has in no way affected the variability of the results. Later authors exclude from their statistics cases due to organic disease, thus accounting for some discrepancies. Sex plays little part in prognosis. A family tendency to either epilepsy or insanity though offering no obstacle to the arrest of seizures in favorable cases, materially increases the likelihood of the disease becoming confirmed, and the supervention of dementia. Epilepsy commencing in infancy or childhood is least favorable for arrest, that commencing during puberty is most favorable as to the arrest of seizures and the absence of mental infirmity. Adult epilepsy is unfavorable, but senile epilepsy is tractable. The earlier a patient is brought under systematic treatment, the more hopeful the prognosis, though arrest of fits has occurred after 20 years or 30 years. The longer the interval between attacks the greater the prospect of improvement. There is a direct relationship between the frequency of seizures and the degree of mental impairment. Major attacks are more influenced by drugs than minor seizures. Remissions are common between early childhood and puberty. Periods of 5

years, 10 years, or 15 years have been known to elapse between seizures. It is unsafe to regard as cured any patient in whom attacks have been in abeyance less than nine years. If a case is capable of amelioration, improvement will be apparent shortly after commencing treatment. [H.M.]

2.—**Birthrates, and Deathrates, and Cancer.**—W. F. Whitney finds in the 3 northern New England States the birthrate is 20.5 in 1,000 and the deathrate 16.5, while in the 3 southern States these are 24 and 17, respectively. This shows a very small rate of increase for our native-born population, especially when we consider it would be smaller still were it not for the influx of foreigners. In the deathrate from cancer, Maine leads up to 40 years of age and Rhode Island after that epoch. Statistics of 1895 and 1900 show that this disease has gained all along the line, except occasionally in the earlier decenniums, but Massachusetts is far below the others; this perhaps is due to more careful registration now in the other States and not to a real advance in the disease. It will probably be many years, even with modern accuracy, before the truth as to the alleged increase of cancer will be known. [H.M.]

3.—**Effect of Tubal Abscess upon the Position of the Ureter.**—Ernest B. Young made a series of experiments upon cadavers, and he carried out observations upon 25 patients. His conclusions are in substance as follow: 1. Small collections of pus in the fallopian tubes do not displace the ureters. 2. Larger collections displace the ureters, (a) outward generally, whether the ureter is above or below the mass; (b) downward rarely, on the posterior culdesac. 3. Such displacements are probably due to (a) traction upon the infiltrated broad ligaments by the distended tubes, the ureter moving with the broad ligament; (b) direct pressure from the growing abscess, forcing the ureter in the direction of least resistance; (c) a combination of both. Previous to investigation of this subject, the operation of vaginal section seemed to the author a haphazard procedure, but in the light of what has been found, lack of accidents seems fully explained. With the exception of the few unusual cases which have been figured, the manner of displacement of the ureter seems to be definite, and for this reason the operation is safe in the great majority of instances. [A.B.C.]

4.—**Surgery of Meckel's Diverticulum.**—John W. Keefe says a remnant of the omphalomesenteric duct remains and causes a diverticulum in about 2% of persons. This congenital defect was first accurately described and shown to be the cause of intraabdominal disease, by John Friedrich Meckel in 1812. The symptoms caused by disease of this structure may resemble fulminating appendicitis, or may resemble acute intestinal obstruction. The classic symptoms and signs are: (1) Sudden onset; (2) pain, general, abdominal, and paroxysmal in character; (3) continued vomiting; (4) absence of feces or flatus per rectum; (5) rapid pulse; (6) rigidity of abdominal muscles. Previous to operating on a patient in whom there has been persistent vomiting, lavage of the stomach should be practised before etherization, although during operation following lavage, especially if there is intestinal paresis, the stomach may refill and the vomitus enter the trachea and cause death. In disease of Meckel's diverticulum, early recognition is of the greatest importance. The mortality quoted is from 65% to 75%, following operations for intestinal obstruction due to a Meckel diverticulum. The author believes the mortality should not exceed 1% if the condition is recognized within the first 24 hours, and appropriate surgical treatment instituted. Keefe reports two cases. Both were operated, and one patient recovered. [A.B.C.]

5.—**Perilous Calms of Appendicitis.**—Robert W. Hardon discusses this subject at length and concludes as follows: 1. Defervescence and an apparently better condition of the patient do not always mean recovery, but may be the forerunners of a more dangerous condition. 2. There being no specific for the disease, no matter what treatment is used, the one who procrastinates should shoulder the responsibility for the death. 3. When a clear diagnosis is made, but one treatment should be advised, that of operation as soon as possible under the conditions. 4. The physician who does not explain the great dangers of delay and the small comparative danger of operation is doing

his patient a serious injustice, which often leads to fatal results.

5. Operation at the proper time usually greatly shortens convalescence, and eliminates all danger from this cause hereafter.

6. Procrastination is the greatest cause of surgical deaths, operation often being performed as a last resort, when but little hope of recovery exists. [A.B.C.]

Medical Record.

February 18, 1905. [Vol. 67, No. 7.]

1. A Report of Eighty-four Operations on the Kidney and Ureter. GEORGE EMERSON BREWER.
2. Standardized Gruels: An Application of the Percentage Principle to Gruel Feeding. HENRY DWIGHT CHAPIN.
3. Traumatic Rupture of the Intestine without Injury to the Abdominal Wall. CARLETON P. FLINT.
4. Fresh Cold Air Treatment of Pneumonia in Infants and Children. W. P. NORTHRUP.
5. Preventive Medicine: A Study in Education. LAWRENCE T. ROYSTER.

1.—A Report of 84 Operations on the Kidney and Ureter.—G. E. Brewer's list comprises 27 nephrotomies, the same number of nephrectomies, 9 nephrorrhaphies, 10 decapsulations, 5 operations on the pelvic portion of the ureter, and 6 emergency operations on traumatic cases. These classes are discussed in detail, and the diagnosis of renal calculus is treated at considerable length. From a review of the conditions present in his cases the author feels justified in stating that there is no single symptom nor sign, nor any group of symptoms or signs that is absolutely pathognomonic of renal or ureteral calculus, unless the calculus lies in the lower ureter and can be touched by a metal bougie or catheter. The most important factors to be considered are pain, tenderness, hematuria, the results of radiography, cystoscopy, and ureteral catheterization. While vomiting, vesical irritability, pyuria, fever, and the presence or absence of a renal tumor are important and will often help us to confirm or lead us to exclude other pathologic conditions, too much reliance must not be placed upon them in the diagnosis of calculus. While pain and tenderness were present in practically 100% of the author's cases of stone, they were also present in a large percentage of the cases in which no stone was found, and calculus may, and often does exist without pain. Hematuria was known to be present in 52% of the author's stone cases, but it was also present in 45% of the cases without stone. Spontaneous hemorrhage occurring during rest and sleep generally means newgrowth. Hemorrhage following active exercise or jolting, and accompanied by characteristic colic, in the absence of other demonstrable pathologic conditions is strongly suggestive of calculus. Excluding imperfect plates and those in which the edges of the shadow were not distinctly defined, the röntgen ray gave accurate indications in 95% of the cases, and must therefore be regarded as the most reliable means of examination which we possess. Cystoscopy helped to a correct diagnosis in 66% of the cases examined, while it was misleading in 33%. Ureteral catheterization proved valuable in confirming the diagnosis, in definitely determining the site of the lesion, and in estimating the competence of the opposite kidney.

2.—Standardized Gruels; an Application of the Percentage Principle to Gruel Feeding.—H. D. Chapin says that with the increased knowledge that has resulted from a careful study of the use of gruels in infant feeding, it has become recognized that they have other values than as attenuants of the curd of cow's milk. They may often be employed to economize the energy of the body that is being used in the effort to prepare food for assimilation, and by taking advantage of this fact it is frequently possible to keep the body well nourished on a quantity of food much smaller than is theoretically indicated. It is highly desirable, therefore, that there should be some uniform standards for use in preparing gruels, and that their food values and possibilities should become better known. With this object in view the author had made gruels containing varying amounts of pearl barley, prepared barley flour, wheat flour, and rolled or flaked oats, which were then assayed to determine their composition in order to show the relative properties of tissue-building and heat and energy producing elements. The tables obtained are reproduced, as well as others showing simple methods of preparing gruels of any desired strength.

3.—Traumatic Rupture of the Intestine without Injury to the Abdominal Wall.—C. P. Flint is an advocate of prompt exploratory incision in doubtful cases of abdominal trauma. His conclusions are summarized as follows: 1. Any injury to the abdomen may be associated with damage to the intestine or other viscera. 2. An exploratory operation is justifiable in cases with distinct rigidity. 3. An operation is absolutely indicated when there are, beside rigidity, pain, tenderness, vomiting, shock, dulness, or other symptoms indicative of some intraabdominal disturbance. 4. Patients not operated upon are lost. 5. The importance of early operation cannot be emphasized too strongly. 6. At present the deathrate is about 75% to 80%. 7. When early operation is the rule, the deathrate will be much lower.

4.—Fresh Cold Air Treatment of Pneumonia in Infants.—W. P. Northrup reports two cases of pneumonia in infants, in which the windows of the sick room were kept open day and night; both children recovered. He believes it will become more and more the rule to treat pneumonia in this way. Cool, pure air, he says, reddens the blood, stimulates the heart, improves digestion, quiets restlessness, and aids in overcoming toxemia. He concludes with the following prescription for killing a baby with pneumonia: Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing); room at 80° F. Many gas jets burning. Friends in the room, also the pug dog. Chest tightly enveloped in waistcoat poultice. If the child's temperature is 105° F., make a poultice thick, hot, and tight. Blanket the windows, shut the doors. If these do not do it, give coaltar antipyretics and wait.

5.—Preventive Medicine: A Study in Education.—L. T. Royster discusses the many problems included under this title, and suggests that conditions are to be improved (1) by sending educated and conscientious men to our town councils and general assemblies; and (2) by educating the public in the laws so that they will recognize the cause of unhealthy conditions, and know the proper methods of overcoming them. The education of the public involves (1) the instruction of the people at large through the agency of the medical profession, popular lectures, and the public press; and (2) the education of the children, both at home and in the schools. In the introduction of the study of hygiene into the school system lies the keynote of success in securing and maintaining a sanitary condition of the centers of population. For the correction of the social evil, the author advocates circumcision and instruction of the youth in the nature of venereal disease.

New York Medical Journal.

February 11, 1905. [Vol. LXXXI, No. 6.]

1. The Diagnosis of Tumors of the Cerebellum and the Cerebellopontile Angle, Especially with Reference to Their Surgical Removal. CHARLES K. MILLS.
2. The Cerebellar Seizure (Cerebellar Fits), a Syndrome Characteristic of Cerebellar Tumors. CHARLES L. DANA.
3. Remarks upon the Surgical Aspects of Tumors of the Cerebellum. CHARLES H. FRAZIER.
4. The Pathology of Cerebellar Tumors. T. H. WEISENBURG.
5. The Diagnosis of Cerebellar Tumors. JOSEPH FRAENKEL.
6. The Ocular Symptoms of Cerebellar Tumor. G. E. DESCHWEINITZ.
7. The Functions of the Cerebellum. EDWARD LODHOLZ.
8. Report of a Case of Cyst of the Cerebellum. JOHN M. SWAN.

2.—The Cerebellar Seizure.—C. L. Dana reports a case to illustrate the phenomena of cerebellar seizures which he believes forms a distinguishing syndrome of cerebellar seizures. The special syndrome of cerebellar and posterior fossa tumors causing irritation and pressure is seizures characterized by: 1. Loud, high-pitched tinnitus or roaring and crackling noises, suddenly increased in intensity. 2. Vertigo usually objective and with or without forced movements. 3. A tendency to drop or fall in one direction or another instantly to the ground. 4. Sometimes sudden blindness and loss of consciousness. 5. In severe attacks, tonic spasms generally of an extensor type. This lasts from one or two to five or ten minutes. These seizures, he adds, are probably more common and typical in the older patients than in the younger children. [C.A.O.]

5.—The Diagnosis of Cerebellar Tumors.—Joseph Fraenkel says that frequently an exact diagnosis will be impossible, particularly when the disease has lasted a considerable time, and the history does not reveal a clear picture of the early

symptoms and sequence of events. Primary lesions of the bone, meninges, basal nerves, cerebellum, pons, or medulla have been reported; aneurysms of the basilar and vertebral arteries and their branches, and other vascular lesions occur; localized syphilitic or tuberculous meningitis is not common. From a clinical standpoint these pathologic conditions are separated into three groups: 1. Lesions originating outside the medullary structures of the posterior fossa, extracerebral lesions as it were; fractures, hemorrhages, aneurysms, disease of the bone or meninges, remaining either outside of the medullary structures or invading them by contiguity. 2. Lesions originating within the medullary structures of the posterior fossa (pons, medulla, cerebellum) intracerebral lesions; vascular lesions, tumors, abscesses, either strictly localized within, or invading the surrounding tissues by contiguity. 3. Lesions originating primarily in the basal nerves of the posterior fossa and invading the surrounding structures later. Headache, vomiting, and optic neuritis are early and obstinate symptoms in cerebral lesions. The opposite is true of pontine and medullary lesions. The situation of the headache is of little diagnostic value; occipital headache is the rule. Superficial tenderness of the skull will occasionally indicate the side. It is frequently observed that the headache and vomiting accompanying lesions of the posterior fossa are most distressing in the morning after rising, or after a change of posture. Seizures of various kind are enumerated and attacks of amyasthenia and general vertigo are frequent and express cerebellar embarrassment. As a rule, the early symptoms, if unequivocally established, will greatly facilitate the localization. Early symptoms of irritation of cranial nerves, particularly of the fifth or eighth nerve, are manifest of great diagnostic significance, in suggesting extracerebral origin of the disease. Deafness, general locomotor incoordination, disturbances of circulation and respiration, hemiparesis, or paralysis of conjugated ocular movements, introducing the disease, favor a diagnosis of the extracerebral origin. [C.A.O.]

6.—Ocular Signs of Cerebellar Tumor.—G. E. de Schweinitz says that the ocular signs of cerebellar growth are chiefly concerned with changes in the fundus oculi, particularly the nerve head, and with anomalies of the external ocular muscles and the movements of the eyeballs. In 164 cases of cerebellar tumor collected by Dr. John Weeks, optic neuritis was absent only 21 times. With the exception of growths of the corpora quadrigemina, and possibly those of the parietooccipital region, cerebellar tumors yield the highest percentage of papillitis, or so-called choked disc. Optic neuritis develops with rapidity in cerebellar tumors. A cerebellar growth may also originate a more moderate swelling of the nerve head, somewhat condensed in appearance and comparatively free from undue capillarity. An excess of neuritis on one side is in favor of the tumor being on the same side. Appearances exactly simulating those seen in retinitis albuminurica, particularly the so-called macular figure, may be found in brain tumor. There is apt to be early great disturbance of vision, rapidly proceeding to blindness. Insofar as the eye muscle nerves are concerned, the abducens is by far the most frequently affected, and convergent paralytic strabismus with involvement of one or both abducens nerves is not an unusual symptom in cerebellar growths. [C.A.O.]

7.—Functions of the Cerebellum.—Edward Lodholz reviews the literature of investigators who have removed the cerebellum of animals to study their actions. Many authors consider it an organ in which motor impulses are strengthened. Removal of the organ causes muscular weakness, which was described by Luciani as due to three factors: Asthenia, atonia, and astasia. It appears conclusive that the cerebellar cells are continually exerting an influence upon other nerve centers, but with reference to the true nature of this action nothing is known with certainty. [C.A.O.]

8.—Cyst of the Cerebellum.—J. M. Swan reports such a case in a girl of 18. She complained of constant headache for several weeks. She was very weak, vomited 2 or 3 times daily, and had severe pain in the back and in the left leg. She was blind in the right eye. Nystagmus was present. There was paresis of the right external rectus muscle. The patient died suddenly. The right hemisphere of the cerebellum was

found to be the seat of a large cyst which had almost entirely replaced the cerebellar substance on its ventral surface. Projecting on the surface of the hemisphere there was a round tumor, which was gelatinous at its peripheral portion, but more firm at its attached base. [C.A.O.]

Medical News.

February 18, 1905. [Vol. 86, No. 7.]

1. Intrapleural Complications in Pulmonary Tuberculosis. S. G. BONNEY.
2. Observations on Twenty-eight Cases of Prostatectomy. J. BENTLEY SQUIER.
3. The Opium Question in the Philippines. JAMES A. LE ROY.
4. Some So-called Rheumatisms. JAS. J. WALSH.
5. Case of Primary Malignant Tumor of the Lung. MAURICE PACKARD.
6. Calculi in Blandin's and Submaxillary Glands. Reports of Cases. HERMAN JARECKY.
7. Prognosis and Treatment of Chronic Nephritis. A. C. MORGAN.

1.—Intrapleural Complications in Pulmonary Tuberculosis.—S. G. Bonney states that pleurisy with effusion is often overlooked, due to faulty methods of examination. Percussion should be made to the very base of each lung. Moderate effusion may be devoid of rational symptoms, and is sometimes salutary, diminishing fever, cough, expectoration, and pleuritic pains and is followed by gain in weight. The benefits are but temporary and compression of the lung by gas or external contrivances is not to be commended. The liquid must be removed if there is fever, dyspnea or cardiac embarrassment. The use of the exploratory needle for diagnostic purposes is without justification. The determination of the nature of the liquid is unnecessary in view of the guidance afforded by other means. Radical operation in empyema, followed by expansion of the lung, may cause renewed tuberculous activity. In the absence of fever, sweats, and chills it seems foolhardy to precipitate such peril. If removal is indicated, aspiration is first employed, and if not successful, siphon drainage should be instituted. If this is not satisfying, the pleural cavity may be opened, with or without rib resection. If no time is to be lost, the radical operation should be done at once. The opening should not be too low, the tubes must be kept open, and the patient should be subjected to pulmonary gymnastics daily to permit the fullest drainage. Pneumothorax may be overlooked and the symptoms be attributed to hysteria or circulatory disturbances. There may be no marked initial symptom to suggest examination. Patients surviving the first day or two may linger for several years. In open pneumothorax the treatment is excessive stimulation and aspiration of the air. A canula may be left in place. Chronic pneumothorax should be let alone. In pyopneumothorax, treatment depends on the urgency of the symptoms. [H.M.]

2.—Prostatectomy.—J. Bentley Squier has performed 28 prostatectomies since 1900. Seven of these were by suprapubic incision, with perineal drainage. Three of these patients died as a result of operation; one died from shock and hemorrhage and two died from uremia. The seventh patient died within 18 months from pneumonia. Of the 21 operated upon by the perineal route but two died. Both of these had advanced kidney lesions and severe cystitis; one was 69 and the other 73. Squier prefers the median perineal route. In two instances the rectum was torn through in dissecting it free from the prostate. In each case repair was immediately accomplished. One patient recovered promptly, but the other suffers from a rectovesical fistula. It is probable that the ejaculatory ducts are torn through, whether the prostate is removed by the perineal route or the suprapubic route. Two of the patients in this series have been able to cohabit satisfactorily, but it is highly probable that they are sterile. The author calls attention to the frequency of postoperative epididymitis. It occurred in seven of his patients. Two patients had both testicles involved; the others but one. In one case suppuration occurred. Squier suggests ligation of the vasa deferentia prior to operation in certain feeble patients, as a means of preventing epididymitis. In the perineal route it is of prime importance to remove the drainagetube early if quick healing is desired. After this the bladder should be irrigated daily with a mild antiseptic solution. The youngest patient in Squier's series was 52 and the oldest 85. Contrary to the opinion of many operators that renal

sufficiency or insufficiency is the most important factor in determining for or against operation, the author asserts that 75% of his patients showed kidney lesions. He asserts that the anesthetic throws greater stress on the kidneys than does the operation. The choice of the anesthetic is small in comparison with the choice of the anesthetist. [A.B.C.]

3.—Opium in the Philippines.—J. A. Le Roy reviews the findings of the committee appointed to investigate the whole subject of control in the Orient. They recommend government control with prohibition at an early date, after which use shall be restricted to medicinal purposes. Prohibition is inadequate in places in which the habit already obtains. The agents of its sale ought never to have any interest in profits from it. The proportion of Filipino smokers to the entire population is insignificant, save in three or four pueblos, and the Chinese exclusion act will prevent an influx of smokers from without. Further recommendations in this policy of progressive prohibition are that the use of opium be forbidden to all inhabitants who are not males above 21 years of age, and shall be sold to these only on presentation of a license certifying that the licensee is a habitual user of opium and would be injured by sudden discontinuance. Users shall be disfranchised and also those who for a third time violate the laws regulating its use, fine or imprisonment being the penalty for the first two offenses. In case of nonnatives, the penalty shall be deportation. The cultivation of the poppy should be declared illegal. Educational literature should be distributed. [H.M.]

4.—Some So-called Rheumatisms.—J. J. Walsh thinks that much of the so-called uric acid diathesis with the consequent rheumatic pains is nothing more than neuritids of various kinds, due to overexertion; pressure upon nerve trunks preventing proper nutrition; the presence of irritant substances in the blood, such as alcohol, lead, and the blood disturbances of diabetes; and to some inherited weakness of special sets of nerves. Pains in the arm are often complained of by motormen, base ball pitchers, stone cutters, writers, etc. Lumbago is frequent among tailors, iron workers, and others who lift heavy objects. Sciatica is common among shovelers, motormen, and those who sit in awkward positions or on unsuitable chairs. Alcohol, lead and other poisons predispose to the neuritis, an accident being merely the signal for the outburst. That the pains are worse on rainy days may be from the fact that any drop in the barometer by making pressure on the surface of the body less, permits dilation of the surface capillaries with a tendency to congestion, which makes the nerves more sensitive than before. Even unaffected nerves express their dislike of damp weather by making muscles more easily fatigued than they were before. [H.M.]

5.—Primary Malignant Tumor of the Lung.—Maurice Packard reports that a cigarmaker of 55, had complained for five years with cough, pain in the chest, and expectoration. For the past two years the cough had been growing decidedly worse, and there was bloody expectoration, amounting at times to hematemesis. Dyspnea gradually became marked. Appetite and voice were normal. Both jugular veins gradually became greatly distended and tortuous. The superficial veins of the right side of the chest and upper abdomen were dilated and tortuous. Respiratory motion on the right side of thorax was limited; on percussion there was absolute flatness, and pectoral fremitus was absent. During the two months the patient was under observation, the disease progressed rapidly. Enlarged lymph-nodes appeared in each axilla, but the cervical and suprascapular regions remained free. Fluid collected in the right pleural sac, was removed, and rapidly reaccumulated. The patient died with a profuse hemorrhage. Necropsy showed the trachea at its bifurcation, the bronchi, and the right lung invaded by a growth which on microscopic examination was found to be a carcinoma. [A.B.C.]

6.—Calculi in Blandin's and Submaxillary Glands.—Herman Jarecky says calculi are found in all the salivary glands. Up to the present, including the author's 3 cases, a total of 213 cases have been reported. Jarecky says in most cases the calculus can be located with a fine probe, and if in the submaxillary or sublingual regions it can often be detected by combined palpation underneath the jaw and within the

mouth. These calculi should be removed under local anesthesia. The author employs a fine-pointed canula and syringe, with which a half dram of a 1 to 1,000 solution of adrenal chloride is injected directly into the duct. This is followed by from 5 to 20 drops of a 5% solution of cocaine. This makes the operation both painless and bloodless. Captions of the 3 cases reported are: Case I. Calculus in Blandin's duct, associated with one in Wharton's duct. Case II. Calculus in Wharton's duct attaining a large size (6 gr.) without symptoms. Case III. Small calculus with intermittent swelling of the submaxillary gland. [A.B.C.]

7.—Prognosis and Treatment of Chronic Nephritis.—A. C. Morgan states that treatment must be directed toward preventing advance of the process as the damage done cannot be repaired. Malleolar dropsy may exist for years with few other symptoms. Marked dropsy indicates either great structural change or heart failure. The disease may last from 5 to 30 years. The younger the patient the graver the prognosis. Only a small proportion die from this cause alone. Uremia indicates failure of compensation with death in a year or so. Diuretics should never be used until there is actual need for them. The skin should be kept active by flannels, bathing, massage, etc. An abundance of water is required, nitrogenous foods must be decreased, sclerosis inhibited by alteratives and anemia by iron. High tension is more or less essential, certain symptoms as flushing, congestive headache, vertigo, and epistaxis being indications for lowering it. The writer discusses other symptoms seriatim on the appropriate treatment.

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Functional and Organic Disease of the Nervous System.—E. S. Reynolds¹ reminds us that in the early stages of many nervous diseases, it is impossible to diagnose between the functional and organic. He cites a number of illustrations, including malingering, myasthenia gravis, brain tumor, cerebral syphilis, general paralysis of the insane, epilepsy, migraine, tabes dorsalis, exophthalmic goiter and disseminated sclerosis. The following are often of the greatest value in distinguishing between functional and organic disease: Eye changes, including optic neuritis or atrophy, paralysis of the eye muscles and alteration of pupillary reaction; speech affections, however slight; changes in handwriting; alterations of gait; transitory paralysis; spasticity of muscles, especially relying on the presence of a true ankle-clonus and an extension of the great toe as a reflex movement from stroking the sole. Some of these signs may be but slightly marked, but if present we ought to be cautious in giving an opinion, and any error should be rather on the side of organic disease than on that of mere functional derangement. [H.M.]

A Case of Bence-Jones Albuminuria.—F. Voit and H. Salvendi² report the case of a man of 57, who was known to suffer with gout. Otherwise he seemed perfectly well, in particular there were no signs of any bone disease. His urine, however, constantly contained the Bence-Jones albumin body to the amount of from 0.13% to 0.33%; casts could never be found. The only other constant sign worthy of note was a leukocytosis amounting to from 10,000 to 11,000; it affected the lymphocytes only, they being present to the extent of 60%. Even though there were no signs of bone-marrow tumors, the authors believe that we must assume their presence in the light of our present knowledge. Bence-Jones albuminuria has always been associated with tumors of the skeleton, either arising from the marrow or extending into it. Sarcomas, lymphosarcomas, chondrosarcomas, endotheliomas and myelomas have been found in such cases; in nearly all instances were the tumors multiple. There were slight differences in this case from the usual findings in this disease, as for instance the presence of a globulin in addition to the albumin, but this has also been observed in other cases. [E.L.]

¹ Medical Chronicle, December, 1904.

² Münchener medicinische Wochenschrift, 1904, II, 1281.

A Case of Gumma of the Heart.—Henry Hanford¹ reports the case. A woman of 32, who from the age of 14 until 23, had been a professional swimmer, and accustomed to giving exhibitions and remaining long under the water, in recent years had complained of symptoms referable to the heart. The patient died. The striking features in the case are great dilation of the right heart, caused by excessive exertion during adolescence, leading to a general breakdown from cardiac failure. Comparative recovery occurred, lasting for several years; this was interrupted by fresh cardiac symptoms, shown postmortem to be due to the presence of hard syphilitic gummas in the muscular substance of the ventricles, especially numerous in the neighborhood of the auriculoventricular groove. These symptoms consisted in great disturbances of the cardiac rhythm, with frequent periods of apparent cessation of the heart's action, lasting for 5 to 15 seconds, or longer. During these periods faint sounds could be heard, presumably due to continued rhythmic contraction of the auricles. There was no pulse at the wrist and no cardiac impulse, the face became pale, there was a slight general convulsion, then a few deep respirations were followed by a resumption of the regular heart's action for days. Each period of cessation seemed likely to prove final, and eventually the heart cessation was permanent. The most probable mechanism was a failure in the conduction of the contraction stimulation from the auricles to the ventricles at the auriculoventricular groove, the so-called heart plug. [A.B.C.]

Parrot's Disease.—Gaucher² stated that hereditary syphilitic pseudoparalysis, or Parrot's disease, is a disease of early infant life. The onset is sudden, and begins as a disease of the bones, without fever or convulsions. In most cases the children exhibit at the same time hereditary syphilitic change in the skin and mucous membranes, which enhances the difficulties of diagnosis. In Parrot's disease, however, the specific symptoms are secondary, and not tertiary. An important symptom is a weakness of all the limbs, and if the child is pinched while the muscles contract the limbs scarcely move at all. If the child is placed on one side only very limited spontaneous movements are possible. Moreover, these manipulations are very painful, and make the child cry violently. Often crepitation and swelling are observed in the shoulder-joint. Electrically there is no change to the faradic and galvanic currents. The pathologic change is confined to the bones, involving first the humerus, tibia, ulna, radius, and fibula, and consists of an osteitis at the epiphyseal portion and a separation of the epiphysis. The prognosis is very gloomy, and depends upon the severity of the infection, and upon the multiplicity of the accompanying luetic visceral changes. [J.H.W.R.]

Diagnostic Signs of Early Pulmonary Tuberculosis.—E. Hirschfeld³ considers it dangerous to start an inactive tuberculous herd into an open reaction by the administration of tuberculin so long as we are unacquainted with the precise character of the reaction in the affected lung. A characteristic feature of early tuberculosis is the susceptibility of body temperature to that of the surrounding atmosphere and to exertion. In summer or on unusually hot days at other seasons the outside heat will raise the temperature of the patient to between 99.2° and 100.4° if he is following his usual occupation. This rise is most noticeable between 1 p.m. and 3 p.m., digestion acting evidently in the same manner as bodily exertion. If fever accompanies the tuberculosis, outside heat will raise the temperature 2° or 3°, although the patient is resting. The rise is more marked in the young and excitable than in older and more phlegmatic patients. Menstruating women are subject to a rise. In tuberculosis of the apex the spinal column between the sixth cervical and the second dorsal vertebrae is slightly drawn toward the affected side. Vicarious emphysema may hide the dull percussion note and then this deviation becomes valuable as a symptom of early pulmonary tuberculosis and reminds us that it is a recurrent disease. When it is limited to one apex, expansion amounts to 3 in. and 4 in., unless pleuritic pains cause shallow breathing. The two sulci between the lateral and middle glossoepiglottic folds are covered with

dilated veins lying near the surface. The cause must be expiratory rise of intrathoracic pressure from repeated coughing. The breath resembles the acetone-containing breath of diabetic patients. Sputum, when examined separately, does not have a similar odor. [H.M.]

Nervous Exhaustion in Infants.—W. P. Northrup's⁴ paper is made up largely of the notes of two patients, both of them babies whose parents were society people, and who made the mistake of waking the baby to show him to visitors, of whom they usually had a houseful, and in every way conspired to give the child a taste of the strenuous life they were living. As a consequence the babies were nervous, pale, thin, and vomited a large part of the food taken. The problem was to get them in a quiet place, where sleep was a possibility. The fretful nurse of one had to be discharged in order to give the baby a chance. Northrup says the lesson of quiet surroundings must be taught parents and certain practitioners. Especially necessary is quiet to initiate stomach digestion. This points to the necessity of close, constant watching and individual case studying. "We need not interest ourselves with the mother who takes a year at the baths to recover from the strenuous life of the winter and summer. We should, however, try to protect the coming generation from nervous exhaustion, nervous dyspepsia, sleepless nights, and choreic jerkiness before they have cut their first teeth." [A.G.E.]

Nephritis in Scarlet Fever.—H. Reichel⁵ examined the kidneys in 53 fatal cases of scarlet fever. In 23 of these the clinical diagnosis of nephritis had been made, and a slight albuminuria had been found in a few more cases. Changes in the kidneys were found in many more cases that showed no clinical symptoms thereof. Two independent inflammatory conditions were found—an interstitial focal inflammation, and the typical postscarlatinal glomerulonephritis. The interstitial nephritis may occur early in the disease, especially if it be of septic character; it may become extensive without producing symptoms, or the latter may be very severe without any involvement of the glomeruli. The typical glomerulonephritis undoubtedly begins earlier than the clinical appearance of the disease. The latter occurs with considerable regularity in the second half of the third week. All of the glomeruli are more or less affected by the inflammatory process, which is usually confined wholly to these parts of the renal tissue. The most prominent changes in the glomeruli are a thickening of the walls and a proliferation of the nuclei of the endothelial cells in the capillaries. The latter contain numerous leukocytes, especially in severe cases, and are frequently the seat of fibrin formation. The epithelial lining of the capsule of Bowman may be the seat of degenerative and desquamative changes. There results a manifold obstruction of the blood current in the glomeruli. The renal condition may be complicated at this stage by cardiac insufficiency. If death does not occur at this time, a considerable degree of restitution of the kidney may take place. In some cases, however, further pathologic changes may occur in the malpighian bodies, with diffuse inflammation of the remaining renal tissue. In those bodies which do not go on to restitution, obliteration of the capsular space occurs with connective tissue overgrowth in the glomeruli themselves. The author believes that all evidence points to a chemic, rather than a bacterial influence as causing the nephritis. [B.K.]

The Role of the Shiga Bacillus in the Causation of Dysentery.—G. N. Kazarinow⁶ fed cultures of the Shiga bacillus to a number of rabbits to determine their influence on them. He employed cultures the virulence of which had been increased to the highest point by previous passage through animals, alkalization of the gastric juice, etc. Their virulence was tested by means of the agglutinating reaction between the cultures and the serum of a rabbit, which had been treated for four months and made immune. The cultures mixed with definite quantities of water were introduced through an esophageal tube. It was found that five cultures of an organism of which 0.0005 cc. kill the animal when injected intraperitoneally, produced no other symptoms in the rabbit except a transient weakness. When neutralization of the gastric juice preceded

¹ British Medical Journal, December 31, 1904.

² Wiener klin.-therapeutische Woch., December, 1904, p. 1386.

³ Australasian Medical Gazette, November, 1904.

⁴ Archives of Pediatrics, January, 1905.

⁵ Zeit. für Heilkunde, Bd. xxvi: Abth. f. Path. Anat., Heft 1, p. 72.

⁶ Archiv für Hygiene, 1904, I, 68.

the test, especially in animals left to hunger for a day, death occurred very soon, but the intestine showed very few pathologic signs. A typical symptom-complex was produced in cases where in addition to the foregoing precautions, intestinal peristalsis was delayed by opium. One of the animals, having been permitted to fast for two days, showed diarrhea on the fifth day, blood appeared in the evacuations on the eighth day and death ensued on the ninth. The autopsy showed the changes of the first stage of dysentery; hyperemia and swelling of the mucosa of the large intestine, fibrin in places, hemorrhages and ulcerations, collections of mucus and blood in the lower parts of the bowel. He concludes, therefore, that the bacillus of Shiga is the causation of the symptom-complex known as dysentery. [E.L.]

Interlobar Empyema.—Sir William Broadbent¹ says this form of empyema has not received adequate attention. Of several patients in whom he suspected the condition, two were verified by operation. In one other patient the pus made its way to the surface, just outside and above the mamma; in another, there was a sudden purulent effusion into the pleura. In several the pus had burst into a bronchus. It may almost be inferred when an empyema is discharged through a bronchus, without the occurrence of a pneumothorax, that it has been localized in the fissure. It is difficult to see how fluid collecting in the pleura could gain access to the bronchi without ulceration, and this would probably mean air in the cavity. Notes of the two patients operated upon are given. In one the diagnosis was based on the fact that the physical signs varied from day to day, more particularly that they shifted from the upper to the lower lobe, and back from the lower to the upper in a remarkable way. It was inferred that an empyema between the lobes pressed upward or downward, according to the position in which the patient lay. Dulness was finally recognized near the apex of the axilla, and a trocar inserted there brought pus; resection of a rib was followed by recovery. The second case presented similar signs, and exploratory puncture made in the left anterior axillary line just below the lower border of the pectoralis major, with the arm at right angles to the body, revealed pus. [A.G.E.]

The Anthropometric Investigation of Hospital Patients.

—F. C. Shruballs² states that the object of his paper is to show that, as regards the influence of urban residence, London follows the same rule as the continental cities, and to inquire if any relation exists between health and physical characteristics. His conclusions in part are: (1) That certain diseases show special affinities for certain types of population; (2) that adult hospital patients, as a whole, are slightly fairer than the average population within the sphere of attraction of each hospital; (3) that with each successive generation of city life the fair element sends an undue proportion of its numbers to the hospitals; (4) that child patients are markedly fairer than the children in the districts around the hospitals; (5) that diminution of stature and increase of brunet traits are almost certainly progressive with increased heredity of an urban environment. During the early years of each generation the fair element certainly presents its maximum representation. During this period the chief causes of death are disorders of the alimentary and respiratory systems. The special instances of illness of the lighter class of the community continues until the period 20 to 25, when, owing to the sudden arrest of mortality from pulmonary tuberculosis, the darker element begins to suffer severely; at this period, 20 to 25, it seems certain that dark traits are at their maximum frequency. Between the ages of 20 and 40 about half the deaths that occur are due to pulmonary tuberculosis. [A.B.C.]

Concerning the Treatment of Blood Affections with the Röntgen Rays.

—R. Milchner and M. Mosse³ publish their results in the investigation of the influence of the röntgen rays upon blood diseases. The rather scarce literature on this subject is reviewed and a number of illustrations are given to show the effects of the rays upon the blood cells. Rabbits subjected to the rays at close range demonstrated a change only in

the white blood cells of the bone marrow; of these, both the lymphoid and myeloid elements disappeared. The red blood cells remained uninfluenced. These observations prove, as has already been found to be true in practice, that these rays are of little use in pernicious anemia, but may considerably improve a case of leukemia. The authors admit that since these experiments were tried on the lower animals it does not necessarily follow that the same results would be obtained in the human being. [W.E.R.]

Difference in Radial Pulse in Tuberculosis and Other Thoracic Diseases.—Josef Sörgo¹ asserts that if a difference in the two radial pulses exist in tuberculosis of the lungs—if other reasons can be excluded—it points to the existence of a shrinking of the apices. [J.H.W.R.]

Cystinuria.—C. E. Simon and D. G. J. Campbell² review the investigations of others and record their own observations. It has been established that cystin is a normal intermediate product of the sulfur metabolism of the body, and its occurrence in the urine can scarcely be a deviation from normal katabolism, so far as its primary formation is concerned. Sulfur of the albuminous molecule is set free as cystin; this is, in part, eliminated in the bile as taurocholic acid, and in the urine in completely oxidized form, with a small fraction as non-oxidized sulfur, which, however, is no longer cystin. As there is evidence that cystin may unite in the liver directly with cholic acid, forming thus taurocholic acid, the writers endeavored to ascertain how a cystinuric individual would react to cholic acid. Control examinations were made in a noncystinuric person, who received both cystin and cholic acid. The results show that while cholic acid in the noncystinuric individual leads to diminished elimination of sulfur in the urine, this does not occur in the cystin subject. This suggests that in the latter taurocholic acid is possibly not formed at all, in which case we are forced to assume either that all the sulfur is eliminated in the urine, or that a portion is excreted in the bile in a form different from taurocholic acid. [H.M.]

Nail Changes after Scarlet Fever and Measles.—E. Feer³ relates having observed the following nail changes after scarlet fever and measles: About the fourth to fifth week after the onset of scarlet fever, a transverse linear furrow may be observed running across the surface of the root of the finger-nail; sometimes it is a distinct thickening. As the nail grows this line grows forward, not disappearing therefore until six months after its appearance, as it takes that length of time for the nail to grow from root to free edge. This furrow is especially well marked in the case of the thumb-nail. These depressions can be seen also, but to a less degree in measles. The author says they are analogous to the desquamative process of the skin. These furrows are of importance in instances where scarlet fever passes off without medical aid and a complication requiring medical attention develops within six months; nephritis and articular rheumatism have been traced by the author to scarlet fever on the strength of these furrows. [E.L.]

Myxedema Associated with Tuberculosis of the Adrenals.

—J. Ramsay Hunt⁴ reports a case of which the summary is: A woman of 51, with wellmarked nervous and cutaneous symptoms of myxedema. Insidious onset, and gradual progression, the duration being four years. Death from purulent bronchitis with beginning bronchopneumonia. At autopsy the thyroid gland was found sclerosed and atrophied. The hypophysis cerebri was slightly enlarged. Both adrenals were the seat of extensive chronic tuberculosis. Histologic examination of the central and peripheral nervous systems was entirely negative. There was wellmarked general arteriosclerosis. Hunt regards the atrophy and sclerosis of the thyroid as the important and essential change. The coexistence of tuberculosis of the adrenals must be looked upon as a rare and curious example of a pathologic coincidence; he finds in literature no record of a similar combination of lesions. Hunt adds no new theory as to the nature of the changes causing the disease. [A.G.E.]

¹ The Practitioner, February, 1905.

² British Medical Journal, December 31, 1901.

³ Berliner klinische Wochenschrift, December 5, 1901.

¹ Wiener klin. Woch., No. 50, 1905, p. 1337.

² Johns Hopkins Hospital Bulletin, November, 1904.

³ Münchener medizinische Wochenschrift, 1904, II, 1782, No. 40.

⁴ American Journal of the Medical Sciences, February, 1905.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Resection in Cases of Knee-joint Tuberculosis, and Its Results.—We are now passing through the transition stage with regards the operative treatment of many conditions. The introduction of anesthesia sixty years ago made possible many operations hitherto unknown, and modern antisepsis coming thirty years later still further enlarged the field of operative intervention. With greater perfection in aseptic and operative technic the results of many grave operations have steadily improved, and at the present time the question in many forms of disease is not whether operation is advisable at all or late in the disease as a last resort, but whether better results and lower mortality could not be obtained by more timely intervention in nearly all cases. This has been already decided in the affirmative with regards appendicitis, hernia and many other conditions and it seems a decided question whether more radical early treatment would not give better results in dealing with many tuberculous lesions. As regards the knee-joint there are still numerous conservatives who advise injection of iodoform emulsion, venous stasis or prolonged fixation as the preferable form of treatment; who would reserve resection for only the very advanced cases in which conservative measures have proved a positive failure. Several questions come up for consideration in deciding which form of treatment is preferable. Among the poorer classes the prolonged conservative treatment with its uncertain results is often a matter of so great expense, and the conservative measures can be carried out only so imperfectly that there can be little question as to the desirability of the more general resort to early resection. Other questions of importance apply to persons in all positions in life; the mortality of the operation; the immediate and permanent local result as regards healing; and the function of the limb; the influence of the operation on the general condition of the patient; whether the general health is benefited or whether operation, as some have suggested, increases the danger of pulmonary tuberculosis, tuberculous meningitis, general miliary tuberculosis or other grave tuberculous lesions. A recent paper by Blauel,¹ from the Tübingen clinic of Von Bruns, gives definite information with regard to results of 400 resections of the knee-joint which have been performed during the past 20 years, since Von Bruns formulated the general rule that tuberculosis should be treated like a newgrowth, and all of the diseased tissue removed and sound tissues reached.

There were no deaths following these 400 operations which could be properly attributed to the result of the operation itself. In not one single instance did shock, hemorrhage or wound complications cause a fatal result. In all, 7 patients died within 6 weeks after the operation; 3 from meningitis and miliary tuberculosis, 2 from pulmonary tuberculosis, and 1 each as the result of a bad heart lesion and nephritis; hence there would seem to be nothing in the danger of the operation itself which should lead us to hesitate to advise it in any suitable case. Most of the patients were suffering from very advanced joint disease at the time of operation, and it would not have seemed strange had the mortality rate been quite high from tuberculous lesions elsewhere after operation. As a matter of fact, 15% died from tuberculosis of other organs later on, a large proportion of these deaths occurring within the first two years after operation. But according to Flügel's statistics, nearly 12% of all mankind die from tuberculosis, so it would seem that the deathrate from tuberculosis after joint resection is not very much greater than among people in general. The functional results were usually very good, giving a useful limb in nearly all cases. Later amputation was found necessary in only six cases, although the disease was quite far advanced in many at the time of operation. Operation is not advised in patients over 50 years of age, or as a rule in young persons, although the nonunion of epiphysis need not be considered a contraindication for operation if care is not taken to divide the bone above the epiphyseal line. In conclusion, Blauel states that the extraordinarily

good results of resection in adults and children alike seem to justify the radical operation as the treatment of choice in all cases of any considerable severity.

We believe that this conclusion will meet the approval of most surgeons of experience in the treatment of knee-joint tuberculosis. Conservative treatment is often very imperfectly carried out because of the neglect of the patients, particularly if they belong to the poorer classes, and even when faithfully followed, resection is needed later in a very large proportion of the cases. Months and years of time are lost, the patient suffers a great deal of unnecessary pain, and often the general health is greatly impaired as result of confinement. In many cases in which the disease seems to be permanently cured the trouble lights up again in later years, and no patient can ever be considered definitely cured, no matter how long the disease may have remained quiescent. More than this, the danger of leaving a focus of disease of the gravity of tuberculosis in the body is not small. The so-called conservative methods that are continually being introduced unfortunately prove of little value in most cases, and many of them have been permanently abandoned. Some are directly harmful, and others indirectly so by delaying operation until too late to get the best results. No doubt more frequent resort to early resection would save much suffering, give many more useful limbs, save valuable time, and a considerable number of lives.

REVIEW OF LITERATURE

Traumatic Diaphragmatic Hernia.—H. B. G. Newham¹ reports that a laborer fell from a scaffold to the ground, a distance of 30 feet. He was immediately taken to a hospital and was found to have sustained a fracture of the left femur, considerable bruising of the chest and abdomen, but no signs of fractured ribs. He was vomiting and in collapse and there was dulness in the abdomen. A ruptured spleen was suspected. The grave condition precluded operation. The patient recovered sufficiently well to leave the hospital some weeks later, but had occasional attacks of vomiting and of pain in the cardiac region. These continued, and were especially marked after taking food. Some four months after the original accident he was seized with severe pain in the chest and abdomen, together with dyspnea, and death resulted. A necropsy showed that the stomach, accompanied by part of the transverse colon, both greatly distended, had passed through the diaphragm and practically filled the left side of the thorax. The left lung was firmly pressed back against the spinal column; it was quite airless, small, and deeply pigmented; the heart was pushed well to the right of the sternum; the right lung was completely bound down by a pleuritic adhesion; the diaphragm showed a large opening slightly to the left of the middle line. Through this the stomach and intestine had escaped into the thoracic cavity. It is supposed that this diaphragmatic hernia occurred at the time of the accident. [A.B.C.]

Diagnostic Significance of Pus in the Urine.—M. C. Millet² reminds us that large amounts of pus may mean but little to the patient and microscopic amounts may mean serious disease. Search for the origin of pus must begin at the meatus and proceed backward. If in doubt as to anterior urethritis, the two or three-glass test should be used, the first urine passed washing the urethra clean. Pus from a posterior urethritis, prostatitis, or epididymitis usually finds its way to the bladder. After irrigating this thoroughly the prostate and vesicles should be massaged and the voided urine again examined for pus. Alkaline urine is suggestive of bladder disease, but nothing excludes error except the cystoscope. The commonest causes of vesical pus are cystitis, stone, ulcers, and tumors. The commonest infections are from the colon bacillus and the gonococcus. Ulcers, when primary, are tuberculous or from trauma. Pelvic suppurations may rupture into the bladder. Some form of an intravesical separator avoids the possibility of carrying infection to a sound ureter and kidney. The Harris segregator

¹ Beiträge zur klinischen Chirurgie, 1904, Vol. xlii, p. 1.

² The Lancet, December 24, 1904.

³ St. Paul Medical Journal, November, 1904.

is very satisfactory. Another safe method is to catheterize the ureter of the kidney known to be diseased, preventing the urine from entering the bladder, then to irrigate the bladder, and through another catheter collect the urine from the kidney supposed to be sound as it flows into the bladder. This has the practical accuracy of double catheterization without its dangers. When calculus is the cause of pus, a good radiograph will show its presence. Whether calculus is causative or secondary to pyonephrosis is often difficult to determine. [H.M.]

Appendicitis Ending in Recovery without Operation.

—H. B. Allyn¹ reports a case in which he advised operation, but this was repeatedly advised against by a surgeon called in consultation. The patient was a man of 60, and both physician and surgeon were reasonably sure that pus had formed. The leukocyte count on the ninth day was 32,750. The surgeon deferred operation mainly because the patient's age, the probable condition of his heart and kidneys, and the surgical difficulties in the way indicated there was less danger in noninterference. The most weighty point was the situation of the abscess, near the middle line, and the danger of causing general peritonitis by opening it. The patient finally made a good recovery. Allyn says this case raises several questions of great interest. We have passed the period when conscientious physicians feel justified in treating all cases of appendicitis medically. Allyn makes certain reservations from the proposition that all patients should be operated on immediately. Universal operation for any disease cannot be recommended, local conditions may make operation inadvisable, and the attendant must be sure of his diagnosis. The rule followed by him is to put the patient to bed, empty the bowels by enema and a laxative, preferably castor-oil, by the mouth, and allow no nourishment for 24 hours. If at the end of this time he is not markedly improved, the sooner he is operated upon the better. [A.G.E.]

Operative Treatment of Conditions of the Gastrointestinal Tract which Result from Chronic Constipation.

—W. R. Berthnot Lane² considers in a detailed manner the causation, pathology, symptoms, and treatment of changes in the gastrointestinal tract which result from habitual overloading of the large bowel. There is dilation and a corresponding lengthening of the large bowel. In some instances the cecum occupies the floor of the true pelvis, and the transverse colon may loop down until it comes in contact with the displaced cecum. There is fixation of the large bowel, with corresponding atrophy of the muscular coats; there is marked diminution in the respiratory capacity of the patient, mental depression is associated with toxemia resulting from absorption in the intestine. The most marked feature of the poisoning is progressive loss of fat and increasing stain of the skin. For this condition the author recommends surgical interference. He divides the ileum, resecting a portion above the ileocecal valve; both divided ends are closed by invagination and suture. At a convenient point in the sigmoid or the large bowel immediately above, the proximal portion of the ileum above the point of division is joined by anastomosis, and thus the large bowel is practically side-tracked. In this manner the fecal contents from the ileum pass directly into the sigmoid flexure, and thus the condition is relieved. In aggravated cases he removes the cecum and ascending colon entire. If there is a tendency to accumulation by backward flow into the colon, he removes the mass by enemas. [A.B.C.]

Etiology of Prostatic Hypertrophy.—J. W. Churchman³ quotes Cilchanowsky as stating that chronic inflammation of the prostate occurs in so large a majority of patients whose urethra has been infected, as almost to warrant our considering it a necessary sequel. As 70% to 90% of men are said to be infected, the frequency of chronic prostatitis is thus explainable. The chronically-inflamed prostate has the same appearance, microscopically, as the hypertrophied prostate, and the latter is most often a gonorrhea tarda. But the clinical evidence is against, rather than for, the inflammatory theory. Hypertrophy is not a constant result of gonorrhea, and a study of the incidence of the condition in gonorrheal and nongonorrheal cases shows no marked difference between the two series.

Moreover, hypertrophy occurs at a definite period of life. An accompanying, but not, therefore, a causative prostatitis, is what should be expected, for a larger majority from catheterism, stone, or retention, have an infection of the bladder, which must give rise to a prostatitis. [H.M.]

Cure of a Severe Esophageal Stricture with Sounds.

—Wadsack¹ reports a case in which the patient, a young girl, had swallowed, with suicidal intent, hydrochloric acid. After three weeks' treatment she apparently made a perfect recovery. A half year later a stricture developed followed by complete closure of the esophagus against the admission of food. The introduction of a sound showed the stricture to be 25 cm. (10 in.) beyond the edge of the teeth. It remained impervious to the smallest sound. After many attempts with variously sized sounds the author was finally able, at the end of 10 days, to pass a thin Crawcour spiral sound. It was allowed to remain there for a quarter of an hour. This procedure was repeated daily until she was able to swallow liquids. This instrument was then replaced by a Senator's swelling sound, which consists of a soft sound on which a lamina tent is fastened. This apparatus is left in the stricture until the patient feels the swelling of the tent which usually occurs in about 15 minutes. This treatment was followed by noteworthy results; the patient was able to swallow all food and gained 66 pounds in 70 days. [W.E.R.]

Etiology and Prophylaxis of Appendicitis.

—A. F. A. King² says modern man has brought upon himself the affliction of appendicitis; he is keeping up the regularly progressive increasing prevalence of the disease by a similar increasing use of the bicycle. The use of the bicycle explains the infrequency of appendicitis in infants and very young children, and it shows a striking chronologic coincidence with the rise of our modern appendicitic era. This is shown by a number of elaborate tables. The cause of appendicitis is trauma by the psoas muscle, this being excessive in the case of the bicycle rider. Prophylaxis consists in giving up the bicycle or the appendix; the question remains to be settled if removal of the appendix would prevent typhlitis or perityphlitis. One conclusion seems inevitable, namely, one or more attacks of appendicitis, typhlitis, or perityphlitis having occurred, the use of the bicycle should positively be prohibited. [A.G.E.]

Indications for Operative Interference in Diseases of the Stomach.

—Robert Saundby³ considers surgical interference with reference to the following pathologic conditions of the stomach: Hemorrhage, gastric dilation, hour-glass stomach, hyperchlorhydria, chronic gastritis, atonic dyspepsia, gastralgia, and cancer. These are discussed at length with reference to the justifiability of surgical interference. In gastric cancer he quotes, with approval, Krönlein's conclusions, who says surgical interference is justified under the following conditions: 1. In carcinoma of the stomach; without operation the case has a fatal termination in a year. 2. Gastroenterostomy prolongs the life of the patient for about three months, on the average. 3. Gastrectomy, so far as it is followed by recurrence, prolongs life on an average about 14 months. The author urges the importance of the assistance derived from surgery in the treatment of various stomach disorders and urges the necessity for seeking surgical aid before the patient's strength is undermined by the duration of the disease, and calls attention to the value of simple means of diagnosis which he outlines. He hopes that surgeons may reconsider the claim to operate in every chronic ailment of the stomach which has not been relieved by medical means, and urges that they select their cases by studying the indications which justify operative interference, and hopes that they will avoid, as far as possible, operating upon patients who are the subjects of general neurasthenia. [A.B.C.]

Radical Operation in Tuberculous Ileocecal Tumors.

—Hans Fröhlich⁴ claims that the results of radical operation upon tuberculous tumors of the ileocecal region are more favorable than those for cancer of the large intestine, in which the mortality is 50%. The radical operation in primary tuber-

¹ Medicine, January, 1905.

² The Lancet, December 17, 1904.

³ Maryland Medical Journal, November, 1904.

¹ Berliner Klinische Wochenschrift, December 5, 1904.

² Washington Medical Annals, January, 1905.

³ British Medical Journal, December 17, 1904.

⁴ Wiener klin. Woch., 1904, No. 50, p. 1844.

culous tumors of the intestine is absolutely indicated, as thereby the focus of the disease may be completely removed, and the patient may again become perfectly well. The radical operation is also indicated in secondary tumors, as thus a new origin for infection may be removed and in the event of a cure of the primary focus, which is not rare in tuberculosis of the lungs, it would permit a complete recovery. [J.H.W.R.]

Some Problems in Asepsis.—A. S. Vallack¹ is convinced that the majority of dangerous wound infections are due to inoculations with organisms derived from a similar case. The infection is carried directly from one patient to another by the surgeon's hands. The phrase "sterilizing the hands" should be abandoned. Contamination can be avoided by rubber gloves. The assistants and nurses at all operations should wear these. They hamper the surgeon more or less in delicate manipulations, but he should certainly never touch with unguarded finger any septic patient. The microorganisms ordinarily found on the skin are not highly virulent. Custom has relegated midwifery to physicians rather than surgeons, otherwise the mortality from puerperal fever would be still greater than now. Instruments that cannot be boiled had better be destroyed. Catgut which will not give rise to growths in culture may yet infect wounds, as the germs are in its substance. To sterilize gut with chemicals the fat must be removed. Heat is preferable to chemic methods. The writer describes an apparatus by means of which the gut immersed in turpentine is kept by means of a water-bath at a temperature of 100° C. for six hours. A preserving jar set in a saucepan answers the same purpose. This insures complete sterilization of the gut. [H.M.]

Osteogenesis Imperfecta.—P. W. Nathan² says the systemic bone diseases of the fetus may be divided into: 1. Those associated with other constitutional anomalies. 2. Chondrodystrophia fetalis. 3. Osteogenesis imperfecta. Although the last has been regarded as incompatible with extrauterine life, Nathan reports two cases met during the past five years. One patient is 16 months, the other 17 years old. The latter has suffered at least 35 fractures. Idiopathic fragilitas ossium and osteogenesis imperfecta are therefore only two names for the same condition. The fragility diminishes somewhat with age. The differential diagnosis is comparatively easy, as there is no other congenital disease in which there is such uniform fragility of the entire skeleton. Hereditary syphilis is the only disease with which it may be confounded, but the fractures in the former do not occur so frequently, nor are they produced by such insignificant violence. The cause and pathogenesis of osteogenesis imperfecta are as yet complete mysteries. The treatment consists simply in placing the patient in a position to avoid fracture. In mild cases the application of braces will be of benefit, insofar as they protect the limbs. [A.G.E.]

Two Cases of Severe Cranial Injury.—W. D. Chapman³ reports that a man of 27 descended a steep hill on his bicycle at great speed; his head struck the stones of a wall running transversely to the direction in which he was going. He was conveyed a mile to a hospital where he sat up and answered questions while his injuries were attended to. There was a compound comminuted fracture immediately below the right frontal eminence extending into the frontal sinus; the opening was triangular and 1 in. by $\frac{3}{4}$ in.; the pulsations of the brain were visible; the dura was torn and the cerebrospinal fluid escaped; 6 loose fragments of bone were removed; the nasal bones were crushed in; the right zygion was fractured; and there was a compound fracture of the left superior maxilla; the lower lip was completely torn through and the tongue almost divided. The patient recovered. In a second case a woman of 37, in mounting her bicycle, caught her dress on the pedal and fell. Her head struck the ground and caused a superficial abrasion, which bled for a few minutes. A minute after the fall she was perfectly conscious and tried to remount her wheel. Though feeling somewhat ill, she walked a distance of $\frac{1}{4}$ miles, pushing her wheel. Two hours after the accident she complained of pain in the head. A physician was called, who found her drowsy and unable to answer questions. Operation

was advised in view of her condition, the left pupil being larger than the right, and she was comatose. Stertorous breathing quickly supervened, and the patient died before operation could be resorted to. Necropsy was not permitted. Evidently cerebral hemorrhage caused the patient's death. [A.B.C.]

Foreign Body Removed by Bronchoscopy.—G. Killian¹ reports the case of a man of 56, who on February 7 swallowed a piece of bone, this entering the left bronchus. The patient came to him on May 20. In the interim he suffered with cough, stridor, difficult breathing, but at no time had he fever or pneumonic symptoms. Physical signs and laryngeal examination pointed to the left bronchus as the seat of the bone; the skiagraph was negative, most likely because of the heart shadow, a previously attempted bronchoscopic search had proved futile. Chloroform was employed as a narcotic, and the larynx, trachea, and bronchus cocaineized. The bronchoscopic apparatus was inserted very readily, and the bone seemed embedded in inflamed mucosa. After several attempts it was removed; it was surrounded by a quantity of foul pus. The operation required about five minutes. The bone measured 2:1:0.5 cm. The patient recovered very quickly, even the physical signs disappearing within the next two weeks. Killian reports that to date bronchoscopic extractions have been performed in 42 cases, and of these 35 were performed by his method. The extraction was successful in 32; in 18 lower bronchoscopy, in 14 upper bronchoscopy was the operation of choice. The former, according to the author, can be performed by any surgeon or physician who has some technical knowledge; for the performance of the latter, specialistic knowledge is required. [E.L.]

The Cystoscope in Prostatic Hypertrophy.—H. H. Young,² although the inventor of a retrograde cystoscope, has abandoned it and all similar ones as entirely unsatisfactory, and uses now the simple cystoscope with a technic, which he describes in minute detail, and has kept the records of 200 cases on a system of charts composed of a number of circles, in which he draws the outline seen in the mirror as he turns it toward successive segments of the swelling. These circles are arranged in such order that the form of the growth can be reconstructed from them, and the shape of the prostatic orifice as well. The changes in the latter, according to the lobes hypertrophied, he illustrates diagrammatically. These pictures can be made to show also the extent of the hypertrophy and the depth of the clefts. Diverticulums, tumors, stones, changes in the ureteral orifices, etc., may also be pictorially recorded. [H.M.]

Transplantation of the Ureters.—F. N. Tawildarow³ advises the implantation of the ureters into the bladder as the best method in all cases where the ureters are injured in their integrity. It should be the aim of the surgeon performing this operation to preserve the nutrition of the tissues. This is accomplished by using only a limited number of sutures, by avoiding tension of the ureters, and by bringing the detached ureter into immediate contact with its bed. The last desiderium necessitates the suturing of the peritoneal incision over the ureter. The cystoscope gives the necessary control of the results. The author also discusses the management of the ureters in operating for uterine cancer. [L.J.]

Diagnosis and Surgical Treatment of Chronic Indigestion.—Gilbert Barling⁴ classifies the various conditions for which surgical treatment may be required, excluding perforation, and states that they fall in four groups: (1) Chronic gastric ulcer, frequently relapsing despite proper diet and rest; (2) hemorrhage from gastric ulcer, under certain conditions; (3) mechanical obstruction to the emptying of the stomach from pyloric stenosis, hour-glass contraction, or external adhesions; (4) ulcer or stenosis of the jejunum. These various subjects are discussed at length and the indications which warrant surgical interference are pointed out, illustrative cases being recited. Barling states that the operative measures required for the relief of the various conditions are as follows: (1) Excision of ulcer; (2) pylorodiosis, or stretching of a narrowed

¹ Australasian Medical Gazette, December 23, 1904.

² American Journal of the Medical Sciences, January, 1905.

³ The Lancet, December 17, 1904.

¹ Deutsche medicinische Wochenschrift, 1904, xxx, 1206.

² Johns Hopkins Hospital Bulletin, November, 1904.

³ Russki Vrach, November 6, 1904.

⁴ British Medical Journal, December 17, 1904.

pylorus; (3) pyloroplasty or gastropasty, division of the stricture and its widening by a special method of suture; (4) gastroenterostomy. He believes that pylorodiosis should fall into disuse from the fact that the stretched pylorus readily retracts, and in the stretching the peritoneal coat may rupture with resulting peritonitis. Pyloroplasty and gastropasty should be reserved for cases of strictured pylorus, or hour-glass contraction, and in which the local conditions are favorable. Gastrojejunostomy is the operation of election in the large majority of cases. The after-treatment in these gastric operations is detailed at length. Regurgitation may give rise to anxiety, but increased experience has taught surgeons that this is of less importance than formerly supposed. [A.B.C.]

Surgical Anesthesia in Childhood.—A. F. Erdmann¹ says that up to two or three months of age, anesthesia is not needed. Preference is usually given to chloroform as an agent, but Erdmann finds ethyl chlorid very efficient. A point to remember is that extension of the head is a position of danger, and manipulation of the lower jaw must be mainly relied upon to keep open the upper air passages. When the child has to be held up by main force, ethyl chlorid, A. C. E. mixture, a Schleich solution, or anesthesol should be used. The behavior of the eye in children is uncertain. Of special importance is the appearance of the patient—a leaden, ashy pallor being more to be feared than a blue color. Anesthesia can be induced while a child is sleeping and is good practice. The difficulty is one that is apt to give too strong a vapor and to attempt it during a light sleep. Erdmann has devised a tubular spring to slip over an Allis rubber cover and thus make the face opening fit any size individual. [A.G.E.]

Hypertrophy and Inflammation of the Male Breast.—A. R. Colvin² states that tumors, although less common, occur in as great a variety as in the female breast, and furnish the same difficulty of diagnosis. Hypertrophy of the breast in lactation gives a different picture from that occurring apart from this period. In the former the increase is in the glandular tissue, in the latter in the periductal tissue, as in the young girl's breast. This form has been spoken of as diffuse adenoma. At puberty there is often in both boys and girls a swelling similar to that seen in infants about the fourth or fifth day. The writer reports a case of double carcinoma in a man of 45, and a case of enlargement of the male breasts in a physician, occurring synchronously with his wife's pregnancy, and subsiding with the birth of the child. The physician stated that he was always nauseated in the early months of her pregnancies. [H.M.]

Abdominal Contusions without Intestinal Injuries.—A. Schmidt³ reports the case of a boy of 15, who fell a distance of six yards, striking his abdomen against a log. He was unconscious for a short time and vomited repeatedly, the vomitus containing blood; the abdomen became distended and the left upper quadrant was tender. A cyst developed over this region and was tapped five times within six weeks, the operator evacuating about 2 liters of bloody fluid each time. The pressure gradually increased, the abdomen was opened and a glandular mass and a cyst were removed. Microscopic examination showed both were parts of the pancreas; the former, which had been separated from the rest by the injury, evidently the tail, the latter the metamorphosed body; the head could not be discovered. The patient recovered, presenting no glycosuria. He also reports the case of a young woman of 20, who fell while dancing, striking her abdomen violently but without producing external injury; symptoms of peritonitis with free gas and fluid in the peritoneal cavity appeared within a few days. It was found that her abdomen had been increasing in size for some time before the accident and a diagnosis of ruptured ovarian cyst was made; operation performed on the twelfth day after the accident proved the correctness of this surmise; the cyst was removed, the abdomen thoroughly cleansed and the patient made an uneventful recovery. [E.L.]

Ethyl Chlorid as an Anesthetic in General Practice.—Harvey Hilliard,⁴ after an extensive experience with ethyl chlorid, writes at length upon the subject. He has used this

anesthetic in every variety of case and at all ages, from the very young to the very old. He has used it alone, with nitrous oxid, with chloroform, with ether, and with A. C. E. mixture, and as a preliminary to the last three in a large variety of cases. He states the drug is relatively safe but a few deaths have been recorded. Hence it must not be assumed that it is without danger. Full doses of ethyl chlorid prove a valuable anesthetic for at least two minutes; an anesthesia which, if complete muscular flaccidity is not required, is ideal, and the after unpleasant occurrences are not common if proper precautions are taken. It is not suited for long operations because it is difficult to keep the patient to a surgical degree of anesthesia, because of rapid elimination of the drug. The cost is considerable. The inhaler recommended is Carter Braine's modification of the Ormsby inhaler. The advantages of this inhaler are enumerated. Previous preparation of the patient should not be entirely overlooked, as the stomach, bladder, or bowels, if full at the time of administration are likely to empty reflexly. The dose depends upon the patient; large persons, athletes, and those addicted to alcohol requiring larger doses than the average person. Vomiting as an after-effect is noted in about 25% of the patients. Conditions contraindicating ethyl chlorid are diseases of the larynx, inflammatory lesions in and adjacent to the respiratory passages, goiter, all conditions giving rise to dyspnea, and long operations. [A.B.C.]

Treatment of Angiomas by Boiling Water.—John A. Wyeth,¹ in a further report on this subject, cites cases in which the method produced satisfactory results. One was a cavernous nevus of the left cheek. Curative results have been secured in every case of circoid aneurysm or cavernous nevus in which he has personally supervised the injection. Capillary angiomas are more difficult to treat. In his later experience Wyeth prefers to hold a Bunsen burner under the boiler of the syringe until the heat is so great that the water is projected violently through the syringe. The hands should be protected by kid gloves reinforced with hop-picker's gauntlets. To prevent scalding when carrying the instrument toward the patient, the ends of the needle should be shielded by a pad of gauze, the needle finally being thrust through this pad into the tumor. The parts surrounding every injection should be covered with gauze matting. As a rule, anesthetics are not given to children. From 4 or 5 to as high as 10 or 12 m. are injected, the needle being entered through the sound skin. [A.G.E.]

Mammary Carcinoma and Operation.—Theodor Meiszl² concluded that mammary carcinoma must be operated on as early as possible, and by the radical methods, preferably that employed by Rotter. In his clinic from 1890 to 1901 the proportion of cures was 18%. The value of a certain method of operating can be estimated by the time elapsing between the operation and death from internal metastasis without local recurrence. [J.H.W.R.]

Intrahepatic Cholelithiasis.—Of the 250 autopsies Beer³ examined, six cases showed intrahepatic stones, but in all of these, extrahepatic cholelithiasis was present and the common duct was either occluded at the time or there was evidence of it having been occluded at one time and produced a secondary cholangitis. When the cholangitis was secondary to an occluding tumor and extrahepatic cholelithiasis was absent there were no intrahepatic stones. The production of calculi in the hepatic ducts depends mainly upon three conditions, viz.: 1. Stasis. 2. Cholangitis. 3. An unknown factor. Of the third factor, he says, it is not certain whether it is a diathesis as held by Riedel; the question can be settled by collecting a large number of cases of cholangitis linked with the results of experimental studies. In one of the cases he reports the ductus choledochus was occluded and the bacteria which inhabited the lower third of the tube had wandered through the entire biliary ducts. In animals he ligated the common duct and infected the gallbladder with bacteria. In both instances the stasis of the bile was followed by inflammation and in both cholelithiasis occurred, in the animals they were formed in the gallbladder and in the man in the hepatic ducts. [J.F.]

¹ Brooklyn Medical Journal, January, 1905.

² St. Paul Medical Journal, November, 1904.

³ Münchener medizinische Wochenschrift, 1901, 11, 1784, No. 40.

⁴ The Lancet, December 17, 1904.

¹ Journal of the Medical Soc. of New Jersey, December, 1904.

² Wiener klin. Woch., December, 1904, p. 1873.

³ Arch. f. klin. Chirg., 1904, lxxiv, Heft 1.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORE

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 9.

MARCH 4, 1905.

\$5.00 YEARLY.

"Chloroform at Sixty."—No reflective man reaches his meridian without realizing the value and sacredness of human life in its general sense as well as in its individual manifestation. Since the profession of medicine stands as the guardian of human life, there is something of a shock to even the most careless that a representative of the profession should speak in favor of shortening the term of life as a routine measure. The Anglo-Saxon race particularly is exacting in its standards of dignity, sympathy, and insight for the physician, in its demands that he individualize, not generalize, in his measures. An utterance from a leader in the profession reflecting on the usefulness of existence beyond a certain period comes with depressing force to the sensitive, reacts with doubt and distrust upon the general profession. As a serious utterance it would be pessimistic in its every tendency; as a jest it is foreign to the genius of the profession, worthy only of the professional joker or the notoriety seeker. Dr. Osler, of course, cannot be classed under either of these categories, and it is peculiarly unfortunate, just on the eve of his departure from America to take one of the leading medical professorships in Great Britain, that a public utterance of his should be distorted by newspaper "enterprise" apparently to signify depreciation of human age-value. We have not seen the text of the address, but Dr. Osler telegraphs us: "Contradict, please, in *American Medicine*, that I advised chloroform for men at 60. Wm. Osler." The sympathy of all physicians who respect the dignity of their profession and appreciate the value of individual human experience should be extended to Dr. Osler for his annoyance under this most recent instance of newspaper misunderstanding of professional ideals.

"Oslerize"—An Unfortunate Addition to the Dictionaries.—Lost is the journal, lay or medical, yellow, pink, or white, that does not nowadays have a column devoted to Dr. Osler's reported opinions concerning the value, or preferably the valuelessness, of older men. To oslerize, to be oslerized, or worthy to be oslerized, are new terms which the lexicographer must henceforth define. And with a groan! Because he will have to caution against confounding the term with *Bowlerize*, which also means to delete; the objects excised are somewhat different, although the methods and motives may be similar. It is true that a sense of

humor is necessary to save us from a too burdensome insistence of the tragic realities of life, but then it must spring from a just estimate and accurate perception of "things as they are," and especially must it not, *per se*, become a serious pursuit. How the professional representative, and consequently the profession itself, stands in the eye of the newspaper is not wholly a matter of indifference to any of us. And that is as true, perhaps more true, even if the newspaper reader has false and distorted ideas of the opinions of medical men. The newspapers already credit two suicides to their absurd reports of the value of men 60 years old. Some six months ago an essay on the work of great men in the profession was published, from which a couple of sentences may be quoted:

Only rising, young, and unknown men bring the work and its value to recognition. It is indeed usually the young ones that make the discoveries. In science, Davy, Young, Fresnel, Arago, Forbes, Joule, Mayer, Helmholtz, Sir Wm. Thomson, Clausius, Rankine, and others, were in their twenties when they made their greatest discoveries.

The Function of Men Over Fifty Years of Age.

—It is true that the energizing discoveries and forces of the world are usually made and launched by the younger men. But there is another function and duty quite as valuable to humanity as discovery—more valuable; one may say—because discovery is bound to come soon or late, and by one mind, if not by another. The history of discoveries shows that they are practically made generations and perhaps centuries before the world accepts them. Their acceptance and utilization are, in a word, delayed by prejudice. By whose prejudices? Solely and simply by those of the elder men. They have passed the energizing and discovering time of life, and alas, they have not learned wisdom. Their true function is that of judgment, guidance, and advice; and almost without exception the older men, the so-called leaders of the profession do not pronounce right judgment, do not guide expertly, do not advise correctly as to what and where is medical truth. It was 22 years after a clear-headed old farmer, who had been driven to practise vaccination by many years of observation of facts, had demonstrated the value of the measure—it was 22 years before Jenner dared to inoculate the Phipps boy. In announcing his discovery of thoracic percussion, Auenbrugger wrote:

I realize that envy and blame, and even hatred and calumny, have never failed to come to men who have illuminated art or science by their discoveries, or have added to their perfection.

The opposition of Liebig and other leaders to the theory of microorganisms kept the world in ignorance of it for a generation. The work of Morton in the discovery of anesthesia, of O. W. Holmes in that of puerperal fever, of McDowell, and of Sims in gynecology, as well as of almost all discoverers, was killed as long as possible, and in exactly this way, and precisely by the elder men, the leaders, the judges, the official spokesmen of the profession. If inclined to be ironically humorous, one might suggest that a lecture to our brother elders might well be devoted to a criticism of their evident dereliction in this duty. Dr. Osler blames old men for being no longer young, a foolish criticism at best, and too indiscriminately made, because much of the energizing work and many of the great discoveries have been made by men over 40; but he fails utterly to say a word against their wretchedest fault—the rejection of new truth that the young have discovered.

“The Surgeon and the Public” is the title of a paragraph in an article in a recent number of *McClure's Magazine*, designed to plebify modern surgical ideas and methods. The matter is thus introduced:

With increased knowledge, the attitude of the surgeon toward the public is changing. Men like Murphy of Chicago, Keen of Philadelphia, Kelly of Baltimore, and Richardson of Boston, are in revolt, more or less open, against the old tenet that the truths of medical science must not be profaned by exposure to the ignorant lay mind. Within certain limits, they are making good use of the public press on a principle which I recently heard expressed thus:

“It is an axiom of surgical practice that the earlier the case is taken, the better the chance of success. It follows that, if we can educate the public in the matter of the common surgical ailments, our patients will come to us more promptly, and we can get better results. Beside with the mystery dissipated, the terror of operations will be greatly diminished. Take a very common case—appendicitis. I venture to say that the majority of persons believes the operation for appendicitis a very dangerous one. In point of fact, the mortality is less than in diseases which are not feared at all; measles, for instance, or whoopingcough. Could we implant that fact in the public mind and get all our appendicitis cases early, instead of at the last development, as many of them now come to us, we could reduce the present low mortality by half. The policy of silence is a relic. It was made for the days when a physician who talked exposed his ignorance. Surgery is no longer empiric; we know what we are doing and we can afford to tell it.”

The article, however, closes with this quotation from Senn:

We have waded through the slough of fads. We have left behind us such errors as opening the skull for idiocy, and in hundreds of insane asylums the needless victims of our rage for ovariectomy mark the path by which we have come back to rational methods in gynecology. There are still many who, led into surgery by the hope of rich rewards, have had no time to learn its scientific principles. Brilliant operators, they diagnose with the knife. Remember this: That, with rare exceptions, the knife should never be taken up until the trouble is determined. The time for conservatism has come. We are here to assist nature, not to dictate. The great art of modern surgery is to limit operations to the cases where they can be of benefit.

We have made these excerpts for the purpose of bringing into closer juxtaposition and contrast illustra-

tions of the newspaper man's idea of logic. “*The knife should never be taken up until the trouble is determined,*” is set side by side with the appeal, real or supposed, to the lay public to decide itself, when to come to the operating surgeon! The diagnostician, the internist, and the family physician are therefore to be dispensed with? According to the magazine writer the “trouble is to be determined” solely by the patient and his lay friends, educated by those surgeons who make “more or less open,” but “good use of the public press.” It is evidently a fitting opportunity for the surgeons to disclaim the injudicious zeal of the reporters.

An Affront to the Medical Profession.—Confessedly acting under orders from Governor Myron T. Herrick, the Board of Trustees of the Ohio Hospital for Epileptics have ousted the Superintendent, Dr. A. P. Ohlmacher, at the behest of a ring of politicians whose personally profitable operations have been interfered with by Dr. Ohlmacher. This has been done without any publicly assigned reason, and without granting Dr. Ohlmacher the investigation of his specific charges against certain persons both within and without the hospital. Every effort was made by the ringsters to complicate the issue and to “throw dust in the eyes” of the public, but this hoary makeshift had only indifferent success. The strongly expressed wish of the medical profession of Ohio has been flatly disregarded by Governor Herrick to favor a few small politicians, just as he a few months ago deliberately violated his party's pledge to grant local option, vetoed the bill passed by the Legislature, and thereby alienated all the church people to please the brewing interests and a few other politicians. It is general belief that Governor Herrick wants a renomination as badly as ever he wanted anything, and the corollary to these acts of his is that he thinks doctors and church people do not have much to say about party nominations. Dr. Ohlmacher has been martyred, and probably nothing now can be done that will aid his cause, but, unless we are greatly mistaken, the drama has not yet reached its climax. One character has left the stage, but the medical profession of Ohio still has the opportunity to show exactly what it thinks. Then there is widespread interest to see whether the politicians will now dare to secure the appointment of a “safe” superintendent, or whether fear of outraged public and professional opinion will force them to take up, for the present at least, a man of known honesty. It is said that all the doctors in Ohio who have failed in practice, and who have dabbled in “politics” (some few dozen), are active candidates for the place. Some of them, abetted by a few outside professional traitors, took an active part in urging the governor to dismiss Dr. Ohlmacher. It is announced that, until July, 1905, Assistant Physician Pritchard will be acting superintendent. In the meantime, the whole medical profession will have its eyes on the Board of Trustees. Dr. Ohlmacher's “resignation” (*sic!*) is to take effect March 15, 1905.

The Rights of Medical Colleges and Their Students.—We are in receipt of an abstract of the evi-

dence in a suit brought against the Barnes Medical College of St. Louis, by a student who was refused a diploma on the grounds that his personal conduct had not been up to the standard of the institution. The case is unique, we believe, in the annals of medical institutions and, though unsavory in details, demands attention because of the principles involved. The conduct of the plaintiff in the suit was made known to the authorities of the college by a young woman who made affidavit that, under promise of marriage, he had seduced her and, as a further evidence of generosity, had added syphilitic infection. When the said student subsequently refused further to increase her sorrows by becoming her husband, the woman protested against his graduation by the college because he did not possess a good moral character and because his conduct while at college had not been unexceptional, both of which are requirements of the institution. Confronted with this statement, the student admitted the charges and the trustees refused to graduate him. On commencement day he began a suit to compel the college to grant him a diploma, and in the circuit court of the city of St. Louis obtained such a decree. The college authorities at once appealed and to their great satisfaction the appellate court reversed the verdict of the lower tribunal. This is regarded by the college as a distinct victory for decent medicine and as such should be given publicity. The whole question at issue is whether the college has a right to make one of the requirements of a student for graduation, "a good moral character, which includes unexceptional conduct while at college." The trustees of Barnes Medical College, for the stand they took and maintained in this case, deserve the commendation of clean people of all professions.

Report of the Bureau of Animal Industry.—The twentieth annual report of the Bureau of Animal Industry of the United States Department of Agriculture for 1903 is a volume of 618 pages. Of those portions of the contents which are of special interest to physicians much has already been published in the form of bulletins. Chief among them is the work on tuberculosis by Salmon, deSchweinitz, Dorset, and McBryde. Experiments to determine the infectiousness of human tuberculosis for cattle resulted in demonstrating two of nine cultures fully equal in their pathogenic power for cattle to freshly isolated bovine cultures; they possessed no cultural or morphologic characters to distinguish them from the organism of bovine origin. Experiments now under way, if successful, will prove of extreme value in early or doubtful cases of tuberculosis; we refer to the search for a method of cultivating rapidly from sputum, tubercle bacilli, which are so few in number as to escape detection by microscopic examination. The continuance of rabies in the District of Columbia furnished 51 animals for investigation; of these, 38 gave positive results, either by animal inoculation or microscopic examination of ganglions. The latter method has proved very valuable. The microscopic examination of pork by inspectors of the bureau included 489,667 carcasses; of these, 97.5% were free from trichina, 1.5% contained disintegrating parasites, and 1% contained

living trichina. An interesting chapter is that by Dorset on invisible microorganisms. Among the animal diseases of unknown cause that are possibly or probably due to ultramicroscopic bacteria are foot-and-mouth disease, bovine pleuropneumonia, horse sickness, bird pest, sheep pox, rinderpest, rabies, and epithelioma contagiosum, a disease of birds and domestic fowls. Many valuable data regarding butter, cheese, and meats are in the report, which closes with the rules and regulations of the bureau issued in 1903. The entire volume emphasizes the value of the bureau in safeguarding the health of the public.

Divine Healing by Dowie.—A sample copy of "Leaves of Healing," which the nauseous current of overheated air continually arising from Zion City seems to have wafted here by mistake, contains among other miraculous tales an instance of restoration to health calculated to make reputable orthopedists and professional leg-pullers alike turn green with envy. Here it is in the words of the subject (Miss) Florence Bolton:

I had four carbuncles on the side of my neck. My chin rested on my chest for two years, and I could put only a very small piece of food in my mouth at once without choking and strangling. It took me an hour and a half to eat a meal. Then my head got so that it lay on my shoulders for six months, and I can hardly remember all that I did to straighten it up. I wore a collar and that helped a little. My neck was stiff for 13 years. I could not look over either shoulder. When the First Apostle was in Chicago, at Stony Island, I went to hear him. After he prayed I was healed in the course of a few days, and I am well and strong today. I had one limb $1\frac{1}{2}$ in. shorter than the other, and it came down in one evening, December 12, 1895. The two weeks I was in the Home in Chicago I could move my head, and I had not moved it for 13 years before the healing. I had read in "Leaves of Healing" about a woman being healed of a corn on her foot, and I knew that if God could heal that woman He could heal my foot. It used to swell all the time. I wrote a letter to the First Apostle, requesting prayer. One Saturday morning, about 4 o'clock, I woke up, and all the swelling had left my limbs. I still had some corns on my feet, but they were healed, and never hurt me at all.

When we remember such waiting-to-be-duped people are abroad in the land in great numbers is it any wonder we pause in our crusade against irregular physicians, faith curists, and quacks and honestly ask ourselves, *Cui bono?*

The Growth of Gluttony and Luxury.—Some statistician might well devote a year or two of study in compiling the figures of cost of the morbid epicureanism which is becoming such a marked characteristic of American life. Every conceivable trade, class, or interest from that of the newsboys to that of the multimillionaires must now have its "banquets," and in every large city the business and interest of life converges toward this silly devotion to the "festive board." The fact shows the inevitable trend toward that degeneration indicated by the feasts and orgies of the decline and fall of Rome. Mere lavishness is often the aim, and the advertisements of the tens or hundreds of dollars "per plate" are both amusing and disgusting. Praiseworthy sociability and even the admissible pleasure in good food are lost in the desire for drinking, over-eating, and "splurge." Within a block or two of these goings-on there is misfortune, hunger, suffering, political and social debaucheries,

needing the time, money, and energies of these prodigals, and a thousand clamoring charities and preventions of charities are everywhere crying for aid and succor. Is it Christian? Is it even humane? It is certainly against all the rules of physiology and of hygiene. From a contemporary we clip the following:

"The longer I live," said the house physician of one of the big hotels, "the more I wonder at and admire the female stomach. The average woman at a hotel has the choice of a world of things to eat and does not know in the least what to eat. Here is a list of the things that were stowed away at my table the other night by a little woman, weighing not more than 100 pounds: Soup, fish with rice sauce, sweetbreads, turkey with chestnut dressing, grouse, asparagus, new potatoes, cauliflower with cheese, two helpings of lobster, Newburgh; ice cream, Roquefort cheese, and coffee. The liquids were a glass of white wine and a quart bottle of beer, which she shared with her father. I weigh 195 pounds and take a great deal of exercise. My dinner consisted of a light soup, stale bread, a liberal portion of beef, some peas, asparagus, cheese, and coffee. That was plenty, if not too much."

A Century's Criminal Alliance between Quacks and Newspapers, was the subject of a paper recently read before the New York County Medical Society by Mr. Champe S. Andrews, the society's attorney. Mr. Andrews told how certain newspapers had been receiving, and still continued to receive, more than \$100,000 a year apiece from quack doctors in this city. These doctors, as the medical society's investigation proved, had been growing rich by swindling the ignorant, oftentimes taking every cent of a few thousand dollars saved by some workman whom they would delude into thinking himself afflicted with a serious disease. To illustrate the harm done by quack advertisements, the speaker cited the case of Drs. H. H. Kane and W. H. Hale, the "radium cure" physicians who had just been arrested at the request of the society's officers. Kane and Hale, according to Mr. Andrews, were trapped after their methods had been disclosed by a carpenter, McCallum. They had taken all McCallum's \$9,000, had told him terrifying things about his "impending death," had sold him about a thimbleful of "radium," described as worth \$1,200, and finally would have thrown him out if Mr. Andrews had not advised him to concoct a story about a wealthy woman benefactor. A female detective, impersonating the imaginary rich woman, negotiated with Hale, and, after some weeks, obtained signed letters verifying McCallum's story about the two doctors. Thereupon they were arrested, together with Horton, their clerk. Thirty-three would-be victims were waiting to be treated at the time of the arrest, and on the table the Central Office detectives found a vial of the yellow liquid sold as "radium." It was examined by a chemist, and found to contain the ingredients of a popular nostrum.

The Influence of Progress upon the Comparability of Medical Statistics.—Those who undertake to move cities to the provision of public health laboratories, hospitals for infectious diseases, or medical inspection of schools, invariably turn to Boston for support. But the experience of Boston is, in one respect at least, disappointing. Notwithstanding the admirable laboratory, the great South Hospital, and the school inspection,

and notwithstanding the satisfaction of Boston in all these possessions, the morbidity from diphtheria and scarlet fever has apparently not declined enough to be applied as a convincing argument to the needs of other cities. Dr. Hill's suggestion that the clinical diagnosis of diphtheria is subject to a minus correction of 37%, may explain the apparent persistence of diphtheria morbidity in Boston at a higher level than one would expect in a city of her hygienic resources. If it be true, as we have here suggested, that the present minus correction diminishes backward in time until it becomes a plus correction in 1893 or 1894, then the profits on her sanitary possessions have been much larger than the figures show. Improvements in the diagnosis of disease, and variations of nomenclature have been too little considered by statisticians. Boston's experience with diphtheria shows that the medical mind is not, as many supposed, always a dead weight on the hawser of science, but may be as disobedient about stopping as about starting. Our knowledge of infectious disease is at present expanding in a way which must necessarily affect the interpretation of statistics. We recognize more easily not only the features but the disguises of many diseases. We are no longer betrayed by the innocent and atypic varieties of familiar infections such as typhoid fever, scarlet fever, and diphtheria. The propagation of more dreaded pestilences, such as yellow fever and plague, depends largely, as we now know, upon very mild and ambulant cases, and recently we have been asked to consider the importance of chronic and latent infections with a very energetic organism, the pest bacillus. We once entertained a monstrous delusion concerning chronic and latent malaria. In place of this chimera we have now definite knowledge of many chronic and latent infections, one of them being malaria. No one can tell how these increments of knowledge will affect the average medical intelligence, but certainly they will make it difficult to compare the morbidities and mortalities of different times and places. Practical medicine never keeps step with medical science. Usually practical medicine seems to lag, but sometimes, as in Boston, it festinates.

Surgical Treatment of Cirrhosis of the Liver.—At the French Congress of Surgery, held during the month of October, 1904, Dr. Henry Delageniere spoke on cirrhosis of the liver. From a surgical point of view, all cases of cirrhosis are of infectious origin, the point of departure being the intestine. The infection is carried to the liver either by the direct or ascendant route, following the biliary canals, or else indirectly by way of the veins or lymphatic vessels. To be complete, the surgical treatment should strive, on the one hand, to stop the infection, and on the other, to prevent the accidents consequent on this infection. One can understand that the operations attempted in these conditions may be very varied. In 10 patients observed by Delageniere, there were 9 operative cures and 1 death; in the latter patient, the Talma operation, simply, was performed. From a study of the 9 other operations, the following conclusions may be drawn: 1. Simple, temporary cholecystotomy may give excellent therapeutic results, especially in hypertrophic cirrhosis (one of the patients is still living, having already survived five years). In mixed cirrhosis, the result is also satisfactory. In atrophic cirrhosis, more than two years survivancy have been obtained for the patient thus treated. 2. Temporary cholecystotomy associated with hepatoexy, given in two cases of mixed cirrhosis, a survivancy of eight and two years respectively. 3. Temporary cholecystotomy, associated with hepatoexy and omentopexy, appears to be the most efficacious means. A patient suffering from atrophic cirrhosis, operated upon four years ago, by this method, is still living.

BOOK REVIEWS

Clinical Lectures on Mental Diseases.—By T. S. CLOUSTON, M.D., F.R.C., Ph.D. Fifth edition. Lea Brothers & Co., Philadelphia and New York, 1904.

Several important editions in relation to the general pathology of mental diseases, and a recognition of the recent views of European and American alienists, have been made in the last edition of this standard work. A number of new pathologic plates have been added also. The classification adopted by Clouston is one which is not now generally accepted by European and American alienists. It must be admitted that it is rather indefinite, and to the student and the physician unversed in the study of mental diseases a confusing one. To the alienist this book makes extremely instructive and interesting reading, and, although one must often read a number of pages before getting the idea, it is always present and always good. The chapters on mental depression and mental exaltation are devoted to a consideration of melancholia and mania. Many important and valuable suggestions, especially in relation to the treatment of these diseases, will be found. The relation of the physician to the medicolegal and medicosocial sides of mental diseases is lucidly described and in an invaluable manner. Many illustrative cases are cited and in most delightful English. The print, illustrations, and other mechanical details are of the highest order.

Multiple Personality, and Experimental Investigations into Human Individuality.—By BORIS SIDIS, M.D., Ph.D., and SIMON P. GOODHART, Ph.B., M.D. D. Appleton & Co., New York. 1905.

This work is interesting alike to the neurologist and psychologist. It is divided into three parts. The first part is devoted to the study of the personality, and treats of individuality, multiple individuality, and pleural personality. The second part is taken up with an elaborate and careful analysis of the Hanna case, a case of double personality; and in the third part Sadis considers the question of consciousness and multiple personality. The work will be found not only interesting and instructive to the physician, but to the layman as well, especially those interested in the study of psychic phenomena and allied subjects. The Hanna case was investigated in the Pathologic Institute of the New York State Hospital, while the other work was done in the Psychopathologic Infirmary for Women and Children.

An Atlas and Epitome of Operative Ophthalmology.—By DR. O. HAAB, of Zürich. Edited, with additions, by GEO. E. DESCHWEINITZ, M.D. W. B. Saunders & Co., Philadelphia, New York, and London.

This new volume forms a natural and admirable conclusion of the series of atlases on the eye prepared by Professor Haab. As in the preceding volumes, by his able editorship, Dr. desSchweinitz has greatly enhanced the value of the text. Beginning with a thorough discussion of the proper construction of operating-rooms, narcosis, sterilization as applied to ophthalmic instruments, and disinfection, ophthalmic operations are described with all the fidelity and clearness that 30 years' conscientious practice in eye work naturally brings. The colored illustrations exhibit the same perfection of art and accurateness of detail found in the companion volumes of this series. The book will be appreciated by all physicians interested in ophthalmic surgery, and it will prove invaluable to the novice in this field.

An Introduction to Pharmacognosy.—By SMITH ELY JELLIFFE, M.D., Ph.D. W. B. Saunders & Co., Philadelphia, New York, London.

The aim of the author to present a guide for the study of the important vegetable drugs has been well executed. The gross and histologic structure of the drugs, especially in powdered form, are well described, a fact that will be a valuable aid appreciated by the practical pharmacist as well as by the student of pharmacognosy. The drawings, most of them original, are clear and thoroughly descriptive.

Gallstones and Their Surgical Treatment.—By B. G. A. MOYNIHAN, M.S. (London), F.R.C.S. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

Dr. Moynihan's extensive experience in treating cholelithiasis specially fits him to write an authoritative and trustworthy work such as we have found this. A full account is given of the origin and causation of gallstones, and of the pathologic changes and clinical manifestations to which they give rise. Special attention has been paid to the detailed description of the early symptoms of cholelithiasis, enabling a diagnosis to be made in the stage in which surgical treatment can be most safely adopted. Every phase of gallstone disease is dealt with, and is illustrated by a large number of clinical records. The account of the operative treatment of all the forms and complications is full and accurate. The illustrations are unusually clear and form a special feature.

Blood-pressure as Affecting Heart, Brain, Kidneys, and General Circulation.—By LOUIS F. BISHOP, A.M., M.D. E. B. Treat & Co., New York, 1904.

In this little volume is considered the principles of the origin, progress and outcome of those disorders of the circulation that are met in the course of disease, and which develop as a natural result of many conditions of modern life. In a clear and concise way, the author presents the danger signals that should be pointed out to the victim of circulatory disease, including proper medical treatment. The book should interest every physician.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Transactions of the American Climatological Association, for the year 1904, Vol. xx. Printed for the Association, 1904.

Medical Laboratory Methods and Tests.—By HERBERT FRENCH, M.A., M.D. (Oxon.), M.R.C.P. (Lond.); Medical Registrar, Guy's Hospital, Gillson Scholar, Society of Apothecaries of London; Radcliffe Traveling Fellow, Oxford University. W. T. Keener & Co., Chicago, 1904. Price, \$1.50 net.

The Sea-Wolf.—By JACK LONDON, Author of "The Call of the Wild," "People of the Abyss," "Children of the Frost," etc. With illustration by W. J. Aylward. The Macmillan Company, 1904.

Twenty-third Annual Report of the New York State Department of Health. For the year ended December 31, 1902. Transmitted to the Legislature, February 2, 1903. Argus Company, Albany, N. Y.

Maps, Part I and II, New York State Department of Health. Twenty-third annual report for year ended December 31, 1902. Argus Company, Albany, N. Y.

Multiple Personality. An experimental investigation into the nature of human individuality.—By BORIS SIDIS, M.A., Ph.D. (Harvard), Author of Psychology of Suggestion and Psychopathologic Researches, and SIMON P. GOODHART, Ph.B. (Yale), M.D. D. Appleton & Co., New York, 1905.

Thirteenth Report of State Board of Health of Maine for two years ended December 31, 1903. Kennebec Journal Print, 1904.

The Follies of Science at Court of Rudolph II, 1576-1612—By HENRY CARRINGTON BOLTON. Pharmaceutical Review Publishing Company, Milwaukee, 1904.

General Catalog of Medical Books.—P. Blakiston's Son & Co., Philadelphia. Price, 25c.

Textbook of Physiological Chemistry.—By OLOF HAMMARSTEN, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the author's enlarged and revised fifth German edition by John A. Mandel, Sc.D., Professor of Chemistry and Physics, and Physiologic Chemistry, in New York University and Bellevue Hospital Medical College. Fourth edition, first thousand. John Wiley & Sons, New York.

The Art of Compounding. A Textbook for Students and a Reference Book for Pharmacists at the Prescription Counter.—By WILBUR L. SCHOVILLE, Ph.G., formerly Professor of Theory and Practice in the Massachusetts College of Pharmacy; Member of the Committee of Revision of the United States Pharmacopoeia. Third edition, revised and enlarged. P. Blakiston's Son & Co., 1904. Price, \$2.50 net.

The Perpetual Visiting and Pocket Reference Book. Including information in emergencies from standard authors. Dios Chemical Company, St. Louis, Mo., 1904.

Physician's Account Book.—By J. J. TAYLOR, M.D. Published by the Medical Council, Philadelphia, Pa.

Outlines of Physiological Chemistry.—By S. P. BEEBE, Ph.D., Physiologic Chemist to the Huntington Fund for Cancer Research, and B. H. BUXTON, M.D., Professor of Experimental Pathology, Cornell Medical College. The Macmillan Company, New York. Price, \$1.50.

Manual of Serum Diagnosis.—By DR. O. ROSTOSKI, University of Würzburg. Authorized translation by Dr. Charles Boldan. First edition, first thousand. John Wiley & Sons, 1904.

Textbook of Quantitative Chemical Analysis by Gravimetric Electrolytic, Volumetric and Gasometric Methods. With 72 laboratory exercises, giving the analysis of pure salts, alloys, minerals and technical products.—By J. C. OLSEN, A.M., Ph.D., Professor of Analytic Chemistry in the Polytechnic Institute, of Brooklyn; formerly Fellow of Johns Hopkins University. D. Van Nostrand Company, New York, 1904. Price, \$1.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

Soap Eating among Sailors.—According to the reported assertions of an "old tar" in the U. S. Navy, the eating of soap has become very common among sailors in the navy who desire to secure sick leave on land. It is stated that soap eaten produces distressing symptoms, such as marked depression, nausea and vomiting, pallor, etc., which will, of course, continue so long as the soap eating is indulged in. This frequently deceives the doctor, and the sailor receives his sick leave.

Ankylostomiasis a Good Thing to Keep.—An exchange states that a case of ankylostomiasis was reported to an English Council a few days ago. The chairman of the Health Committee explained that the miner with the disease had been offered £1 a week if he would remain in the hospital. Elsewhere he had been offered considerably more to undergo treatment. He refused, however, his mother declaring that "if her son was suffering from such a valuable disease he had better keep it."

Union Tuberculosis Farms.—Tuberculosis farms, to be established in different sections of the United States by labor organizations for the treatment of afflicted union workers, have been advocated by President George W. Perkins of the Cigar-makers' International Union. His suggestion is for at least four of the largest unions in the country to join hands. According to the plan, farms would be located in North Carolina, the Adirondack Mountains, in the Middle West, and on the Pacific coast.

Verdict for Defendant.—A medical exchange says: In a suit in which Dr. David Gardner, acting health officer, Lehigh, Ind., and the city of Lehigh were sued by Cyrus Miller for the value of property destroyed through the alleged negligence and carelessness of the first defendant, the jury found for the defendants. In order to fumigate clothing of a smallpox patient residing outside the city limits, Dr. Gardner brought the clothing to a vacant store, and proceeded to employ disinfection by formalin vapor. The building took fire, and, with ten other buildings, was destroyed. The court decided that the physician had not been negligent, and that the city was not liable.

Miscellaneous.—Philadelphia: Dr. John H. Gibbon, recently appointed associate professor of surgery in Jefferson College, has resigned as a member of the civil service examining board for resident physicians of the Philadelphia Hospital. Dr. Gibbon's resignation was offered because of his knowledge of the desire of Director of Public Health and Charities Martin to have no examiner of the board who in any way was affiliated with any of the city's medical colleges. **St. Christopher's Hospital for Children:** The annual report of this hospital has lately been given out by the board of managers. A complete report is given in detail of all patients treated and money expended during the year.

Defective Rails in the United States Contribute to Many Accidents.—General von Budde, Prussian minister of State and public works, in the budget committee of the Diet, made comparison between railway accidents in the United States and Prussia, showing that derailments are three times more frequent in the United States and collisions three and a half times, while the number of persons killed or wounded is 36 times greater. Accidents are growing less frequent on the Prussian roads. The average per million train kilometers 10 years ago was 6.8 accidents, and for 1904, 5.07. The interest upon capital invested in Prussian railways has risen since 1890 from 4.9 to 7.3. Recent experiments with high-speed locomotives have yielded a maximum of 82 miles an hour, but locomotives are unable to maintain this rate. Seventy-four miles an hour is possible, but the government recommends that the speed do not exceed 68 miles an hour.

Bequests to Charity.—Philadelphia: According to the will of Isaac Roskam, a sum aggregating \$18,500 is left to the following organizations: Jewish Hospital Association, \$5,000 for a free bed to be maintained in the name of Isaac Roskam; United Hebrew Charities, \$2,500; Hebrew Education Society, \$2,500 for its general needs, and \$500 additional, the income of which is to be applied to the award of prizes at annual examinations, to be known as the "Ulysses H. Roskam Prizes"; Jewish Foster Home and Orphan Asylum, \$2,000; Young Women's Union, \$500; National Jewish Hospital for the Tuberculous, Denver, Colo., \$2,000; Familien Waisen Erziehungs Verein, attached to the Keneseth Israel Congregation, \$500; Home for Hebrew Orphans, \$500; Theological Seminary of America, New York, \$500; Free Hospital for Poor Consumptives, White Haven, Pa., \$1,000; Pennsylvania Society to Protect Children from Cruelty, \$500, and Rodef Shalom Congregation, \$500 for the memorial fund. **Chicago:** According to the will of Mrs. Harriet A. Jones, the sum of \$15,000 is left to the Presbyterian Hospital, Chicago; \$15,000 to the Old Peoples' Home of that city; and \$5,000 to the Chicago Orphan Asylum. Many bequests are made to churches and to religious societies.

Favor Bill to Organize the Army Medical Corps.—The House Committee on Military Affairs has authorized a favorable report on the Senate bill reorganizing the Medical Corps of the Army. The committee amended the bill by reducing the number of officers provided in the Senate bill in the regular corps, but making an actual increase in the present corps, as follows: Four colonels, 6 lieutenant-colonels, 25 majors, 60 captains or first lieutenants. By the terms of the bill these additional officers displace 135 contract surgeons now a part of the corps. The provision of the bill establishing a reserve medical corps by commissioning civilian physicians was amended by a provision forfeiting such commissions in case their holders refuse to perform service. The four members of the committee who opposed the bill in committee, on the ground that the auxiliary corps would be used as a means of securing promotions and further legislation for the active corps, gave notice of amendments to be offered in the House.

Army Canteen Probably not to be Reestablished.—According to the correspondent of the *New York Evening Post* the army canteen will not be reestablished at this session of Congress. All efforts in that direction have practically ceased. The opposition to this legislation is so relentless that this announcement need occasion no surprise. Early in the winter it was alleged that the strong opposition of the W. C. T. U. would be offset by the position taken by the women of the Army and Navy League, who have asked that the canteen be reestablished. They presented to Congress a strong petition, but apparently the prohibition people control the situation and really it is difficult to see how they can be driven from it in future sessions of Congress. The average member of Congress, more particularly of the House of Representatives, is timid. Few members of the House deny the force of the arguments made by almost all the army officers in favor of the canteen, and yet it is quite another matter when it comes to going on record in a roll call.

A Study of Pneumonia Germs.—Prof. Frost, of the University of Wisconsin, some time ago undertook a series of examinations of the mouths and throats of supposedly healthy persons, to determine, if possible, the presence of the germs of pneumonia. Of the 50 people of different ages and occupations, all in good health, who were examined, the saliva of 18 showed the presence of the pneumonia germs. Thus the mouths of 36%, or over a third of the people in normal health, have these disease-producing organisms. In order to determine the effect of occupation on the prevalence of the germs, the persons examined were chosen from various callings. In the mouths of 5 carpenters, who are constantly working out of doors, none was found, while in the mouths of all of the 5 draftsmen, whose work keeps them within doors at all times, the germs were present. Of 5 university students and 5 teamsters, who were engaged partly indoors and partly outdoors, the germs were present in from 40% to 60%. While not conclusive, the results indicate that those who are out of doors are less likely to have present the exciting cause of the disease.

A Dettweiler Foundation.—To honor the memory and the work of the late Geheimrath Dr. Peter Dettweiler, the founder of the Falkenstein Sanatorium and the first people's sanatorium at Ruppertsheim, it has been decided, by his friends, admirers, patients, and pupils, to establish an institution bearing his name, which shall be a home for physicians who have served in sanatoriums for the tuberculous and who have become invalided by disease, accident, or old age. For the collection of funds and the final arrangements, a committee has been formed under the patronage of Her Royal Highness, the Princess Friedrich Carl, of Hesse. This committee is composed of many of the foremost men and women of the German Empire. Of the medical men who have signed the appeal for funds we read such names as Besold, the successor to Dettweiler, Professors Kurschmann, of Leipzig; Flügge, of Breslau; B. Fränkel, von Leyden, and Pannwitz, of Berlin; General Dr. von Leuthold, physician to the Emperor; Schmidt, of Frankfurt, etc. Contributions are to be addressed to Grunelius & Co., bankers, 16 Gr. Gallus Strasse, Frankfurt-on-the-Main.

Vital Statistics of the Mutual Life Insurance Company.—In the sixty-second annual report of the Mutual Life Insurance Company of New York, the vital statistics are of more than ordinary importance, as they deal with a class of people who ordinarily take excellent care of themselves. During the year 1904, 5,379 persons insured in this company died, which was 434 more than in the previous year. The average age at death was 51.96 years, the average duration of insurance 14.29 years, the average amount of insurance paid on each life, \$3,670.48. Among the causes of death heart disease leads, with 510 deaths, with these next in this order: Tuberculosis, pneumonia, Bright's disease, apoplexy, casualties, cancer, and typhoid fever. Two who died were policy holders from the year of the organization of the company in 1843, and there is one survivor of those who formed the "Old Guard." Of the 312 fatal casualties—5 lost their lives in automobile accidents, 6 in the burning of the Iroquois Theater, Chicago; 42 in railroad accidents, and 13 in shipwrecks or by drowning at sea or on the lakes. The Mutual Life now has 660,000 policies in force.

Compulsory Vaccination.—Justice Harlan, of the Supreme Court of the United States, on February 20 delivered the opinion in the case of *Jacobson vs. the United States*, involving the validity of the Massachusetts State law giving authority to the health authorities of cities and towns in the State to impose compulsory vaccination regulations. He held the law to be constitutional on the ground that the protection of the health of a community may be exercised by the State as a police regulation. In the course of his opinion Justice Harlan said: "While this court should guard with firmness every right pertaining to life, liberty, or property, as secured to the individual by the supreme law of the land, it is of the last importance that it should not invade the domain of local authority, except when it is plainly necessary so to do in order to enforce that law. The safety and the health of the people of Massachusetts are, in the first instance, for that commonwealth to guard and protect. They are matters that ordinarily do not concern the national government. So far as they can be reached by any government they depend primarily upon such action as the State in its wisdom may take, and we do not perceive that this legislation has invaded any right secured by the Federal Constitution." Justice Harlan added that the opinion should not be construed as a decision to grant no relief in cases in which police power of a State is abused to the injury of the individual.

The Largest Magnet for Surgical Purposes.—A writer to the *Scientific American* claims to have constructed, under the direction of a physician connected with the medical staff of the Bridgeport (Conn.) General Hospital, the largest magnet for surgical purposes that has as yet been built. The iron core of the magnet is $\frac{1}{2}$ feet in diameter. It is bolted to a base of oak, and its upper part is tapered so as to enable the oculist to conveniently observe the patient's eye with an ophthalmoscope. The magnet requires 30 amperes at 110 volts to completely saturate the core, which is wound in two halves with 235 pounds of No. 7 B. and S. gauge copper wire wrapped with a special insulation of cartridge paper in place of the usual cotton thread. The magnet is particularly useful in diagnosing cases in which a piece of metal is thought to have become lodged in the eye, but in which the oculist is not sure of it. By placing the eye of the patient above the magnet, as shown, and sending a small current through its coils the presence of a piece of steel will be immediately felt by the patient, because of the magnet's attraction for the steel. The magnet may be used in surgery in the same way. If a piece of steel or iron has been driven into any part of the body, its location may be determined at once by simply approaching the magnetic field. Further, if the wound is recent, the piece of metal immediately returns by the same course it entered without any surgical interference.

A guaranteed cure for epilepsy has at last been discovered by an enterprising chemical manufacturing company, which is sending out letters to the physicians like the following: "DEAR DOCTOR: We are anxious to place in every physician's hands who has any case or cases in view, our 'Guaranteed Cure for Epilepsy' and allied nervous diseases. We have not hitherto placed it on the market, and have only determined to do so after having had various physicians use it for the past four years. The success has been so unanimous in these trials that we are willing to back up the remedy, and after using the remedy for 30 days, if the patient is not satisfied with the treatment and results, we will refund, through his physician or druggist, the cost of same to him on return of the balance of medicine. We put these remedies up in palatable tablet form that can be either dissolved or taken whole. The regular package contains full three months' treatment, and retail price is \$5.00. The wholesale price to druggists and physicians is \$3.50, or 10% discount in dozen lots. If you dispense your own medicines, you can easily charge your own price. If you do not dispense, you can have your druggist order direct from us or through his nearest wholesaler. We are placing this in the hands of physicians to prescribe, and under no conditions do we sell direct to laity. Remember, we guarantee to refund money at end of 30 days if not satisfactory. Let us hear from you. Yours truly, _____."

Ninety-eight percent of cures of tuberculosis is the report vouched for by the company exploiting a nostrum. The following circular letter is being sent to physicians: "We beg to call your attention to _____, the new remedy for the treatment of Tuberculosis, Bronchitis, Pneumonia, and all pulmonary affections. In more than a hundred tests, covering a period of two years, it has effected 98% of cures. It is an external application, absolutely harmless in its use, and gives almost instant relief. The tests were made under the supervision of the most skilled physicians, with the effect as stated above. It contains the best absorbent known in medicine, which more than a thousand tests have proved beyond all doubt that it will completely annihilate tubercular bacilli. It also contains a lung disinfectant that will stop the spread of the disease and confine it to already infected area. It is a purely pharmaceutical preparation and will be sold only on the prescription of practising physicians. Its action is mild, but very effective, causing separation of the tubercular excrecence and the tissue or membrane involved, introducing the healing processes, and ultimately effecting a positive cure. It is our purpose to place this remedy within the reach of every practising

physician who at this time may be actively treating a case of Consumption, and in order to do so quickly we will send free sufficient quantity of _____ for two weeks' treatment. In every case this has been sufficient to prove the value of the remedy, and we know of no case wherein it has once been used that it was ever abandoned. Its use will in nowise conflict with other remedies. If it be your desire to test the remedy, please sign enclosed card and return to us, and we will immediately forward to you two weeks' supply for one case. _____ will not restore the parts that are gone, but will restore to normal conditions the affected tissue. Trusting we may hear from you by return mail, we are, Very respectfully, _____."

EASTERN STATES.

Tufts Medical Announcements.—President Capen, of Tufts College, reports that there are this year in the medical school 409 students and 107 instructors. The following new appointments have been made: Dr. Henry B. Chandler, professor of ophthalmology; Dr. Walter Elmore Fernald, clinical lecturer in mental diseases; Dr. Charles Melville Whitney, instructor in genitourinary diseases, and Dr. Ralph Clinton Larrabee, instructor in clinical medicine and hematology.

Much Food Adulterated.—It is stated that of 6,000 samples of food products of 61 different kinds examined during the last year at the Connecticut agricultural experiment station, more than a third were found to be adulterated, according to a report just issued. Borax and formaldehyd, it was discovered, are used largely with milk "as a substitute for cleanliness in the dairy." Of the samples of tomato catsup and chili sauce examined, 71 were colored red with dyes and 77 were preserved with salicylic or benzoic acid.

State Registration of Nurses.—It is stated that energetic efforts are being made by the Massachusetts State Nurses' Association and its friends to secure the passage of a bill for the registration of nurses. Their measure is strongly supported by nurses and physicians, but opposed by others who find fault with the requirements of the bill, which would exclude nurses who are graduates of many of the smaller hospitals and also object to the stipulation that the board of registration shall be appointed by the governor from a list to be submitted to him by the association.

Personal.—It is announced that Professor W. O. Atwater, whose experiments in physiology, nutrition, and the value of foodstuffs have given him a commanding position in the scientific world, is suffering from a stroke of apoplexy, and it is feared that he is fatally ill. In many respects his work was unique, and he possessed the gift of investing with popular interest, through his frequent contributions to the magazines, subjects which do not usually appeal to the nonscientific mind. He was a pioneer in certain investigations, and it will be widely regretted if he is obliged to abandon his fruitful labors for the benefit of science and of mankind.

NEW YORK.

Crowded Condition of Hospitals.—According to reports from New York never in the history of Bellevue and allied hospitals have the resources been so strained. The limit has been reached. All hospitals report that never have there been so many patients suffering from lung diseases, pneumonia, bronchitis, influenza and tuberculosis. The deaths among such patients at Bellevue have increased until 15 or 20 are registered daily. From 5 to 10 patients sleep on the floor in every ward. In the alcohol ward for men there are almost as many patients on the floor cots as in the beds. Exposure in the protracted cold is the reason given by the authorities for existing conditions.

The Social Evil.—An exchange states that the American Society for Sanitary and Moral Prophylaxis was organized February 15 at a meeting of 30 physicians, clergymen, and men of public spirit at the New York Academy of Medicine. It was stated that the society proposed to make an endeavor to have the social evil dealt with by the Health Department, just as they handled other contagious and infectious diseases. It is suggested that circulars and pamphlets by competent authorities be distributed in colleges and schools where young men may get some idea of the extent of the peril to which they submit themselves. There is already \$10,000 pledged to start the work. Officers will be elected at the next meeting.

Antitoxin for Meningitis.—It is stated that experiments will be made at Bellevue Hospital, New York, to determine the efficacy of antitoxin in the treatment of meningitis. Every alternate case of cerebrospinal meningitis will be treated hereafter, as an experiment, with diphtheria antitoxin; 50,000 units of the antitoxin have already been ordered, and it has been decided to ask for 150,000 units for Gouverneur Hospital. In the present epidemic of cerebrospinal meningitis, the disease exists in its most virulent form. If, as it is hoped, the new treatment reduces the mortality from 75%, which it is at present, to 25%, antitoxin will be admitted as a remarkable discovery in a disease for which heretofore there has existed no specific treatment.

Ready to Fight Tuberculosis in Brooklyn.—After consultation with the leading officials of the Health Department and with expert medical practitioners, a committee for the prevention of tuberculosis is being organized in Brooklyn. The committee will be composed of 30 members, most of whom will be physicians and representatives of hospitals. The crusade has become widespread. The fact that a third of all the deaths in New York City, between the ages of 20 and 30, are due to tuberculosis is in itself sufficiently startling to stir physicians and public-spirited citizens to action.

SOUTHERN STATES.

Personal.—Hopkins Honors Dr. Osler. February 22 was Osler day at Johns Hopkins. The principal feature of the commemoration day exercises at the Johns Hopkins University was the farewell address of Dr. William Osler. The degree of doctor of laws was conferred upon him and his parting was the occasion of a great demonstration. In the evening the Alumni Association's banquet was held.

Government Clerks Must Pay Their Physicians.—A bill has been introduced in the house requiring government clerks to pay their debts, including medical fees. The measure provides that whenever any civil service employe of the United States shall, after three demands in writing, refuse to pay an indebtedness for house rent, fuel, groceries, household necessities, clothing, physicians' services, etc., "consistent with such employe's social position in life," provided the indebtedness shall have been contracted after entrance into the service, such refusal shall be cause for immediate suspension. Suspension shall continue until settlement is made. If a satisfactory settlement is not made within three months, the employe "shall be stricken from the rolls as incompetent and unworthy."

Phipps Dispensary Opened at Johns Hopkins.—On February 18 the opening exercises of the Phipps Dispensary for the treatment of tuberculous patients at Johns Hopkins was held. Mr. Henry Phipps, the philanthropist through whose generosity the new dispensary was equipped for work, was present, as was also Mr. Victor B. G. Bloede, who donated a sufficient sum to pay the expenses of a nurse to look after the patients in the dispensary. The new building is a dispensary and not a sanatorium. It is two stories high. On the first floor is a large waiting-room. There are also four smaller rooms, to be used for examining patients and for consultation. On the second floor is a large room which will be used as a classroom for students who are studying tuberculosis and also a library. There are four other rooms on this floor for laboratory work. The walls are of brick and are painted with white enamel paint and the floors have been treated with a nonabsorbent preparation. It is said to be the most efficient dispensary for tuberculosis in the country.

Health Conditions in Florida.—In his annual report to the State Board of Health, Dr. Joseph Y. Porter, State health officer, submitted a review of the conditions, and comments on the same. He says: "The general health conditions of the State during 1904 can hardly be said to have attained that excellence which was enjoyed in the last preceding years, although the fatalities from all sources, sickness as well as accidents, is not increased over those reported in former years. Dengue, smallpox, and diphtheria contributed to an increase in the sick-rate, and although the mortality in two, viz., smallpox and diphtheria, was small, and none at all in dengue, yet the number of sick, with consequent expense, to say nothing of the loss of time and absence from daily vocations, conducted very materially to the uneasiness of the people and personal discomfort of the individual. The record of the executive office for the year 1904 gives the total number of births occurring in the State as 7,454, and deaths from all causes as 3,898. A birthrate per 1,000 of population of 14.10 and a deathrate of 7.37 for the same number. There were 8,465 marriages in 1904. An analysis of the vital statistical tables shows that of the births reported 4,533 were white and 2,921 were of the African race and descent. Of the death returns obtained by the board, 2,257 were white and 1,641 were colored, 2,177 males and 1,721 females.

WESTERN STATES.

The Columbus Hospital. a new institution, celebrated the opening exercises on February 26. The hospital is a well-equipped institution, situated at Deming Court and Lincoln Park, Chicago. The opening address was by the Most Rev. James Edward Quigley, D.D., Archbishop of Chicago.

Minnesota Hospital for the Tuberculous.—It is asserted that this institution will soon be opened for the treatment of those suffering with tuberculosis. It will consist of several large buildings, situated near Lake Leech. The ground covers 700 acres, and there will be accommodations for 300 patients.

Enforcing the Antispitting Law in Chicago.—According to newspaper reports, the Chicago authorities are waging war on the spitters. Many arrests have been made. It is asserted by opponents of the law that it is only spasmodically enforced, but the Public Health authorities are supporting the measure, claiming that it is a step in the right direction in educating the public along the lines of sanitary decency.

The Chicago Eye, Ear, Nose, and Throat College.—The annual stockholders' meeting was held February 10, at the college building. The old board of directors, Drs. W. A. Fisher, A. G. Wipperfurth, Thomas Faith, H. W. Woodruff, and J. R. Hoffman, were unanimously reelected. The meeting of the new board of directors followed immediately, at which the old officers, viz., Dr. W. A. Fisher, president and treasurer; A. G. Wipperfurth, vice-president; J. R. Hoffman, secretary, were reelected.

FOREIGN NEWS AND NOTES

GENERAL.

The Fifteenth Session of the International Congress of Medicine will convene at Lisbon, Portugal, April 19 to 26, 1906.

Campaign against Tuberculosis in Switzerland.—An exchange states that under the presidency of Dr. Schmidt, director of sanitation at Berne, a reunion of delegates of the various Swiss Cantons was held at Olden for the purpose of discussing measures for combating tuberculosis. The *Public Health Reports* state that a general program was approved, having for its object the instruction of the people regarding the means of diffusion of tuberculosis and of defense against the disease. Legislative measures recommended for adoption by the government of Switzerland were outlined, and a committee was appointed to represent Switzerland at the International Tuberculosis Congress, to be held at Paris, October, 1905.

The International Society of Obstetrics and Gynecology has fixed St. Petersburg as the place of its Fifth Congress. The committee of organization, being composed of delegates of chairs of obstetrics and gynecology of all highest schools of the Russian Empire, with Prof. D. de Ott as president, has already commenced its proceedings and decided that the Congress should be convoked from September 11 to 18 (August 29 to September 5 old style), 1905. The committee of organization gives notice to everyone who takes interest in obstetrics and gynecology, and has the honor to invite all these persons to take part in the proceedings of the Congress in the name of the further development and prosperity of our specialty. The committee, not to incommode the members of the Congress with the selection of the language, have decided to allow all languages without any limit, and permit the members themselves to choose any language for their papers and discussions. The themes to be discussed are: 1. The vaginal method in gynecology and obstetrics. 2. On the forcible confinement. 3. The operative treatment of the myomas. 4. The comparative appreciation of the several methods of the operative treatment of the retro-deviation of the uterus. 5. On the chorioepithelioma.

The Disinfection of Vessels.—A report to the British Local Government Board by Dr. Haldane, F.R.S., and Dr. Wade on the destruction of rats and disinfection on shipboard has just been issued as an official paper by the medical department of the board. It contains a detailed account of a very complete series of experiments undertaken for the purpose of determining the utility of the Clayton and other processes which have been devised for the indicated purpose. A ship of 3,000 tons register, the *Bavaria*, was treated at Dunkirk in the presence and under the observation of Dr. Haldane, and careful experimental observations were afterward made as to the effect of gas upon rats, mice, cockroaches and pathogenic bacteria of different kinds, as well as to its effects upon different kinds of merchandise. Other processes, such as burning of sulfur on shipboard, the use of liquid sulfurous acid, of carbonic acid and of carbonic acid are mentioned or discussed, and the reporters point out that the choice of a process will be likely to depend to a considerable extent upon the circumstances in which it is required. If all vessels from plague-infected ports, whether known to be infected or not, were to be treated, the question of the expense of materials and of the damage producible by the sulfur process would be a very serious one. An alternative to the Clayton process is afforded by the use of liquid sulfurous acid contained in cylinders.

Cremation in Great Britain.—According to the *British Medical Journal*, there are now nine crematoriums in active existence in Great Britain. The oldest of these is St. John's, Woking, which was opened in 1885; and the most recent is Birmingham, which was opened in 1903. The total number of cremations carried out in Great Britain since the establishment of the practice is 4,407. The figures for the various crematoriums during 1904, as compared with those of 1903, show only a slight increase at several, and at one, the oldest, even a trifling decrease. The returns taken together, however, show an increase of 91 cremations in 1904, as compared with 1903. The figures show that while on the whole, cremation is making steady headway in Great Britain, the progress is slow. There is reason to believe that the feeling against the practice, whether founded on theological beliefs or sentimental consideration, is less strong than it was even a few years ago. It is confessed, however, that the public mind is not so keenly interested in the

matter. The cause of cremation lost its most powerful champion in Great Britain by the death of Sir Henry Thompson. To his initiative the movement owed its inception, and under his skilful direction it steadily gained strength and volume. No man of less commanding position or less energizing influence could have secured a hearing for a proposal which 30 years ago was looked upon by the general public as an outrage on one of the most sacred instincts of human nature.

British Doctors' Fees.—The specialists must be divided into two distinct classes—the surgeon proper and the pure physician, says *London Mail*. The former unquestionably gets big fees in ratio to his reputation. Sir Frederick Treves has only to name his fee to the millionaire with appendicitis. With the fear of death before his eyes he will write his check gladly. When he has recovered he will often grumble if he does not boast. A younger and less known man will perform the same operation with a tithe of the cost, but the public, with death staring them in the face, will have the man with the big name regardless of expense. But the pure physician is an entirely different matter. His fees are standardized, not by act of parliament but by that autocratic body of Royal College of Physicians. His fees for consultation at his own house are fixed at two guineas the first visit and a guinea for each subsequent one. For consultation away from home receives a fee at the calculated rate of two-thirds of a guinea a mile. Elstree, 12 miles out of town, is ipso facto 8 guineas; Liverpool (201 miles) is 134 guineas and so on pro rata. But it must be remembered that nowadays all the big provincial centers have their own specialists and the town man is very seldom sent for unless he be one of the very biggest names and the case desperate and rich. If the physician should accept more he transgresses that professional fetich, "medical etiquette," and is branded a quack by his less lucky brethren. Moreover, when he arrives at a sufficient standing in the ranks of his profession the Royal College of Physicians will not elect him to their all-important fellowship, the crowning qualification of high water mark of his calling.

OBITUARIES.

Alpheus S. Packard, aged 66, February 14, at his home in Providence, R. I. He had been professor of zoology and geology in Brown University since 1878. He was born in Brunswick, Me., was graduated from Bowdoin College in 1861 and the Maine Medical School in 1864, and studied under Agassiz at the Lawrence Scientific School for three years. He was assistant surgeon of the Maine Veteran Volunteers, librarian and custodian of the Boston Society of Natural History, curator of the Essex Institute, curator and director of the Peabody Academy of Science, State entomologist of Massachusetts, member of the United States Entomological Commission, an honorary president of the Zoological Congress in Paris in 1889, a founder and for 20 years editor-in-chief of the *American Naturalist*, and a correspondent of 12 European scientific societies. He was the author of many textbooks and essays on scientific subjects.

Albert Benjamin Prescott, aged 72, February 26, at his home in Ann Arbor, Mich. He was director of the chemic laboratories of the University of Michigan, professor of organic chemistry, dean of the school of pharmacy, and the oldest professor in the university in point of years and service. He was a former president of the American Association for the Advancement of Science and the American Pharmaceutical Association.

J. W. Lawson, aged 86, February 22, at his home near Smithfield, Va. He was a former member of Congress from the second Virginia district; the leading member of the recent Virginia Constitutional Convention. He graduated from the New York University in 1861; served in the Confederate army during the Civil war. His dying request was that he be buried in his Confederate uniform.

John Stafford, who would have been 100 years old on March 15, February 24, at his home in Rochester, N. Y. He was perhaps the oldest physician in the State, having been born in Manchester, Ontario county, N. Y., and educated at Hobart College, receiving his diploma from the old board of censors. He practised in Manchester, N. Y., until 1875, when he removed to Rochester.

Albert A. Johnston, aged 70, February 10, at his home in Dallas, Tex. He was a graduate of the University of Louisville medical department in 1856; surgeon in the Confederate service during the Civil war, and for a number of years president of the Dallas County Medical Society, and a member of the State Medical Association of Texas.

Thomas H. Sherwood, aged 71, February 9, from heart disease, at his home in Washington City. He was a graduate of the University of Pennsylvania, Philadelphia, in 1858; was a surgeon in the Federal service during the Civil war, and for many years medical referee in the United States Pension Office, Washington.

William E. Bessey, aged 87, of Grand Rapids, Mich., February 15, from carbuncle, at St. Mary's Hospital, in his home city. He was a graduate of McGill University, Montreal, in 1863; member of the American Medical Association, and of the British Medical Association.

E. S. Freed, aged 72, a prominent physician in the Cumberland Valley, Pa., committed suicide, February 26, by shooting himself in the head with a pistol. His body was discovered by a patient the following day. No cause could be assigned for the suicide.

John Herbert Claiborne, February 24, at his home in Petersburg, Va. The deceased was surgeon-general of the A. P. Hill Camp of Confederate veterans, and a member of the Petersburg Medical Faculty, which organizations attended his funeral in a body.

John A. Hall, aged 73, February 6, at the home of his daughter in Lamont, Mo., from cerebral hemorrhage. He was a graduate of Jefferson Medical College, Philadelphia, in 1859. He formerly lived at Knobnoster and later at Nevada, Mo.

John D. Butler, aged 86, February 9, at his home in Caroline Co., Va. He was a graduate of the University of Virginia, and a former member of the Legislature. He practised regularly in the profession until a few weeks ago.

Sydney E. Tiner, aged 25, of Kingston, Ont., February 14, in the Therapeutic Hospital, New York City, from spinal meningitis. He was a graduate of the Faculty of Medicine, Queen's University, Kingston, Ont., in 1904.

John D. Butler, aged 86, at his home in Sparta, Va., February 9; a graduate of the medical department of the University of Pennsylvania in 1841. He was formerly a member of the Virginia State Legislature.

Spencer Van Dalsen, aged 52, at his home in Paterson, N. J., February 16, from bronchopneumonia. He graduated from the College of Physicians and Surgeons, New York, in 1876.

Samuel Jay Mills, aged 71, of Toledo, Ohio, February 2, in the Lucas County Infirmary, Toledo, Ohio. He was assistant surgeon in the Federal army during the Civil war.

Joseph T. Sloan, aged 64, February 9, at his home in Tehuacana, Texas, from influenza. A graduate of the University of Nashville (Tenn.) medical department, in 1861.

Timothy Melville Lippett, aged 32, February 10, from throat disease, at his home in Columbus, Ohio; a graduate of Starling Medical College, Columbus, Ohio, in 1897.

William P. Chapman, aged 68, February 10, at his home in Woodville, Texas. A graduate of the University of Nashville (Tenn.) medical department, in 1860.

Samuel B. Smith, February 10, from heart disease, at his home in Naples, Texas. A graduate of the University of Nashville (Tenn.) medical department, in 1882.

Ava M. Carroll, aged 48, at her home in Niobe, near Jamestown, N. Y., February 9. A graduate of the University of Buffalo (N. Y.) medical department, in 1888.

Charles Walter Wilkerson, aged 39, February 9, at his home in Montgomery, Ala. A graduate of Tulane University medical department, New Orleans, in 1898.

John Sappington, aged 56, February 10, at his home in Darlington, Md., from cerebral hemorrhage. A graduate of Jefferson Medical College, Philadelphia, in 1868.

John A. Vixtrum, of Princeton, Ill., February 9, from tuberculosis, at Colorado Springs, Col. A graduate of Vanderbilt University, Nashville, Tenn., in 1853.

L. C. Bean, aged 84, at his home in Chicago, February 22. He was born in New Hampshire, and was graduated from Dartmouth College in the class of 1854.

Robert A. Ellis, February 11, at his home in Hot Springs, Ark. A graduate of Tulane University medical department, New Orleans, in 1871.

Elliott Detchon, aged 76, January 29, at his home in Crawfordsville, Ind. A graduate of Cleveland Medical College, in 1851.

Thaddeus Harvey, February 22, at his home in Tylertown, Miss., after an illness of more than two years.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 25, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Florida:	Jacksonville.....Feb. 11-18.....	4	
Illinois:	Chicago.....Feb. 11-18.....	15	4
	Galesburg.....Feb. 13-20.....	1	
Louisiana:	New Orleans.....Feb. 11-18.....	6	
		Two Imported	
Massachusetts:	Boston.....Feb. 11-18.....	1	
	Lawrence.....Feb. 5-18.....	6	
Michigan:	Detroit.....Feb. 11-18.....	5	
	At 66 localities.....Jan. 28-Feb. 4.....	Present	
Missouri:	St. Louis.....Feb. 11-18.....	28	6
Nebraska:	Omaha.....Feb. 11-18.....	18	
New York:	New York.....Feb. 11-18.....	1	1
Ohio:	Toledo.....Feb. 4-18.....	12	
Pennsylvania:	Steelton.....Feb. 11-18.....	1	

South Carolina:	Camden.....	Feb. 11-18.....	1	
	Charleston.....	Feb. 11-18.....	2	
	Greenville.....	Feb. 4-11.....	5	2
Tennessee:	Nashville.....	Feb. 11-18.....	7	
Wisconsin:	Milwaukee.....	Jan. 21-Feb. 11....	24	

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Jan. 8-29.....	16	3
Mexico:	Merida.....	Feb. 5-11.....	1	
Panama:	Panama.....	Jan. 1-Feb. 11....	19	6

Six cases, two deaths from U. S. S. Boston

SMALLPOX—FOREIGN.

Brazil:	Bahia.....	Dec. 31-Jan. 21....	2	
	Para.....	Jan. 1-31.....	66	
	Pernambuco.....	Jan. 1-15.....	131	
	Rio de Janeiro.....	Jan. 8-29.....	128	54
France:	Paris.....	Jan. 28-Feb. 4.....	12	
Great Britain:	Bradford.....	Dec. 26-Jan. 9.....	12	
	Leeds.....	Jan. 21-28.....	7	
	London.....	Jan. 28-Feb. 4.....	1	
	Manchester.....	Jan. 28-Feb. 4.....	2	
	Newcastle-on-Tyne.....	Jan. 28-Feb. 4.....	5	1
	South Shields.....	Jan. 28-Feb. 4.....	2	1
India:	Bombay.....	Jan. 17-24.....	94	
	Calcutta.....	Jan. 14-21.....	2	
	Karachi.....	Jan. 15-22.....	1	
	Madras.....	Jan. 14-20.....	2	
	Lecce Province.....	Jan. 26-Feb. 2.....	24	
	City of Mexico.....	Jan. 14-28.....	3	3
	Christiana.....	Jan. 14-21.....	1	1
Italy:	Moscow.....	Dec. 31-Jan. 28.....	26	8
Mexico:	Odessa.....	Jan. 14-Feb. 4.....	4	2
Norway:	St. Petersburg.....	Jan. 14-28.....	4	2
Russia:	Warsaw.....	Dec. 10-17.....	2	
	Barcelona.....	Nov. 1-28.....	18	
Spain:	Constantinople.....	Jan. 23-29.....	9	
Turkey:	Grenada.....	Jan. 11-28.....	7	
West Indies:				

CHOLERA.

India:	Calcutta.....	Jan. 14-21.....	169	
Russia:	Astrachan.....	Dec. 27-Jan. 8.....	1	
	Gov. of Baku.....	Dec. 21-Jan. 1.....	77	
	Gov. of Erivan.....	Dec. 21-Jan. 1.....	38	33
	Gov. of Saratov.....	Dec. 27-Jan. 3.....	15	10
	Trans-Caspian Ter.....	Dec. 27-31.....	7	3
Turkey in Asia:	Van.....	Jan. 1-7.....	77	46

PLAGUE.

Africa:	East London.....	Dec. 24-Jan. 7.....	8	5
	Port Elizabeth.....	Dec. 21-Jan. 7.....	1	1
Arabia:	Aden.....	Jan. 14-21.....	110	83
Australia:	Brisbane.....	Jan. 2.....	1	1
	Ulmarra.....	Jan. 10.....	1	
Brazil:	Bahia.....	Dec. 31-Jan. 7.....	2	
	Para.....	Feb. 1.....	Present	
	Rio de Janeiro.....	Jan. 8-29.....	41	15
Egypt:	Suez.....	Jan. 14-21.....	4	3
	Tukh.....	Jan. 14-21.....	1	1
India:	General.....	Dec. 31-Jan. 14.....	58,376	50,104
	Bombay.....	Jan. 19-24.....	301	
	Calcutta.....	Jan. 14-21.....	64	
	Karachi.....	Jan. 15-22.....	46	46
	Madras, vicinity of.....	Jan. 6.....		
			Outbreak reported	
Japan:	Hogo.....	Dec. 14.....	1	
Russia:	Ural Territory.....	Jan. 3-9.....	8	15
Siam:	Bangkok.....	Dec. 15-22.....	9	
Straits Settlements:	Singapore.....	Dec. 30.....	3	

Changes in the Medical Corps of the U. S. Army for the week ended February 25, 1905:

APPEL, Major AARON H., surgeon, having arrived on the transport Logan, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

VEDDER, First Lieutenant EDWARD B., assistant surgeon, having arrived on the transport Logan, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

HULL, ALVA R., contract surgeon, having arrived on the transport Logan, will proceed to Zamboanga, reporting to the commanding general, department of Mindanao, for assignment to duty.

GRIEGER, HUBERT, contract surgeon, is relieved from duty in the department of Mindanao and will proceed to Manila, P. I., reporting to the commanding general, department of Luzon, for assignment to duty.

VOORHIES, HUGH G., contract dental surgeon, having arrived on the transport Logan, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

CHAMBERS, WILLIAM H., contract dental surgeon, having arrived on the transport Logan, will report to the commanding general, department of Luzon, for assignment to duty.

APPEL, Lieutenant-Colonel DANIEL M., deputy surgeon general, having arrived on the transport Logan, will report to the commanding general, department of Luzon, for assignment to temporary duty.

WELLS, Major GEORGE M., surgeon, is relieved from duty in the department of the Visayas and will proceed to Manila, where he will enter the First Reserve Hospital for observation and treatment.

LAMSON, First Lieutenant THEODORE, assistant surgeon, now at Camp Bumpus, Tacloban, Leyte, will proceed to Taft, Samar, reporting to the commanding officer, Company M, Fourteenth Infantry, for duty with that company.

APPEL, Lieutenant-Colonel DANIEL M., deputy surgeon general, will report to the commanding general, First Brigade and Post of Manila, for temporary duty.

METCALFE, First Lieutenant RAYMOND F., assistant surgeon, having arrived on the transport Logan, will report to the chief surgeon of the division for temporary duty as sanitary inspector, these headquarters, during the absence of First Lieutenant Robert U. Patterson, assistant surgeon.

KIRKPATRICK, Captain THOMAS J., assistant surgeon, is relieved from further duty at Camp Jossman, Guimaras, P. I., for duty, relieving First Lieutenant John A. Clark, assistant surgeon, who will proceed to Oras, Samar, P. I., for duty.

LE WALD, First Lieutenant LEON T., assistant surgeon, is relieved from further duty at the Base Hospital, Iloilo, and will proceed to Camp Hartshorne, Lao-ang, Samar, P. I., for duty.

WOODALL, First Lieutenant WILLIAM P., assistant surgeon, is relieved from duty at Camp Jossman, Guimaras, P. I., and will proceed to Iloilo, and report to the commanding officer, Base Hospital, for duty, relieving First Lieutenant C. F. Morse, assistant surgeon, who will proceed to Llorente, Samar, P. I., for duty.

The following change in station is ordered to take effect upon the abandonment of Calococan, Rizal: First Lieutenant Charles L. Foster, assistant surgeon, will proceed to San Mateo, Rizal, for duty.

TORNEY, Lieutenant-Colonel GEORGE H., deputy surgeon-general, is granted leave for one month, to take effect at once.

KENDALL, Major WILLIAM P., surgeon, Presidio of Monterey, is granted leave for twenty-two days from February 5, who, upon the expiration thereof, will proceed to the Philippine Islands on the army transport scheduled to sail February 28.

WING, FRANKLIN F., contract dental surgeon, is granted leave for fourteen days, to take effect upon completion of the duty assigned him at Fort Meade.

STONE, Captain JOHN H., assistant surgeon, is granted leave for four months, from about April 1, with permission to go beyond the sea.

GWINN, CHESTER A., sergeant first class, Fort Myer, will be sent to Fort Hunt for duty.

SHEPPARD, First Lieutenant JOHN L., assistant surgeon, is granted leave for fifteen days, to take effect February 18.

GERARD, Colonel ALFRED C., assistant surgeon-general, leave granted is extended one month.

The following named assistant surgeons are relieved from duty in the Philippines Division, to take effect on the dates set opposite their respective names, or as soon thereafter as practicable, and will then proceed to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders: Captains William H. Wilson, May 12; William W. Quinton, May 26; First Lieutenants Eugene A. Whitmore, May 12; Robert U. Patterson, May 12; Roderic P. O'Connor, May 12; Conrad E. Koerper, May 12; Paul S. Halloran, May 12; Perry L. Boyer, May 12; Roger Brooke, Jr., May 12; George P. Heard, May 26; James F. Hall, May 26; Kent Nelson, May 26; James M. Phalen, May 26; Charles A. Ragan, May 26; William P. Woodall, May 26; Ernest L. Ruffner, May 26.

The following changes in the stations and duties of assistant surgeon and of contract surgeons are ordered:

MORSE, First Lieutenant ARTHUR W., is relieved from duty at Vancouver Barracks, and will report to the commanding officer, Nineteenth Infantry, at the post, for duty, to accompany that regiment to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty.

KELLOGG, PRESTON S., contract surgeon, is relieved from further duty at Fort Robinson and from temporary duty at Fort Crook, and will proceed to Fort Riley and report not later than March 12 to the commanding officer, Third Squadron, Eighth Cavalry, for duty, to accompany that squadron to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty.

MARVIN, MARION F., contract surgeon, is relieved from further duty in the Philippines Division, and upon the expiration of his present leave will proceed to Fort Robinson for duty.

SMELSEY, SAMUEL, sergeant first class, Manila, P. I., will be sent to the depot of recruits and casuals, Fort McDowell, Cal., reporting by letter to the military secretary of the Army for further orders.

PERSON, THOMAS, sergeant first class, the Presidio of San Francisco, will be sent to Fort Duchesne to relieve Sergeant First Class Lyell R. Stewart. Sergeant First Class Stewart will be sent to the Presidio of San Francisco for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended February 25, 1905:

SCHWERIN, L. H., acting assistant surgeon, detached from the Abanda and ordered home to wait orders—February 18.

PAYNE, J. H., passed assistant surgeon, ordered to the Pennsylvania—February 23.

Changes in the Public Health and Marine-Hospital Service for the week ended February 22, 1905:

WILLIAMS, L. L., assistant surgeon-general, granted leave of absence for eight days from February 14—February 16, 1905.

STIMPSON, W. G., passed assistant surgeon, detailed as member of Revenue Cutter Service retiring board, at San Francisco, Cal.—February 16, 1905.

BLUE, R., passed assistant surgeon, detailed as member of Revenue Cutter Service retiring board, at San Francisco, Cal.—February 16, 1905.

OAKLEY, J. H., passed assistant surgeon, to proceed to Northport, Washington, for special temporary duty—February 21, 1905.

FOSTER, S. B., acting assistant surgeon, department letter of January 23, 1905, granting him leave of absence for twelve days, amended to read ten days from January 24—February 15, 1905.

Board Convened.

Board convened to meet at San Francisco, Cal., February 25, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

RECIPROCITY IN MEDICAL LICENSURE.

BY

CHANDOS BURTON CONNER, M.D.,

of Lewiston, Me.

To the Editor of *American Medicine*:—The article signed "Equity" in the issue of *American Medicine*, January 7, 1905, is the reason for this communication. It seems the medical profession should move in this matter. The medical profession of America is surely too much divided for their own interests. Under the present methods of legislation, there is much injustice done, but not wholly in the manner that "Equity" points out. I am not an examiner, nor have I anything to do with any board of examiners in any way, shape or form, and my defense, if so it may be called, is based on what seems to me fairness to the public, fairness to each other, and even justice to the irregular practitioner.

The first point for discussion should be, What is the object of the various practice acts? Is it to throw fences around a given calling, to make a close combine of the practice of medicine; is it in the nature of a trust formation? Not if I understand the motive. Is it to bolster up some dogma or system? Is it to prevent "all" but a favored few from joining our ranks? Is it to demand certain parchment papers and Latin diplomas, which $\frac{2}{100}$ of their possessors cannot read? It is not the purpose of the medical practice acts to protect the public health. Legislative bodies are the representatives of the general public, and not the representatives of a few. Hence, the practice acts are intended to insure to the public the best medical service possible.

To quote "Equity":

At present nearly all our State and Territorial Boards require examination in all of the branches required for graduation in our best medical colleges today. This is right for the recent graduate, who has not passed a State Board examination, but it is nothing short of outrage to one who has practised several years, whether he has taken a State Board or not.

This seems a peculiar type of justice, which requires a certain kind of qualification for one man and a different standard for another. Are we to understand that such branches as chemistry, anatomy, physiology and the elementary branches are useless? Or are we to understand that the practice of medicine requires less knowledge the older we grow, and the farther away we get from the college door? This idea seems to be implied in the foregoing statement.

Take the case cited by "Equity." A man with the training of the physician, as stated, should be qualified in all the work that he has taken. His failure shows one of several things: 1. He "cribbed" his way through college. We all know this is done. 2. He learned by "rote," not following out a systematic study of the subjects related to medicine. 3. When he left college with his degree, he also left study and experiment behind. 4. He had suffered from some cause affecting his memory and ability.

In either of which cases he is surely not competent to practise medicine.

The conclusion "Equity" reaches is unfairness by the Board, a proposition surely open to proof, and it remains with the body of physicians to demand an investigation. It also rests with the State Board of Texas to clear its name, for so long as "Equity's" article stands unchallenged, so long the members of the State Board of Examiners of Texas are open to the charge of dishonor.

I am heartily in favor of State Board examinations when rightly conducted; there should be no partiality—young and old, college graduate and nongraduate, should take the same examinations. It requires just as much knowledge for the man of 60, who has been 20 years out of college, to make a correct diagnosis, and administer proper treatment, as it does the young man of 21. However, one might say: The old men in practice cannot be thrown aside; you cannot take the livelihood of hundreds of physicians away from them.

Our great fault is that we have no laws to discriminate between the "quack" with a diploma and the "quack" without one. There are numerous "irregulars" in the profession. At first this may not seem possible, but for purposes of analyzation we might ask: How are the majority of diagnoses made? Are they not made by guess rather than on scientific basis? How many of these older physicians use a microscope? How can the man that cannot distinguish N from H make the fine chemic analyses necessary in diagnosing stomach diseases?

Let us take a commonly occurring disease, acute nephritis. Our standard authors tell us "a urinary examination is always necessary." Does this simply mean taking the specific gravity, heating over a flame, adding nitric acid? Surely not, and even were this all it would require for the intelligent use of these tests a knowledge of physics and chemistry. For the question arises, What is specific gravity? What does it mean? What does a low specific gravity indicate? (Physics.) Then we come to adding the reagent, nitric acid. What is it? What will it do, and why will it do it? These are questions in chemistry, opening up the subjects of organic chemistry (the albumins), and also those of inorganic chemistry, H, N, and O. Of course, I understand one can perform these tests by rule, but this is neither scientific nor intelligent, and what we are aiming at is real proficiency.

To pursue this analysis, consider the quantity passed in 24 hours. We note it is small. This leads us first into the field of elementary physiology. What is the normal amount? How is the urine secreted? By what organs? Upon what does the action of the kidney depend? All problems in physiology, and we cannot answer them unless we have a minute knowledge of the physiology of urinary excretion.

Then we are led at once into the field of elementary pathology. Further, "some red blood-corpuscles and renal epithelium are found microscopically, together with the characteristic hyaline blood and epithelial casts."

Here, again, we are confronted with not only an absolute call for a knowledge of elementary chemistry, physics, physiology, pathology, but also for a knowledge of microscopy. Without such knowledge how can one recognize the various kinds of casts, and the red blood-corpuscles?

Now, when a man acknowledges that he is deficient in these elementary branches, if he cannot make a positive diagnosis of acute nephritis, from a lack of knowledge, is he fitted to practise medicine? Again, in making these various tests and examinations he must be on the alert to make fine differentiations.

Again, the correct understanding of throat and chest diseases depends on the intelligent use of light (physics) and sound. The various qualities, tones, and pitches. These are all problems in physics.

We might go on and discuss tuberculosis, gonorrhea, typhoid fever, etc., and in all we would find that the diagnosis depends to a large degree on the intelligent understanding of the elementary branches, and the later additions to the college curriculum, to which the older men so strenuously object. We surely need restrictive legislation, but let it be fair, equal in all respects.

For the proper control of the practice of medicine there should be: (1) A law compelling every physician to qualify by examination every five or ten years; (2) a law compelling every physician to keep accurate case records, showing major symptoms, reports of examinations, etc., showing why he arrived at his diagnosis, and his reasons for giving a specific treatment; (3) a board to inspect these reports from time to time, making questionings of diagnoses and character of treatments. Such laws would insure the public that they were consulting qualified men; that these men were exercising the knowledge they possessed; and that they were being treated by up-to-date methods.

The degree of doctor in medicine should be conferred by the State alone. Registration and graduation should be one; and the State should see that every practitioner keeps up to an average standard, whether he has practised a year or 20.

The subject is one filled with interest to every physician, young as well as old. Its solution must mean a thinning of the ranks, and the survival of the fittest. The ranks are over-

crowded, and there are many who are not practising medicine, but are as truly quacks and charlatans as those outside. I have passed two State Boards, and have taken the required examinations, and the last of these I took after nine years of practise, after I had become a member of one of our leading medical societies, and had had hospital work galore; and today, if I should change my residence to another State, I would expect to show that I have not gone backward.

By the system I have advocated, only competent men, who are willing to devote care and attention to their cases, will be practising, and the cry will then be, not as now, an overcrowded profession, and the starving doctor, but a limited number, and doctors asking and receiving fair fees.

COST OF LIVING FOR PHYSICIANS IN JAMAICA.

BY

LOGAN RUSSELL, F.R.C.S.,
of Kingston, Jamaica.

To the Editor of *American Medicine*.—My little preface to Mr. Alexander's statistics has brought to me such a host of letters of inquiry regarding Jamaica that many must remain unanswered, unless you will be good enough to convey the information through the pages of *American Medicine*. The following may be taken as the general questions with answers: Living in country districts is cheap—house rent, food, etc. The same in Kingston (60,000) population, very much higher—clothing cheaper than in United States. Servants' wages moderate, probably about Southern States rate; no scarcity, some good, again the reverse, black. Physicians holding university degree of M.D., showing four years' study of nine months each, examined in medicine, surgery and midwifery, the local certificate giving privileges equal to British qualification. Colleges, institutes, hospitals, etc., granting M.D., may, under certain cases, be accepted, but here and abroad, are not credited with position of a university degree. A medical law prohibits practice without registration, fine \$100. In certain localities, lands can be rented, leased or purchased on moderate, also very cheap, rates. Interest on mortgage, 6%. Doctors here have discarded practice and taken up planting with advantage. How much can a physician live on? A difficult question to answer. It must depend on the individual. There are government clerks with families who live on \$400 to \$600 a year, and there are others who receive many hundred pounds salary a year, and say they cannot make ends meet. I have known a house and land rented at \$7.50 a month, and the cultivated land yield on an average \$15 a week, but that price (\$7.50) must be regarded as exceptional. This city has gas, electric lighting for street and house, electric cars, ice factory, building societies, marine, life and fire insurance companies (local), mineral water factories, (6). Large, up-to-date stores, giving London and Paris goods; in fact, everything from a needle to an anchor. Several steamship lines from New York and other American ports. Passage four and a half days by fast boats. Lawyers and doctors without number; the latter, with an exception or so, do not retire early nor die rich, showing the place is healthy or patients do not pay bills. The former, who outnumber the latter 5 to 1, or more, retire early and die rich, showing they are free from the disadvantages peculiar to the medical profession. Are there many Americans? They have "discovered" Jamaica and are taking hold of Port Antonio, which a few years since was a one-horse village, now a go-ahead American city, in which the American "quarter" is accepted by Quashie as readily, and perhaps more so, than the English shilling. An American millionaire is building the "biggest thing in house line"—cost, \$75,000. It was said United States should exchange Philippine Isles for Jamaica. They know a better method—hold Philippine Isles and "absorb" Jamaica.

The numerous letters touch in any but complimentary terms on the various State Board Examinations. That opens a subject for deep thought. Allowing in the past matters medical have been neglected, is it not possible in making corrections to enforce them too suddenly and allow them being too drastic in effect? Rather let the laws be *prospective* than *retrospective* and

word it, "All who commence study on and after — date, be subject to Board Exams." My personal knowledge of Board Exams. (I hold two United States Board Certificates) and what information, I have gained from recent correspondence, it appears strange that well-qualified men shall be prevented from passing from one State to another in a country boasting of "Liberty, Equality and Fraternity," and are obliged to seek the consideration of foreign countries, that they may enjoy the warm sunshine and endeavor to drag out an existence from the few dollars they can collect; when the warm sunshine can be obtained in Florida or California, but if they attempt to collect those few dollars on which to feed the family. The State Board comes forth with its District Attorney like the London policeman to the vagrant and sternly orders, "Move on—move on to another State!" Is such a law of charity to your neighbor? It seems to me bigotry, selfishness, greed and gross inhumanity to your brother. The Boards are not even granted the power of discretion, *i. e.*, to accept without examination those considered by the members as well qualified and eligible. Reducing the subject to a personality, I arranged to purchase a partnership, and at the close of the first year (if all representations had proved satisfactory) purchase for cash the freehold, etc. I applied to the State Board for recognition of my State certificate and my English, Scotch and other degrees. The Secretary politely informed me that I was exceptionally well qualified and that my recommendations with military service showed a high order of practical experience, but as there was no reciprocation with my State, neither the certificate or degrees could be accepted, which he regretted, and I would be obliged to pass in every subject. Would that examination have added to my ability as a surgeon? Take another view. A wealthy man, a millionaire, with great political power, desires his medical man resident in another State, possibly only a few hundred yards distant, not as consultant, but as regular medical attendant. The State law says he may enter the State as a consultant but *not as medical attendant*. The restriction and inconsistent wording of the law will so disgust him and his friends of influence that steps may be taken to rescind that law. Then the last state of that Medical Board will be worse than first, and other States will fall. Consistent law men will appreciate, but laws having contrary power can never be popular, and attempts will constantly be made to expunge them.

Leaving medical laws and their troubles, I may record the following, which I trust will be of use: I saw recorded in a medical paper that a distinguished savant had discovered that potassium permanganate was an antidote to snake poison. In Africa, many years ago, I treated not one, but many such cases, and when effectual constriction had been placed on the proximal side of the wound, the extremity had good results. One case was that of "jacky" on "H. M. S.," I don't at this moment remember the name, but she was the only paddle wheel gunboat in the service. The man recovered, and the record of the case is in the Admiralty Department, London. Another record, not claimed as my discovery—nothing original. I obtained it from a Congo negro. Conversing with him on native medical practice, he gave me the following, which I interpreted as diphtheria: "Massa, when man, woman, or pickaninny (child) hab sich and go fe dead, throat, mouth, and nose shut up wid nasty stuff, kin (skin) hot like fire, nose blood, head bad too much, etc., mash up green pineapple, put de runnin (juice) on cloth on bamboo stick and work on throat and nose, him no go fe dead, but tan up (recover) soon." My experience with diphtheria has been very limited, but such as it has been you may mark down till proved to the contrary that green pineapple juice—not ripe, which is useless—is a specific. I use it alone, or with small doses of calomel, remembering digitalis. I think if those doctors who meet with frequent cases of that disease will keep on hand a supply of the article (use it by spray every ten minutes—the pure juice) they will find that antitoxin will have to take a back seat, and very far back at that. I question if you can get the unripe in America (*i. e.*, in proper condition), for the long removal from the plant, change of temperature, etc., will necessarily advance it from the unripe to the advanced condition, and each removal will diminish its power. Possibly at a future date some savant will discover green pineapple juice as the specific for diphtheria.

ORIGINAL ARTICLES

MUCOUS COLIC.*

BY

ROBERT COLEMAN KEMP, M.D.,
of New York City.

Consulting Physician, Gastrointestinal Diseases, to the Manhattan State Hospital, West Ward's Island; Physician to the Department of Gastrointestinal Diseases at St. Bartholomew's Clinic and the West Side German Dispensary; Professor of Gastrointestinal Diseases at the New York School of Clinical Medicine, Etc.

To discuss thoroughly the topic, "Mucous Colic," would more than occupy the entire evening, and it is therefore my intention to refer as briefly as possible to the various theories advanced as to the etiology of this disease, and to report my own observations and the conclusions to which I have arrived, as a result of several years' investigation in my hospital service and in my private practice, trusting that the same might prove to be of some interest to all.

Among the best known synonyms for mucous colic are mucous colitis, membranous colitis, membranous or pseudomembranous enteritis, and tubular diarrhea. In all, there are about 25 names for this condition.

Although no distinct accounts of this disease occur in the writings of the ancients, yet there may be detected some of its peculiar features in the description of certain pathologic conditions grouped under diarrheas, dysentery, etc. J. Mason Good, in 1825, was the first to classify the disease, calling it tubular diarrhea. Woodward describes it in the "Medical and Surgical History of the War of the Rebellion." Siredy contributed a valuable paper in 1869. DaCosta, in 1871, described the nervous elements of the disease, stating that the condition is not a true inflammation. Leyden's work, in 1882, gave further stimulus to investigation, especially regarding the character of the dejecta. Nothnagel suggested the name "mucous colic," in order to show that a true enteritis need not exist. Mucous colic is therefore an entity, and may be defined as a "condition characterized by the excessive production of mucus in the colon, by attacks of painful spasms of varying degrees of severity and frequency, accompanied or followed by the expulsion of mucus in gelatinous masses, or in the form of tubular casts, or in tape-like pieces or strings, and furthermore characterized by anomalies of the gastrointestinal functions and by various nervous symptoms."

Age and Sex.—It is a comparatively rare affection, occurring most frequently in women from 20 to 40, more frequently in middle life. A few cases occur late in life, and rarely in children. Boas reports one in early infancy. About 75% to 85% occur in women.

Etiology.—Space will allow me to mention only a few of the chief investigators. Among the various theories regarding the etiology, we may mention the following: 1. Neurasthenia is the prime factor—mucous colic is a secretory neurosis. Among the advocates of this view are notably DaCosta, Siredy, and W. Mendelson of New York City. 2. The anatomic origin. Ewald lays stress on ptosis of the colon; Boas on atony; Glénard on splanchnoptosis. 3. Partly nervous and partly anatomic origin. Mathieu considers it a hypersecretion of mucus in patients of a neuroarthritic type who suffer from enteroptosis, intestinal sand being present. Hemmeter believes that often there is some connection with arthritis. Von Noorden lays stress on long-continued constipation in nervous subjects. Einhorn places it among the neuroses, but finds that it is associated in many cases with Glénard's disease, or with gastropotosis and enteroptosis, and that achylia gastrica is present in many patients. 4. Tumors, adhesions, enlarged prostate, and various other factors are given.

Pathology.—Necropsies are rare, unless death results from some intercurrent disease. Autopsies in the cases of O. Rothmann, Osler (Edwards), and Weigert, demonstrate that no inflammatory condition existed in the colon. There was simply hypersecretion of mucus. The consensus of opinion is that no inflammation exists. On the other hand, M. Rothmann reports one case and Hemmeter two cases in which, in addition, some catarrhal inflammation was present. Nothnagel explains this unquestionably by the fact that there are two classes of cases—one in which there is the pure "mucous colic," with hypersecretion of mucus, and the second class, in which the mucous colic is engrafted on a catarrhal colitis. I have noted, in my own experience, that the catarrhal colitis may be of such a mild type that attention may readily be diverted from it on account of the predominance of the symptoms of the mucous colic.

The mucus may be passed in the form of long, thin bands—ribbon-like or in the shape of a tapeworm; they may be tubular, or form a cast of the intestine; in some cases these are of considerable length, several feet; the mucus may be in jelly-like masses, or even in shreds, occasionally streaked with blood. This discharge should be carefully differentiated from fascia, tendons, the membranes of oranges, etc. With Ehrlich's triacid solution a green color occurs with mucus, of which this discharge consists; with fibrin it turns red. The color of the membranes in mucous colic is ordinarily grayish, though they may be translucent or even transparent. Microscopically the membrane consists of a structureless matrix, with columnar epithelium scattered therein; its chief constituent is mucus.

Symptoms.—These patients are markedly neurasthenic, and morbidly self-conscious; in appearance they are usually emaciated, with a history generally of considerable loss of weight. There has been obstinate constipation of long duration, with an occasional intermittent diarrhea. Palpitation, dizziness, disturbances of the genitourinary system, hysteric symptoms, anemia, headache, and gastric disturbances of various types are present. On palpation of the abdomen sensitive points will often be detected. Patients give a history of a sudden attack of acute abdominal pain, like severe colic, and the abdomen may become swollen and tense. At this time the nervous symptoms become extremely aggravated. Finally the passage of the mucous masses described occurs spontaneously, with great straining, or with artificial aid. These attacks occur with varying frequency and severity. Between the attacks the nervous condition of the patient may be slightly improved. This is the type of uncomplicated (pure) mucous colic.

Nothnagel describes a second type of mucous colic which is engrafted on a colitis. He notes two classes of cases: (a) That in which the severe cramp-like attacks are absent; the patient passes mucus continuously, with occasional tube casts—a cystic colitis (Abercrombie's case) on which is engrafted a mucous colic; (b) a class in which mucous colic is engrafted on a chronic catarrhal colitis—the latter due in this case to adhesions from recurrent appendicitis. There were small amounts of mucus passed at frequent intervals, with occasional attacks of mucous colic. Operation relieved both conditions at first, but the mucous colic later returned.

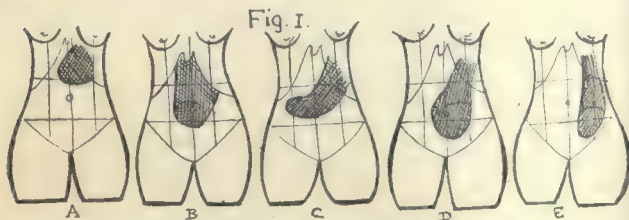
I have such a patient under treatment at present; the appendix had been removed and adhesions broken up. The patient improved for a time, but later relapsed. I found enteroptosis associated with gastropotosis. I applied Rose's belt and instituted treatment. Improvement immediately followed.

RESEARCHES.

I shall now describe my own investigations into the etiology of mucous colic, carried on for several years past. The importance of ptosis of the gastrointestinal tract in causing derangements of its functions was first called to my attention by Dr. Achilles Rose and my in-

* Read before the Medical Association of the Greater City of New York, December 12, 1904.

vestigations in this direction have been an important factor in my study of mucous colic. Some of these have already been reported before your society in a paper entitled, "Observations on Dilatation of the Stomach and on Gastropptosis."¹ In the first place, the vertical stomach is the fetal position of the organ. Examinations of infants and of young children will demonstrate occasionally a congenital gastropptosis to exist and in some cases gastropptosis with its associated enteropptosis have been accidentally discovered and have undoubtedly existed for many years, with no symptoms resulting. The maintenance of a certain degree of intraabdominal tension is a factor in preserving the position of the viscera; thus a loss of tone in the abdominal muscles, or



Cases from the Ward's Island Gastrointestinal Clinic. A, normal stomach; B, dilated stomach; C, gastropptosis, mild type; D, gastropptosis, moderate degree; E, gastropptosis, extreme degree.

absorption of omental, or intraabdominal fat, may be a factor in the production of ptosis. So also may an abnormal elongation of the mesentery, or an atonic condition of the suspensory ligaments of the stomach and colon. The loss of tone in the stomach and intestines—atony—is another factor in the production of ptosis.

At a former meeting I called to your attention that I believed dilatation of the stomach and gastropptosis to be progressive degrees of atony; that in ptosis of the stomach, the organ was dilated and that gastropptosis might be primary, with enteropptosis a secondary condition; this agrees with Riegel's views. I cited a case in which I was convinced dilatation first occurred, then gastropptosis, and later enteropptosis. Glénard, on the other

results being secured by transillumination of the stomach with fluorescein. A glass of water 236 cc. (8 oz.) containing 1 gm. (15 gr.) sodium bicarbonate is first administered. A second glass of water 236 cc. (8 oz.) containing 1 gm. (15 gr.) sodium bicarbonate; glycerin, 3.75 cc. (1 dr.); fluorescein (Merck), 8 mg. ($\frac{1}{8}$ gr.), is then given the patient. Lime water may be substituted for the sodium bicarbonate.

Fig. 2 illustrates the "Circumscribing Gastrodiaphane" which I devised for this special work. For accurate scientific investigation gastrodiaphany is the best method for differentiating between dilatation of the stomach and the varying degrees of gastropptosis. I append the following description of this instrument from the November number of the *Post-Graduate*.

During the past two years a careful series of observations with transillumination of the stomach suggested to me an improvement on the gastrodiaphanes now in use. Manipulation of the tube after the electric ball has entered the stomach frequently causes gagging and at times vomiting, interfering thus with the accuracy of the method. The cables of all the instruments were found unsatisfactory in case of gastropptosis of great degree when we endeavored to explore carefully the pyloric end of the greatly dilated stomach. In addition, it was impossible to guide the light in a definite direction; it would sometimes pass to the right, sometimes to the left, and often it was necessary to draw it in and out a number of times, a distance of several inches. The instrument which I devised to overcome these drawbacks has a cable about 6 in. longer than the Lockwood gastrodiaphane, and is of about the same caliber. The cable is somewhat more flexible for the space of a quarter of an inch—about the same distance from the light—in effect a joint at this point. At the base of the light is attached an extremely thin accessory cable, covered with rubber. This runs parallel with the main cable and practically increases the diameter to only a very slight degree. After introduction of the instrument the main cable is held firmly and the accessory cable drawn upon; by turning the cable at the same time, the instrument can be directed in any desired direction. In addition to this, by manipulation of the accessory cable, the main cable can be so bent that the light will explore the entire wall of the stomach anteriorly and can be made to pass up to the pylorus, and along the borders of the ribs. It is thus kept under definite control.

I do not wish to give the impression that it is always necessary to carry a gastrodiaphane in order to make a diagnosis, but the instrument was of undoubted value in our researches. Nephropptosis was not invariably found concomitant with gastropptosis. Tight lacing and confinement, with resulting loss of intraabdominal pressure, are factors in the production of ptosis, as are also any diseases or conditions accompanied by loss of flesh. If gastropptosis is demonstrable, enteropptosis accompanies it.

The normal transverse colon curves downward and across the abdomen in a slightly U-shape with the concavity upward, the lower border lying on a level with the umbilicus. Inflation with air or with carbonic acid gas will often demonstrate its position.

Fig. 3 illustrates ptosis of the colon, narrowed at one point and sacculated above this. Gastropptosis is associated with it. This misplacement of the colon

undoubtedly favors circulatory, and hence secretory changes in the sacculated portion of the colon. Fecal accumulation is also favored, a further cause of irritation. Absorption, with resulting autoinfection and nervous disturbances following the same, can thus readily result. Naturally, a patient of nervous temperament, and there are undoubtedly many such, may be more markedly affected; but I do not believe that neurasthenia *per se* will cause that peculiar entity known as mucous colic any more than it will cause gonorrhea. There must be other factors.

We know that mucous colic occurs in Glénard's disease, that Ewald believes that ptosis, and Boas that atony of the colon are important factors, and that Einhorn finds

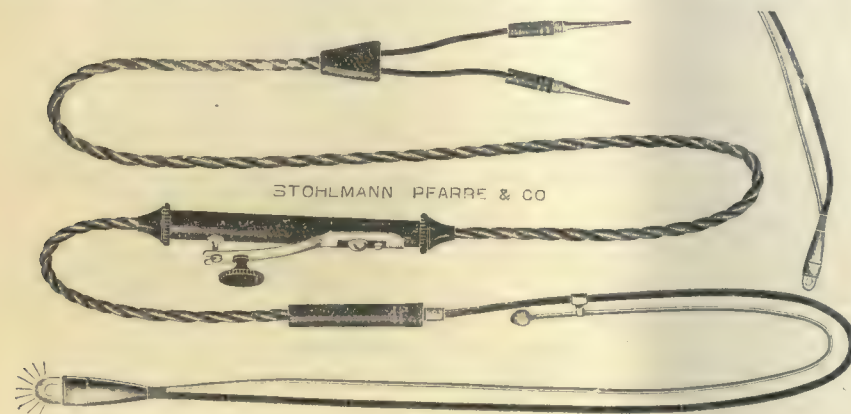


Fig. 2.

hand, claims that enteropptosis is invariably the primary condition. The conditions are undoubtedly associated, but I believe that either may precede.

It is not the degree of the descent of the lower border of the stomach which constitutes a ptosis. With gastropptosis, the lesser curvature of the stomach descends with the greater and loses its relations to the diaphragm; while in dilatation, the muscular fibers elongate in the vertical direction—the greater curvature alone sinks, and the lesser curvature maintains its relations and does not sink.

Fig. 1 shows a normal stomach, a case of dilatation and three cases of gastropptosis of varying degrees.

These patients are from my Ward's Island clinic; the

a large percentage of patients with mucous colic have enteroptosis associated with gastropotosis and achylia gastrica.

I believe that mucous colic has as its chief etiologic factor ptosis of the colon with associated gastropotosis. In some cases it is just possible to detect the gastropotosis, and especially that of lesser degree, by means of gastrodiaphany. If this is present, enteroptosis accompanies it.

The following case, quoted from my paper read last March, will doubtless prove of interest:

I have under observation a patient with typical attacks of mucous colic, which began two months ago, one month after confinement. She has enteroptosis and gastropotosis, due to insufficient support of the abdomen after the birth of her child. She is not neurasthenic, and is only nervous at the time of her attack.

A specimen of the mucus passed by this patient was about 12 inches long, flat and tape-like, and gave the typical reaction to the mucin test; no fibrin was present.

To my knowledge, this is the first case of mucous colic that has been reported without the usual accompaniment of neurasthenia, and it substantiates my views. In addition, in 9 cases of mucous colic which I have carefully examined since I began these special investigations I have found in every case varying degrees of gastropotosis with its associated enteroptosis. In 4 cases there was hyperacidity; 2 cases, anacidity; 3 cases, achylia gastrica.

Furthermore, in the newborn and in young children in whom several cases of mucous colic have been reported, neurasthenia surely cannot be claimed as a cause of the condition. As before stated, visceral ptosis may be present, and the patient be in perfect health; but some contributory factor, local irritation, anemia or intercurrent disease

may destroy the equilibrium, and gastrointestinal disturbances, such as constipation, neurasthenia, etc., may result, and finally mucous colic. On the other hand, gastrointestinal ptosis may be brought about by loss of weight, or other factors mentioned under etiology, and mucous colic finally result.

Enteroptosis with associated gastropotosis, with gastrointestinal disturbances and autoinfection I consider factors of mucous colic, and the neurasthenia the result of the autoinfection. In effect, it may be considered as one of the manifestations of Glénard's disease. Other contributory factors, such as rectal irritation, associated colitis, etc., will be referred to under treatment. In a paper entitled "A Consideration of the Etiology of Mucous Colitis," by John A. Lichty², read before the American Gastroenterologic Association, at Washington, D. C., May 1, 1902, there are reported 21 cases of mucous colitis; ptosis of the viscera was demonstrated in 16 cases; the other patients were seen before the author's attention had been directed to splanchnoptosis. He states that it is a wellknown fact that not infrequently during the examination of a patient, a condition of ptosis is found without any symptoms referring to it. In such cases there has been established what may be called a condition of perfect compensation and physiologic function has not been disturbed. When, however, this compensation is lost or disturbed, the symptom-complex of mucous colitis appears; the author cites some interesting cases. He also notes a lithemic con-

dition in several patients—notably one having had several attacks of acute articular rheumatism. The gastric secretion was studied in 8 patients; in 4 it was hyperacid; in 2, normal; in 1, hypoaacid, and in 1 achylia. The paper is well worth perusal.

Treatment.—This may be summarized as follows: During the attack, rest in bed; the application of heat to the abdomen, by flaxseed poultices or turpentine stupes; or hot pepper poultices, 4 gm. (1 dr.) red pepper to 1 pint of boiling water—a flannel being wrung out therein, covered with oiled silk and applied to the abdomen. Dry heat, applied by means of a hot-water bag, salt bag, or light tin plate (pie plate) heated in the oven and covered with flannel may be employed. Spice poultices are of service. Moist heat, however, seems to afford the most relief.

The greatest relief to the cramps and bearing-down pains is afforded by enteroclysis with Kemp's recurrent irrigator, with normal saline solution at 110° F. to 120° F. (See Fig. 4.), oil of peppermint, .3 cc. to 1 cc. (5 m. to 15 m.) to the quart may be added. Several gallons should be employed once or twice in 24 hours, and no fluid should be left in the bowel after irrigation, lest further cramps ensue. High enemas of warm olive oil—a pint to a quart—are also of service, as they aid in relieving spasm, just as does the internal administration of olive

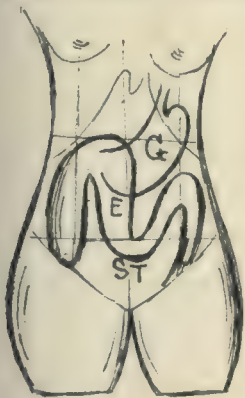


Fig 3

Presence of gastropotosis (G) even of a mild degree, as demonstrable by gastrodiaphany shows enteroptosis (E) is present also; enteroptosis with sacculization and narrowing at ST; passive congestion and mucus accumulation occurs in enlarged (sacculated portion) of colon; mucous colic attacks occur as result.



FIG. 4.—This instrument has a hard rubber outer tube and a metal central tube, to which is attached a binding pole for a battery in case it is desirable to administer electricity with the enteroclysis. It is made in two sizes, by Stohlmann and Pfarre.

oil in spasm or stenosis of the pylorus. Hot saline injections containing 59.2 cc. to 118.4 cc. (2 oz. to 4 oz.) of milk of asafetida may also be employed.

Diet.—Fluid diet, milk, broths, soups, etc., should be enjoined.

Medication.—Tincture of belladonna, in doses of ten drops every 3 or 4 hours, and pushing even to physiologic symptoms has given me the best results in the treatment of the spasm. Occasionally it may be necessary to employ codein in .02 gm. to .03 gm. ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.) doses, or even morphin 8 mg. to .02 gm. ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.) in conditions of extreme pain. If the acute attack be rather prolonged, the internal administration of the valerianates, or of asafetida, and the addition of milk of asafetida to the enema may prove to be of value.

Between attacks, being convinced that ptosis of the colon and the associated gastropotosis are prominent factors in the etiology of mucous colic, I apply proper abdominal support, that is, exert an upward and backward pressure from the symphysis to the umbilicus by mechanical means. For this purpose may be employed a silk elastic abdominal supporter, bandaging by the Van-Valzah-Hayes method, Gallant's corset, or Rose's adhesive plaster belt. My own experience has been limited to the silk supporter and to Rose's method. Rosewater and others have modified Rose's belt, but their methods are more complicated and possess certain disadvantages. Rose's belt has the advantage of simplicity, and it cannot slip or become displaced. Some time ago I suggested to Dr. Rose the use of rubber adhesive or zinc oxid on moleskin (Johnson and Johnson, or Seabury and Johnson). The texture is looser than that of the ordinary plasters, the sweat readily evaporates through it and it can be worn longer and with practically no irritation. The surface should be shaved and cleaned with alcohol or ether before applying the belt. Every 4 to 6

weeks the plaster is removed, the surface cleaned and a fresh plaster applied. The moleskin plaster comes in a standard width of 7 inches. Fig. 5 shows the belt applied.

At my Ward's Island clinic, my assistant, Dr. Graham Rogers, by means of transillumination before and after the application of Rose's belt, demonstrated that the stomach was elevated over 4 in. with the belt applied. It is best to apply the plaster in the dorsal position and when there is marked ptosis, with even the hips elevated. The patient should then be directed to stand erect in front of you and any necessary changes can be made, if there is discomfort from a too tight application.

My great object is to "put on fat" in all cases and as ptosis of the colon and of the stomach are large factors in the disease, the increase of intraabdominal tension should be secured by this means. The belt is also an aid in the relief of the functional disorders of the stomach incident to the gastropotosis. If the patient objects to the plaster, then the silk abdominal supporter may be employed. In exceptional cases, it may be necessary to resort to the rest cure, associated with hydrotherapy and electrotherapeutics. Under such conditions we may increase the weight by following

out Russell's method, such as he advocates at the Post-Graduate Hospital, in the treatment of tuberculosis. The method was advocated in certain cases of gastropotosis in my paper read last March. Regarding the constipation, the Küssmaul-Fleiner method of injection nightly, or every other night, of warm olive oil, to be retained all night, is of great value. At the beginning one may employ a few ounces, increasing it to a pint or even a quart. The patient should be taught regular habits in attempting bowel movement.

A glass of hot or cool water administered an hour before breakfast is valuable as an adjunct. Fluid extract of cascara sagrada, or the compound cascara tablets, have been found serviceable and in some cases sodium phosphate administered in the morning is of value. A thorough bowel action should be secured daily. Massage of the bowel may be employed, or massage with a cannon ball. There is a hollow wooden ball of which the weight can be varied by the addition of shot. I have employed this and also vibration massage with some success. Sensitive areas must be avoided. These methods can be employed while Rose's belt is in situ.

Enteroclysis several times a week with normal saline solution is useful, since it promotes intestinal peristalsis, prevents the accumulation of mucus and lessens the chances of the spasmodic attacks. If constipation is obstinate I often attach the negative pole of my battery to the binding pole of my irrigating tube and placing the positive pole below the ensiform—give the patient an electric saline enteroclysis. If the patient refuses to wear the plaster belt and use the silk elastic support, in addition I sometimes employ baths, abdominal compresses and electricity.

You are all familiar with the value of the carbonic acid bath (Nauheim) in improving the circulation. In nervous conditions, in addition, the artificial carbonic acid bath (Triton salts) has proved of service. Dr. T. Satterthwaite has on several occasions courteously held clinics for me in my service at Ward's Island and demonstrated the value of the method. Dr. Achilles Rose has also devised a simple method for administering the dry carbonic acid gas bath, which has much the same effect

as the wet bath. It can be given in the physician's office and the patient is not obliged to disrobe. These are certainly great advantages. This apparatus can be seen in my service at the Manhattan State Hospital, West Ward's Island. I believe some patients are benefited by these methods of treatment.

I have secured at least one brilliant result in the treatment of mucous colic by inflation of the colon with CO₂ gas, as suggested by Dr. Rose. All that is required is a bottle with a perforated cork, a conducting tube, and a rectal tip. Equal quantities of tartaric acid crystals and sodium bicarbonate in a small amount of water will generate the gas. The method seems in some cases to improve the local circulatory conditions in the colon, just as it affects the peripheral circulation when the bath is given. In the case to which I referred it certainly seemed to hasten the ultimate cure. I believe it worthy of trial.

I have already referred to certain mixed cases, in which there was a catarrhal colitis, with a mucous colic later engrafted upon it. Among such we can classify those that may apparently be caused by excessive bicycling or horseback riding, enlarged prostate, uterine fibroids, adhesions from appendicitis, etc. In some of these conditions a local congestion of the rectum, or sigmoid, can be detected, and careful investigation will demonstrate that the attack first starts as a simple prostatitis, or colitis. Constipation has previously been present. Consequent autoinfection, nervous symptoms, and finally mucous colic result. I believe that careful examination will reveal that these patients have had an existing ptosis of stomach and colon—quiescent, with no resulting symptoms, but as a result of irritation causing favorable conditions, a mucous colic will develop. The correction of such sources of irritation is undoubtedly rational, and will thus readily explain the improvement which at times occurs after operative procedure. The existence of the "mixed cases" will undoubtedly "clear up" the hitherto apparently diverse opinions as regards the etiology of this disease.

In such cases, with a coexisting catarrhal colitis, irrigation with nitrate of silver, 1.3 gm. to 2 gm. (20 gr. to 30 gr.) to two quarts of water, and followed by saline solution, or with resorcin, .65 gm. to 1.3 gm. (10 gr. to 20 gr.) in two quarts, or with listerin, borolyptol, glycothymolin, or chlorobromon, 4 gm. to 8 gm. (1 dr. to 2 dr.) to two quarts, or with gomenol, 4 gm. (1 dr.) in solution, may prove to be of service. I have often found enteroclysis with demulcents such as weak flaxseed tea, or 178 cc. or 236 cc. (6 oz. or 8 oz.) of a saturated solution of gum arabic, or the same held in suspension and added to two quarts of warm water, of value.

In the case of pure mucous colic, I employ only normal saline solution, or the demulcents for removal of the mucus, since the condition is due to hypersecretion, and not inflammation. I should, therefore, avoid silver irrigations in such cases, since I have already referred to the fact that irrigations of silver, tannin, alum, etc., can produce an artificial hypersecretion. Small doses of olive oil, or of castor-oil, in capsules, seem of value for the constipation, and improve the tone of the mucous membrane of the intestine, providing they do not increase the patient's dyspeptic symptoms.

Nux vomica or strychnin is of service in increasing the tone of the gastrointestinal tract and the general muscular system. Resorcin, 5 gr., or sodium benzoate, 5 gr. to 10 gr., or bismuth salicylate, 5 gr. to 10 gr., should be given if there is much gastrointestinal fermentation. The use of the following, recommended by Dr. Wm. H. Thomson, in the mixed cases for the treatment of the true catarrh gives good results:

Silver nitrate	32 gm. (5 gr.)
Resin of turpentine	89 cc. (3 dr.)
Potash solution	30 cc. (1 dr.)
Pulverized licorice, sufficient quantity to make pills soft.	

Divide into 60 pills. Dose: Three pills three times daily.

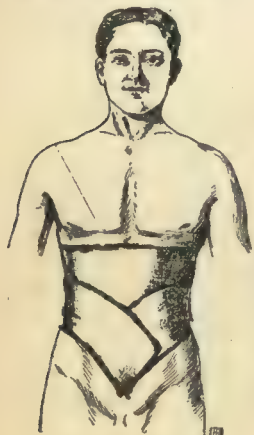


Fig. 5.—Rose's belt.

Copper sulfate, .02 gm. ($\frac{1}{2}$ gr.), three times daily, may be substituted later; Fowler's solution of arsenic, in .06 cc. (1 m.) dose, three times daily, has also been found useful in these mixed cases.

General Treatment.—Exercise and outdoor life, as golf, etc., to strengthen the abdominal muscles, are important. During winter weather, fencing is useful. The general nervous system must be toned up, and anemia should be corrected. Iron tropon is easy to assimilate. An excellent combination is a fresh Bland's pill (iron) .32 gm. (5 gr.) made soft with honey; in each pill is incorporated 2 m. Fowler's solution of arsenic, and extract of nux vomica, 8 mg. ($\frac{1}{2}$ gr.) or 1 mg. ($\frac{1}{60}$ gr.) of strychnin. The glycerophosphates, or phosphorus compounds, are of value for the nervous conditions. Hydrotherapy, massage, and electrotherapy may be used.

Diet.—As before noted, fluid diet, milk, koumiss, broths, gruels, etc., with the addition of somatose, or liquid peptonoids should be used during the attacks. Between attacks, Von Noorden advocates a very coarse diet—bread containing plenty of chaff, vegetables rich in cellulose, fruits with skins, etc., to form ballast for the bowel. He claims excellent results. It is my custom to determine the condition of the stomach. Like Einhorn, I have found cases of achylia gastrica in mucous colic, but more cases of hyperchlorhydria and a few of hypochlorhydria. These conditions should be treated in each individual case and appropriate diet instituted. We should, however, give our patient abundant nutrition in the form of a mixed diet. Cod-liver oil and fats, such as Russell's emulsion, are of value when they can be assimilated. The addition of healthy fat, with increase in weight, means the cure of our patient.

Surgery.—Some writers, notably Hale White, have recommended a right colotomy to give rest to the colon, in certain intractable cases. This would not relieve the ptosis, however. In severe cases, one might resort preferably to shortening the suspensory ligaments* of the stomach and colon. On the other hand, gastropexy and colonpexy might be performed, but to my mind it is always objectionable to suture a viscus to the abdominal wall. If there is hepatoptosis, Elliot's operation for support of the liver might be instituted at the same time. These procedures will aid in the support of the floating kidney, if such be present. Nephropexy, I believe, is rarely indicated when it is a part of a general ptosis, unless there be some evidences of nephritis, or interference with its functions. Some authorities recommend a "revision" of certain of the abdominal muscles, by means of suturing, so as to relieve the muscular relaxation. However, I believe that resort to surgery is rarely required, except in the most obstinate cases. There are few diseases which demand more tact, patience and perseverance than mucous colic. In addition, the patient unfortunately soon becomes discouraged, and is prone to change his physician, so that a fair opportunity is hardly given. That ptoses of the colon and stomach are important etiologic factors in the production of mucous colic, I am fully convinced, both by scientific investigation and by the results secured through the treatment of this condition, and if my efforts have succeeded in arousing interest, I shall feel that I am well repaid.

ROBERT T. MORRIS.—Mucous colitis and membranous colitis seem to bear the same relation to each other that a cough does to a sneeze. Neither one is a diagnostic entity. Mucous and membranous colitis apparently represent a functional neurosis, reflex in origin, and dependent upon a peripheral irritation which excites the abdominal sympathetic ganglions, and particularly the intimate ganglions of the bowel wall. Colorrhea is a good term for describing the chief demonstration which goes with the condition. The condition is most

frequently associated with cases of enteroptosis—using the term in a generic way to include by synecdoche, gastroptosis and loose kidney, liver, and spleen. In these cases of enteroptosis there is almost invariably a diastasis of the rectus abdominis muscles, which are sometimes separated at their margins for a distance of several inches. In this class of cases, forming the largest class showing the symptom of colorrhea, I am perfectly willing to accept the statements of Dr. Kemp and of Dr. Rose, to the effect that colorrhea and its associated symptoms are readily curable by the application of abdominal supports by adhesive straps, as advocated here tonight. I would simply go further and say that it seems to me preferable to have the straps inside the skin, and to have them consist of chromic catgut or of kangaroo tendon.

Colorrhea is one of the things that the surgeon thinks he has taken pretty well out of the field of internal medicine. The adhesive supporters certainly accomplish the same sort of work as is accomplished by operation, but how long is one going to keep up the treatment by adhesive straps? The anatomic defects are permanent until repaired by surgery. Patients of mine who are in the habit of taking a daily bath, and who choose silk underclothing, would not be enthusiastic for weeks or months on the subject of adhesive straps. The operation for enteroptosis which I prefer consists in suturing the muscle defect along its entire extent, and then in proper cases shortening the falciform and suspensory ligaments of the liver, and suspending the loose kidney by sutures. The spleen is readily fixed by brushing its convex surface quickly with the cirrhosis brush and then depending upon subsequent adhesion formation. Gastroptosis can be corrected in part by the use of a pursestring suture in the peritoneum of Morison's pouch. Cases of mucous and of membranous colitis give some of our most brilliant surgical successes in cases in which neurotic habits have not become established.

Dr. Thomson's statement is pertinent, to the effect that if a young practitioner were to have a case of mucous or of membranous colitis for his first case, he would be apt to think that he had made a mistake in his calling. That is pathetically true if we think of medical treatment alone, and I am inclined to think that my own first "important patient" was one of this sort. I had spent several years in preparation, academic, medical, and clinical in hospitals in this country and in Europe, and the first patient who could have paid dignified fees for expert service, and whose influence would have been very important for me at that time, was a patient with colorrhea. A more elaborate diagnosis had to be left to the more experienced doctors, into whose hands my patient soon passed.

A. ROSE.—Some authors distinguish between enteritis membranacea and colica mucosa, and base this distinction on the presence or absence of inflammation; they confess, however, that there is great difficulty to establish the anatomic differentiation, and confine themselves to clinical symptoms, saying: Enteritis membranacea is a real intestinal catarrh with discharge of membranes, sometimes in tubular shape, but without the characteristic colicky pains. Colica mucosa is characterized by the wellknown complex of symptoms, foremost the colicky pains, and Nothnagel, perhaps others with him, call this form a disease *sui generis*. The different theories in regard to the etiology of mucous colic need not be enumerated here. One of them, according to which mucous colic is a constitutional and diathetic ailment with nervous and gouty influences, sometimes the former, sometimes the latter predominating, is a regular aoristia. It reminds one of the author who said of gastroptosis: The description in the books of the symptoms of gastroptosis are hopelessly obscure and chaotic, characteristic and diagnostic points are few and misleading. To this may be said: Indeed the symptoms in gastroptosis are manifold and numerous, but if we keep in view that there is only one factor, and that this one factor is relaxation, we have a characteristic and diagnostic point, which is not misleading, but indicates at once a rational method of treatment which in most, if not in all cases, will cause the symptoms to disappear or to become ameliorated. This applies to some extent to mucous colic; mucous colic is not a disease *sui generis*, it is, at least as far as my own and Dr. Kemp's observations show, one of the manifestations of gastroptosis. By this term should be understood abdominal ptosis or abdominal atony, or abdominal relaxation. For scientific as well as for practical purposes, it is best to employ Greek terms in our onomatology in their original meaning.

The question if gastroptosis is the cause of mucous colic in all cases has to be decided by further observation. Thus far only some writers have paid attention to the coexistence of gastroptosis in cases of mucous colic. We shall arrive at a decision *ex juvantibus*, but thus far I know of none but my friend, Dr. Kemp, and some European colleagues, who, like myself, have considered the presence of gastroptosis in treating mucous colic.

Gastroptosis is very frequent and mucous colic is rare, but this does not exclude that mucous colic can be one of the many kinds of manifestations of gastroptosis. The relation of certain ailments to gastroptosis has been recognized only since abdominal strapping has been practised. Dr. Rogers and myself found that cases of dysmenorrhea in which uterine flexions or ovarian troubles existed and in which gastroptosis was present were promptly relieved by this strapping. Relief of gastroptosis was relief of dysmenorrhea. German colleagues, who, during the

*In the dorsal position, ptosis does not always occur to its full extent, and it will be well for the surgeon gently to draw down the stomach and colon in order to estimate correctly the degree of relaxation of the ligaments. This was demonstrated on a patient of mine, in which it was done, at Ward's Island.

last two years made extensive use of the strapping, have stated that this method did better service in many instances of uterine flexions than all the pessaries. My own experience confirms this assertion.

Gastroptosis in women does not always cause dysmenorrhea, in men and women not always mucous colic, but mucous colic as well as dysmenorrhea may be caused by gastroptosis. Gastroptosis is very often the cause of disorders of circulation as well as of nervous disorders, and these disorders may in some instances cause mucous colic, dysmenorrhea in others. The relief of gastroptosis, therefore, is relief of mucous colic and relief of dysmenorrhea in the cases in which such relations exist. On this occasion I wish to say that Dr. Wm. H. Thomson was the first who appreciated the value of the strapping method when I spoke of it before this society five years ago, and that Dr. Robert Coleman Kemp has done the greatest part to make it popular among the colleagues in America. I owe great thanks to these two, and last but not least, to Dr. Dent, who permitted me to give the method extensive trial in the Manhattan State Hospital on Ward's Island.

In Germany it was Dr. Walther Vic. Clemm who introduced what Dr. Kemp has named the Rose belt. How highly it has been appreciated in Germany we learn from a paper of Dr. R. Weissmann, of Lindenfels; he writes: "There exists a large number of chronic cases going from Pontius to Pilatus, and not a small percentage of their ailments is connected with gastroptosis. Physicians should, in cases of gastric disorders, neuroses, neuralgias, look for gastric atony, because they will, in many instances, relieve their patients from persistent and painful sufferings by means of the simple Rose belt."

The effect of carbonic acid gas introduced into the rectum is twofold: By its anesthetic action it relieves pain, tenesmus, and spasm, and by its stimulant action it corrects disorders of circulation. As a symptomatic remedy in mucous colic it surpasses, according to my experience, by far all others, the so much lauded injections of oil included. The effect is prompt and remarkable, as I could convince myself in a case in which for years all possible other means had been tried in vain.

If it is true that mucous colic is caused by or connected with gastroptosis, then there can be no doubt but strapping is the most rational of all remedies in mucous colic.

The recognition of the relation of gastroptosis to a number of ailments, as heart and lung diseases, anomalies of gastric secretions and motoric functions, to intestinal troubles, to gynecologic affections, to disorders of the nervous system, is of far-reaching importance.

BIBLIOGRAPHY

¹ Medical News, August 6, 1904.

² American Medicine, August 9, 1902.

SOME NEW VIEWS OF INFANT FEEDING AND THEIR PRACTICAL APPLICATION.

BY

HENRY DWIGHT CHAPIN, M.D.,
of New York.

Pediatricians are unanimous on one point in infant feeding—nature should be followed so far as possible. When it comes to applying this theory, a great diversity of belief as to what constitutes following nature is found, and also much cross teaching, which retards advance.

It has been taught that infants needed fat, proteids, carbohydrates, mineral matter, and water, and so they do, but they are not peculiar in this respect, for nearly all animals require these food elements. Again, it has been taught that infants should have milk, and as there were only slight differences between human milk and cow's milk, the latter should be diluted and fat and sugar added as well as some alkali, as human milk was alkaline or neutral, while cow's milk was neutral, amphoteric or acid in reaction. Modern research has shown that the reaction of milk varies with the method used to determine it. The same milk may be alkaline, neutral, amphoteric or acid to the different specimens of litmus paper used in making the tests. It should be remembered that it is the litmus paper which shows variations in reaction. The milk is the same for each specimen of litmus paper used in this test. It is a simple matter to demonstrate this fact by taking a number of strips of litmus paper obtained from different sources and dip them all into a specimen of milk at the same time. The fallacy of comparing human and cow's milk in this manner is now widely recognized.

Recently there has been advanced the theory that the proteids of milk are made up of caseinogen and lactalbumin, or whey proteids, and that milks differ in the rela-

tive proportions of these forms of proteid present. As a matter of fact, caseinogen is a term that has been proposed to describe a body which is very puzzling in its behavior and which we now know does not exist or act as it was supposed to when this name was proposed. It has, however, never become a generally accepted term.

The "following of nature" in infant feeding has been made a very burdensome, changeable and intricate process by some teachers; a veritable cause of terror and dread to the practitioner. Nature is really very simple and direct in her methods of accomplishing results, and when the facts concerning infant feeding are better known, the complicated, abstruse teachings of the past will largely disappear, as they will be shown to have little scientific foundation.

The first thing to do in attempting to solve a problem of nature is to get the facts and then work out the principles involved. If the subject of infant feeding is approached in this way it does not take long to ascertain its leading principles. Let us approach the subject as a naturalist would study a new species of animal.

Nearly all forms of animal life require fats, proteids, carbohydrates, mineral matter and water for food, and from these elements as they exist in plants or the flesh and bodies of other animals, the living organism builds up the tissues of its own body. The great diversification of forms of animal life is largely the result of adaptations that enable animals to secure these food elements to the best advantage. All can and do digest and assimilate the same food principles in one form or another. We know that the foods of different species of animals differ greatly in their form and source, yet they all agree in being composed of fats, proteids, carbohydrates, mineral matter and water; it is evident, therefore, that the main point of difference in the food of animals is the *form* in which fats, proteids, carbohydrates, mineral matter and water are supplied.

The young of most animals familiar to us would, in a state of nature, die of starvation if removed from the mother at birth, as they are unable to digest and assimilate fats, proteids, carbohydrates, mineral matter and water in the forms in which the mother utilizes them; therefore the young cannot be looked upon as fully formed individuals or even as separate from the mother's body. The feeding of the young belongs to the reproductive process, and is really a part of it.

In all forms of animal life the offspring begins life as a single cell, and is nourished from the mother's body for a greater or lesser period before it can secure or digest food from other sources. During the period of growth from the single cell to the highly organized adult the animal passes through some remarkable transitional stages, and undergoes many changes in its habits of nutrition. For instance, a frog lays eggs from which emerge tadpoles, having the form and habits of fish, breathing with gills; as these tadpoles develop they change their form and habits, becoming land animals which breathe with lungs. The butterfly lays eggs from which caterpillars are developed; the caterpillar spins a cocoon, and from this emerges a butterfly. In these various stages of existence of the same animal, different methods of feeding are found, nature changing the food to suit the altered forms of the animal.

It may be a little startling to think of a human being and other young mammals changing their forms and habits of living as a tadpole does, or as a caterpillar does when it changes into a butterfly, but this is just what takes place, and the problem of infant feeding is involved in this change in form of existence.

Among animals that suckle their young the greatest differences are found. In the primitive mammals the uterus is absent. Eggs are laid, and the young are hatched and then suckled. In higher forms, the egg is hatched inside of the mother's body, and the young are born in a rudimentary condition, when they grow fast to a teat, where they hang for months. In these animals

there is no placental connection with the mother. The higher mammals show at least *six* different forms or methods of nourishing their offspring, which forms pass into each other so gradually that it is impossible to determine just where one begins and the other ends. First, the germinal cell is nourished from the yolk of the ovum; then the embryo derives its nourishment from the fluid in which it floats in its passage down the fallopian tubes or the oviducts; next the villi of the chorion develop, through which nourishment is absorbed; from the villi the placenta develops, through which blood is circulated from the mother's system as well as from that of the fetus. After this stage is passed, birth occurs, and the young animal bursts forth into a new world, where its habits of nutrition and breathing change as completely as those of the tadpole when it begins to use its lungs, or as the caterpillar when it emerges from the cocoon in a winged form.

At birth the lungs are fitted to perform their function as well as they ever will be, but this is not the case with the digestive organs. The mammary glands of the mother first secrete colostrum, which in a few days is replaced by milk, which is the sixth form in which nature supplies nourishment to the young animal from the parent's body. After the digestive tract has been used by the young for a certain period in digesting milk, it gradually becomes able to digest the same kind of food that the parents eat. Then the milk supply of the mother fails, and the young animal is independent of her body for nourishment.

From the yolk of the ovum, from the fluid of the oviducts or fallopian tubes, through the villi of the chorion, and through the placenta the young animal derives fats, proteids, carbohydrates, mineral matter and water, and also oxygen before birth. After birth, fats, proteids, carbohydrates, mineral matter, and water are derived through the mammary glands in two different forms—colostrum and milk. The oxygen is then obtained through the lungs. It will be seen that nature changes the form and method in which the food elements are supplied to suit the state of development of the growing animal.

The function of the digestive apparatus is developed gradually. The fats, proteids, and carbohydrates of colostrum are in forms that will be absorbed with little effort. In the course of a few days the milk flow becomes established when proteid and carbohydrates appear in different forms than are found in colostrum. The change in form of proteid is remarkable, not being the same in the milks of different species of animals. After the milk flow is established, the character of the milk does not change to any marked extent during the period of lactation, and it is this fact that is apt to throw one off the track in trying to follow nature. There is, however, a gradual change in the digestive process after birth which is brought about by the action of the digestive secretions of the young animal on the milk after it has been swallowed.

The first secretion of the stomach is the rennet ferment, which turns milk into curds. The kind of curd that is formed depends upon the kind of milk that is used. At birth the digestive apparatus of the young animal is not developed, and it only gradually assumes the form and function that it has in the adult. The object of the milk curdling in the stomach is to bring about the full development of the digestive apparatus. In the cow, digestion takes place to best advantage when the stomach is fully distended with coarse, bulky food, and cow's milk forms a very bulky and dense curd. In the mare and ass, the stomach is very small, and the food leaves it while a meal is being eaten. The milk of these animals forms soft, fluid curds. The human stomach is adapted for digesting finely divided foods and human milk forms soft, flaky curds.

The digestive secretion of the stomach of the adult is a mixture of rennet ferment, hydrochloric acid and

pepsin, and it is well known that pepsin will not digest proteid in the absence of acid. There is very little acid in the stomach secretion of very young animals, and for this reason there can be but little gastric digestion. When the rennet ferment of the stomach comes in contact with milk, it produces curds; in the absence of acid, pepsin will not attack them, so until acid is secreted, the digestive process must take place in the intestines. When acid is secreted, it combines with the curds produced by the action of rennet on the milk, and forms a compound known as chlorid of paracasein. This is the compound that caseinogen of milk was supposed to produce, before the chemistry of the curdling of milk was understood. This chlorid of paracasein is the familiar leathery curd that all practitioners have often seen to their sorrow. The soft curd, or paracasein, the familiar junket, will not be attacked by pepsin, but the compound which it forms with hydrochloric and with other acids, is readily digested by pepsin. It will be readily seen that here is a wise provision of nature to furnish full occupation for the increasing quantity and strength of the gastric juice. As fast as acid and pepsin are secreted, they make work for themselves by the acid combining with the curd formed by the rennet of the stomach and the casein of the milk, which compound the pepsin can then digest. It is evident that nature intended mother's milk, automatically, to adapt itself to the growing stomach. In infants, we are dealing with a digestive tract that is undergoing a process of rapid and continuous evolution, and the food must be of a character that will adapt itself to the increasing size and development of the infant. It is because the casein of milk undergoes such alterations of form under the action of the digestive secretions that it is essential to use milk as the basis of an infant's food, and not alone because milk contains fats, proteids, carbohydrates, mineral matter and water, which are the components of all foods.

Analyses of milks have shown that their composition is closely related to the rapidity with which the young animal grows, milks rich in solids being for animals that grow very rapidly. For this reason an analysis of human milk will show about how much of the various food elements are needed for proper development. The tissues of the body are made up principally of proteid, which must be supplied in the food, as the organism can not construct proteid from the other food elements. Therefore it is wrong to feed .80% proteids as a routine measure when human milk contains from 1.50% to 1.75% proteids. Anemia and rickets will in all probability be the result of such a method of feeding, although if sufficient fat and sugar are given along with such a small quantity of proteid the infant will probably become fat and gain in weight. It is not safe, therefore, to judge the value of a food solely by the fact that it causes gain in weight. This leads up to classifying feeding cases, for sometimes it is necessary to feed low amounts of proteids.

There are two sharply-defined types of cases to be considered: 1. Those in which there is no indigestion, but in which the mother cannot nourish the infant. 2. Those in which indigestion has to be treated. The problems before the physician in these two kinds of cases are entirely different. In the plain feeding cases he has only to select food that will have the same food value as mother's milk and which will develop the digestive apparatus; it is in these cases that a knowledge of the principles of home modification of cow's milk is required. In the cases in which indigestion is the prominent factor, little is to be expected of fine variations of milk mixtures, as oftentimes the best results are obtained by stopping milk entirely for a time, and substituting other forms of food until the indigestion is corrected, when milk modifications may be tried as for a healthy infant.

In modifying cow's milk it is diluted because it contains more proteid than an infant needs, and, in addi-

tion, the proteids of cow's milk are difficult of digestion by the infant, so any excess of proteids only throws unnecessary work upon the already overtaxed digestion. As diluting the milk reduces the fat and carbohydrates in the milk to below what the infant needs, these elements are added. The successful modification of cow's milk consists in feeding as much of the heat and energy-producing elements of food (fat and carbohydrates) as the infant needs and which it can usually digest with little disturbance, and gradually working up the quantity of proteids from an amount a little below the actual needs of the infant, to its full requirements. This is done because of the difficulty most infants experience in digesting as much proteid derived from cow's milk as is found in human milk.

If the difference in the properties of human and cow's milk actually did lie only in the relative quantities of casein present it would be a very simple matter to make human milk from cow's milk, but the casein of human milk differs radically from that of cow's milk and there is no known method of making them alike. Since the important part that casein plays in the development of the stomach has become known, it is realized that it would be a great mistake to feed the proteids in a soluble form, except temporarily, when such soluble proteids or peptonized milk may be used. The real problem then is to make the casein of cow's milk suitable for an infant's digestive tract. There are two methods of doing this which have been advocated. One is by the addition of alkalies to the food, and the other is the dilution of the milk with gruels.

When it was supposed that a fundamental difference between human milk and cow's milk was that human milk was alkaline and cow's milk acid it seemed plausible to add some alkali to cow's milk for infants. But when examination was made of this subject it was found that the teaching was to add to food containing fresh cow's milk, more alkali than would be necessary to neutralize it if it were actually sour. One or two grains of sodium bicarbonate to an ounce of food for a young infant is more than enough to neutralize the food, even if it has soured. No effervescence of gas takes place when the soda is thus added, which shows that there was no acid in the food that needed to be neutralized. What, then, is the effect of adding alkalies to the infant's food?

It is briefly this, the rennet ferment of the stomach will not curdle the milk in the presence of alkalies, and no stomach digestion can take place in the absence of acid; so as long as there is alkali in the food, digestion will not take place in the stomach, but the food will pass into the intestine in a fluid condition and the aim of nature in developing the stomach may be defeated unless a perverted gastric secretion is produced. There are times in an infant's life when antacids are very beneficial, just as in the case of adults, but it does seem to be contrary to all accepted theories of gastric digestion to be constantly adding strong antacids to the food and thereby retarding the action of the gastric juice.

By the use of gruels in diluting milk we only follow nature in supplying internal teeth, so to speak, which break up the curd of cow's milk and expose more surface to the normal digestive secretions. The objection raised by some to putting starch in the food may be offset by the use of digested gruels, which supply considerable proteid in a finely divided form, which acts as the attenuant. The saliva naturally acts on starches before they reach the stomach, so in supplying these digested gruels we are only anticipating nature, and doing what the infant cannot thoroughly accomplish at an early age. Artificial feeding is itself anticipating nature and is in its way unnatural, as there is no real method of actually following nature in infant feeding except by maternal feeding or the use of a wet nurse. In a word, by the use of gruel diluents we encourage the use of the digestive apparatus; by using alkaline diluents we retard or pervert the function of the infant's stomach.

In cases of indigestion, anything may be legitimately used that will tide over the period of disturbance, such as gruels, meat broths, whey, egg-water, etc., but when digestion reasserts itself, it is time to get on to a diet of which milk is the basis, and which contains enough proteid in proper form to insure full physical development.

THE MORTALITY OF PNEUMONIA IN HIGH ALTITUDES.

BY

MAJOR CHARLES F. KIEFFER,

Surgeon United States Army; Fort D. A. Russell, Wyoming.

Special Report to the Surgeon-General, United States Army, Published by his Authority.

The belief is very general among laymen, and also in the profession, that croupous pneumonia shows a very much higher mortality in high altitudes than it does at the sea-level. Several attempts have been made to collect figures of sufficient scope to determine definitely this question. Hoagland¹ presents figures taken from hospital practice in several cities of Colorado, at elevations varying from 4,700 to 10,000 feet. He compared these figures with data obtained during the same period from four of the large hospitals of Philadelphia. He collected in Colorado, 709 cases with 157 deaths; a mortality of 22.1%. The Philadelphia cases with other statistics gathered from cities at or near the sea-level, numbered 6,116 with 1,640 deaths, a mortality of 26.8%; an advantage of more than 5% for the high altitudes. These figures go to show that, in Colorado at least, pneumonia cannot be regarded as a more fatal disease than it is in the sea-coast cities. Yet even here the belief that it is more fatal has a firm hold on the professional mind. Reed,² writing from Rock Springs, Wyoming, an elevation of 6,260 feet, considers pneumonia and capillary bronchitis, diseases of "increased danger."

"The high nervous tension seems to increase the cardiac activity, with consequent increased arterial pressure. This with the low atmospheric gravity favors pulmonary congestion which if not very promptly relieved is rapidly followed by hepatization, increased respiration and death by asphyxia. These are the legitimate results of altitude. The increased cardiac activity, combined with a low atmospheric pressure and an attenuated air, favors a high mortality in this dreaded disease. Many of these cases never reach gray hepatization, but if they are so fortunate as to survive the stage of red hepatization their prognosis is much more favorable."

Van Zant, in a study of diseases of the Rocky Mountain region, believes that pneumonia, while no more prevalent in Denver than elsewhere, runs a more rapid course. Swan concludes that pneumonia, instead of being less curable or more fatal at the altitudes of the Rocky Mountain region, is rather more curable. Yet this deduction was made against the pronounced opinion of 60 of 93 physicians, who expressed their views on this subject in response to his questions. Connell,³ in an interesting comment on Hoagland's paper, agrees with his deductions, and gives the following figures:

During the year 1902, in Leadville, Colo., at an elevation of 10,200 feet, there were treated in St. Vincent's Hospital 12 patients with pneumonia; of these 8 recovered and 4 died. Outside of the hospital, 36 cases came under my personal observation. Of this number, 30 patients recovered and 6 did not. From the records of St. Vincent's Hospital for the 10 years previous, 213 cases were collected, with 59 deaths. All of these fatalities combined make a total deathrate of 26.4% in 261 cases. These statistics, with those compiled by Dr. Hoagland, when compared with those of regions at or near sea-level, tend toward the belief that the altitude has but little, if any, influence or significance in the mortality rate of pneumonia.

When I came first to this altitude I was told by able practitioners that pneumonia was a disease of most virulent type, and that practically in all well marked cases the patients died. One physician said that if he were to develop pneumonia he wanted "to be put on a fast train, with a tank of oxygen, and hurried to a lower level as

fast as the train could get there." Certainly the first two cases I saw here were of the most virulent type, and both patients promptly died with evidences of a systemic invasion by the pneumococcus. But I have seen many instances in which a series of cases were very severe and nearly all the patients died, and then again other series in which practically all of the patients got well. I could see no reason why death should occur in pneumonia cases here in greater proportion than at lower altitudes. It has been said that the increased activity of

wind blows with great constancy during eight months of the year, rising at times to such tremendous velocity as would, in more moist and heavier atmospheres, predicate great disasters. A garrison has been permanently maintained here since 1867, ranging from 450 to 850 men. These troops have campaigned and marched all over the surrounding country, particularly over the main divide to the west, where the altitude reaches 8,500 feet. The earlier buildings have been replaced by better permanent structures, in which greater attention has been paid to the requirements of ventilation and hygienic conveniences. During this period there have been admitted to sick report from the command 26,569 cases from all causes.

Among these admissions there were in all 127 cases of pneumonia, with 20 deaths, a mortality of 15.74%. I have divided these cases into two periods, because in the first period, from January, 1868, to January, 1884, the records exist only in the form of monthly summaries, which do not permit of detailed study. From 1884 to the present time the records are more in detail. In the first series there were 82 cases, with 11 deaths, a mortality of 13.41%. During this time the average strength of the garrison was 422, giving a ratio per 1,000 for deaths of 1.62, which is a little larger than the ratio for the entire army, as will be seen later. During the second period, that is, the 21 years from January, 1884, to

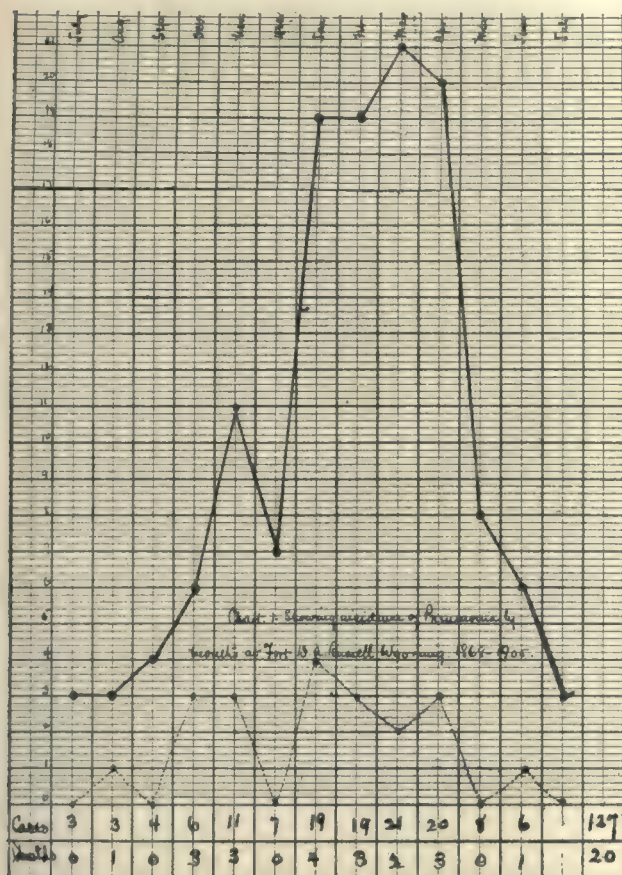


Chart 1.

the heart, due to the altitude, favored pulmonary congestion. It is quite apparent to me, however, that the increased cardiac activity at high altitudes is principally confined to the right side of the heart, and I was always taught and always believed that the integrity of the right heart was one of our greatest safeguards in a given case of pneumonia. It seems to me that what is necessary to determine this question is the collection of a sufficient number of carefully recorded cases from which reliable deductions could be drawn. With the view to adding a small contribution to this subject, I have studied the retained records at Fort D. A. Russell, Wyoming, covering the time since the post was established, in the latter part of the year 1867, down to the present, a period of nearly 38 years. It must be remembered that this is about as far back as permanent records in this particular region go, since it marks the beginning of settlement and precedes the railroad through this country.

This post is located in the southeast corner of the State of Wyoming, in latitude $41^{\circ} 8'$, and at an elevation of 6,195 feet above sea-level. The climate is very good; the temperature range is moderate, rainfall light, air very dry, and the proportion of sunny days is large. The only climatic disadvantage is the prevailing wind. The

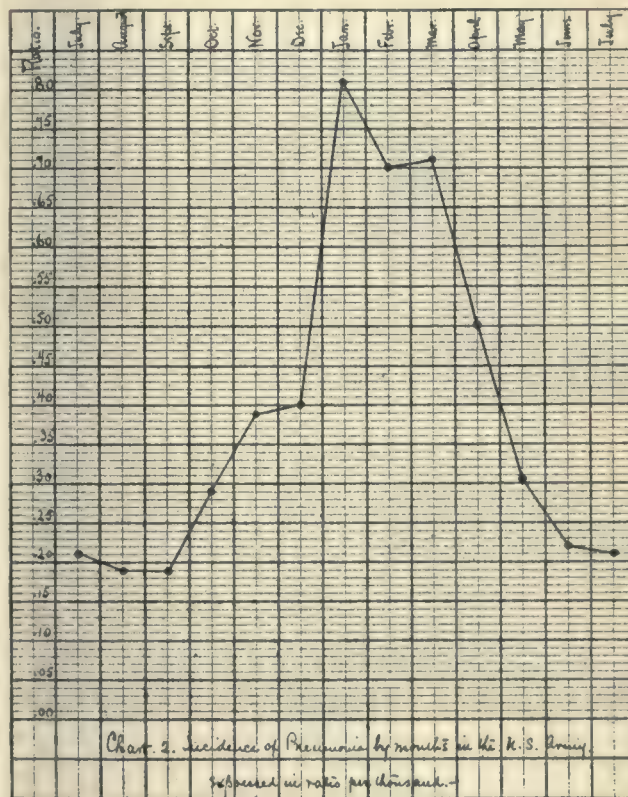


Chart 2.

January, 1905, there have been 45 cases, with 9 deaths, showing a fall in the ratio to .75, less than half, but, alas for modern therapeutics, a rise in the percentage mortality to 20%.

In the first series of cases with 11 deaths, in 6 the autopsy records show that both lungs were involved; in 3 cases the entire left lung was involved, and in 2 cases the location of the disease is not specified. In the second series of 45 cases, the anatomic distribution of the disease was as follows: In 14 cases the location of the

disease was not specified, and in this group there were no deaths. In 2 cases the disease was limited to the upper portion of the right lung; in 2 to the lower portion of the right lung, and in 12 the entire right lung was involved. There were no fatalities in this group of right-sided pneumonias. Four cases are recorded, with the disease confined to the lower portion of the left lung, without a death. In 2 cases the entire left lung was involved, and both patients died. Six cases occurred with the disease in the lower portions of both lungs, and of these 4 patients died, 2 cases, being complicated by pleurisy with effusion. There were 3 cases of double pneumonia, all of which were fatal. In all of the fatal cases the clinical diagnosis of the disease and its extension were verified at autopsy. Pleurisy with effusion occurred as a complication in 2 of the cases that terminated in recovery and 3 cases are recorded as becoming "chronic." In 3 of the autopsy records mention is made of a complicating endocarditis.

Analysis of the deaths shows, curiously enough, that no fatal case is recorded in which the disease was confined to the right lung. Smith⁴ says that the right lung is more frequently implicated, and gives a higher mortality.

In six instances the record gives alcoholism as an element in the fatal issue of the cases; and in five, expres-

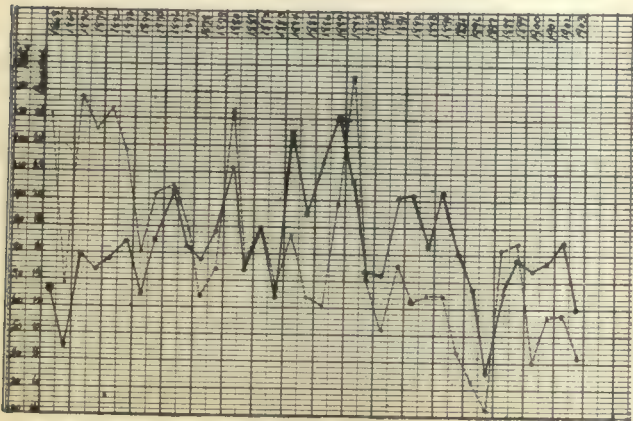


Chart 3.—Solid line shows percentage mortality—broken line shows the ratio of deaths per thousand.

sion is given to the belief that there was some relation between constitutional syphilis and the unfavorable result. I have not been able to find any special reference in the literature to the influence of syphilis on the mortality of pneumonia. My own experience leads me to believe that these records are correct. I have frequently noted the unfavorable progress of pneumonia in syphilitics, and I regard the combination as particularly ominous. This question needs further attention and study.

In Chart 1, I have grouped the cases so as to show the incidence of the disease by months. It shows that the large majority of the cases occurred in the first four months of the year with the maximum in March. Chart 2 shows the monthly incidence in the entire army for one decade. In comparing the two it will be noticed that at this post the culmination of the curve is in March; in the general chart it is in January. This is satisfactorily explained by the local meteorologic conditions. The hard storms and the severe weather usually begin here in the latter part of January; the unsettled weather with sharp changes lasting until well into April.

In studying these figures, with the idea of estimating the influence of altitude on the mortality of pneumonia, it would be unfair to compare them with ordinary hospital figures. It is to be remembered that these cases

occurred in healthy, vigorous men, in hygienic surroundings very much better than the average. It is also true that many of the cases arose as a result of the extreme hardships and exposures incident to Indian campaigns in the early days. I believe the factor of alcoholism is smaller than in civil hospital practice. To exclude all of the conflicting factors, it is obvious that the only just comparison to make is to take these figures in connection with the figures for the entire army over the same periods.

In the following table, the admissions for pneumonia, the deaths, the percentage mortality and the ratio of deaths per thousand of strength in the entire army, are given from the year 1868 to include the year 1903:

TABLE SHOWING THE ADMISSIONS IN THE ENTIRE ARMY FOR PNEUMONIA; THE DEATHS WITH PERCENTAGE MORTALITY AND THE RATIO OF DEATHS PER 1,000 OF STRENGTH, FROM 1868 TO 1903.

Year.	Admissions.	Deaths.	Mortality.	Ratio.
1868.....	462	62	13.4	1.31
1869.....	263	24	9.1	.68
1870.....	278	44	15.9	1.38
1871.....	251	37	14.7	1.26
1872.....	232	36	15.5	1.34
1873.....	196	33	16.8	1.18
1874.....	170	22	12.9	.81
1875.....	141	24	17	1.02
1876.....	126	26	20.6	1.05
1877.....	128	21	16.4	.89
1878.....	96	15	15.6	.64
1879.....	101	18	17.8	.75
1880.....	143	32	22.3	1.33
1881.....	122	18	14.7	.77
1882.....	117	21	18	.90
1883.....	126	16	12.7	.68
1884.....	83	21	25.3	.87
1885.....	89	17	19.1	.64
1886.....	70	16	22.8	.61
1887.....	99	26	26.2	.99
1888.....	182	39	21.5	1.46
1889.....	130	19	14.6	.70
1890.....	96	14	14.5	.52
1891.....	99	20	20.2	.76
1892.....	83	17	20.4	.63
1893.....	108	18	16.6	.65
1894.....	87	18	20.7	.65
1895.....	75	12	16	.44
1896.....	66	9	13.6	.33
1897.....	81	6	7.4	.22
1898.....	1020	136	13.3	.92
1899.....	629	99	15.7	.94
1900.....	270	40	14.8	.40
1901.....	343	53	15.4	.57
1902.....	276	47	17	.58
1903.....	240	29	12	.42

Total admissions.....	7,078
Total deaths.....	1,105
Mortality.....	15.61%
Ratio per 1,000.....	.8186

It will be observed that, during this time, there were 7,078 patients with pneumonia treated in the army hospital, with 1,105 deaths; a mortality of 15.61%. Taking the cases at Fort Russell during the same years, we have 123 cases, with 18 deaths; a mortality of 14.63%. Therefore the mortality here in 36 years has been about 1% lower than the mortality of the entire army during the same period.

Chart 3 is simply a graphic representation of two of the factors given in the foregoing table, the percentage mortality and the ratio per thousand of mean strength for deaths. This chart is very interesting. It shows, first of all, a decided fall in the ratio of cases to less than a third. This means, if it means anything, that the proper way to combat pneumonia is to prevent it. It also shows what can be done in this direction by ordinary hygienic care and particularly, I think, by reasonable provisions for ventilation. I believe that when the doctrine gains ground that pneumonia should be classed among the more actively transmissible diseases, special prophylaxis directed against it will produce still better results. The mortality curve gives no such cause for congratulation. It is typical of the extreme variability of the disease in different years. The highest mortality here shown, 26.2%, occurred in 1887. Considering

the picked class of men these statistics deal with, the figures are nothing less than appalling. The last five years, 1899-1903, show rather good figures, 14.9%. Our faith in modern therapy must, however, receive a shock to find that the first five years, 1868-1872, show a better percentage, 13.7. This chart shows that, in our army experience, pneumonia can be controlled but, once developed, that it is as difficult a therapeutic enigma as ever. I do not pretend to explain these figures as compared with the pneumonia statistics of the German army, in which as many as 40,000 patients have been treated, with a mortality between 3% and 4% (3.6%). It must be evident to everyone that we are dealing with a vastly different etiologic factor.

The figures I have given from Fort Russell are so small that any deductions from them should be made with caution. So far as they go, they seem to show that altitude has very little influence, if any, on the mortality of pneumonia, either to diminish or increase it.

BIBLIOGRAPHY.

- ¹ *American Medicine*, April 4, 1903.
- ² *Denver Medical Times*.
- ³ *American Medicine*, June 13, 1903.
- ⁴ *Reference Handbook of the Medical Sciences*, Vol. vi, p. 680.

LANDRY'S PARALYSIS, WITH A REPORT OF A CASE.

BY

CHARLES F. WILEY, M.D.,
of Syracuse, N. Y.

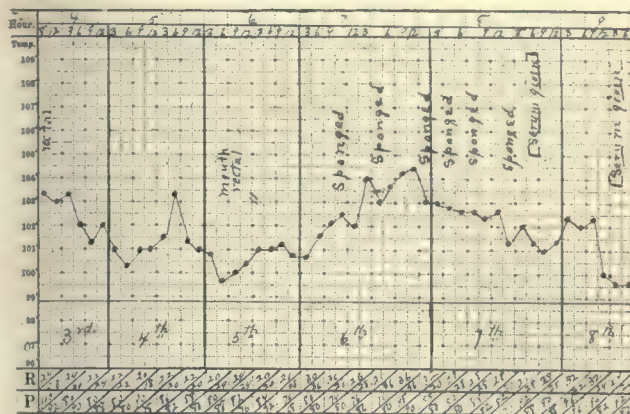
This type of paralysis, which is a comparatively rare form was described by Landry, in 1859, as an acute ascending atonic paralysis, characterized by loss of motor power in the lower extremities, gradually extending to the upper extremities, and to the centers of circulation and respiration, without characteristic sensory manifestations, trophic disturbances, or variations in electric reactions.

At present the etiology of this disease is uncertain, but as some authorities believe it may be due to a micro-organism. Its victims are usually persons between 20 and 40 and men are more frequently afflicted than women. At times the attack has followed severe exposure, infectious diseases—as diphtheria, variola, typhoid, anthrax, influenza, pneumonia, whooping-cough, the puerperium, gonorrhea and probably also septicemia. According to some it occurs in rabies or following the Pasteur treatment. A number of cases is reported in which alcoholism and syphilis played an etiologic role, but it is probable that these cases were rather syphilitic myelitis or neuritis.

As a rule the first symptoms complained of are a general malaise with numbness in one or both feet—patients saying that their feet feel heavy and are difficult to move. In a course of a few hours there is a distinct loss of power in the feet. The numbness rapidly extends and the loss of power in the legs becomes more and more noticeable, so that within a few hours or at most a day the power of standing is almost or completely lost. According to Oppenheim, the paralysis is a flaccid one, generally combined with loss of knee-reflexes and skin-reflexes. As a rule, pain is absent, but at times there may be an apparently painful sensation elicited by pressure over the muscles or nerves or by passive movements. Shooting or spontaneous pains are infrequent. In the course of a few days, in some cases a few hours, the paralysis involves the truncal or pelvic muscles one after another in rapid succession; then in turn the abdominal, spinal, shoulder and thoracic muscles, dyspnea appearing from paralysis of the diaphragm and respiratory muscles. The arms are soon involved in the upward march of the paralysis; finally the labial, glossal, pharyngeal, palatal and upper respiration

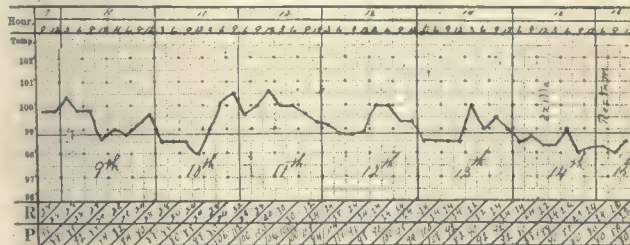
atory muscles are attacked. The voice is gradually enfeebled, almost inarticulate and in some cases entirely suppressed; swallowing is very difficult.

There is now usually pronounced respiratory embarrassment; the breathing is more rapid or a Cheyne-Stokes breathing; these are evidences of a complete diaphragmatic paralysis, and with symptoms of suffoca-

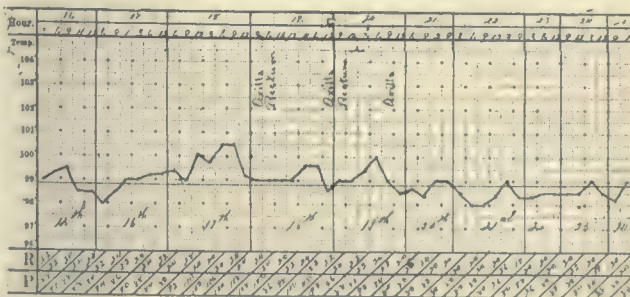


tion death, ends the scene on the eighth to the tenth day; more rarely on the third or fourth, and sometimes after some weeks.

Thus we have all the muscles of the body completely paralyzed from below upward, but the course of the disease can vary in that bulbar symptoms appear first, then paralysis of the arms, etc., in the reverse order; in these



cases death may occur before the paralysis has reached the extremities. As a rule the muscles of the eye are not affected, probably because death occurs before the higher centers of the medulla and pons are reached; yet strabismus and diplopia have been recorded. The brain functions are not disturbed, consciousness with the faculties of intelligence and reasoning being intact to the

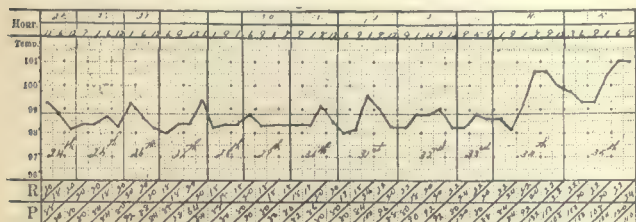


last (except when the temperature is elevated and there are signs of general septic infection).

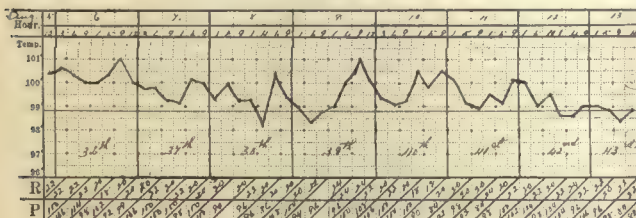
The sensory symptoms are usually slight, at times formication, numbness and fatigue are complained of. In some cases sensation is delayed—as a pin prick is not felt as readily as normal, but any pressure or distinct contact is recognized. The sphincters are not generally affected, there being no difficulty in urination or defeca-

tion; but there are exceptions to this rule, particularly late in the disease.

The knee-reflex and ankle-clonus are lost early in the disease, while the cutaneous reflexes, though at first unaffected, soon become impaired. The temperature in the majority of cases is normal, yet there may be a slight initial rise, and in some few cases there has been recorded a distinct elevation of temperature, with profuse perspiration. Indeed, absence of marked fever is one of the diagnostic features of true Landry's paralysis.



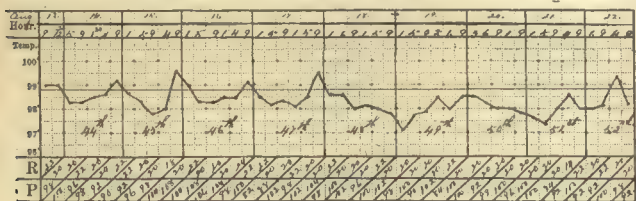
The muscles retain their normal volume, and preserve intact until the last their normal electrocontractility, while the entire absence of decubitus as other evidences of trophic disturbance show how completely the trophic centers escape. This is indeed always true in the rapidly fatal cases, and in some which lasted longer; but there have been reported cases in which there was a distinct muscular degeneration with changes in the electro-excitability and a decrease in muscular bulk. Some consider the muscles in a condition of waxy degenera-



tion, which has been revealed on examination of a piece of muscle.

The enlargement of the spleen was first noted by Westphal, and it has been found in a number of cases, and it is now considered a constant phenomenon. Less often present is a distinct enlargement of the lymphatic glands.

Thus as a rule, we may say that Landry's paralysis runs a rapidly fatal course, ending in death in from 48 hours to a week. However, it is not always fatal; and



cases are reported which have taken several weeks before the paralysis reached its maximum.

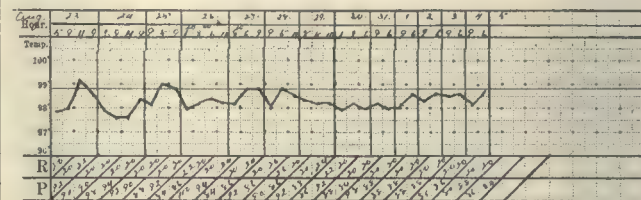
The recovery may be brought about in two ways; sometimes the ascending paralysis ceases at a point below the respiratory centers, in other cases the paralysis fails to be complete, and after the most alarming respiratory embarrassment, power is slowly regained. Sometimes the recovery is rapid, usually, however, it is brought about by a slow reversal of the original course of the disease, that is, the muscles first affected being last to regain their motor power. There may be complete restoration to normal health, but literature records

numerous cases in which after a supposed Landry's paralysis, chronic spinal lesions with trophic or spastic symptoms have gradually developed.

We may consider with some interest the etiology and pathologic anatomy of this disease as shown under the newer methods of investigation. Landry, in the first place, regarded the disease as caused by poisoning or by some toxin. This view has been adopted by almost all authorities, and Westphal placed this theory upon a scientific basis. The splenic enlargement, inflammation of the lymph-glands, hemorrhagic foci in the lungs and bowels, and albuminuria, have been brought forward as evidence of its toxic or infectious origin.

In a case described by Baumgarten, anthrax was probably present, the bacilli being found in the blood and in the tissues. Curschmann described a case in which (without a preceding typhoid), the regular intestinal alterations of typhoid were present; the bacilli giving pure cultures were found in the spinal cord. Eisenlohr reports a case in which the staphylococci were found in the central nervous system; and he regarded the disease due to a mixed infection. Remmingler found the streptococcus, and Marinesco the diplococcus partly enclosed in the leukocytes in a case of this disease.

Oppenheim says that the pathologic-anatomic lesions described in cases of this disease are very indefinite and varied. Sometimes disseminated foci of inflammation were found in the medulla oblongata (particularly the pyramidal tracts). Eisenlohr, Schultze, Immermann, and others report cases in which exudates, capillary hemorrhages, and foci of inflammation were found in the spinal cord. Again, there has been found a distinct



swelling of the axis cylinders apparent in the white substance of the anterolateral tracts; and in other cases there have been evidences of a true peripheral neuritis in addition to the myelitic lesion. Taking into consideration the entire clinical picture, most writers believe that the disease is due to infectious causes and toxins, yet there is not sufficient evidence to assign a specific infectious origin for the disease.

We may safely say that the poison or toxin, be it what it may, exerts its destructive force upon the conducting tracts of the motor section of the spinal cord, medulla oblongata, and the peripheral nerves, but without producing any distinct lesion in the nervous system, except perhaps a doubtful microscopic change in the motor area of the cord, medulla, and peripheral nerve. Gowers states that the net of fibers in the gray matter of the anterior horns, particularly the "end-brushes" or terminal extensions of the pyramidal tracts are involved.

The question of diagnosis of this extremely interesting disease may be easily answered provided we confine ourselves to Landry's set of clinical symptoms—viz., the rapidly ascending paralysis with little disturbance of sensibility, and the loss of reflexes, but without paralysis of the sphincters, trophic changes, or alterations of the electromuscular contractility. At present an enlargement of the spleen and of the lymphatic glands should be looked for, as the disease is undoubtedly of an infectious type. In those cases reported with a rheumatic history, the splenic enlargement would hardly be found; in atypical cases, an irregularity in the mode of attack, the presence of high fever, pain, exaggerated reflexes, or trophic changes all would indicate an organic lesion, very likely a central myelitis or multiple neu-

ritis. According to Raymond, there is a very close genetic relationship between the disease in question and acute anterior poliomyelitis in which, however, there are muscular atrophy and changes in the electromuscular contractility.

In a peripheral neuritis, there would usually be present pain, and tenderness of nerve trunks without the lymphatic or splenic enlargement.

As to the prognosis, authorities agree that in regard to life, it is extremely grave and unfavorable. Death is almost sure in the very violent and rapidly progressive forms in from two to eight or ten days, yet a fatal outcome may occur after the case has run several weeks. Favorable symptoms for recovery are seen if the disease begins to recede after having involved the medulla and the bulb. Oppenheim, of Berlin, reports two cases of recovery out of four cases. Starr, of New York, reports a successful termination in a rheumatic patient. In regard to treatment, we may say at present that there is no sure specific remedy, nor that the blood-serum or therapy antitoxin can be regarded absolutely practical. In general, we may use cold (ice-pack) to the back over the spinal column, the actual cautery may be tried for counterirritation. Strict attention should be paid to the secretions and excretions, and to the diet, which must not be stimulating in the early stages. Ergot (aseptic) or ergotin, .13 gm. to .65 gm. (2 gr. to 8 gr.) have given good results; in some severe cases, .92 cc. (15 m.) hypodermically. If there is a rheumatic history, the salicylates should be administered. Absolute rest and careful nursing are extremely essential. Later, strychnin, 6 mg. ($\frac{1}{10}$ gr.) three times daily; protonuclein, bioplasm, and symptomatic treatment, with electricity and massage.

In conclusion, before reporting my case, it behooves me to express the opinion that in the close bacteriologic and pathologic study of this disease, the laboratory alone will give us the specific blood-serum or antitoxin for the treatment of this form of paralysis.

CASE.—Mr. S., aged 24.

Family History.—Good.

Past History.—Patient had diseases of childhood, except diphtheria. In April, 1903, had gonorrhea, complicated with cystitis, and during the fall, 1903, and spring of 1904 had articular rheumatism.

Personal Appearance.—Robust, full-blooded young man, 5 feet 7 inches in height, and normal weight of 160 pounds.

Patient complained of feeling tired and sleepless, and as he had just completed his examination, he thought nothing of these symptoms. I was called to see him on July 2, and on examination found pulse 88, temperature 101°, respirations 20, and no evidence of anything organic. Patient was constipated, due to an intestinal indigestion and sluggish liver apparently. The following morning, while going to the bathroom, patient complained of numbness in left foot and leg and tingling or crawling sensation in the right leg; he reported a free movement of the bowels, but he was restless and anxious. Temperature 102°, pulse 90, respirations 22. During the afternoon of July 3, the patient was unable to move left leg from the hip and also right foot, and by evening he was unable to walk or turn in bed without assistance.

July 4. Patient was removed to Hospital of Good Shepherd on the morning of the third day; temperature 103°, pulse 92 to 100, respirations 24 to 28. Paralysis had now completely involved the lower extremities and pelvic muscles. Sensations were a little delayed, but he could slowly locate the point of a needle when touched with it. Plantar, patellar, and cremasteric reflexes were now abolished, except right cremasteric reacted slowly. There was incontinence of urine and feces, a distinct enlargement of the spleen, and later of the axillary lymphatics. The disease progressed quite rapidly until after successively affecting the abdominal and chest muscles, on July 6, a.m.; the entire muscular system was involved up to the throat. In the afternoon of the same day there was involvement of the labial, deglutitory and pharyngeal muscles; the speech was almost inarticulate; swallowing extremely difficult—ptosis of the right eyelid. Retention of urine and feces. Mind clear, but at times clouded by delirium (wild); extremely restless, particularly at night. This condition remained unchanged, except that there was present cyanosis of the entire body surface, with some chilliness and blowing out of cheek muscles and spasmodic contraction of the muscles of the upper respiratory tract in his endeavor to breathe.

On July 7, patient was apparently nearing the end, all the symptoms were progressively more alarming, respiratory em-

barrassment being extreme; with the addition of bulbar symptoms. In afternoon (3.30) of July 8, antistreptococcic serum 20 cc. was used and repeated the next morning, July 9. As you will see from temperature record the maximum point in the curve was reached at midnight, July 7, and the paralytic symptoms were also most marked. The bulbar symptoms, as respiratory distress, or dyspnea, dysphagia, and the general cyanosis, gradually become less alarming, but continued grave for at least a week, particularly a peculiar jerking contraction of the diaphragm on inspiration.

The temperature never again reached 101° except on the thirty-fifth day of the disease, when, either because of a retention of feces or nervous shock due to his learning of the outcome of a similar case, the fever became 102.5°, and respirations 32 to 34, and pulse 100 to 120.

Since August 13, or the forty-third day of the disease, the temperature has not been above 90°. From July 10, the respiratory movements became deeper, less jerky, and more regular, the pulse slower and fuller, the speech more distinct, swallowing less difficult. As to the paralysis, the muscles of the right hand, which were the last of the muscles of the upper extremities to be paralyzed, gradually regained their motility, until at present the grip is almost normal and he can move the arm in flexion, extension, rotation, supination and pronation from shoulder-joint. The left upper extremity is still weak in the movements. Muscles of neck, chest and back are weekly gaining in strength and motility. Lower back, pelvic and lower extremity muscles are still inactive. The cremasteric reflex is normal. Plantar-patellar are still dormant. Sensation is perfectly normal as to location and promptness of feeling, also as to distinction between heat and cold. Bowels are active, appetite is fine, general appearance very good. Weight on August 5 was 119 pounds, and is now 124 pounds. Measurements are about normal in the upper part of the body, as neck, chest, arms and abdomen.

There is no apparent wasting except in the right gluteal region, and in the thigh of the same side; in the left lower extremity there has been a peripheral neuritis, with the accompanying pain and tenderness along the nerves, and swelling of the extremity, it being now from a fourth to three-fourths of an inch larger than the right in the comparative measurements.

The urinary excretion has been interesting in that during the height of the disease there was a distinct nephritis, with albuminuria varying from .5% to 50%, and on July 12, during the bulbar symptoms, sugar was present in small quantity; cystitis caused some painful urination during August and September.

Blood-examination:

	White.	Red.	Hemoglobin.
July 4, 1904.....	16,200	4,800,000	90-95%

Blood culture on July 13 was negative, according to Dr. May's report.

	White.	Red.	Hemoglobin.
August 18.....	10,500	4,192,000	80%
August 25.....	14,200	4,820,000	95%
September 1.....	10,400	5,750,000	90%-100%

At present the blood is normal.

The diagnosis was quite difficult, as the disease presented several atypical features, as the high temperature, sphincter symptoms, but the diagnosis of Landry's paralysis was confirmed by Drs. John Heffron, and H. L. Elsner, and H. G. Locke.

The question of prognosis in this case is one of considerable uncertainty. Time alone can solve the problem as to whether he will be able to use his lower extremities. The treatment has been symptomatic largely. In the beginning the ice pack to the spinal column, also the actual cautery, and Canthos plaster as counterirritants, ergot (aseptic), .92 cc. (15 m.) doses; also protonuclein, bioplasm, and strychnin sulfate (Parke, Davis) which he now takes as high as 6 mg. ($\frac{1}{10}$ gr.) three times a day. Cystitis was at first persistent, but yielded to hexamin when used in doses of $\frac{1}{4}$ gm. three times a day. The reaction of degeneration was feeble in left upper extremity, and not obtained in lower extremity.

Faradism and galvanism, with massage, were used, beginning on the forty-first day and continued for four weeks. Massage is now given three times a week, and electricity once.

To Make the Japanese Taller.—The Japanese government has been greatly exercised in its mind over the low stature of the soldiers, and it appointed a commission to study the causes of this lack of height, and to suggest a remedy. The commission has published its report, and it ascribes the shortness of the Japanese to the habit of sitting on the heels instead of on a chair. This attitude, it holds, had prevented the legs of the Japanese from growing, and it suggests that the children should for the future be made to sit in the European fashion. This is a matter in which the query "Why can't you leave it alone?" applies with much force. The legs of the Japanese may be short, but they are uncommonly sturdy, and are capable of great feats in marching. Moreover, it should be remembered that a short soldier hears many bullets whistle harmlessly overhead which would kill a taller man. In these days of magazine rifles there is little advantage in height, so it is just as well for Japan that it will certainly take many generations of sitting on chairs to make the Japanese a tall race.—*London Globe*.

CASE OF PUERPERAL TETANUS WITH RECOVERY.¹

BY

JOHN F. RODERER, M.D.,

of Philadelphia.

On May 28, 1904, I was called to attend Mrs. X, who was in labor with her first child. The head of the child being in the right occipitoposterior position, I was compelled to use the forceps. I succeeded in delivering her of a living child with very little difficulty. There was a bad tear of the perineum which I repaired with much trouble owing to a postpartum hemorrhage. The next day her temperature was 99°. After that for two weeks there was no rise in temperature. After the first day she had very little flow. At no time were the lochia offensive. The discharge ceased entirely at the beginning of the third week. I removed the stitches from the perineal tear about the ninth day and found that the parts had not united perfectly. On June 7, 10 days after her labor, as she was in excellent condition I gave her permission to leave her bed.

June 8.—My attention was called to the fact that she could not open her mouth more than an inch since the evening before. I ordered 2 gm. (30 gr.) of potassium bromid every four hours and as I suspected tetanus, I requested permission to use tetanus antitoxin. This I was unable to do until June 10.

June 9.—The patient's condition was not much changed from that of the day before. There was no rise in temperature.

June 10.—In the morning I noticed that the tonic spasm of the muscles of the jaws was so great that she could only open her mouth about a quarter of an inch. Tonic spasms of the muscles of the neck and back began today. Being allowed to use antitoxin, I gave her four injections, 20 cc. at 11 a.m., 20 cc. at 3 p.m., 20 cc. at 7 p.m., and 30 cc. at 11 p.m. I also ordered .45 gm. (.7 gr.) of chloral and 1 gm. (15 gr.) of potassium bromid to be given every four hours. She swallowed milk and water with difficulty. There was no rise in temperature.

June 11.—Although she was able to open her mouth a little wider than yesterday, tonic spasms involved all the muscles of the neck, back and extremities, particularly the lower. The abdominal muscles were the last to be involved. There was no pain. By evening the whole body was rigid. I injected 10 cc. of antitoxin at 5 a.m., 20 cc. at 9 a.m., 20 cc. at 3 p.m. and 20 cc. at 10 p.m. The highest temperature was 100°.

June 12.—During the past night much of the rigidity of the muscles left and was succeeded by painful tonic spasms, principally of the muscles of the face, back, abdomen and lower extremities. Convulsions occurred every few minutes. I saw the body arched very often by the violence of the spasms. Her position in bed was on the back, with the head turned on the right side. The head could not be turned from that position until near the end of the attack of tetanus. I injected 20 cc. of antitoxin at 7 a.m., 20 cc. at 11 a.m., 20 cc. at 3 p.m., and 30 cc. at 10 p.m. To ease the pain during the spasms, I gave her .02 gm. (.4 gr.) morphin hypodermically at 11 a.m. From then until 3 p.m. she had no pain. I increased the dose of chloral from .45 gm. (.7 gr.) to .78 gm. (12 gr.) every four hours. The highest temperature was 99.6°. During the day she slept occasionally. She could open her mouth much wider and could take milk and water freely.

June 13.—The convulsions occurred every few minutes and were very painful. She bit her tongue so often during the spasms that it was necessary to keep a small piece of wood between the teeth. I gave her hypodermically .02 gm. (.4 gr.) of morphin at 8 a.m., 5 p.m. and 12 p.m. I injected 20 cc. of antitoxin at 5 a.m., 20 cc. at 11 a.m., 20 cc. at 5 p.m., and 30 cc. at 11 p.m. The highest temperature was 100.8°.

June 14.—The convulsions were not so severe nor so frequent. She took 1 gm. (15 gr.) of chloral every four hours. I gave her a hypodermic injection of .02 gm. (.4 gr.) morphin at 11 a.m. I injected 20 cc. of antitoxin at 5 a.m., 20 cc. at 11 a.m., 20 cc. at 5 p.m., and 20 cc. at 11 p.m. The highest temperature was 101.6°.

June 15.—There were fewer convulsions and they were accompanied by much less pain. I gave hypodermic injections of .02 gm. (.4 gr.) morphin at 3 a.m. and 7 p.m. As the convulsions were less in number, I gave only 3 injections of antitoxin: 20 cc. at 3 a.m., 20 cc. at 9 a.m. and 20 cc. at 4 p.m. The highest temperature was 103.4°.

June 16.—There was a marked improvement in her condition. Convulsions were not painful nor were they so frequent. From 8 a.m. yesterday until 10 a.m. today there were 101 convulsions. I injected antitoxin once, 20 cc. at 1 p.m. She is now taking 1 gm. (15 gr.) of chloral and 1 gm. (15 gr.) of potassium bromid every 4 hours. Her highest temperature was 103°.

June 17.—Improvement continues. She had about 70 slight convulsions. I injected 20 cc. of antitoxin at 8 a.m. Her highest temperature was 103.8°.

June 18.—She was very much improved, and was able to move her head slightly to the left. The spasms were fewer than yesterday. I injected 20 cc. of antitoxin at 11 a.m. The highest temperature was 102.6°.

June 19.—There were few convulsions. The rigidity has left the muscles of the lower extremities. I changed the med-

icinal treatment to 1.3 gm. (20 gr.) of ammonium bromid and .65 gm. (10 gr.) of strontium bromid every four hours, because I considered the chloral and potassium bromid too depressant to the circulation. I gave her an injection of 20 cc. of antitoxin at 8 a.m., and also 20 cc. in the evening. The highest temperature was 101.6°.

June 20.—There were not many convulsions. The abdominal muscles were losing their rigidity. In every way there was an improvement in the condition of the patient. I injected 20 cc. of antitoxin. The highest temperature was 104°.

June 21.—There were some convulsions. She slept well last night. All the muscles have lost their rigidity. She can open her mouth well. She can also turn her head and move her body in bed. I injected 20 cc. of antitoxin. The highest temperature was 102°.

June 22.—There were very few convulsions. I injected 20 cc. of antitoxin at 3 p.m. Her highest temperature was 102.4°.

June 23.—There were about 10 spasms. I did not give antitoxin. She has not yet regained the use of her mind, which was affected early in the attack. The highest temperature was 100.4°.

June 24.—After this evening there were no more spasms. All the muscles were relaxed. Gave no antitoxin. The highest temperature was 101.4°.

June 25.—This morning I was informed that her body was again rigid. Believing that there was a renewal of the tetanus, I injected 20 cc. of antitoxin, but afterward discovered I had made a mistake. I found there was no rigidity of the muscles, but that all the joints were affected, as sometimes happens after the injection of diphtheria antitoxin. I noticed also that there was an eruption resembling measles on the body, but principally at the site of the injections, the abdomen. Her highest temperature was 104°.

This articular pain and rigidity, which began on June 25, lessened day by day until July 18, when all pain and rigidity were gone in all the joints, with the exception of the joints of the little finger of the left hand. The pain and rigidity did not leave the finger for a few weeks longer. The temperature which was 104° on June 25 gradually went down. Part of the time she was in a stupor. At other times she was delirious or violent. She had also to be catheterized. A few days before July 18 she recovered the use of her mind; as she said, she did not know what happened to her from June 9 until July 16. After July 18 she made a rapid recovery.

REVIEW.

The first symptoms of tetanus appeared on June 7, 10 days after the birth of the child. Eighteen days later (June 25) she had entirely recovered from tetanus. From June 7 until June 11 she had only tonic spasms. The clonic spasms began on June 12 and lasted until the evening of June 24, during which time she had at least 1,500 convulsions. During the first four or five days all the spasms which were very severe, were accompanied by intense pain. After that the convulsions were not painful, nor were they so severe. Tetanus antitoxin was administered on 32 different occasions. In all, 660 cc. were given, or to speak more correctly, 132,000,000 immunizing units. The injections were given under the skin of the abdomen or sides of the thorax.

The pain in the joints, eruption, and high temperature, which commenced on June 25 and continued three weeks were no doubt due to the same cause, which gives rise to the pain and eruption which are met in some people a number of days after the injection of diphtheria antitoxin.

As may be noticed from the history of this case, the main reliance in the treatment was on the antitoxin. After each injection a change in the character and number of the convulsions could be noticed. About 38.88 gm. (600 gr.) of chloral and seven hypodermic injections of morphin were used within a period of nine days. To combat the high temperature an ice-bag to the head and sponging with cold water were used.

I cannot give the cause of this attack. There was no tetanus at that time in the neighborhood. Previous to this I had not seen a case in five years. In my manipulations of the patient during the confinement, I tried to keep my hands and instruments in an aseptic condition. There were no douches used until after the tetanus commenced, when two injections were given into the vagina.

I was subsequently informed that some of the pads used under her, and which, of course, came in contact with the torn perineum, were dried in the cellar near the

¹ Read before the Kensington Branch of the Philadelphia County Medical Society, November 22, 1904.

front window where they could receive some of the dust of the street which was carried in by the wind through the open window.

The late Dr. M. Price was called in consultation in this case. Dr. R. Bemis saw her frequently. She was also seen by Drs. J. Edward Wallis, L. C. Peter, Charles Pike, J. Krug, and F. Brady.

POISONING BY POTASSIUM BICHROMATE.

BY

FRANCIS EUSTACE FRONCZAK, A.M., M.D., ETC.

of Buffalo, N. Y.

In view of the fact that but few cases of criminal poisoning by potassium bichromate ($K_2Cr_2O_7$) are reported in medical jurisprudence literature, I desire to add one from my personal practice:

On March 7, 1902, I was called to see Mrs. Josephine L., aged 58, who married recently her second husband, her junior by several years. She was insured in an organization which on her death was to pay \$250 to her minor children. Mr. L. was employed in a tannery, where potassium bichromate was used in tanning, for the purpose of hardening the gelatinous substances in the skins. The family life of the couple was not pleasant, and her children did not like their stepfather, hence the husband of Mrs. L. decided to do away with his wife and stepchildren, take what little money there was in the family treasury, and collect the \$250 insurance.

On Thursday night, March 6, 1902, he proposed that the family have "a good time," and sent for some beer and port wine, also a mixture of alcohol and raspberry syrup. He himself would not drink the wine and alcohol mixture, but his favorite—beer. His wife and the children only liked the port wine, and drank that. The first drink seemed to have some effect on one of the younger children, who soon began to have pains in the epigastric region, headache, some vomiting, a feeling of dizziness, and later free purging. The other children drank but little of the wine, refusing to drink more on account of the taste, but the mother had few more drinks from both bottles, *i. e.*, of port wine and the raspberry alcohol mixture.

Soon after midnight she vomited heavily, had convulsions, pains in the stomach, dizziness, headache, cold sweats, and diarrhea; the vomit staining the bedcovers a peculiar greenish color. In the meantime the husband went out, and stayed out all night. No physician was sent for, but, when on return of the husband, the wife asked for medical aid, it was refused by him "because no doctor can help her, and she will die." She was given, however, a drink in the form of "tea," which he himself prepared. After drinking some of it she began to complain of burning pains in the mouth, and noticed a peculiar orange-red powder on the cup, and when asking what it was, a child answered that "papa put it in." The drink brought more vomiting, and more severe burning pains in the throat and down the stomach, abundant cold sweats, convulsions, and finally collapse.

I was called about 20 hours after the first drink, and about three hours after she partook of the "tea."

When I came in the woman seemed in a moribund condition. Her face was ghastly pale, eyes dilated, respirations very slow and labored, not more than 8 or 10 per minute, pulse 56, weak and compressible, lips burned, and there were yellow stains on her chin, lips, and the tongue. A peculiar odor pervaded the entire room, and the bed-covering and a towel were discolored a light green. Urine, which was examined later, contained considerable blood, and stained the garments and the bedding reddish-yellow.

The woman was given strychnin hypodermically, and hot water bottles were put about her. She regained consciousness after some time, complaining, as soon as able to speak, of severe pains in the stomach and throat, and of vertigo. She was given morphin for the gastric pains.

After some inquiries, I was handed the bottles and cup of "tea." On the bottle containing the port wine I found some reddish crystals, and in an envelope which was found in the vest pocket of Mr. L. (who, by the way, went to sleep in the only family room, and refused to answer any questions on awakening) were found several small red pieces, which I recognized as potassium bichromate, having often used the chemical in preparing a battery fluid. The bottles, cup, and the pieces in the envelope were carefully wrapped up, sealed, and sent to the police station. Later, Professor Herbert M. Hill, of the University, and the city chemist of Buffalo, examined the contents of the bottles and the powder, and corroborated my findings.

The woman was ill for about a week, complaining only of occasional pains in the stomach and backache. Urinalysis on several occasions showed the presence of albumin. She now has good health. The husband was indicted, and later sentenced for a term of one year in the Erie County Penitentiary. In defense, he claimed to have given the "medicine" to cure his wife of stomach trouble, which she denied ever having had.

The analysis of the bottle, which contained 22.5 cc. (6 dr.) of fluid, showed that there was .49 gm. (7.56 gr.) of potassium bichromate to the ounce, the woman drinking several ounces of the wine, and we judged at the time, that she must have drunk about 6.5 gm. (100 gr.) of potassium bichromate.

Potassium bichromate occurs in orange-red crystals, and is easily soluble in water, insoluble in alcohol. Poisoning by potassium bichromate is very rare, and then, usually accidental. It is used in dyeing and staining. Those employed in chemical works and shops where this substance is used often suffer from irritation of the respiratory passages, setting up *ozena*, causing eruptions and excoriations, and quite frequently leading to chronic ulcerations.

If used internally, there follows a train of symptoms identical with the case reported. Some writers state this chemical is valuable in gastric ulcers, recommending it in dosage from .5 mg. to .03 gm. ($\frac{1}{2}$ gr. to $\frac{1}{2}$ gr.). Wacholz speaks of it also in his "Podrecznik Medycyny Sadowej" ("Handbook of Medical Jurisprudence") as being used by some women as abortifacient, but he does not state with what results; Schraeder¹ is the only other author, as far as I could find out, who mentions it as ever being used for that purpose, and then, the woman aged 24, died in 24 hours.

What is the lethal dose of the salt is as yet, hard to say. Personal experiments on various animals showed it to be very uncertain. In some cases .065 gm. (1 gr.) or less killed a dog. On the other hand, some of the animals were given very large doses, and in a few hours, after some convulsions, dilation of the eyes and vomiting, recovered, apparently as well as ever. In man the fatal dose ranges, in Maschka's² case, in which in 14 hours after the taking of .19 gm. (3 gr.) of the salt, the suicide was dead; and Macniven's,³ in which after an equal amount, recovery is reported, to the heroic dose of 17.69 gm. (273 gr.), in which recovery resulted, according to Phillipson.⁴ A case is also reported by Stewart,⁵ in which the person taking the poison died in 40 minutes from its effects.

Treatment consists in giving alkalies, magnesia or lime being the best for the purpose. Milk should be given, which may be used also for the purpose of washing out the stomach with the tube or the pump. The pain, of course, must be relieved by anodynes; stimulants are indicated for the depression of the nervous, cerebral, and respiratory systems.

The presence of all soluble chromates can be easily found when mixed with organic matter by treating the same with hydrochloric acid and potassium chlorate, when the liquid will turn green from the decomposition into chromic chlorid; if to this liquid, which is to be filtered, ammonium hydroxid is added in slight excess, there will follow the precipitation of hydrated chromic acid, which, after washing and drying, can be converted into potassium chromate by fusing with potassium nitrate and carbonate. If this fused mass, yellowish in color, due to the chromic acid, be dissolved in water, slightly acidulated by addition of acetic acid, we obtain with a solution of silver nitrate a red precipitate; a yellow precipitate with the nitrate of lead, and with boiling dilute sulfuric acid and alcohol, a green color.

BIBLIOGRAPHY.

- ¹ *Vierteljahr. f. ger. Med.* etc., 1866, n. F., v. 113.
- ² *Vierteljahr. f. prakt. Hik.*, 1877, cxxxvi, 37.
- ³ *The Lancet*, London, 1883.
- ⁴ *The Lancet*, 1892, Vol. 1, p. 138.
- ⁵ *British Medical Journal*, 1888, II, 420.

Intelligent Population Prevents Outbreak of Enteric Fever.—According to the Public Health Reports, Consul Brunot reports the condition of St. Etienne, as follows: The failure of the city water-supply threatened an epidemic of enteric fever in September, October, November, and December, 1904, but the repeated cautions issued by the authorities were well heeded by the people, and as a result only 46 deaths among the citizen population were reported. Statistics of deaths in the military garrison are not to be obtained, but it is certain that the proportion far exceeded that of the civil population per capita.

SPECIAL ARTICLES

CITY DUST AND PATENT MEDICINE ADVERTISEMENTS.

BY

ROBERT HESSLER, A.M., M.D.,

of Logansport, Ind.

Recently I presented a paper before the Indiana Academy of Science, in which I attempted to trace the relationship existing between the amount of infective dust in a city and the amount and kinds of advertisements of patent medicines in the newspapers. A brief modified abstract may, perhaps, not be out of place in connection with my recent paper on "Dust Infection."¹

Generally, dust may be said to be a product of human activity, and disregarding special kinds, as factory dust, it may be divided into two kinds: 1. Common country road dust, made up chiefly of mineral matter, with only a small admixture of vegetable matter. 2. City dust, composed mainly of vegetable matter, which originally existed in the form of hay, oats and corn, with a variable admixture of mineral matter, soot, and additions from man himself—especially in the form of saliva and abnormal secretions from the mouth. On account of the latter, city dust acquires peculiar properties, making it different from all other forms. Distinctions, must, of course, be made between a smoky and a dusty city.

In a general way, it may be said that accumulation of dust in a city is the result of the ignorance of common sanitary laws, of apathy on the part of the citizens, and of bad politics in those having the management of municipal affairs. A housewife who allows dust to accumulate, is called slovenly; a tidy housekeeper gets rid of the dust as soon as possible, and does not allow it to accumulate. We have not yet reached a point where we can make similar distinctions between cities—we simply speak of one city being less dirty than another.

Although dust is a product of civilization, yet, paradoxically as it may seem, the amount of dust in a city is not necessarily an index of a high degree of civilization, not more than is the presence of dirt and filth or its accumulation in a house an index of a high social standing of a family. European travelers are surprised on seeing the condition of our streets, sidewalks, and the floors of our public buildings—and some marvel at the accurate aim of our spitters. In many of our smaller cities the spitting habit is something amazing—likewise the prevalence of colds, catarrh, coughs, rheumatic pains and aches and derangements of the respiratory and nervous systems and of the alimentary tract.

This relationship between the spitting habit and the prevalence of certain ailments crops out in a most striking manner in the columns of our newspapers. I have been following up this matter for several years and a few statements may be of interest.

In a general way it may be said that the newspapers reflect the condition of the city or community, all the way from the village gossip of the small paper up to most weighty matters in the large dailies. We will find, moreover, that the newspapers of dusty cities have dust written all over them, while, on the other hand, the papers of clean cities are practically free from such references.

In a little city of about 20,000 inhabitants not a hundred miles away from where I live, the local papers this fall and early winter contained numerous short articles with such titles as: "Sore Throats are Many," "Epidemic of Colds," "First Wail of La Grippe is Heard," "Sore Throat Epidemic is Spreading," and even a republished article on "The Season of Dust Disease." Occasionally an article would also call attention to the excessively dusty condition of the streets. At the same time the papers were full of advertisements of patent medicines. There are several local newspapers, all contain eight pages, and some of them carried a solid page of such advertisements, or in other words, an eighth of the total space was taken

up by patent medicine advertisements. Moreover, most of these advertisements have the word dust written all over them, figuratively speaking—in reality the dust is not mentioned at all.

Europeans are surprised when they see our newspapers. One has said: "To see your newspapers one might be led to believe that you are a nation of invalids." The presence of many patent medicine advertisements shows, certainly, that there is a great demand for such things—for nostrums supposed to counteract the evil influence of the dust, or, rather, for the sputum-contaminated atmosphere which we are compelled to inhale. At least this is my opinion, based on my observations.

If we make a comparative study of the medical advertisements in the newspapers, that is, of those that in any way relate to bodily conditions, ailments, and diseases, we will find that they may be divided into three classes: 1. Patent medicines proper—of unknown composition and proprietary; a single advertisement may at times occupy a whole page. 2. Advertisements relating to quacks, especially of the lost manhood kind. However, our best papers no longer accept such. 3. Advertisements of miscellaneous articles and remedies, such as lotions, syringes, hair tonics, pennyroyal pills, etc.

The relative amount of space occupied by these three classes varies widely in newspapers of different cities and of different countries. The papers of clean European cities contain very few, and some of our more cleanly Indiana cities make a fair showing, while, on the other hand, some of our papers are fairly loaded with them.

If we examine the advertisements of patent medicines proper more closely, we will find that they can be subdivided into groups, and that the largest group can be designated as the dust group. What I mean by this can be briefly explained about as follows:

In my paper on "Dust Infection,"¹ I characterized the reaction due to inhaling infected dust as follows: "There is an irritation of the mucous membranes; vague wandering pains occur throughout the body, at times more strongly localized at some one point, as in the back or in an arm; there is a feeling of lassitude, or discomfort, rising to severe headache, feverishness, loss of appetite, and even vomiting. In some individuals there is cough, on account of the unusual irritation of the respiratory mucous membranes; some complain mainly of the nervous symptoms, and the inability of applying themselves to a task; in some the wandering or localized pains may predominate." (This reaction might be regarded in the light of an entity, as a distinct disease.)

Individual susceptibility to infection varies widely, as we all know. The street-sweeper may bear an immense amount of dust with seeming impunity, while country people may suffer every time they come to the dusty city. That diseases like bronchitis, pneumonia, and tuberculosis may originate from dust infection is, of course, well known.

If we study the patent medicine advertisements we will find the constant recurrence of such terms as catarrh, colds, cough, grip, sore throat, tonsillitis, pleurisy, rheumatism, backache, lame back, kidney disease, lumbago, muscular rheumatism, nervousness, headache, neuralgia, nervous prostration, biliousness, gastritis, deranged stomach, etc. These are names that in nearly every case in which they are applied are synonyms of dust infection. We must even include the term "malaria," as ordinarily used by city patients, as may be shown by the following from a wellknown nostrum advertisement: "Malaria is not confined exclusively to the swamps and marshy regions of the country, but wherever there is bad air this insidious foe to health is found," and the accompanying list of symptoms have all the earmarks of dust infection. The terms dyspepsia and constipation can in many instances also be included in the list, because they are simply manifestations of the underlying difficulty, namely, the reaction due to inhaling infected dust. This becomes especially evident on comparing newspapers of clean foreign cities with those of our own.

This dust group of patent medicine advertisements may be again subdivided into kinds, according to the ailment or the condition for which the nostrum is to be applied or used. The

¹ *American Medicine*, October 1, 1904.¹ Loc. cit.

two chief divisions may be called the catarrhal and the rheumatic. If we mark all references to catarrh, colds, cough, with a red pencil; references to rheumatism, lumbago, backache, disease of the kidneys, etc., in blue; nervousness, nervous prostration, etc., in yellow; deranged stomach, dyspepsia, biliousness, in black, we will get a general idea of this subdivision. Some of the advertisements will show only one color, and on the other hand, some may show all, especially the "cure-alls."

It is, of course, evident that the application of the foregoing names, or "names of diseases," should be made from the standpoint of the buyer of the advertised nostrums, and I venture to say, that in a dusty city in nine cases out of ten the self-diagnosed ailment is simply one of the manifestations of dust infection, and only in the tenth case it will prove to be something else—and this likely will be the patient that goes to the physician for treatment. The self-dosing by the laity is really startling.

I will now briefly refer to the statistical aspects of the subject. By measuring the length of the columns of a newspaper and counting the number of columns and pages, a simple calculation will give us the amount of space, in inches of column, in a paper. Measuring up the advertisements relating to medicines, (in the popular acceptance of the term) a simple calculation will give us the percentage of the total space occupied—and the same holds true for the dust advertisements.

I have a variety of newspapers from my own State, and from different States and foreign countries, which I marked at the head. For Indiana newspapers the total space occupied varied from 2.5% to 14.5%. The dust advertisements varied from 1.1% in a comparatively clean city, up to 10% (and even more) in a dusty city. It will, of course, be understood that in a clean city the percentage should be but a fraction of 1%, and this we find realized in some clean cities of the old world.

There are, of course, a number of factors that enter into the question why patent medicine advertisements are more numerous in some newspapers than in others, of the same town or of different towns and countries. Making due allowance for all other causes that produce variations, the margin due to the influence of infected dust is still so large that, in my opinion, no other explanation will suffice.¹

When an eighth of the total space of a newspaper is occupied by patent medicine advertisements, whose existence rests mainly on the condition of the streets and sidewalks, we may well pause and inquire if there is not something wrong with the municipality.

The seasonal variation—that is, the rise and decline of dust advertisements, is interesting. With us, low ebb is reached in the summer; high tides occur in the fall and spring. I had shown this in a chart. The percentage of space occupied by dust advertisements in a leading paper of Indianapolis varied from 1.2% in midsummer to 12% in the early spring. (In the summer the dust is sterilized by the hot rays of the sun; in the winter time fresh air is often at a premium.)

At times an advertisement will occupy a whole page, and half page advertisements are quite common. One wonders, who pays the bill.

In the spring the advertisements will call attention to the need of a spring medicine—sarsaparilla, celery, and so on. With us the homely sassafras is still in use.

Whether the patent medicine men are aware of the influence of the dust I am unable to say, but they certainly know that it pays to advertise in certain towns. They also seem to have some idea about the ultimate division of dust infection or dust disease into types, such as the catarrhal or rheumatic. By observing certain advertisements for variable periods of time, we will find that certain names will be used exclusively, and that some one of these will appear in large type and followed by the other in the text in smaller type, and at the next appearance of the advertisements one of the latter will be advanced to head the list, and so on in rotation. Thus in one series the terms rheumatism, lumbago, backache, muscular rheumatism and dis-

ease of the kidneys occur. In another we find the words catarrh, colds, cough, grip, weak lungs, etc.

That these advertisements will not bear critical inspection is self-evident. A physician reading them must conclude that they are written for the kindergarten or for adults with the minds of children. The claims for curative properties in many instances are simply preposterous.

Another peculiar feature of patent medicine advertisements is the testimonials. In a general way it may be said that the person giving such testimony is wholly unqualified by study or experience. Many of the testimonials are no doubt honestly given. A person, usually a woman, has been afflicted all fall and winter with some one of the forms of dust infection on account of unsanitary surroundings, or lack of pure air. Along about spring she tries a new nostrum and in a short time gets well, and in her gratitude she is ready to give a testimonial or is induced to give one. That she would have gotten well anyhow with the advent of warmer weather and with free ventilation is well known to every observing physician.

Advertisements of new nostrums are constantly appearing, and often great ingenuity is displayed in the wording of the advertisement. Out of the great number, only a few succeed. A recent advertisement called attention to the need of iron and that "the people suffer from iron poverty and do not know it." In line with this, I prepared the following:

PURARE.

The great cure and preventive of
COLDS, CATARRH, COUGH, RHEUMATISM, BACKACHE,
NERVOUSNESS.

Also valuable in Bronchitis, Pneumonia, Consumption.

The Remedy for DUST INFECTION.

Has long been recognized as the Standard Cure for these ailments and diseases, but is practically unknown in Indiana.

PURARE (Pronounce Pure Air) cures when all other remedies fail.

Endorsed by Physicians the World over.

What a queer world this is, one is tempted to exclaim. The people avoid keeping the city clean and then spend their money for patent medicines in the vain attempt to counteract the evil influence of the dust—and suffer all sorts of discomfort beside.

A peculiar phase of this dust problem is the attitude assumed by the newspapers themselves in the editorial columns. In former days the "microbic theory of disease" was regarded as a standing joke, and there are still a few old-timers left who deem it their duty to make light of any question that has any relation to microorganisms—be they in water, food or milk, or in the air we inhale. Some cannot distinguish between morbidity and mortality. The morbidity rate may be something frightful and yet so long as the mortality rate for the same period is low, they consider the town or city "healthy."

I know of a small city where the papers this fall were full of references to ill-health and sickness (dust disease), and yet when the report of the Health Officer was published, the comments would run along this line: "The Board of Health reports only — deaths for the past month and only — cases of contagious disease, and thus showing our city to be unusually healthy—in spite of some doctors who say the dust is unhealthy." Rather a peculiar definition of "unhealthy" we may be tempted to say, when an editor overlooks or forgets about the numerous references to ill-health in his own paper, and when he bases his definition on the mortality rate instead of morbidity.

If we examine further, we find that there may be a long interval between seedtime and harvest. The effect of inhaling a very dusty atmosphere may not manifest itself seriously for weeks or for months; that is, in the production of diseases that may have a fatal ending, such as the various inflammations of the internal organs or of tuberculosis. Common dust infection, as I have described it in my previous paper, is usually self-limited and may subside promptly with a change in atmospheric conditions, but may continue indefinitely in a dusty atmosphere—whether out of doors or indoors. The afflicted individual usually resorts at once to home remedies and failing to get relief, he purchases some one or more of the much-advertised patent medicines. These latter may palliate, but we certainly cannot speak of a "cure." Nature does that as soon

¹ A question sometimes asked is: Why are colds and coughs prevalent when the streets are covered with ice and snow, and when there is no dust? The explanation is simple: The sputum on the sidewalk is tracked into the houses, and is there ground into dust by the feet.

as the conditions are favorable. But all sufferers do not get well with a change to good air. With the body weakened by constantly battling with the infective matter in the air, other diseases gain a hold and long after the dust has subsided its effects may still be visible to the physician. Many physicians even do not realize fully the influence of the dust, while, on the other hand, some druggists realize it very fully, and we may occasionally find a layman who realizes the relationship of the amount of newspaper advertisements of patent medicines to the morbidity of a city.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 25, 1905. [Vol. XLIV, No. 8.]

1. The Registration of Vital Statistics in the United States: What the Census Bureau is Doing to Improve It. CRESSY L. WILBUR.
2. Some Typhoid Epidemics Studied by Laboratory Methods. WILLIAM ROYAL STOKES.
3. Some Uncommon Forms of Multiple Neuritis, Including Four Cases of Puerperal Origin. WHARTON SINKLER.
4. A Clinical Study of Hemiplegia in the Adult. THEODORE H. WEISENBURG.
5. A Case of Locomotor Ataxia, with a Tremor Resembling that of Paralysis Agitans. JOHN H. W. RHWIN.
6. Have Drug Addictions a Pathologic Basis? ALBERT E. STERNE.
7. Fat Embolism of the Lung Following Fractures: With Report of Two Cases. F. GREGORY CONNELL.
8. Dangers from Indiscriminate Use of Cathartics in Acute Intestinal Conditions. M. L. HARRIS.

1.—See *American Medicine*, Vol. VII, No. 25, p. 976.

2.—See *American Medicine*, Vol. VIII, No. 4, p. 143.

3, 4, 5, 6.—See *American Medicine*, Vol. VII, No. 25, p. 973.

7.—See *American Medicine*, Vol. VIII, No. 5, p. 183.

8.—**Cathartics in Acute Intestinal Conditions.**—M. L. Harris reminds us that no patient ever dies simply because the bowels do not move. The danger lies in the condition producing the obstruction. In strangulated hernia, adhesions producing kinking, volvulus, etc., no cathartic can overcome the obstruction. Instead, the intestine is filled with fluid, forming putrefactive changes, or the contents are churned back and forth, and finally are forced into the stomach, causing offensive vomiting. The force thus exerted against the obstruction hastens sloughing, produces dilation and congestion of the proximal loops, and causes thromboses ending in ulcers and pin-point perforations. Cathartics increase invagination and spastic contraction of the bowel, while antispasmodics relieve the latter condition and thus induce purgation. In beginning circumscribed peritonitis cathartics break up the forming adhesions, thus distributing the infection generally. The time to make a correct diagnosis in acute surgical affections of the abdomen is in the beginning, by means of an accurate history and careful abdominal examination. In obstruction, the stomach should be washed with salt or soda solution, and then kept empty. The lower bowel should be cleared by an enema. Food is unnecessary, but water, 1,000 cc. or 2,000 cc., should be given subcutaneously as salt solution, in the 24 hours. This treatment must be supplemented at once by proper operative measures. [H.M.]

Boston Medical and Surgical Journal.

February 25, 1905. [Vol. CLII, No. 8.]

1. Eyestrain as a Factor in Functional Nervous Disabilities. MYLES STANDISH.
2. Eyestrain as a Factor to be Considered in Children Backward in Their Studies. ALLEN GREENWOOD.
3. Eyestrain Considered as a Factor in the Production of Lateral Curvature of the Spine. HENRY W. KILBURN.
4. Eyestrain and Reflex Phenomena of Nasal Origin. HENRY H. HASKELL.
5. In What Cases Should Eyestrain be Suspected? EDWIN E. JACK.
6. Difficulties Encountered in the Prescription of Glasses. FRED. M. SPALDING.

1.—**Eyestrain as a Factor in Functional Nervous Disabilities.**—M. Standish quotes various unfavorable reviewers of "Biographic Clinics" and thinks it ill behooves them to accuse Gould of extravagance of statement. The basis upon which all these criticisms are made would appear to be that eyestrain is supposed to be the sole rather than the precipitating cause of all the conditions enumerated. The result is entirely dependent upon the man behind the eyes. In one case

any mental or physical condition which reduces him below the normal state of health, so that resistance to nervous strain springing from his eyes is diminished, will cause the occurrence or recurrence of ocular reflexes. In another case the nervous balance is such that even in his best estate he is unable to withstand the nervous exhaustion which results from frittering away nervous reserve by ocular strain. Great stress is laid by the critics on the fact that migraine is inherited, but are not eyes inherited? It is contended that migraine is a disturbance of the central nervous system. Seeing is also done by the brain. While the writer does not state that all migraine can be cured by correcting errors of refraction, the truth is that uncorrected errors produce sufficient irritation to precipitate attacks in people otherwise predisposed. Patient with nervous breakdown and dyspepsia often get well on wearing glasses. In children and youth, convulsions nowise distinguishable from true epilepsy are cured similarly, but the writer has not seen this result in longstanding cases in adults. [H.M.]

2.—**Eyestrain in Backward Children.**—A. Greenwood believes this the cause of much inattention and backwardness. Routine testing overlooks such conditions when the visual acuity is normal. Myopic children are frequently counted the brightest in the school, while their hypermetropic classmates of equal mental capacity fall behind in their studies. Out of school the hypermetrope, in a work which does not require close vision, may be the more successful. Teachers should be trained to observe symptoms of eyestrain as well as to test visual acuity. The oculist, on the contrary, should be on the lookout for adenoids, nasal obstructions, anemias, etc., whose correction by the family physician would obviate the necessity for wearing glasses for a slight error of refraction. [H.M.]

3.—**Eyestrain a Factor in Spinal Curvature.**—H. W. Kilburn believes that refractive error or vertical heterophoria may predispose to scoliosis; that is, any condition which causes a growing child to bring the eyes too near the object viewed, and therefore to lean forward too far over the desk, or which causes a tilting of the head to one side. He also believes an oblique axis of astigmatism by inducing a tilting of the head to one side will cause lateral curvature. Myopia and high hypermetropia cause the patient to lean too far over the desk. Under such conditions the tilted head is supported on the left hand, the arm resting on the desk, this curving the spine. Scholder has found a close relationship between myopia and scoliosis. The writer also believes that scoliosis affects the refraction to a marked degree. He believes that in all cases of spinal curvature, the eyes should be examined, and in all cases of head-tilting or increasing myopia, or diminishing hypermetropia, the spine should be examined. [H.M.]

4.—**Eyestrain and Reflex Phenomena of Nasal Origin.**—H. H. Haskell states that spurs or hypertrophies with hyperesthesia of the nasal mucosa may produce ocular pain, photophobia, lacrimation, conjunctival or ciliary injection, blepharospasm, accommodative or muscular asthenopia, etc. On close examination anomalous features different from those due to faulty refraction alone will be found. A faulty nose may also affect the actual refraction of the eye, striking variations occurring according to the amount of pressure in the nose, the refraction being myopic today and hypermetropic tomorrow, or the axis of astigmatism is liable to rotate. Nasal headache may begin independently of use of the eyes, it usually begins in one definite part of the head, it becomes worse, if anything, when the patient lies down; while walking or stooping causes intolerable throbbing. Headache on waking which disappears one to two hours later is almost invariably nasal. A striking symptom is confusion on mental exertion; sometimes there is loss of memory. The eye on the affected side of the nose is subject to the more erratic variations of refraction and after operation there is a marked tendency for these errors to diminish. [H.M.]

5.—**In What Cases Should Eyestrain be Suspected?**—E. E. Jack finds headaches around or back of the eyes or in the occiput, those occurring on awakening or late in the day especially suggestive. The eyes should be examined in all cases of migraine. Conjunctivitis, blepharitis, photophobia, blepharospasm, theater, car, or shopping headaches, are also suspicious. Faulty positions of the head and neck, nausea,

dizziness, dyspepsia, the "blues," nervousness, insomnia, neurasthenia, may all be due to eyestrain. The mental upset often caused by glasses is seldom spoken of. [H.M.]

6.—Difficulties in the Prescription of Glasses.—F. M. Spalding refers to the fact that patients are often more uncomfortable after putting on their correction than before, this being on account of the abnormal conditions of the visual act having become so firmly established that they cannot be readily readjusted. Children adapt themselves to the new coordination more easily than adults, it being with them a matter of a day or two, while in old people it may take two or three months. The next most common cause prolonging the period of adaptation is a faulty balance of the external muscles. Patients in which the difference in the refractive error of the two eyes is marked often find it difficult to get accustomed to glasses, the faculty of binocular vision not having received proper cultivation. The correction may cause a troublesome diplopia. Spasm of the accommodation, especially in the young, gives trouble through blurring of distant objects. Glasses may change a person's idea of distance, and of the size and the shape of objects. The prismatic effect of looking obliquely through glasses is also rather disturbing to the novice. This can be avoided by the use of toric lenses. [H.M.]

Medical Record.

February 25, 1905. [Vol. 67, No. 8.]

1. Loss of Sight from Disease of the Eye (Amblyopia Ex Anopsia). D. B. ST. JOHN ROOSA.
2. A Review of the Recent Literature on the Relation of Human and Bovine Tuberculosis. DAVID BOVAIRD, JR.
3. The Advantages of Performing Capital Operations in Selected Cases without Anesthesia. J. J. BUCHANAN.
4. Four Cases of Chancre of the Lip. CHARLES MALLORY WILLIAMS.
5. An Unusual Case of Pelvic Abscess. W. H. COE.
6. Ear Complications of Scarlet Fever, and Their Treatment. HERMAN JARECKY.
7. The Epileptic Criminal: With Report of Two Cases. T. H. EVANS.
8. Higher Education a Cause of Physical Decay in Women. F. W. VAN DYKE.

1.—Loss of Sight from Disease of the Eye (Amblyopia Ex Anopsia).—D. B. St. John Roosa believes that the term *amblyopia ex anopsia* should be limited to those cases in which the use of the eye has been given up because to use it involves double vision, the maculae luteae being no longer in exactly corresponding positions, as is the case in any form of strabismus. Amblyopia due to obscuration of the media does not belong in this category. The case reported illustrates the fact that amblyopia in the deviating eye in strabismus is functional and not organic, and that it may be recovered from perfectly. The patient was a man of 46, whose right eye was amblyopic owing to suppression of the image accompanying divergent strabismus following overcorrection of a convergent strabismus. Five years ago the left eye, on which he was dependent for vision, was put out of function by an accident. Vision in the right eye was at this time $\frac{20}{80}$ with a cylindric glass of +4D., but with suitable correction and practice, in the course of five years he gradually regained the function of the organ until now his vision with the formerly amblyopic eye is $\frac{30}{30}$ with an appropriate glass. The vision for fine type improved much more quickly than that for distance.

2.—A Review of Recent Literature on the Relation of Human and Bovine Tuberculosis.—D. Bovaird, Jr. discusses the experimental work done, and the results obtained, by American and European investigators in their attempts to settle the question raised by Koch in 1901, when he affirmed the independence of human and bovine tuberculosis. After considering the evidence pro and con, the author sums up his views by saying that it appears that human tuberculosis can be transmitted to cattle, but with difficulty, and it seems highly improbable that such transmission plays any great part in the production of the disease among cattle. Bovine tuberculosis can be transmitted to man, but the evidence that such transmission occurs under ordinary circumstances, is extremely scanty, and it is highly improbable that such transmission plays any important part in the spread of the disease in man. An important feature in the research work done, has been that relative to the infection of children through the intestine, and of this the author says that despite the discordant results noted, it seems that we can still safely say that the greatest weight of

evidence is against frequent infection of children through the intestine, that is through food, and that we cannot, therefore, consider that tuberculous milk is frequently the means of conveying the infection.

3.—The Advantages of Performing Capital Operations in Selected Cases without Anesthesia.—J. J. Buchanan believes that sometimes the interests of the patient are best served by submitting him, with his full consent, to some pain in the performance of certain operations, rather than to employ an anesthetic under conditions which may greatly increase the danger from this source. The indications under which he follows this course are the following: (1) Profound septic infection; (2) severe collapse from loss of blood and shock; (3) fecal vomiting with liability to drowning during operation or aspiration pneumonia subsequently; (4) collapse or compression of lung, with liability to respiratory failure; (5) obstruction of the esophagus; (6) advanced kidney disease, with liability to anuria; (7) ease of performance, with minimum of pain. The author gives a list of more or less severe operations, in which he has found it expedient to dispense with an anesthetic, and has been able to do the work without making undue demands on the fortitude of the patient.

4.—Four Cases of Chancre of the Lip.—C. M. Williams says that the importance of extragenital syphilis is greatly underestimated, not only by the laity, but by the profession as well. Four cases are described; in the first there was no discoverable source of contagion, while in the others the infection was probably transmitted by kissing, though in two of them the use of borrowed pipes may have been responsible.

6.—Ear Complications of Scarlet Fever and Their Treatment.—H. Jarecky, in discussing this subject, says that he wishes especially to emphasize: (1) The necessity of paying attention to the removal of hypertrophied tonsils, adenoid vegetations, and nasal obstructions in all of our little patients, so that when subjected to the strain of scarlet fever they may avoid the principal method of ear infection; (2) owing to the rapidity with which destruction of aural tissue and extension of infection take place in this disease, as soon as the tympanum shows signs of exudation and the membrane of bulging, a paracentesis should be immediately performed; (3) repeated examinations of the ear, especially in infants and children, should be made, on account of the uncertainty of the symptoms. The symptoms, diagnosis, and treatment of the various aural complications of scarlatina are taken up in order and described in detail.

7.—The Epileptic Criminal: With Report of Two Cases.—T. H. Evans gives the histories of an epileptic who, in a period of depression committed a murder, and of a woman belonging to the borderland epileptic type who, in an access of jealousy, attempted to kill her lover. Taking these instances as a text the author concludes that: 1. The essence of crime is in the intention, and the ability not so to intend. 2. No punishment is adequate to any crime; restraint not only after a crime has been committed, but effort to hinder any such deed, is preferable always. 3. The victims of epileptics ought to have legal ground for suit against the community as well as those in charge of the epileptic. 4. Reservations ought to be established, in which degenerates and the morally irresponsible could be colonized and treated, allowing all possible freedom of initiative for useful and safe pursuits therein. 5. Marriage of neurotics should be regulated. We can afford to lose the few sane descendants if we could also cut out their degenerate progeny. Democratic principles encourage, in this, as in other matters, the average, and discourage the exceptional or abnormal—great or small. 6. All epileptics are to be viewed with suspicion. Many cases of psychic erraticism, cranks, and mistaken reformers, are to be taken as examples of epileptic psychic equivalents. The major forms of epilepsy may not prove so dangerous to the community as these veiled manifestations.

8.—Higher Education a Cause of Physical Decay in Women.—F. W. Van Dyke points out the lack of wisdom in the prevailing courses of instruction for young girls, who are required as a class to do work adapted only for those of special ability. An incalculable amount of nerve energy is dissipated in forcing pupils without talent to attempt to become finished

musicians, and in acquiring abstruse knowledge of no practical service. This cramming process applied to mediocrity is the most frequent cause of hysteria, neurasthenia, dyspepsia, astigmatism, and dysmenorrhea. In addition to physical incapacity, sexual frigidity ensues, and leads to marital unhappiness. Pregnancy in such women is accompanied by many untoward symptoms, and uterine inertia or a slight disproportion between the fetal head and the pelvic diameters of the mother are usually present, and give rise to more or less troublesome dystocia. Higher education is not without its value, and a woman with talent or genius should have it developed to the fullest extent, but the effort constantly being made to force an average ability to keep pace with well-defined talent is predestined to failure and deplorable results. The studies of schools and colleges should be revised to suit the majority, and no girl be urged to go beyond her capacity to learn with a moderate amount of application.

New York Medical Journal.

February 18, 1905. [Vol. LXXXI, No. 7.]

1. Locomotor Ataxia Successfully Treated with Ultraviolet Rays. J. MONROE LIEBERMANN.
2. The Pathology of Cerebellar Tumors. (Concluded.) T. H. WEISENBURG.
3. The Diagnosis of Tumors of the Cerebellum and the Cerebellopontile Angle, Especially with Reference to Their Surgical Removal. (Concluded.) CHARLES K. MILLS.
4. Remarks upon the Surgical Aspects of Tumors of the Cerebellum. (Concluded.) CHARLES H. FRAZIER.
5. Report of Three Cases of Ruptured Tubal Pregnancy. F. ALAN G. MURRAY.
6. Report of a Case of Fibromas of the Vulva. THOMAS S. BURR.
7. A Case of Mania a Potu and Epilepsy. HENRY F. COLLINS.
8. Report of a Case in Which a Bullet Caused Nine Perforations of Bowels: Operation and Recovery. J. B. BOUCHER.

1.—Locomotor Ataxia Successfully Treated with Ultraviolet Rays.—J. M. Liebermann states that the routine treatment to which he adheres in locomotor ataxia consists of: 1. A warm half bath at night before going to bed, with light massage. 2. Ultraviolet rays in sittings of 10 to 30 minutes, 3 times a week. 3. Static electricity by means of the Morton wave current or wooden brush daily, 15 to 20 minutes. He has now treated 36 cases with the following result: Males, 34; females, 2. Ages range from 24 to 63 years. Four of these patients have been restored to good health and are now able to resume their usual vocations. Twelve have been greatly benefited, the power of coordination has been restored, pain abolished, and the ability to use the upper and lower limbs without any assistance established. All are able to rise, dress and undress themselves without any help. In 18 cases the disease is apparently arrested, with hope of further improvement and final restoration of different functions. Two died during treatment, one from lobar pneumonia, the other of erysipelas capitis. [C.A.O.]

2.—Pathology of Cerebellar Tumors.—T. H. Weisenburg discusses the pathologic aspects of the various conditions which give the symptoms of cerebellar tumor, especially in a surgical sense. The lateral lobes of the cerebellum, possibly because of their greater size, seem to be more frequently the seat of tumors than the middle lobe. Tumors within the middle cerebellar peduncle are rarely found. Growths in the anterior and posterior cerebellar peduncles are also uncommon. The angle formed by the cerebellum, medulla oblongata, and pons is a favorite seat for newgrowths, these tumors growing either from within or upon the acoustic, facial, or trigeminus nerves, and frequently are fibromas. Tuberculous growths are more common in persons below the age of 20, while glioma, sarcoma, and cysts of various kinds are more frequent in the adult. Syphilitic tumors of the cerebellum are rare. Of the other forms of newgrowths, as carcinoma, lipoma, angioma, psammoma, and dermoid cysts, there are very few instances in the literature. In 152 tuberculous brain tumors collected by Allen Starr occurring in childhood, 47 were in the cerebellum. The cerebellum is a favorite seat for glioma, and sarcoma is about as common. Cystic degenerations of gliomas and sarcomas are very uncommon, especially if they are situated in the cerebellum. In several instances an osteoma has been found. [C.A.O.]

3.—The diagnosis of tumors of the cerebellum and of the cerebellopontile angle, especially with reference to

their surgical removal is discussed by C. K. Mills. He says that tumors in the following locations may be regarded as "operable": 1. Tumors situated wholly or in large part in one lateral lobe. 2. Tumors situated upon or in part invading the vermis or middle lobe. 3. Tumors of the cerebellooblongato-pontile angle. Only in the case of a tumor located in large part in one lateral lobe of the cerebellum does an operation afford a really good chance for success, but in rare cases both tumors of the vermis and of the cerebellobulbar angle can be reached and removed. In a large majority of cases of cerebellar neoplasm, headache, nausea, and vomiting, optic neuritis, and vertigo are present, and are of pronounced character. The headache in many cases is intense, in others of moderate severity. In a few cases it is entirely absent. Nausea and vomiting are symptoms of frequent occurrence, although they occasionally disappear for long periods in the progress of the case. The development of optic neuritis is often rapid. The choking of the disc is extreme, and hemorrhages are numerous. Unless operative interference checks the progress of the inflammation, blindness speedily occurs. Nystagmus is one of the most frequent symptoms of cerebellar tumor; asthenia is common. The author takes up in detail the strictly focal symptoms of tumor of the cerebellum, citing cases and papers by other authors. He concludes by reporting several cases. [C.A.O.]

4.—The surgical aspects of tumors of the cerebellum are taken up in detail by C. H. Frazier. He says that if operation is to be performed at all it should be early. Even as a palliative measure it is frequently resorted to. Six cases came under the author's observation during the past twelve months. Of these one died after first stage of operation; two recovered after removal of tumor; one was relieved after evacuation of cyst, no recurrence more than a year after operation; one considerably improved after palliative operation; one no improvement, tumor not found. The author has made a statistical study and tabulated 116 cases in which operative treatment was resorted to. A review of these tables shows that great progress has been made in this field of surgery from every point of view. The percentage of tumors found is yearly growing larger, the percentage of partial or complete recoveries is larger and the mortality has fallen from 70% to 38%. [C.A.O.]

5.—Ruptured Tubal Pregnancy.—F. A. G. Murray reports three such cases in which recovery followed operation. In each case the abdomen was opened in the median line, the blood clots removed, the tube and broad ligament tied off in sections, then cut off and covered with peritoneum. The abdomen was washed out with hot salt solution, an incision made through the posterior wall of the vagina into the culdesac, and a gauze drain inserted. The abdominal cavity was filled with normal salt solution and closed. Fowler's position was used in each case. The writer believes that the position and drainage had much to do with the recovery of these patients, as they were all operated on at a few hours' notice, in their own houses, and the rooms in which the operations were done were most decidedly dirty. [C.A.O.]

6.—Fibromas of the Vulva.—T. S. Burr reports such a case in a patient aged 42. She first noticed a growth upon the vulva 18 years ago. Six years later this was removed. Since then, three similar growths developed, and were removed two years ago. All three of these growths seemed to have their origin in the tissues of the labium majus, but the lower two encroached somewhat upon the labium minus and the perineum. The writer, in reviewing the literature and hospital records, has found such growths in this region to be quite rare. [C.A.O.]

8.—Gunshot Wounds of Intestines.—J. B. Boucher reports the case of a boy of 15 who received a gunshot wound 2 inches to the left of and below the umbilicus. Examination of the bowels revealed 9 different perforations in the small intestines, 3 pairs where the bullet passed through both sides of the bowel and 3 single perforations, extending over a distance of several feet. These were repaired by turning in the bowel and using a double Lambert with silk. Several gallons of hot saline solution were used to wash out the cavity. Gauze drainage was inserted and the wound closed. Prompt recovery followed. [C.A.O.]

Medical News.

February 25, 1905. [Vol. 86, No. 8.]

1. The Expectant Treatment of Appendicitis: An Excursion into the Field between Surgery and Medicine. A. C. BERNAYS.
2. Observations upon the Morphology and Classification of Mycobacterium (Bacillus) Tuberculosis. CHAS. F. CRAIG.
3. Clinical Studies in Ureteric Meatoscopy. WALTER C. KLOTZ.
4. Sprains of the Knee and Ankle-joints. J. T. WILSON.
5. Syphilis of the Lung Simulating Pulmonary Tuberculosis. WILLIAM E. HUGHES and ROBERT N. WILLSON.

1.—The Expectant Treatment of Appendicitis.—A. C. Bernays, of St. Louis, states that the recent teaching of prominent surgeons throughout the country has been such as to greatly confuse the general practitioner in his early management of cases of appendicitis. He takes issue with the teachings of Ochsner, of Chicago. The latter says: "In all cases of acute appendicitis, without regard to the treatment contemplated, the administration of food and cathartics by mouth should be absolutely prohibited, and large enemas should never be given." Bernays would substitute for this: In all cases of acute appendicitis the administration of food should be very scant, but cathartics and large enemas of warm water should be regularly given without regard to the treatment contemplated. Again Ochsner says: "All practitioners of medicine and surgery, as well as the general public, should be impressed with the importance of prohibiting the use of cathartics and food by mouth, as well as the use of large enemas in cases suffering from acute appendicitis." Bernays says all practitioners of medicine, and the public, if you like, should know that the proper treatment of acute appendicitis is by the regular use of cathartics and copious warm enemas and the restriction of food by mouth, to a minimum of liquid nourishment, and rest in bed with large, moist, warm, antiseptic poultices over the belly. Ochsner again says: "Patients suffering from acute appendicitis should be operated on as soon as the diagnosis is made, provided they come under treatment while infectious material is still confined to the appendix, if a competent surgeon is available." Bernays asserts that in 1,700 cases of appendicitis operated upon, he has not seen 10 instances where infection was confined to the appendix. [A.B.C.]

2.—Mycobacterium Tuberculosis.—C. F. Craig has observed a great number of departures from textbook descriptions of the organism of tuberculosis, especially in those returning from the Philippines, the heat there enabling the germ to grow very luxuriantly, the disease being rapidly fatal. Some organisms are almost as short as cocci; others are long filaments, such as are common in old cultures and have unstained intervals, giving them a beaded appearance and have a single or double curve like U or S. Some specimens are 3 or 4 times as thick as those observed in this country. These do not, as a rule, show unstained areas. Some are knobbed. Those with unstained intervals resemble streptococci. No method for the demonstration of spores will stain these intervals. The clubbed form resembles the diphtheria bacillus and also certain actinomyces. In two-thirds of the sputums examined, budding forms were found with a knob projecting laterally, sometimes several. This is the first stage of branching. In over 80% branching forms were seen. The branches vary from 1 to 3 or more and were found only in the long filamentous forms. In many instances an interlacing network was seen resembling actinomycotic growth. These changes are not degenerative, but indicate luxuriant development, and the writer classifies the organism with Lehmann and Neumann, under the actinomyces. Any observations enabling us to make classifications more correct botanically are of the greatest importance from a scientific standpoint. [H.M.]

3.—Clinical Studies in Ureteric Meatoscopy.—Walter C. Klotz carried out a series of examinations to determine the value of ureteric meatoscopy and the value of this procedure as compared with ureteral catheterization. Twenty patients are included in the series and, as the author states, while no definite conclusions could be reached from so small a number yet certain suggestions are offered. Klotz says, considering only the 11 instances in which lesions of the kidney were found at operation, in 4 out of 5 cases of nephrolithiasis, changes were noted in the ureteric orifice on the diseased side. In 2 cases of suspected nephrolithiasis in which changes were noted in the

ureteric orifices and in which no stone was found at operation, it is possible that a stone was passed either just before cystoscopy, or between the time of cystoscopy and operation. In the remaining 6 confirmed cases of renal disease, changes were found in the ureteric orifice in 5. In the case in which ureteric meatoscopy was negative, ureteral catheterization was of distinct service. The results so far would show that even if ureteric meatoscopy cannot replace ureteral catheterization in all cases, it may frequently furnish additional information and be of great service in those cases where ureteral catheterization cannot be carried out. [A.B.C.]

4.—Sprains of the Knee and Ankle-joints.—J. T. Wilson says these sprains for the most part involve the ligaments of the joints. If forced extension of the leg upon the thigh is made, injury readily results, as in extension all the ligaments of the knee-joint, except the ligamentum patellæ, are put on the stretch; conversely forced flexion rarely results in injury, because the conditions are reversed. In injury to the knee or ankle, an anesthetic may be necessary to effect a diagnosis. The more promptly treatment is instituted after injury to either of these joints the better the results are apt to be. Hot applications, as cloths wrung out of hot water, applied about the joint for 40 to 60 minutes and covered with oiled silk or wax paper, will greatly lessen pain and limit swelling. After this Cotterell's dressing may be applied. This consists of strips of adhesive plaster placed longitudinally over the knee, and the whole covered with a rubber bandage. If there is great effusion, aspiration may be necessary. At the ankle-joint the lateral ligaments are the ones most usually involved. If effusions and pain are great, the foot and ankle should be immersed in hot water for a time and then a Gibney dressing applied and the patient directed to begin walking under the eyes of the surgeon. The dressing should be removed after a week, the parts given massage, and the dressing reapplied. [A.B.C.]

5.—Syphilis of the Lung Simulating Pulmonary Tuberculosis.—Hughes and Willson report a case resembling bronchopneumonia with delayed resolution, the latter taking place on the administration of potassium iodid. Tuberculosis is usually urged into acute exacerbation by the iodids. Even in the absence of eruption and glandular enlargement and the evidence of a primary sore, the writers would consider all cases responding promptly to iodids and mercury as luetic, unless there is more probable evidence for some other condition. This view causes hesitation in the positive diagnosis of incipient tuberculosis in subjects having a syphilitic taint. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Anemia in Porto Rico.—On February 16, 1904, the Legislative Assembly of Porto Rico passed an act appropriating \$5,000 to be expended by the Governor on "the study and suppression of the disease known as 'anemia,' in Porto Rico." This action is said to have grown out of a study of Porto Rican anemia in the Tri-coche Hospital at Ponce, by Dr. Bailey K. Ashford, U. S. A., in 1902. A report on 100 cases was published by Drs. Ashford and King in *American Medicine*, September 5 and 12, 1903. Under the Act of Assembly of February 16, 1904, Governor Hunt appointed a commission including, beside Dr. Ashford, Dr. W. W. King, of the United States Public Health and Marine-Hospital Service, and Dr. Pedro Gutierrez Igaravidez, of Bayamon. On March 14, a tent hospital was complete and ready for use near Bayamon. Operations at this point ceased on April 30, and the camp was moved to Utuado, where on May 9 the treatment of patients was resumed and continued until August 15, 1904. Scientific investigation rarely proceeds at such a pace as is exhibited in this brief chronology. In less than 10 months the report of the commission is before us, printed at San Juan, in both English and Spanish, 320 pages in all. In the five

months between March 14 and August 15, 5,500 patients were treated. Of this number, 5,490 were suffering with uncinariasis. Of these, 27 died, 86 were not improved, 1,029 were lost to the records through disappearance or otherwise, and the remainder, or 4,348 patients, were either cured or improved at the conclusion of the work. Against the Porto Rican anemia, the resources of medicine have hitherto been powerless. With the discovery of its essential cause, the possibility of ridding the island of its most formidable disease comes at once into view, for uncinariasis is both curable and preventable.

The economic relations of the problem are remarkably clear, for the wealth of the island is absolutely dependent upon the health of its peasantry, and the working capacity of the Porto Rican "jibaro" is enormously impaired by uncinariasis. That a working corps of medical men, at no time exceeding five in number, restored to economic efficiency 500 persons a month during five months, was a striking demonstration not only of professional effectiveness, but of the economic necessity for such work in Porto Rico. The crustiest avarice might, indeed, be excited by rewards as rich as these. A lively interest is aroused by the fact that in three months more than 4,000 cases of uncinariasis sought treatment at Utuado, a town of less than 4,000 inhabitants. We are not in the habit of considering the island of Porto Rico as offering such recruiting possibilities. The population density of Porto Rico is, however, about 300 persons per square mile, 91% of the population being rural; and of the rural population about 90%, it is said, harbor the uncinaria. The chief agricultural products are tobacco, sugar cane, bananas, and coffee. The coffee and banana plantations suffer most from the prevalence of uncinariasis. The habits of the peasant give the parasites a very wide distribution, under almost ideal conditions for its reentry into man. Habitual deposit of human excrement on the ground in shady places, near dwellings or wherever work is done, infects the soil. The peasants go barefoot, and the larvas enter the human host through the skin, producing a dermatitis, known as mazamorra, and long recognized by the more intelligent natives as the initial feature of their anemia. The severity of an attack of uncinariasis depends upon the number of larvas gaining entrance in this way, for their number can never increase within the human body. Exceedingly mild infections are therefore likely to be numerous, and severe cases practically always mean multiple infections. By no means all cases present notable anemia. The wide range of hemoglobin estimates, indeed, is very surprising. In some cases the hemoglobin is reported to have been as low as 9%. In this country 40% hemoglobin is held to indicate very grave anemia, but some of the Porto Rican patients having less than 20% of hemoglobin did well under treatment. On the other hand, many patients having 80% or more of hemoglobin were seriously disabled by their infections.

The history of the parasite was not studied by the commission, no autopsy was made, nor any attempt at prophylaxis beyond advice to the patients. The work of the commission was of necessity restricted to the cure of the sick. Adults received thymol in 2 gm. doses once a week until ova were no longer found in the feces. The time required to dislodge the parasites varied from 10 days to 100 days, averaging under 30 days. A great majority of the patients took the remedy at their own homes, the hospital being all the time overcrowded with those too sick to travel. The commission believes that prophylaxis of the disease depends upon prevention of soil pollution, and on the cure of existing cases. Soil infection may be prevented by the general use of latrines. Human excrement may be rendered harmless so far as uncinariasis is concerned by simple earth burial, so that the construction of latrines cannot

be an economic burden. The commission does not share the opinion of Porto Ricans who say that the peasants will not use latrines. It was said at the inception of the work that the anemics would not submit themselves to therapeutic measures, but the peasants made a sufficient answer to this prediction by thronging the hospital camp daily, some of them, it is said, making six-hour journeys again and again for the sake of being cured. The physicians of Porto Rico have not apparently been strongly impressed as yet by the remarkable success of the commission, but it seems impossible that professional inertia can withstand such a weight of evidence. Uncinariasis is the cause of about a fourth of the total mortality of Porto Rico. If the labors of the commission do not lead to the downfall of uncinariasis, it will be because the disease is maintained at that had eminence by apathy in social strata far above that of the unhappy "jibaro."

REVIEW OF LITERATURE

Myelopathic Albumosuria.—C. W. Paget Moffatt¹ says this affection is characterized by the presence in the urine of the peculiar proteid body associated with pathologic changes in the bone marrow. It is a new disease by reason of its differentiation from other pathologic conditions presenting a similar clinical picture. Bence-Jones was the first to direct attention to this disease, in 1848, and his observations were supplemented by McIntire in 1850. The case reported by Bence-Jones is rehearsed and the subject is discussed in detail. Myelopathic albumosuria must be differentiated from osteomalacia, muscular rheumatism, spondylitis deformans, caries of the spinal column, invasion of the vertebral column and other osseous tissue by secondary malignant disease, pernicious anemia, nephritis, chyluria, etc. The principal diagnostic feature is the recognition of Bence-Jones albumose. It should be remembered that this coagulates at 58° C., whereas the ordinary serum albumin coagulates at about 75° C. In using the acid test it is important not to add too much nitric acid, as a slight excess may entirely prevent coagulation. The reaction of Bence-Jones albumose to hydrochloric acid is almost as important as the heat coagulation reaction. If the albumose is abundant and dense precipitate is obtained on pouring in strong hydrochloric acid; if the albumose is present in small quantity, the "ring" or "contact" method should be preferred. Bradshaw asserted that 0.5 part per 1,000 will give a diffused white ring at the junction of the urine and acid. Bence-Jones albumose is thrown down by strong nitric acid. The source of the proteid is not known, but three hypotheses have been set forth to account for it: 1. That it is derived from the proteid constituents of the food which for some reason failed to undergo normal metabolism. 2. It is produced by some abnormal metabolism taking place in connection with the newgrowths in the bones; this might possibly be the result of a special ferment. 3. That this production results from some loss or invasion of the bone marrow owing to the destruction of the latter. These hypotheses are discussed at length. [A.B.C.]

Diagnosis and Treatment of Cardiospastic Dilation of the Esophagus.—H. Strauss² reports a case in which the patient, a man of 30, had suffered for 10 years from dilation of the esophagus. He presented all the typical symptoms, including difficulty in swallowing, a feeling as if the food lodged above the stomach and pylorus. Through frequent vomiting, which occurred immediately after meals, and through loss of nourishment he became very weak and emaciated. A stomach-tube introduced into the esophagus brought forth a mass of undigested food which had stagnated. Stomach contents were obtained which showed traces of digestion not seen in the esophageal contents. A sound with an inflated rubber bag was employed to determine the size of the esophagus. Its capacity was found to be 350 cc. By removing the exciting causes of the esophageal inflammation it soon improved. Rectal alimentation was resorted to and small amounts of oil, butter and milk were allowed by mouth. He was given minute doses of tan-

¹ The Lancet, January 28, 1905.

² Berliner klinische Wochenschrift, December 5, 1904.

nin 4 times a day. As he became stronger the nourishment by mouth was increased and the esophagitis combated with weak silver solutions. After the inflammation subsided, systematic stretching of the cardiac end of the stomach was undertaken. For this purpose the author has contrived a number of instruments, an illustration of which and full details are given. He first employed a soft rubber tube, which was so constructed with a small metal sound, that its lower end could be insufflated. In this manner the cardiac end of the esophagus was dilated, which by traction also dilated the cardiac opening of the stomach. This appliance, later in the course of treatment was substituted by a stomach-tube with a spindle-shaped bag at its end. This bag, when collapsed, is introduced into the stomach where it is insufflated to a definite size, in this case to a circumference of 10 cm. (4 in.). By gentle traction the stomach-tube is now withdrawn, and the semidilated rubber bag as it passes through the cardia dilates it. The air is then released and the tube is removed. Patients treated in this manner soon showed improvement. The patient mentioned, gained 28 pounds in 6 weeks, was able to return to his work and eventually made a perfect recovery. [W.E.R.]

Reasons for Abandoning the Uric Acid Theory of Gout.

—Chalmers Watson¹ has carried out a series of investigations, concerning which one or more papers have already appeared. In the present paper the author's conclusions are about as follows: (1) There is an infective element in the disease; and (2) the uric acid is the factor which gives the inflammation its specific character. According to this view, the chief source of infection is the alimentary tract, and an unjudicious dietary, meat or drink, acts mainly in virtue of his investigations on the bacteria in the digestive tract. This view does not minimize the importance of the hereditary factor. He agrees with Woods Hutchinson, who defines gout as the following: "Toxemia of a gastrointestinal origin, accompanied by the formation of an excess of urates, this excess of urates being due to the breaking down of leukocytes and fixed cells in the attempt to neutralize the poison; in other words, being the measure of the resisting power of the tissues. The formation and introduction of the toxins are not confined to the gouty; it is only the nature of the resistance of the body to them that gives the character of gout." The correctness of Hutchinson's conception of gout has been strongly emphasized by Watson in the results of clinical and therapeutic observations on bone marrow, which he has carried out coincidentally with investigations enumerated in the present paper. Reliable evidence for or against the theory should be looked for along the following lines: (a) It is advisable to investigate the influence of (1) a meat diet, and (2) a carbohydrate diet on the digestive secretions and on the ductless glands. Special attention should be directed to the thyroid gland and the bone marrow. [A.B.C.]

The Ficker Diagnosticum.—A. Skutezky² reports his experience with the Ficker diagnosticum, having tested it in the clinic of von Jaksch of Prague. He describes the liquid as a slightly clouded but sterile fluid, which will not clear spontaneously and contains specifically prepared dead typhoid bacilli. Their presence he proved by examination in the hanging drop, the sterility by attempting to cultivate the organisms. The typhoid organisms in the fluid retain their property of agglutinating when brought in contact with the blood-serum of a typhoid fever patient, for 9 months. Before use the fluid must be thoroughly shaken up. He employed the method in 11 cases of typhoid fever, 4 of pulmonary tuberculosis, 3 of croupous pneumonia, 2 of tuberculous meningitis, 3 of bronchitis, 1 each of acute gastritis, hysteria, anemia, rheumatic polyarthritis, and cholelithiasis; he describes the technic followed by him very carefully. The result was considered positive if the fluid became clear and a flaky precipitate, the agglutinated bacteria, settled in the bottom of the test-tube. Macroscopic and microscopic Widal tests with living bacteria were performed at the same time. He concludes from his tests that the Ficker diagnosticum is suitable for the performance of the Widal test and, while probably not giving better results, certainly gives as good, as when living bacteria are employed

for the test. He finds the negative results to be as strong evidence against the existence of typhoid fever as the positive result for it. Since the result cannot be mistaken and the positive result occurs earlier in many cases than where the original Widal test is employed, and since the appearance and technic of the method are such that every physician can perform it, he recommends it to the practising physician as preferable to the original Widal test, and thinks that especially is it to be preferred by the military surgeon, both during times of peace and of war. [E.L.]

Concerning the Cure and Latency of Diabetes Mellitus.—H. Leo¹ reviews the literature on this subject and gives the case history of a patient in whom diabetes was apparently cured. The patient, a man of 30, had suffered for three years from a case of diabetes of moderate severity. At the end of this time all symptoms referable to this disease disappeared and he apparently enjoyed perfect health for several months. Then all the symptoms reappeared. Many observers consider this second attack a new onset of the disease, but the author is inclined to believe that the disease persisted during this interval but in a latent form. It is of great importance when examining for insurance to bear in mind the possibility of a latent form of diabetes. People who have once had diabetes mellitus should always be guarded in their indulgence in carbohydrate food. [W.E.R.]

Lobar Pneumonia Following Measles.—F. C. Bottomley² says bronchopneumonia following measles in children is well recognized, but mention is not made in the textbooks of the fact that lobar pneumonia is a frequent complication, yet, in his experience the latter has occurred more frequently than the former. He observed 13 cases of lobar pneumonia occurring during 2 epidemics of measles. The ages of the children varied from 1 to 5 years, 10 of the 13 being under 3 years. The pneumonia began in 7 at the time the rash appeared; one or both lower lobes were in all cases affected; in 5 instances one side only was involved, and the duration of the disease was, in these, from 5 to 8 days. In the 8 others both bases were affected, either simultaneously or consecutively, the duration being from 8 days to 3 weeks, the temperature rarely exceeding 102° F. All the patients recovered except 1, a child of 18 months. Bronchitis was not present in any case during the period in which the 13 cases occurred. In the same epidemics only 3 cases of bronchopneumonia following measles were seen, and they all died. The proportion of 3 cases of bronchopneumonia to 13 cases of lobar pneumonia coincides very closely with Bottomley's experience in pneumonia following measles in children. [A.B.C.]

Disturbances of Digestion from too High Fat Percentages.—L. Emmett Holt³ says that disturbances of digestion resulting from excess of fat in the milk given infants are quite as serious, if not so obvious, as those which follow too high proteids; they need to be studied just as carefully. Error in this respect comes in one of two ways: 1. In following the formulas of books, instead of using ordinary milk with a fat content of 4%, they substitute rich Jersey milk with 5% to 5.5% fat. 2. The fat is intentionally increased, almost without limit, for the purpose of overcoming that most troublesome symptom in artificial feeding—chronic constipation. Errors like these are exceedingly common. Notes of five cases recently seen in consultation are given to show the symptoms which may follow the use of too much fat. In three of the five, convulsions were a prominent feature and came on essentially without warning in fat, healthy-looking children that were supposed to be doing the best in every way. In the other two, vomiting was a conspicuous feature of the condition. Holt says it is not generally appreciated that chronic constipation may be aggravated by too high fat percentages. Both physicians and parents are led into these errors by too great fondness for rich Jersey milk and cream; to avoid them, the physician must know approximately the fat content of the milk, cream or top milk which he is using. [A.G.E.]

Collargol.—Ernest Cohn⁴ infected guineapigs with viru-

¹ British Medical Journal, January 21, 1905.

² Zeitschrift für Heilkunde, 1904, xxv, 253.

¹ Berliner klinische Wochenschrift, December 12, 1904.

² British Medical Journal, February 4, 1905.

³ Archives of Pediatrics, January, 1905.

⁴ Wiener klinisch-therap. Woch., January, 1905, p. 63.

lent *Staphylococcus aureus* and the streptococcus, injecting before and afterward a mixture of collargol. The pigs so treated died much sooner than the control animals. Similar results were obtained when cancer cells and cholera bacilli were used. He concluded that collargol in no way protected the organism from infection, and that soon after its injection it was preprecipitated in the organs, and this precipitate had no antibacterial qualities. [J.H.W.R.]

The Prodromal Rashes of Measles.—J. D. Rolleston¹ groups the general characteristics of prodromal rashes: 1. The great majority of prodromal rashes appear within the first two days of the disease, frequently they precede the catarrhal symptoms, Koplik's spots, and the characteristic stomatitis; occasionally they may be seen before any rise of temperature, or other constitutional disturbance. 2. The short-lived existence of most of these rashes accounts, in a certain degree, for the scant attention they receive. 3. Closely associated with their existence is the tendency to localization. Even the scarlatiniform rashes, which are more widely diffused than the rest, seldom occupy the same extent as the fully developed eruption to scarlet fever, to which they bear, as a rule, but even an abortive resemblance. 4. The prodromal rashes of measles do not affect any particular situation, such as the abdominal region, which is the site of election for the initial rashes of smallpox. 5. Highly characteristic is the simultaneous association of several varieties of eruptions. Incidental eruptions, such as urticaria, may occur. 6. The characteristic eruption of measles, like that of scarlet fever, varicella, and smallpox, is occasionally attended with copious irritation. The prodromal eruption of measles, on the contrary, is free from symptoms of this kind. 7. With exception of the petechial eruption of hemorrhagic cases, the occurrence of initial rashes in smallpox is most frequent in mild forms of the disease. In measles, on the contrary, initial rashes are of no aid in prognosis. 8. The occurrence of rashes in an epidemic focus alone should arouse suspicion of infection, and prompt examination of the buccal mucosa for Koplik's spots and the characteristic stomatitis and catarrhal symptoms should be looked for. [A.B.C.]

Primary Valvular Tumor of the Heart.—The case reported by K. Reitmunn² was that of a man who died of apoplexy, induced by thrombosis of the left Sylvian artery. At autopsy a pedunculated tumor, the size of a pea, was found on the anterior semilunar valve of the pulmonary artery. The tumor was made up of a groundwork of connective tissue, upon which was built a network of a peculiar hyaline substance. The cardiac endothelium covered the tumor in an uninterrupted layer. The author calls the tumor a hyalofibroma, and adds that it produced no clinical phenomena during life. [B.K.]

Duke's Fourth Disease.—Duke's fourth disease bears the same relation to scarlet fever that röteln does to measles; it resembles the abortive type of scarlet fever. The disease in many instances has no prodromes, although the severer cases may be preceded by nausea, headache, anorexia, backache and chilliness; its incubation period is from 9 to 21 days, and its eruption, often the first noticeable symptom; the eruption covers the whole body within a few hours. It consists of punctiform elevations very closely packed together. The tissues surrounding the lip and the dorsum of the nose are usually free of the exanthem. The tongue is coated, but does not have the strawberry appearance, the pharynx is swollen and injected, the cervical glands are somewhat enlarged and hard. The eruption pales quickly and desquamation is complete in 2 weeks. Complications are very uncommon, nor is the patient usually very ill, although the temperature and pulse for a short time may be considerably elevated. Isolation is not necessary beyond the third week. J. von Bokay³ having seen a number of cases corresponding to this description, agrees with Duke in considering it a disease other than scarlet fever, and points out its characteristics as consisting of a mild course, its absence of complications and sequels, the short duration of its infecting power and the long duration of the period of incubation. He has found that an attack of scarlet fever does not protect against it, or vice versa. [E.L.]

Primary Heart Failure as the Immediate Cause of Death in Diphtheric Toxemia.—Charles Bolton¹ says an acute diphtheric systemic poisoning is rendered evident by (1) progressive heart failures, (2) diminished amount of albuminized urine, which, in comparatively rare cases may be completely suppressed, and (3) vomiting. He holds that it is in the acute stage of diphtheria that degenerative changes occur in the central nervous system as a result of toxins and not in the paralytic stage. Death in acute diphtheric toxemia is due to a primary heart failure, and to account for this, extensive fatty degeneration is found in the heart, and acute degeneration in the motor nucleus of the vagus. It cannot be distinctly stated whether the acute change in the vagus nucleus would produce irritation or paralysis of that nerve. It is quite likely that both irritative and paralytic effects may be felt by different portions of the heart at the same time, and that either may preponderate. The probability is that irregularity of action would be the prominent feature, that this irregularity would be subject to great variations in degree, and in some cases a slowing of the pulse might be expected and in others increased frequency. Such a lesion would lead to vomiting and cardiac dilation. The irregular pulse and fatal syncope of acute diphtheric toxemia are due to the disturbed innervation of an acutely degenerated heart. The heart failure seen in the acute stage in patients who recover is probably the result of a similar, though less extensive change and results in latent weakness of the heart. [A.B.C.]

The Treatment of Acute Gastroenteritis in Infants.—In the treatment of the acute stage of gastroenteritis, Terrien² recognizes three indications: (1) To arrest the intestinal toxic infection; (2) to eliminate the poisons already formed; (3) to combat certain predominant symptoms. To meet the first indication he advises the elimination of all food, and puts the infant on a water diet for 24 hours to 48 hours. To eliminate the poisons already formed, lavage of the stomach and intestines is used. It is advisable, however, to abstain from intestinal lavage in the acute periods of follicular or dysenteric enteritis, as beside being painful, the injection of the fluid only increases the inflammation. To meet the second indication, the administration of purgatives is also advised, preferably calomel, although in follicular enteritis sodium sulfate and ipecac are preferable. Most of the intestinal antiseptics are harmful, although lactic acid given in small doses seems to contribute to the diminution of the fermentation. To combat the elevation of temperature he advises the use of baths at a temperature of 35° C.; for the colic, cold and hot applications are useful. Subcutaneous injections of artificial serum may be of use to combat the exhaustion of the tissues. If there is a tendency to lowering of the temperature below normal, hot baths should be employed. In convalescence the return to milk diet should be very gradual and cautious. Vegetable soup may be given as nourishment at first. At the end of 6 days or 10 days a return to a milk diet may be attempted. [J.H.W.R.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Operation for Appendicitis.—A. W. Mayo Robson³ describes his method of operating in chronic appendicitis and in interval cases. An oblique incision, three to four inches in length, is made in the usual situation, the external oblique aponeurosis is split in the direction of its fibers to an extent equal to the external incision, the fascia over the internal oblique is divided in the direction of its fibers, and the internal oblique and transversalis are then split in the same direction, so as when the margins are forcibly retracted a lozenge-shaped opening is made, with the peritoneum as its floor. The peritoneum is now opened, the cecum and appendix are located, adhesions, if present, treated, and so soon as the appendix is brought to the surface any protruding part of the cecum or colon is returned to the abdomen. The mesentery of the appen-

¹ British Medical Journal, February 4, 1905.

² Zeit. für Heilkunde, Bd. xxvi: Abth. f. Path. Anat., Heft 1, p. 67.

³ Deutsche medicinische Wochenschrift, 1904, xxx, 1561, No. 43.

¹ The Lancet, February 4, 1905.

² Journal des Praticiens, January, 1905, p. 17.

³ British Medical Journal, January 21, 1905.

dix is then seized with pressure forceps, divided, and ligatured. Several ligatures may be necessary. The root of the appendix, close to the cecum, is then seized with forceps and crushed, the forceps being taken off and applied at right angles, in order to make the crushing more complete, so as to leave only the peritoneal coat in the crushed portion. To this crushed portion of the appendix, close to the cecum, an ordinary thin catgut ligature is applied. A pursestring suture is inserted around the root of the appendix, the stump is invaginated, and the pursestring suture tied, burying the stump. The peritoneum is closed and two or three interrupted catgut sutures are applied to unite the separated margins of the internal oblique, and in like manner close the edges of the aponeurosis of the external oblique, and the skin wound is closed. Dry dressings are applied, and at the end of 10 days the patient may be out of bed upon a sofa. [A.B.C.]

The Clinical Effects of Anesthesia and Operations upon Anemic Patients.—H. T. Hutchins¹ studied the effects of anesthesia on 60 women, each showing a hemoglobin percentage of 50 or less; they received a general anesthetic for operative purposes, the duration of the anesthesia varying from 20 minutes to 3½ hours. Fifty-six of the patients had uneventful recoveries; 4 of them died. Severe heart lesions complicated 2 of these; in the third, the patient had already bled until her hemoglobin had registered 15%, and in the fourth case the anesthetic had been given for 2½ hours before the patient showed any signs of immediate collapse. Two patients only died on the table under the anesthetic. The worst shocked patient was one upon whom, with a hemoglobin percentage of 50, an ordinary suspension of the uterus and repair of relaxed vaginal outlets were performed, the operations consuming 1 hour and 7 minutes. The patients, as a rule, took the anesthetic well. There was no respiratory distress noted and in neither of the patients dying on the table was respiratory failure primarily the cause of death. Recovery from the anesthetic and the following convalescence were satisfactory in a great majority of the cases. In no case was it thought that the persistence of the anemia after operation was in any way prolonged after the anesthetic. Preliminary tonic treatment proved of value in raising the hemoglobin percentage in the six cases in which it was tried. [E.L.]

Richter's Hernia.—T. Warren Low² says this affection differs in its course and symptoms from ordinary strangulated hernia to some extent, and diagnosis is not always easy. It is therefore constantly overlooked in its earlier stages, and accordingly mortality is high. He is of opinion that the condition is not so rare as was formerly thought. Four cases have come under his observation within the past year at St. Mary's Hospital, London. These he reports in detail. All were operated upon, two of the patients dying and two recovering. Low states that in a paper read by Treves in 1886, he suggested that these partial hernias should be called after Richter, who had published a book on hernia in 1778, in which there was a chapter devoted to what he calls small hernias, among which were included these partial hernias. Treves likewise pointed out that in 1700 Littre had described a variety of hernia in which a diverticulum, evidently that now known as Meckel's, had escaped into a hernial sac, and it was obvious that Littre had not contemplated the variety of hernia now under consideration. The main facts recorded by Treves, as the result of a careful study of 53 cases, are that it is almost invariably the small intestine, which is involved, generally the ileum, and the area of gut wall strangulated is opposite the mesenteric attachment. It occurs more frequently in women and most frequently at the femoral ring; it only occurs in adults, and is more common on the right side. The four cases reported by Low were in women, each with a right-sided femoral hernia. [A.B.C.]

Catgut Sutures in Recent and Old Patellar Fractures.—Riedel³ maintains that surgeons do not hesitate to cut down on the patella and unite the pieces with silver wire when the fracture is in the lower part of the bone. He has never done this operation, and he does not consider it good surgery to

make either a transverse or a longitudinal incision, especially in those individuals who must kneel a great deal. If a normal functioning knee is desired Riedel believes side incisions alone should be made. He never allows a foreign body, as silk or silver wire, to remain in the neighborhood of a joint because they are liable to institute inflammation and suppuration. His ideal method is to unite the broken fragments with a subcutaneous suture of some absorbable material, such as catgut. After making a longitudinal incision 1 cm. (½ in.) long above the patella he introduces a needle armed with a long piece of catgut, passes it closely along the posterior surface of the bone, through the ligamentum patellae, and then out through the skin where the needle is disarmed. The needle wound is now enlarged to 1 cm. (½ in.) longitudinally, the needle is again armed with a piece of catgut and drawn back through the first incision. Now the needle is passed anterior to the patella from the first to the second incision and there armed with the projecting ends of catgut, and is drawn back and both sutures are tied in the upper incision. With this method the fragments are easily and properly brought together and the catgut is absorbed so that complication will not arise as result of the presence of foreign bodies. Then, too, the incision made will make insignificant scars. [J.F.]

Treatment of Inveterate Pruritus Ani.—Sir Charles Ball¹ states that cases in which itching of the anus is a prominent symptom may be conveniently grouped into three classes: (1) Those due to parasites, either animal or mycotic; (2) those resulting from dermatitis of the cutaneous portion of the anal canal and surrounding skin; (3) those in which the disease is essentially in the nerves supplying the affected area with sensation. Treatment of the first consists in removing the parasites. In the second no one treatment is applicable to all, and many medicaments may be tried before relief is afforded. It is the third variety that Ball calls particular attention to, especially in reference to its surgical phases. For this condition he advises operation. A curved incision is made on each side of the anus, including the entire ellipses, with the exception of a narrow neck in front and behind; these incisions are carried down to the sphincter muscles and the folds raised by careful dissection from the surface of the muscles around its anal margin and up the entire canal to above the mucocutaneous junction. All connections with the subadjacent tissue are divided, the pedicles in front and behind are undercut to a point well beyond the area of irritation, and the outer concave area of the edges is also undercut to a distance of a quarter inch. Bleeding must be completely controlled, and the flaps are then replaced and sutured, drainage being allowed at intervals. Three patients have been operated upon after this method with complete cure in each instance, though in one a secondary operation was required. The experience so far seems to prove (1) that the operation gives immediate relief, and (2) that superficial sensation may be restored without recurrence of pruritus. [A.B.C.]

The Treatment of Operative Injuries to the Thoracic Duct.—E. von Graff² cites a case and reviews the literature extensively. He believes that chylothorax occurring at or after an operation upon the neck is always due to an injury of the thoracic duct, although the accident only occurs when the operation has been upon the left side of the neck. Chylothorax occasions only transient disturbance of nutrition, although on account of the loss of blood at the time of the operation and the prolonged narcosis, the patient may die. The best treatment for this condition consists in suturing the injured duct immediately, if this is possible, or secondarily. Suturing of the thoracic duct of the neck is unassociated with any serious results. The treatment of chylothorax, when suturing is not practicable, consists in tamponing. [J.H.W.R.]

Gallbladder and Biliary Duct Surgery.—D. A. K. Stelle³ enters into a history of gallbladder surgery, the character of abscess, the symptoms produced, etc. He reports seven cases in detail, in each operation was performed. He agrees with Waring's indications for operation, which are as follows: (1) The presence of a tumor in the abdomen, which appears to be an abnormal, distended, and enlarged gallbladder; (2) the

¹ Johns Hopkins Hospital Bulletin, 1904, xv, 359, No. 11.

² The Lancet, January 23, 1905.

³ Arch. f. klin. Chirg., 1904, Bd. lxxiv, Heft 1.

¹ British Medical Journal, January 21, 1905.

² Wiener klin. Woch., No. 1, 1905, p. 10.

³ Annals of Surgery, February, 1905.

existence of jaundice, which is persistent, together with other signs and symptoms, which point to complete obstruction of the common bile duct or the common hepatic duct; (3) the occurrence of successive proximal fits of biliary colic, with short intervals between the individual attacks which are lowering the general health of the patient, inducing a state of general exhaustion, and are not amenable to medical measures; (4) symptoms of localized inflammation in the right of the gallbladder, which are associated with the occurrence of the attacks of biliary colic; (5) the occurrence of an acute peritonitis, which is probably due to perforation of the gallbladder, or only of the biliary duct, and escape of calculi and purulent matter into the peritoneal cavity. [A.B.C.]

Corneal Reflex the Most Reliable Guide in Anesthesia.

—H. Bellamy Gardner,¹ anesthetist to the Charing Cross Hospital, lays down two principles for guidance in the administration of chloroform, ether, or mixtures of these two. The rules are: (1) Keep the air-way clear; (2) never completely abolish the corneal reflex when any anesthetic drug is in course of administration. We require to know how deeply the patient is affected by the paralyzing action at any moment after loss of consciousness and during surgical manipulation. It is known that primary reflex actions are paralyzed one after another before the truly automatic reflex actions, examples of the latter being the respiratory in cardiac movements. The corneal reflex which is produced by touching the patient's cornea is one of the last primary reflex actions to become paralyzed. When this has been abolished the fourth stage of dangerous anesthesia has been entered, because the next centers to become paralyzed will be those automatically controlling respiration and cardiac action. Therefore, while some degree of corneal reflex can be elicited, a condition of overdosage is impossible. The proper method of eliciting the corneal reflex is to stand behind the patient and raise the margin of one of the upper eyelids by gently inserting the pulp of one finger only between the lids, then drawing the upper lid upward with the finger until the cornea is exposed, and the finger touches it gently, then the finger is suddenly removed. Both by feeling and watching the brisk, moderate, or slow responsive closure, the stage of narcosis is demonstrated. [A.B.C.]

An Early Case of Ulcer of the Stomach.—J. C. Bloodgood² reports a case of ulcer of the lesser curvature situated 4 cm. (1½ in.) from the pylorus, which was interesting because of the short duration of the symptoms, 3 weeks, and because of the difficulty of making a positive diagnosis even at the exploratory operation. Although the gross appearance and the findings on palpation were in favor of an ulcer, so many signs also pointed to scirrhus carcinoma, that a complete resection seemed justified. The operation is described in detail; in closing the stomach and in performing the end-to-end anastomosis between the stomach and duodenum 2 rows of sutures were employed, continuous catgut passing through all the walls, reinforced by interrupted mattress sutures of fine black silk. The abdominal wound was closed without drainage and the patient made a good recovery. The microscopic study of the mass proved conclusively the absence of all cancerous structures. The author urges the more frequent performance of this operation in doubtful cases, as should the case be one of carcinoma, this operation would be the only one to promise any relief, and in cases of ulcer, the patient being in good condition, the mortality for gastrectomy should be but little if any greater than that for gastroenterostomy. [E.L.]

Encysted Cerebral Abscess.—Peter Paterson³ states that a girl of 5 was suddenly taken with convulsions. For 2 years previously there had been slight discharge of pus from the right ear. On examination a red fluctuating swelling was present behind the right ear, and pressure on this increased the convulsive movements. Operation was immediately performed, the mastoid was opened and this was seen to be perforated by a small opening in the region of the mastosquamosal suture; the antrum and middle-ear were exposed. These formed one cavity owing to the destructive process. The parts were cleansed and properly dressed. The symptoms subsided, the child did well

until 9 weeks later. The temperature again rose and unconsciousness supervened with convulsions. A second operation was performed, the membranes of the brain were exposed and incised and at the depth of three-fourths inch from the surface, a tumor was encountered. It was believed to be solid, probably tuberculous. It was considered too deep and large for removal. The patient died the same day, and necropsy revealed a fluctuating tumor the size of a hen's egg adhering to the upper surface of the right petrous bone; it contained pus and had occupied the temporosphenoidal lobe. The striking features in the case were the toughness of the walls of the abscess and the absence of symptoms referable to the abscess, notwithstanding that the temporosphenoidal lobe in which it was situated, was destroyed to a considerable extent. [A.B.C.]

Periosteum Bone Flap to Cure Pseudoarthrosis and Cavities in Bone.—Von Mangoldt¹ maintains that if the bone to be repaired cannot furnish the pieces to be implanted, the material may be taken from another bone. In his cases he took the parts to be implanted from the anterointernal surface of the tibia, with a flat chisel, and where this instrument did not suffice, he used a MacCuen chisel. He notes it is better to measure in order to obtain a piece of the exact dimensions. The cavity is cleaned, so that no dead substance is present, and then the piece of bone with the periosteum, is implanted. By this method, he concludes, bone defects of all types can be repaired, and by its employment the surgeon need not depend upon the often insufficient and useless periosteum in the neighborhood of the defective or diseased bone. [J.F.]

Acid Intoxication: Its Significance in Surgical Conditions.—James A. Kelly² states that of 400 patients observed in the Boston City Hospital, symptoms of acid intoxication were present in 46. Of these acetone and diacetic acid separately, or combined, were found in the following conditions: 11 cases of appendicitis; 14 of contusions and fractures; 2 of gastric disease; 2 of sarcoma; 3 of severe lacerated contused wounds; 2 of localized septic processes; 2 of cerebral concussion, and 1 each of the following, salpingitis, suppurative spondylitis, floating kidney, fecal fistula, epilepsy, tuberculosis, cervical adenitis, burns, diabetic gangrene, hemorrhoids and alcoholism. The main symptoms in this condition are a marked sweetish odor of the breath, distaste for food, slight increase in bodily temperature, and in most cases vomiting. In his conclusions, he states that at present our knowledge of the conditions accountable for the symptoms and for the occurrence of acetic and diacetic acid in the urine is yet in its infancy. It has been proved experimentally that it is not due to acetone circulating in the blood, as the same condition has been produced experimentally by other substances. The amount of acetone found in the urine is no index to the severity of the case, whether the symptoms are due to toxic substances acting on psychomotor centers or due to pressure on these centers is not known. That there is some toxemia is almost certain whether it is due to the presence of food acid, to the rapid destruction of proteid matter or to the rapid elimination of alkalies is not known. The object of his paper is to call attention to the cause, especially to the conditions in which it exists in surgical cases, and to show that what has heretofore been considered a rare fetal condition exists, to a mild degree, in a variety of cases. [A.B.C.]

Congenital Deformities at the Knee.—John Ridlon³ states that congenital deformities at the knee are often called dislocations, but he does not believe that true congenital dislocation occurs at this joint. The congenital defects and deformities are slipping patella, displaced patella, elongated patellar tendon, in-knee, out-knee, flexed knee, hyperextended knee, and outward rotation of the tibia on the femur. He believes they are only instances of defective development of the embryo. Trusses and braces in the treatment of slipping patella have given no good results in Ridlon's cases. Hammering the outer condyle to stimulate subperiosteal development of bone was tried in two cases; one was successful, the other patient refused to submit to a second hammering. One case of congenital in-knee was corrected by forcible hand straightening and pro-

¹ British Medical Journal, February 4, 1905.

² Johns Hopkins Hospital Bulletin, 1904, Vol. xv, page 345, No. 11.

³ The Lancet, January 28, 1905.

¹ Arch. f. Klin. Chirg., Bd. lxxiv, 1904, Heft 2.

² Annals of Surgery, February, 1905.

³ Chicago Medical Recorder, January 15, 1905.

longed retention in a plaster splint. In one case of outward rotation of the tibia on the femur, both knees, the patient was 19 years old. Forceful correction was made, and the patient not seen for some days. Great swelling was present, and one leg had several pressure sores and was almost in beginning gangrene. The condition was finally cleared up, but sensation and motion did not fully return for more than a year. The case showed very clearly the danger of overstretching bloodvessels and nerves, but the final results were functionally good limbs. [A.G.E.]

Scrofulous Ulcers of the Legs (Bazini's Malady).—W. F. Summerville¹ quotes Jonathan Hutchinson's description of Bazini's malady as follows: "It is a name given to a manifestation of scrofula, occurring mostly in young women, in which multiple ulcers, the consequence of a subcutaneous and self-infective inflammation, occur on the legs, such ulcers being difficult of cure, prone to relapse, and presenting appearances very likely to be mistaken for syphilis." Summerville reports a case which he regards as an example of Bazini's disease; the ulcers, however, were present only on one leg, and in that particular did not agree with Bazini's description. The patient, a girl of 11, had six or seven punched-out ulcers of various shapes and sizes on the left leg, the largest being about three-fourths of an inch in diameter, and the smallest a fourth inch. The ulcers were gray, unhealthy looking, and discharged a thin serous fluid. Under complete rest in bed for several weeks, the use of tonics, and local applications of boric acid, the ulcers gradually healed. The patient then again enjoyed good health for six years, when nodules began to form in the region that had been affected six years previously. These eruptions broke down into ulcers, which were similar to those noticed first, the main difficulty being that the edges of the ulcers on the last occasion were hard, light and callous; there were seven in number, and the condition of the surrounding skin was that which was noticed in the former attack. The blue color was marked, the scars of the late ulcers were sharply defined as white patches. On this occasion, the treatment adopted in the former attack proved useless. Local applications and rest in bed, thorough scraping of the ulcers were tried, but without benefit. At this juncture the high-frequency electric current was applied and treatment continued for two and a half months. The patient made a complete recovery. [A.B.C.]

Multiple Primary Carcinomas of the Ileum.—Carcinoma of the small intestine is a comparatively rare lesion, as borne out by a number of statistics. C. H. Bunting² reports two such cases. The first, a male negro of 52, died of cardiac disease. At autopsy, the middle portion of the ileum was found to be the seat of six nodules, scattered over a length of intestine of about 50 cm. (20 in.). The nodules varied but slightly in size, and were situated beneath an intact epithelial surface. They were uniformly of a definitely carcinomatous structure, histologically, with apparent origin from the epithelium of the crypts of Lieberkühn. They showed some invasive tendencies, but there were no metastases in other organs. By exclusion and by direct evidence, the author proves the case to be one of multiple primary carcinomas of the ileum. The second patient, a man of 59, had symptoms of intestinal obstruction, with a palpable mass in the right iliac fossa. This was found to be an inoperable carcinoma of the cecum, with a second mass in the sigmoid flexure. At the autopsy, a tumor was also found in the ileum. All the masses were of the cylindric adenocarcinomatous type, with ulcerated surface, but without involvement of the peritoneum and without metastases in other organs. While not so certain of his ground in this as in the first case, still the author leans to the view that the three foci are independent primary foci. [E.L.]

Prevention of Appendicitis.—W. M. Harsha³ says the chief causes of primary local irritation which invite infection and hence appendicitis, are errors of diet, taking cold, fecal concretions, flatulent indigestion and constipation, trauma, and various infectious diseases of the intestinal tract. Cholera morbus ushers in many cases of appendicitis which are considered primary disease of the appendix. The consideration of

some of these items may be regarded as petty attention to details, but no one better than the surgeon knows the importance of such details in securing the best results. The individual case must be studied; in one it will be necessary to regulate the habits of eating, in another to cultivate immunity from colds or proper habits of exercise, while digestive disturbances require attention in others. During the past seven years Harsha has advised such measures as a preventive after an attack without operation; recurrence has not occurred in more than 20%, mainly in the young, while the consensus of opinion is that more than 50% of unoperated cases in general recur. [A.G.E.]

Hydatid Cyst Simulating Subphrenic Abscess.—J. Porter Parkinson¹ reports that a woman of 27 had suffered for 2 years from weakness and malaise, with frequent pains in the region of the left hypochondrium. About 9 months before being seen by Parkinson, a tumor had been discovered in the splenic region. On examination, Parkinson found a swelling extending from beneath the costal margin on the left side for a distance of 3 fingers' breadth; it was smooth, tense, semi-solid and extended from 1½ inches to the right of the median line to the left midaxillary line, ascending beneath the costal margin, at each extremity. The liver appeared to be of normal size and the spleen could not be made out. Subphrenic abscess seemed likely, and pancreatic cyst was considered a possibility. Abdominal section revealed a hydatid cyst situated in the posterior part of the left lobe of the liver, pushing the entire part of that lobe upward. Five pints of brownish fluid were evacuated; the fluid contained red blood-corpuscles, granular cells, crystals of cholesterol and debris; no hooklets were seen, but a portion of the cyst wall showed the structure characteristic of hydatid. The cyst wall was stitched to the abdominal wall, drained, and the patient recovered. It is probable that the ovum having penetrated the stomach wall and capsule of the liver, it developed in the nearest part of the liver which it reached, and was not carried away in the portal circulation as is usual when it develops in the right lobe of the liver. A similar occurrence in another patient is recited. [A.B.C.]

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN.

ALFRED GORDON.

EDITORIAL COMMENT

Tabes and Cecity.—The question of cecity during tabes is of considerable importance and it has been supposed that, clinically, blindness is a landmark in tabes, after which the disease progresses little or none at all, so that, according to this conception, when an individual develops a tabetic amaurosis, the manifestations of the primary affection will be spared them, and when a patient is stricken with amaurosis during the evolution of locomotor ataxia, the spinal symptoms will from this time on become attenuated. The so-called tabetic amaurosis has also its importance, because it forms a true clinical link between tabes and general paralysis. If one admits that general paralysis and tabes are manifestations of syphilis, differing only by their localization, the former acting on the brain and the latter on the spinal cord, it is readily understood how these two localizations may easily extend beyond their habitual domains. By extending downward, general paralysis can give rise to ocular symptoms and even spinal lesions, similar to those found in locomotor ataxia, from which the name of the tabetic form of general paralysis has been given. On the other hand, by extending upward, tabes may give rise to cerebral phenomena and from which arises a clinical picture of tabes complicated with general paralysis. This conception, which is of the highest clinical interest, has been recently developed by Léri in a very extensive work carried out in Marie's laboratory. These ideas, which are seductive to the highest point, are to a certain extent revolutionary, and consequently it should be pointed out that the work is

¹ British Medical Journal, February 4, 1905.

² Johns Hopkins Hospital Bulletin, 1905, xv, 389, No. 12.

³ Chicago Medical Recorder, January 15, 1905.

¹ The Lancet, February 4, 1905.

based on more than 45 personal observations, a number of which have been followed by necropsy. One of the first ideas developed by Léri is that the preventive action of cecity on the ulterior evolution of tabes is a simple myth, the amaurosis being due to a localization of the meningeal process in the optic nerves and nothing more. What is the real truth and what has led various investigators into error is the fact that syphilitic meningitis is endowed with a great diffusibility which is neither very marked and especially not very rapid. If the syphilitic process extends in the first place to the region of origin of the cranial nerves and partially sets up an amaurosis which is qualified tabetic and which would be quite as justly termed syphilitic, one can readily understand that the syphilitic manifestation may for a long time show amaurosis as an only symptom. But if these patients are followed for a long time it will be seen that the amaurosis in no manner prevents them from developing lightning pains and motor incoordination at a later date. The second point which is necessary to show in order to demonstrate that tabes, syphilitic amaurosis and general paralysis are merely three localizations of the same syphilitic manifestation frequently associated one with the other, is that amaurosis without tabes, amaurosis with tabes, and amaurosis with general paralysis always shows absolutely identical characters, and it is this point that Léri has demonstrated most thoroughly. The mental disturbances associated with the amaurosis are what frequently give rise to mistakes in diagnosis. The tabetic patient suffers fearfully from lightning pains and feels struck with impotency from the disturbances in his walk of which he is perfectly aware. Consequently the amaurosis of tabetics often appears as a painful amaurosis. Quite different is the mental condition of general paralytics who do not suffer and who on the contrary are in the classic condition of euphoria. The various amauroses, simple or accompanied by tabes and general paralysis, are consequently identical as far as the ocular lesion is concerned, and only differ by the spinal or cerebral symptoms which may become added to them. Amaurosis may consequently be considered as a perfect link between tabes and general paralysis, but what is most important is that clinically this link may be wanting in certain cases where meningeal syphilis jumps, so to speak, from the brain to the cord and reciprocally, sparing the eyes. One should no longer be in any doubt in dealing with these special cases and when the phenomena of general paralysis predominate accompanied by a rudimentary evidence of tabes it is proper to class the case as cerebral meningeal syphilis with meningomedullary syphilis and reciprocally.

Acute Myelitis.—No organic nervous disease has been so carefully worked out experimentally as acute myelitis. It is by no means a rare disease, and there are many published cases with autopsy, on record. Notwithstanding this fact, however, there exists today a great diversity of opinion among wellknown authorities as to the exact nature of the pathologic process which gives rise to the symptoms known as acute myelitis. Strümpel, Obersteiner, Bielchowsky, Dejerine, and others believe the process to be an inflammatory one. Marie has expressed the opinion that primary myelitis does not exist, and that it is always the result of an infection or an intoxication. Tietzen has expressed the opinion that the myelitic foci are the result of the cutting off of the blood supply, and Mager believes that the inflammatory change depends upon a primary disease of the bloodvessels. On the other hand, v. Kahlden states that degeneration of the spinal cord may exist without disease of the bloodvessels, as in other organs. Opinions might be still further multiplied were it necessary to convince the reader that this question is not yet distinctly decided, and that a unanimity of opinion is far from being a reality. With a view to deciding the

nature of the pathologic process of acute myelitis, Marinesco, Hoche, Bourget, Babinski and Charrin, together with numerous other observers have experimentally produced myelitis in guineapigs and rabbits. In the animals that died before the ninth or tenth day, the microorganisms were demonstrated. After this date no experimenter has been able to note the presence of microorganisms in the diseased foci. This is the probable explanation of the failure to find microorganisms in the spinal cord in autopsies upon acute myelitis in man. The staphylococcus, streptococcus, pneumococcus, meningococcus, influenza bacillus, bacillus of typhoid, colon bacillus, tubercle bacillus, lepra bacillus, beside blood from a case of infectious icterus have all been experimentally proved to cause acute myelitis. These observers found histologically the same conditions as are found in acute myelitis in man. The present status of the pathology of acute myelitis is as follows: 1. In acute myelitis the lesion most frequently found consists of necrotic foci, diseased bloodvessels, infiltration of round cells, the presence of small hemorrhages, destruction of the nerve elements, and the presence of granular cells, especially in the neighborhood of the diseased bloodvessels. 2. In a small number of cases there may be found degeneration of the nerve fibers and cells which do not seem to depend upon, and are not associated with an inflammatory process. 3. There are some cases in which both a degenerative and an inflammatory process seemed to be present. 4. A microorganism, the product of a microorganism or a toxin, is the cause of the process, whatever it may be.

Nervous Complications of Whoopingcough.—

The frequency of complications relating to the nervous system in whoopingcough is often overlooked by the general practitioner. No infectious disease—perhaps, even not excepting scarlet fever—has such serious complications, as far as the nervous system is concerned, as this disease. The most frequent complication—convulsions—is also one of the most serious and fatal. In addition to this, there may be also the development of psychoses, disorders of the cranial nerves, cerebral hemorrhages, involvement of the peripheral nerves, neuroses, and finally, serious lesions of the brain and spinal cord, such as encephalitis, meningitis, and degenerations of the cord. Recently important light has been thrown upon the pathology of the nervous manifestations of whoopingcough. Neurath¹ cited the pathologic findings in the brain and spinal cord of 25 cases of whoopingcough. He concluded that the inflammatory meningeal change was the cause of the meningeal and cerebral symptoms. A cell infiltration was found in the arachnoid, beside edema and small hemorrhages of the white substance. In June, 1904, John H. W. Rhein reported some unusual pathologic conditions, which were found in a case of spastic diplegia of gradual development following a severe attack of whoopingcough in a child. Scattered throughout the cortex, but especially in the paracentral regions, were small hemorrhages, but what was of greater interest, destruction of the perivascular spaces, which in many instances were crowded with a round-cell infiltration. There was also evidence of a descending degeneration in the motor tracts. In the peduncles, the pyramids, the internal capsule, and in the crossed pyramidal tracts of the spinal cord the nerve fibers were degenerated. We may have, then, as a pathologic basis of the nervous sequels of whoopingcough an inflammatory process, a degenerative process, hemorrhages of the small and large vessels, beside diseases of the peripheral nerves. The cause of these pathologic changes is with little doubt the result of a toxin circulating in the blood and originating in some microorganism, the identity of which has not thus far been definitely determined upon.

¹ Arbeiten aus den Neurologische Institut, Wien, 1904.

REVIEW OF LITERATURE

Juvenile Tabes.—J. Grinker¹ believes that only 20 genuine cases of this disease have been reported in the literature. He describes a case which occurred in a man of 25. The symptoms consisted of loss of the deep reflexes, unequal pupils, primary optic atrophy, bladder disturbances, girdle sensation, paresthesia, etc. Syphilis was proved in both ancestors and in all their children, and the patient showed the marks of syphilis on his person. The family history was distinctly neuro-pathic. The father was syphilitic, the mother developed tabes dorsalis, the first child developed mild lues, and during puberty, tabes, the second son died of general paresis, a daughter was syphilitic and exhibited symptoms of paralysis of arterial origin. The second case was that of a man of 55, in which no specific history could be determined. This case is called one of precocious tabes by the reporter. The symptoms began when the patient was 22 years of age, and consisted of sharp shooting pains. The course of the disease was exceptionally long, and he suffered from fragilitas ossium. [J.H.W.R.]

The Effect of Radium upon the Nervous System.—Heinrich Obersteiner² subjected the nervous system of mice to the action of radium for from 1 to 4 days. Most of the animals died, some within a day, others in 3 to 5 weeks. The mice in which the effect upon the nervous system was most severe were convulsed, paralyzed, ataxic and exhibited trophic changes. Hyperemia of the brain, spinal cord and meninges was observed in most of the cases. Not rarely small and large hemorrhages were seen in the brain, cord and meninges. Round-celled infiltration of the meninges was frequently observed. In a few cases the intracellular canal of Holmgren was not very clearly seen, and was changed to broad, clear tubes that could be followed into the dendrites in many cases. The nuclei of the nerve cells in the anterior horns of the cord were altered. The nerve fibers stained by the Marchi method were fairly normal, though occasionally there were more dark granules than in normal fibers. The epithelium of the capsules of the spinal ganglia was the seat of dark granulations. The endothelium of the brain vessels had undergone a fatty change. Changes in the peripheral nerves were also observed. Obersteiner was not convinced as to the cause of these changes. He suggested that possibly disturbance of the circulation might explain the changes in the nerve cells. [J.H.W.R.]

Neurofibrillar Changes and Insanity.—S. D. Ludlum³ studied the changes in the nerve cells by Cayal's method in a case of manic-depressive insanity and a case of paresis. The fibrils were absent in the cell bodies and many of the cells contained black pigment. The nuclei were filled with corpuscular bodies staining yellow and the nucleoli were occasionally crumpled. The changes were found alike in the cortex, medulla, and cord. The nerve cells of rats, which were exhausted by starvation and by continuous running and moving a squirrel wheel, were also studied. In the starved rat the cells showed fibrillar change, while in the second experiment only beginning change was observed. The author concludes that these experiments performed at the Friend's Asylum at Frankford prove an intimate relation between the neurofibrils of nerve cells and certain mental processes. The method he employed consisted of placing the specimen in a 2% solution of silver nitrate for 6 days at 35° C. It was then washed in water for 2 minutes and then placed in a 1% pyrogallol acid solution for 24 hours, washed again in water, and then in 95% alcohol, absolute alcohol, xylol, and paraffin. [J.H.W.R.]

Operation for Subcortical Cyst and Fibroma with Cure.—Max Schlapp and James Walsh⁴ report the case of a young man of 19, who three years after a traumatism to his head on the right side, developed Jacksonian epilepsy, disturbed muscular sense, complete astereognosis in the left hand, headache and vomiting. There was slight left facial paralysis, the speech became thick, the left arm almost entirely paralyzed and contracted, and there developed distinct loss of power in the leg. The muscle and tendon-reflexes on the left were exaggerated,

and Babinski's sign and ankle-clonus were present. Optic neuritis was found in both eyes. The patient was operated upon so as to expose the fissure of Rolando. A subdural cyst was discovered and evacuated. It was two inches long and contained within the cavity a pedunculated nodular tumor which proved to be a fibroma. This was removed rather readily. The patient recovered and was discharged four weeks after the operation. He returned to his work, which was that of driving a brick wagon, and seemed to have practically recovered completely. [J.H.W.R.]

Spastic Paralysis and Syphilis of the Cord.—F. X. Dercum¹ reports three cases bearing upon the question of the relation of syphilis to spastic spinal paralysis, and indirectly, to the question of Erb's form of spinal syphilis. The pathologic findings consisted of meningomyelitis in all three cases. Dercum, while admitting the existence clinically of Erb's syphilitic spastic spinal paralysis, denies the existence of a constant anatomic lesion. He agrees with those observers who look upon Erb's paralysis merely as a stage of syphilitic meningomyelitis, the pathologic basis of which is a transverse syphilitic myelitis. [J.H.W.R.]

A Rarely Described Family Nerve Lesion.—Maas² questions whether the two cases to which he refers can be classed with amyotrophic lateral sclerosis, since in this condition, as in spinal muscular atrophy, spastic symptoms are not present. With neural muscular atrophy, these cases have in common the time and situation of the onset, but the knee reflexes are preserved and spastic symptoms are not found in the neural muscular atrophies. The disease which Maas describes occurred in a boy and girl of the same family; the symptoms were identical in each, but a little more pronounced in the girl. The disease began with weakness in the lower extremities; the feet could be raised slightly, but the legs were dragged along as the patient walked with the support of a cane. The gait was uncertain, but neither spastic nor ataxic; there was present in the musculature of the thigh a fine tremor, an atrophy of the musculature of the legs and a bilateral pes cavus. Later, the upper extremities and the speech became affected. The knee reflexes were exaggerated, achilles reflex present, and upon many days there was present an ankle-clonus, other days it was absent. When lying upon the back, the patient could scarcely raise the legs, motion at the knees was less limited than at the hips. The muscles of the trunk were very weak; when the patient lies upon the back, the sitting posture cannot be attained without the aid of the arms. The joints of the upper extremities were free, movable, but the musculature was soft and flabby; supination and pronation could be accomplished only with difficulty. When the patient was asked to extend the fingers, they become flexed; the grip was greatly reduced; the thenar and hyperthenar eminences were atrophied. Upon protrusion of the tongue, a decided tremor was seen, the organ was wrinkled, but not atrophied. The function of the muscles supplied by the upper and lower branches of the facial was impaired. The masseters and the other muscles engaged in mastication were normal. Pain, bladder and rectal symptoms were never present. The left vocal cord was paralyzed in the boy, although there was impediment in the girl's speech; the cords showed no alteration. The intellect in the boy was normal, but defective in the girl. [J.F.]

Care of the Insane.—C. A. Van Der Beek³ says the condition, as well as the prognosis, in the care of the insane poor, is improved by removal to so-called State hospitals or asylums, but with the middle or wealthy class, he does not consider this the best method. He believes more can be done for the latter in their homes than in a large hospital, and their chances of recovery will be increased by keeping them away from a State institution. The subjects of conditions grouped under the general head of mental troubles should not be rushed away to a hospital, unless circumstances at home make it imperative, any more than are typhoid fever, or obstetric, or surgical cases. Along with this question of removal is the important one that

¹ Journal of Nervous and Mental Disease, December, 1904, p. 758.

² Wiener klin. Woch., No. 40, 1904, p. 1049.

³ Journal of Nervous and Mental Disease, 1905, p. 165.

⁴ Journal of Nervous and Mental Disease, December, 1904, p. 777.

¹ Journal of Nervous and Mental Disease, January, 1905, p. 1.

² Berliner klinische Wochenschrift, 1904, No. 81.

³ Buffalo Medical Journal, December, 1904.

the family physician can prevent or ameliorate cases of mental disease, if he has been trained in such a way as to recognize them in their incipency. For instance, many physicians see in the symptom-complex called neurasthenia nothing more than that name implies, yet it has been asserted that 50% of cases so diagnosed are in reality incipient cases of melancholia. [A.G.E.]

Mind-reading and the N-rays.—N. G. Kotik¹ begins by making strictly scientific experiments with a little girl and her father, who are professional mind-readers. The little girl can name almost any object or subject of which her father is thinking at the time. Having applied numerous strict tests to exclude fraud or illusion, and having demonstrated to other physicians the actual mind-reading performances of the child, the author attempts to give the undeniable facts a scientific explanation. He sees himself forced by the facts to the hypothesis that the process of thought going on in one brain may by some sort of induction evoke the same process in the brain of another person. This hypothesis of an occult energy emanating from the thinking brain, he fortifies by comparing the facts of mind-reading with the functions of the so-called n-rays, discovered by R. Blondlot, of France. Other scientists have shown that the animal body, especially the nervous system, emits these n-rays physiologically. Here the author finds a natural and completely rational explanation of mind-reading. The n-rays emanating from one person's brain strike the centers of speech in the brain of a second person and awaken the corresponding image, resulting in the "guess" of thought. It must be added that numerous experiments have dispelled the shadow of a doubt as to the child's actual ability of guessing her father's thoughts. Nay, she can to some extent guess the thoughts of strangers. The details of the article, though highly impressive by the ingenious and logical experimentation, must, of course, be omitted here, much to our regret. [L.J.]

Multiple Sclerosis.—From a review of the cases occurring in the clinic at Tübingen, P. Morawitz² concludes that multiple sclerosis is the most common organic disease of the cerebrospinal system, occurring in rural inhabitants. The classic form of multiple sclerosis, as described by Charcot, occurs comparatively seldom—in only 12% of the collected cases. Scanning speech was the least common symptom, occurring in only 12% of cases; nystagmus and intention tremor were found in about half the cases. The differential diagnosis between multiple sclerosis and hysteria is aided by the fact that the former disease is frequently characterized by ocular and sensory disturbances, by bladder involvement, and by changes in the cutaneous reflexes. [B.K.]

Tabes and Trauma.—C. L. Mix³ discusses the question of the influence of trauma upon the origin or evolution of tabes. He says it is not permissible to assert that cases of tabes, in which the initial symptom is fracture, are due to trauma. Examples of traumatic tabes secondary to wounds to the extremities, particularly the lower, do not exist; they are all cases of pseudotabes due to an ascending peripheral neuritis. Mix is inclined to say with Schmaus that to ascribe tabes to trauma is to give expression to our ignorance. That trauma can make tabes worse, or light up a latent case of the condition, seems to be affirmed by numerous reported cases. If trauma cannot be an absolute cause of tabes, it would seem that it could not have very much value, however, as an exciting cause. [A.G.E.]

Pseudomyelia Paraesthetica.—In 1894 Bechterew described a peculiar paralysis of motion and sensation due to lesions of the medulla and the adjacent cord region. Among other symptoms, the patient presented the following: He had a feeling of weight in his right foot, and it seemed to him that the leg was bent in the knee. He, therefore, frequently requested others to straighten the leg for him, although he could see that the leg was not bent at all. This phenomenon the author called "a hallucination of the muscular sense." P. A. Ostankow⁴ now reports a very similar case. His patient suffered from syphilitic meningomyelitis of the cervical cord and lower

medulla. The paraesthesia consisted in a feeling that all four extremities were flexed. Although the patient saw plainly that such was not the case, yet the sensation was stronger than reason, and persisted for weeks. [L.J.]

Hyperalgesic Areas after Pistol Shot Wound of the Head.—Wilms¹ calls attention to the painful zones on the right side of the neck, following the shot which entered at the glabella a little to the right of the median line. The area extended from a line drawn from the posterior end of the sagittal sutures to a point about 2.5 cm. (1 in.) to the right of the symphysis of the maxilla downward to the clavicle. He found a zone just above the middle of the area to be more sensitive than the remaining portions. The hyperalgesia remained unchanged until the fifth day when his sensorium became disturbed. The patient was not unconscious at the time of the shooting. At the autopsy the bullet was found to have passed horizontally through the frontal lobe into the lateral ventricle, and it was found in the posterior horn of this space. [J.F.]

Toxemia and Infections as Causes of Insanity.—F. Stephenson² emphasizes the value of eliminative and antifermentative treatment in the prevention of mental involvement in the class of cases named. Hot baths and lavage are excellent. A favorite prescription contains ox-gall, pancreatin, caffeine and colocynth. The diet must be regulated and potatoes are usually forbidden. A satisfactory daily allowance is two eggs, 225 gm. (7 oz.) of bread. Of the acute infectious diseases causing or preceding mental disease, grip is given first place, followed by typhoid fever, malaria, pneumonia, acute rheumatism and neuritis. The possibility of such complication of these diseases is to be borne in mind by the general practitioner, (1) to prevent the condition becoming chronic, and (2) to prevent patients being committed to institutions for the insane, when a few weeks skilful treatment at home or in a general hospital are capable of restoring them to a normal condition. [A.G.E.]

Transcortical Paraphasia.—Paraphasia is the name of a peculiar disturbance of speech consisting in the use of words which do not at all express the patient's thought. Such a patient will say "dog" when he means "water," and the like. At the same time the patient, if he still has control over the higher centers, knows full well that he is talking nonsense and will often correct his wild speech by means of appropriate gestures. Beside this ordinary form there is another one which W. M. Bechterew³ proposes to call "transcortical paraphasia." Here the patient, while talking at random, has lost all consciousness of his mistakes. He does not notice the senseless choice of words and does not understand that others are unable to fathom his meaning. Evidently in such cases the entire apparatus of speech is detached from the controlling influence of the higher centers, and this can only be due to a break in the communicating lines between speech centers and the highest centers of thought. Several case histories are appended illustrating this interesting disorder. [L.J.]

Dislocation of the Atlas.—J. H. Lloyd⁴ records a case of dislocation of the atlas in which the patient exhibited a marked resemblance to two others put on record some years ago in exhibiting the syringomyelic syndrome. Like the others, this patient received two severe injuries, the one consisted in his being run over by a cart, the other in a fall upon an icy pavement. Motor symptoms consisted of paralysis in the left upper extremity. There was loss of thermic sense in the right arm and forearm, and this sense was confused in the remaining parts of the right side. There was also analgesia of the entire right side from the region of the fourth cervical vertebra. Tactile anesthesia was nowhere present. A sensory disturbance that may possibly be of great significance was a distinct area of tactile anesthesia in the region of the distribution of the great occipital nerve of the left side. From the fact that this nerve comes from the second cervical which emerges between the atlas and axis, the involvement of this region when the skiagraph shows dislocation of the atlas is considered very significant. [A.G.E.]

¹ Obesrenie Psychiatril, August and September, 1904.

² Deut. Archiv. f. Klin. Med., Bd. lxxxii, p. 161.

³ The Chicago Medical Recorder, November 15, 1904.

⁴ Obesrenie Psychiatril, September, 1904.

¹ Berliner klin. Wochschr., 1904, No. 36.

² Buffalo Medical Journal, January, 1905.

³ Obesrenie Psychiatril, September, 1904.

⁴ American Journal of the Medical Sciences, November, 1904.

American Medicine 377

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 10.

MARCH 11, 1905.

\$5.00 YEARLY.

A Reserve Medical Corps for the United States Army.—Under this caption Major Azel Ames, formerly acting assistant surgeon in the United States army, and brigade surgeon of volunteers, contributes ¹ a very pertinent discussion of the needs of the medical department of the army. He rightly insists upon the undesirability of the present acting assistant, or "contract" surgeon; this nondescript position, to the occupants of which little is given, but of whom much is required, we all wish to see abolished. Major Ames would organize the medical department of the army upon the "three line" basis, consisting of the staff of the regular army, the militia, and the reserve corps. The last should consist of 2,000 to 4,000 physicians, chosen by a board, with the rank of first lieutenant and receiving the pay and emoluments of that officer when upon active duty. An army medical school to instruct the reserves in military surgery and hygiene would be a necessary part of the plan, but the attendance upon this school of all the members of the corps would be impracticable, if not actually impossible.

The correspondence method is suggested by Dr. Ames to obviate this difficulty, the only part of his general scheme with which we are not favorably impressed. To be sure, instruction by this method would, in some respects, be better than no instruction; in others we fear it would be worse, engendering a feeling of fitness that did not exist. Major Ames, in no uncertain language, states his opinion of the army medical legislation now before Congress, his chief objection being to the creation of an unlimited reserve corps to be appointed essentially by one man, the Surgeon-General. In addition to this there is no provision for special education of the reserves, in his view, a most essential feature. Whether or not one is disposed to agree with all the suggestions and criticisms in the paper of Major Ames, it ably places before the profession a subject that is of national importance.

Much ado about nothing must be the verdict of the judicious with regard to Dr. Osler's now famous pronunciamento concerning the value of the older men in professional life. And not only in professional life, but in all intellectual and administrative functions, for

¹ Journal of the Association of Military Surgeons, February, 1905.

—according to the text of his address, delivered February 22, and published in full in the *Baltimore Daily News* of the same date,—the valedictorian, and inferentially confessed valetudinarian, expressly extends the terms of his propositions and of their applications to "commercial, political, and social life." In the fact that the address received its first publication in the columns of a daily newspaper lies naturally an explanation for a large amount of the attention it received at the hands of the press. The circumstances, the occasion, and the treatment of the theme, conspired to make the matter entirely too personal for any save the most delicate handling by the medical and scientific publications. It was personal as regards the speaker-critic; it was personal as regards the men of Johns Hopkins University; it was personal as regards the personnel of Oxford University; it was especially and violently personal as regards every one of us, whether past sixty or hoping to attain that age. With the apparent callousness of the utterance, every wounded sensibility writhes and every penny-a-liner from dignified leader writer to cartoonist feels justified in the *tu quoque*. From the phrase "it passes my persimmon" to the flippant naming of "man midwives" the elders who supposedly have but one function, the address gives the impression of a *tour de force*, neither in conception nor literary finish to the standard of its author.

Pelion on Ossa of illogicality must be the next conclusion of the thinking reader. There is a tremendous exaggeration of the relative proportion of energizing, constructive, and administrative work done by those under 40, and a like depreciation of that of the elders. The critics of the critic have abundantly shown this. There is a similar lack of discrimination in stating the true function of the elders. In one sentence only is this alluded to, and here it is implied that they may act as the scorned "man midwife" in the labors of the young discoverers. But there is not a hint of recognition or criticism of the fact that in the past this man midwife has been usually guilty of infanticide—a crime surely worthy of even extended consideration! The younger teachers are advised to take up a peripatetic life among the institutions, yet the corollary that to afford the opportunity for this the despised elders must take lower and less desirable offices in poorer and smaller

colleges is most conspicuous by reason of Dr. Osler's contrary action. Are not the vast and manifest advantages left out of the count which accrue from permanency and systematization of work under continuing hands? Medical schools, hospitals, and all institutions are advised to rid themselves of men over 40, and the persiflage of "chloroforming sexagenarii" surely hit the bull's eye of publicity. Who would dream of taking either suggestion seriously? And in such improbable event, who are to pronounce sentence? The elders, hopeless relics of outlived vitality, or those whose 40-year limit is still in the future? And how enforce submission to chloroform or the milder back shelf, of those who may be "60 years young" or old? And should this be a suicidal duty or a legal necessity? What a message from the condemned "spirit of Young America" to Old Oxford, "the home of lost beliefs and defeated causes," which, according to this modern Democritus, showed but sorry wisdom in calling one so near the age for euthanasia! Each one of us, of course, is an exception to the rule that we are useless after we have satisfied our ambitions either in years or peripatetics. As of old, *Exceptio probat regulam*.

Professional Ideals and Materialistic Selfishness.—A literal carrying out of this jest-earnest proposition would mean the abandoning of much that has been most worth while in professional advance. If, with the raising of all professional standards, the period of preparation for practise is lengthened and the fructifying and harvesting periods lessened, why should the physician strive to be also the finished scholar and gentleman, since such raising of ideals must the more surely mean the less of recognition? Shall we consider some form of advertising calculated to gain the speedier upbuilding of practice, ethical? And how win confidence and attain fame if our patients will wonder whether we believe in the removal of the sexagenarian, and doubt our earnestness to save life by every possible effort? Why strive to increase the period of life expectancy by searching for and removing the causes of disease, since the result of such work would merely mean the condemning to death or retirement healthier and "younger" men? Why strive for and advocate that temperance and purity of living which fends off the old age of decay, if that retained youth, that sanitary achievement, is to be terminated at some arbitrary age period? Not all of Medicine is embraced in Diagnosis and Pathology—these are but handmaids to the greater Treatment with its end of saving or prolonging life.

The American Medical Association Council on Pharmacy and Chemistry.—In other columns we reproduce the announcement made by the editor of the *Journal of the American Medical Association* and the council of the Association. Primarily, the movement pertains to the regulation (acceptance or rejection) of advertisements in the *Journal*, but it is easy to see that it has a far wider scope and must interest every medical journal, and indeed, every physician in the United States. The *Journal of the Association*, with its immense resources, as well as by its function as the official organ

of the largest medical organization, is fitted for and capable of undertaking the task, which by reason of those same qualifications, becomes in a way its duty. In this case, surely, it is better late than never, and if the work is done well and honestly one can only say to it Amen! The announcement is that the functions of the Council are more than to judge of advertisements in one journal, for it "will pass on preparations, whether offered for advertisements or not, and those which are approved will be incorporated in the book, 'New and Nonofficial Remedies.' The need of a book of this character cannot be questioned. It is demanded in the interest of honest pharmacy and chemistry, but, above all, by physicians who need a work to which to refer for information regarding the character, reliability, etc., of the various preparations mentioned in medical literature, and brought to their attention in various ways, as well as to assist them in separating the secret nostrums from preparations which are honestly made and ethically exploited, and which are worthy of their recognition." One of the points chiefly to be commended as to the plan is that it encourages the ethical preparations in an indirect but still positive manner, while its disapproval of the inethical is purely negative. It simply does not accept. With the decisions of the Council motivated upon strictly professional considerations, the way is at least prepared for a final solution of the old and tormenting problem of the stand as to nostrums and proprietaries. Therapeutics does not enter into the concern of the Council, so that there will still remain a part, though we believe a small part, of the ancient difficulty—that with the secret remedy which may have some special therapeutic value. The limitation of the time in which a copyrighted name and secret formula may be legally allowed will lessen this somewhat remote scandal.

Plato's Opinion on the Adaptability of Woman for the Medical Profession.—The question whether women are naturally well-suited to study and practise medicine is still one of perennial interest among a certain class of men and although no one in this country now disputes this right of a woman, the question of her adaptability seems likely to be discussed to the end of time. Probably few of us realize how long this has been a burning question and no doubt few would be inclined to seek an opinion on this subject in the writings of Plato. However, in this as in many other matters of general interest at the present time, Plato's opinions were positive and are still worth hearing. Those who are interested are referred to the fifth book of the "Republic of Plato," in which he is discussing the scheme for constructing a state and it has been granted him by his interlocutor that every individual therein ought, in accordance with nature, to do only the work which belongs to him. There is likelihood of a quibble on the question of what men are of a suitable nature for certain employments and he says among other things that the question may arise in some minds whether bald and long-haired are of the same or of opposite natures, and after admitting the latter to be the case, we may say that if bald men make shoes, long-haired men must not be suffered to make them.

This he condemns as ridiculous and demands that we apply the test of mental qualification only. He then raises the question whether the nature of the human female is such as to enable her to share in all the employments of the male, or whether she is wholly unequal to any, or equal to some and not to others. He says in almost every employment one sex (the male) is vastly superior to the other, but there are many women, no doubt, who are better in many things than many men; but, speaking generally, the opposite is true.

I conclude then, my friend, that none of the occupations which comprehend the ordering of the state belong to woman as woman, nor yet to man as man; but natural qualities are to be found here and there in both sexes alike; then as far as her nature is concerned, the woman is admissible to all pursuits as well as the man, though in all of them the woman is weaker than the man.

Precisely so.

Shall we then appropriate all duties to man, and none to woman?

How can we?

On the contrary we shall hold, I imagine, that one woman may have talents for medicine and another be without them.

Further on he says then we shall have always to select naturally qualified women to share in the life and official labors of the duly qualified men, as soon as we find that they are competent to the work, and are of kindred nature with the man. This opinion would scarcely be entirely accepted in most of the countries of the civilized world even today. Within the memory of some women it would have found favor with but few men in this country, but the world is slowly catching up to Plato and a considerable number of both men and women now admit that some women may not only have talents for medicine, but that it is very desirable that these should use them, especially in the care of other women in our insane asylums, prisons, hospitals and other institutions for the care of women and children.

Pasteurized versus Raw Milk.—Adverse comments regarding the qualities of pasteurized milk are occasionally heard, but do not appear conspicuously to interfere with its widespread employment. Recently the process, at least as publicly carried out, has been quite severely arraigned. At the meeting of the Pathological Society of Philadelphia, on February 23, papers on various phases of this topic were read by Drs. Bergey, Pennington, and Evans. From laboratory experiments Dr. Bergey concludes that pasteurization, by destroying the lactic acid bacillus, removes the most conspicuous means of indicating to the consumer, changes which render milk unfit for use. Bacterial examination appears to be the only reliable means of determining the condition of milk so treated. Raw and pasteurized milks were found to contain 1,260 and 12 bacteria, respectively, but at the end of 72 hours the numbers were 17,000,000 and 148,000,000. Dr. Pennington inspected the pasteurizing plants of Philadelphia to determine if the pasteurized milk sold in the city is better or worse than it was before undergoing that process. Bacteriologically it is decidedly worse. Pasteurizing brings bacteria within a safe limit, but, as shown by examinations at various points in the process, by the time the milk is cooled and bottled it has again acquired a high bacterial content.

The milk, when bottled at the best and worst of the plants, contained respectively 744,000 and 2,880,000 bacteria; 24 hours later the figures were 785,000 and 45,900,000. Raw milk, as it came from two dairies supplying the pasteurizing plants, and from three others, all governed by rules of the Pediatric Society, gave as the average of the five a bacterial content of 5,276; at the end of 24 hours, 114,572. These figures are decidedly in favor of raw milk. Dr. Pennington concludes that pasteurizing, as conducted by city plants, destroys bacilli that are of value in the milk, and substitutes therefore bacteria from unclean bottles, corks, and city dust. Dr. Evans' experiments indicate that raw milk exerts a slightly inhibitive action upon bacterial growth, this being decreased proportionately to the degree of heat to which milk is subjected.

Shall Pasteurization be Discontinued?—The result of these investigations makes it appear that certain generally prevailing ideas regarding pasteurized milk need to be considerably modified. The first and last studies are in line with, or are elaborations of, previous findings, but those detailed by Dr. Pennington are distinctly in the nature of a revelation. They tend rather rudely to jar the sense of security felt by physicians and laymen in recommending pasteurized milk to the poor of our cities. Daily papers continuously sing its praises, and physicians lend their aid by published interviews and by prescribing. Are all these wrong? In discussing the papers to which we have alluded, one speaker said if the conclusions were just, pasteurization of milk could not too soon be abandoned. This may be perfectly true, but at the present time, at least, we are not ready for such sweeping action. That pasteurization does not materially alter the nutritional value of milk is quite generally accepted, and its power in reducing the bacterial content is evident. The need, then, is for greater care in handling the milk after subjecting it to this process. Pasteurizing plants and their product must be regularly inspected and the work throughout kept at an unimpeachable standard. Pasteurized milk, as suggested by Dr. Bergey, is in the house to receive greater care than is given to raw milk. Consumers are to be impressed with the fact that it is not a perfectly preserved product, and cannot be kept indefinitely. In short, these valuable investigations are eye openers in showing that only by unceasing vigilance in technic and due regard for the limitations of the process, can the theoretic value of pasteurization be practically attained. As such, they are timely and of great value. A very instructive addition to this work would be the bacteriologic examination of pasteurized milk as prepared at home by intelligent housewives.

"Strictly Ethical."—The physicians of Providence, R. I., are receiving the following letter, sent to them by a pharmaceutical manufacturing company of another city:

DEAR DOCTOR:

There are a few physicians in Providence that have not taken advantage of our recent, liberal, profit sharing offer, and we regret to say that you are one of them. This ought not to be so. The plan should appeal to you, as nothing is asked of you but what is strictly ethical, namely, prescribe our prepara-

tion whenever indicated only when you believe it to be equal or better than any other similar preparation. See that your patient gets the genuine article, keep a memorandum on the blank sent you, and when full, sign and send to us, receiving in return our check for \$10.00. A very simple matter, and as one physician wrote us, after having received several such checks, "your plan is a good one and ought to be productive of good returns both to the company and to the physicians." We agree with him. Do you?

Hoping to hear from you, we remain,

Fraternally yours,

P. S.—If you don't know our preparation, a sample bottle will be sent you for the asking.

Secret commissions are therefore to be held highly moral, and "graft" is ethical. The query arises as to the number of physicians who agree with the *fraternally yours* business firm that this practice is "strictly ethical." It would seem that the number is sufficiently large to make it "pay." To the company and physician this secret commission may be productive of good returns, but in the minds of "old fogies" the company and the physician exist only for the production of "good returns," to the patient. What also must be the profits on drugs that yield "good returns," after advertising bills are paid to both the manufacturer and the doctor!

An offer of a commission of "\$100 worth of Burial Materials and Funeral Services" has been sent to the physicians and clergymen of New York City by a particularly enterprising undertaking firm. On the back of the "elegantly" lithographed certificate, entitling the holder, etc., is the following:

"BURIAL MATERIALS"

applies to the casket and outer box only.

"FUNERAL SERVICES"

to burial permits, washing, disinfecting and embalming, the body only.

THE "ONE HUNDRED DOLLARS"

may be used optionally for "Burial Materials and Funeral Services" both charged at no advance of regular prices or given as a credit for a higher grade casket if desired.

THE HOLDER OF THIS CERTIFICATE

has privilege of funeral chapels, parlors, marble vaults, etc., gratis.

THIS CERTIFICATE IS NON-TRANSFERABLE,

and has value only when presented before January, 1910, with order for burial of Certificate holder (death occurring within 400 miles of New York) but continues to entitle the holder to liberal discounts on funeral of any member of family recommended and deserving cases, etc.

This Certificate is issued in appreciation for past courtesies and its acceptance is respectfully requested in the spirit of its presentation.

Sincerely,

Help in "Landing" Patients.—The following letter was recently received by one of our subscribers, who sends it to us "as an instance." The confidence man is evidently hastening to turn physician and sanatorium specialist, and will at your pleasure "handle any therapeutic line" you call for:

Dear Doctor,

It is with a desire to interest you, and benefit both that we address you.

We have a proposition that we hope to interest you in and ask you to give us a moment of your time.

You can be of great help to us and at the same time enrich yourself.

We are aware that Physicians are called upon to treat cases that become chronic, and require appliances and means that cannot be employed in ordinary practice, hence the case passes out of your hands and to some Sanitarium, and is a loss to you as far as revenue is concerned.

You are recommended to us as a leading Physician your City. We want such an one as a representative in every town in Ohio.

We enclose you some of our blotters which will give you an idea of the scope of our work, and if we succeed in enlisting you, we feel quite sure that the remuneration you will receive will surprise you.

Our fees are as reasonable as can be obtained at any like institution in the state.

If you care to embark with us in this enterprise, send us a list of prospective patients, and their maladies, and we will start after them with literature, and render you all the assistance within our power to land them.

Hoping to hear from you in the near future, we are yours Very Truly.

Sanitarium Co.

Three courses at an ophthalmic college are offered in an advertisement inserted in the columns of a dignified medical journal published in a neighboring city. One of these courses is described as being for opticians, one for refraction doctors, and one for physicians. It would seem, therefore, as if there were three kinds of ophthalmology, nicely adapted to the special needs of three kinds of scientists. One would like to learn just what kind of a doctor it is who is called a "refraction doctor," and how he differs from a "physician." And, as the opticians in the State wherein is located this "ophthalmic college" are making strenuous efforts to obtain legal permission to practise medicine without having studied medicine, the further question may be asked as to what constitutes an optician doctor. These three, the optician doctor, the refraction doctor, and the physician doctor, but which is preferred by the publisher and editor of "our esteemed contemporary" which accepts the advertisement of the "ophthalmic college?"

Awards for Medical Research.—At a sitting of the Paris Académie de Médecine held on December 14 the names of the successful candidates for the various prizes offered for medical researches of one kind or another were announced. The Audifred prize of £960 for the best work on tuberculosis was not awarded. The Baillarger prize for £80 for researches on mental diseases was awarded to Dr. Paul Sérieux for a series of reports on the treatment of insanity and the organization of asylums. The Adrien-Buisson prize of £420 was awarded to M. E. Leclainche, professor in the Veterinary School of Toulouse, and H. Vallée, professor in the Veterinary School of Alfort, for researches on symptomatic anthrax and gangrenous septicemia. The Campbell-Dupieris prize of £92 was awarded to Dr. J. Tissot, of Paris, for an experimental investigation on the exchange of gases in the arterial blood, the ventilation of the lungs, and arterial pressure during chloroform anesthesia. The Daudet prize of £40 was awarded to Professor Monprofit, of Angers, for a memoir on tumors; to the same surgeon also fell the Huguier surgical prize of £120 for essays on the surgery of the ovaries and fallopian tubes, and on salpingitis and ovaritis. The Theodore Herpin (de Genève) prize of £120 was awarded to Drs. P. E. Launois and Pierre Roy, of Paris, for a biologic study of giants. The Jacquemier obstetric prize of £68 was awarded to Dr. Bouchacourt, of Paris, for a series of memoirs on the application of radiography to midwifery; while Dr. Briquet, of Nancy, gained the Tarnier prize of £120 for a work on tumors of the placenta. The Laborie surgical prize of £120 was awarded to Drs. J. Hennequy and R. Loewy, of Paris, for a monograph on the treatment of fractures of the long bones. The Louis prize of £120 was awarded to Dr. Victor Balthazar, of Paris, for a memoir on the serum therapy of typhoid fever, and the Saintour prize of £172 to Drs. Fernand Bezançon and Marcel Labbé, for a treatise on hematology.

AMERICAN NEWS AND NOTES

GENERAL.

Eddyism Amenable to the Law.—Information from Columbus, Ohio, under date of February 28, says: The Supreme court today held that the practice of Christian science comes within the scope of the State medical law. O. W. Marble, the defendant, had been found guilty of taking a \$5 fee for practising Christian science at Sandusky. The Circuit court had held that what he did was not the practice of medicine.

Bars Boric Acid.—Secretary Wilson has issued a notice to importers announcing that further importations of egg products in a dry state, preserved with boric acid or with other preservatives, with the exception of salt, sugar, vinegar or wood smoke, will be regarded as a violation of the provisions of the existing law. The notice says that refusal to admit such importations will not be requested of the Secretary of the Treasury on invoices consulsated prior to January 21, 1905.

Health Conditions on the Isthmus.—Dr. Charles A. L. Reed, of Cincinnati, a member of the joint commission appointed by the United States and the Republic of Panama to adjust property values in dispute between the two countries and who has just returned from the isthmus, said recently that in his opinion the sanitary conditions in Panama are being improved as rapidly as could be expected under the circumstances. There has been more or less delay in some direction, but this, the doctor believes, is due to nonarrival of necessary construction material which has been ordered in the United States. While there has been considerable yellow fever on the isthmus, Dr. Reed said that the health authorities apparently had the situation well in hand when he sailed from Colon recently.

Patent Medicines Barred from Cuba, Technically not Actually.—It is stated that diplomatic exchanges with Cuba have prevented disclosure of the formulas of all American patent medicines marketed in the island. The death of several ignorant persons, traceable to overdoses of certain patent medicines, caused the Cuban Government to resurrect an old Spanish law requiring that the formulas of every patent medicine be printed upon the label of the bottle in which it is sold. Manufacturers of American medicine at once foresaw loss of the secrecy heretofore protecting their product. On representations through the State Department it was finally agreed that the revised law should operate simply to the extent that patent medicine formulas should be filed with the Cuban Government and by it kept secret.

Congress and Animal Diseases.—President Roosevelt has transmitted to Congress a message indorsing measures pending before Congress intended to prevent the spread of contagious diseases of animals from one State to another or to foreign countries. The message points out that the right of the secretary of agriculture to regulate the interstate movement of animals exposed but not actually diseased, must be recognized if the spread of such diseases is to be prevented. He urges that the proposed remedial legislation be enacted into law before the adjournment of Congress. Two bills, each designed to cure defects in existing law, are now pending before Congress. The President points out that if the Supreme Court should decide in cases pending before it that the present law does not empower the secretary of agriculture to regulate the interstate traffic in animals, serious, widespread, and irreparable injury will be caused to the live stock interests of the United States.

Sanitary Conditions in Cuba.—According to Public Health Reports, Acting Assistant Surgeon McMahon reports, under date of February 4, as follows: I have visited the hospitals of Cuba and found all of them very clean, but all of them need better sewerage systems. The jail, situated within the city limits, and usually containing about 200 people, is very clean, and no fault can be found about this building. The food served to the occupants is plentiful and of good quality. The water-supply is still inadequate and of poor quality. Just now there are many dry cisterns, and families that have always used cistern water will have to use the aqueduct water. This water, as heretofore reported, is of poor quality. No steps have been taken to secure a sewerage system, and without outside assistance the municipal government cannot construct a sewerage system. This port is still without a quarantine station, and passengers arriving here from infected ports are detained on board of the disinfecting barge. The provincial health authorities have recently called attention to the general unsanitary conditions existing about sugar estates in this province, and a general cleaning up is going on on these estates. I have visited two of these estates situated near this place, and can say great improvements are being made.

Food Adulteration.—In a recent address delivered in Philadelphia to the Retail Grocers' Association, Dr. Wiley, chief of the Bureau of Chemistry at Washington, advocated a national law requiring that all food products be branded with the place of manufacture, a truthful description of their contents, and that they contain no substances injurious to health.

He said: "A national law would have the effect of molding the numerous State laws into harmony. Under present conditions a manufacturer is injured by the multiplicity of State laws. It frequently happens that he must provide different labels for the same product sold in different States, entailing needless expense and annoyance. A national law such as is pending in Congress would also protect the retail dealer. Under its provisions the dealer would be absolved of responsibility for the goods he sold, if he received a guarantee as to its contents from the manufacturer. There is considerable misunderstanding of the purpose of the department in seeking food legislation. It is not to restrict trade, but to help it. The primary purpose is to have all foodstuffs sold under truthful labels, and to be what they are represented to be. When I ask for whisky I should get whisky, not a compound of alcohol, prune juice, cologne essences and caramel. The same thing should hold true of other products."

New United States Hospital Building for Rock Island Arsenal.—The war department officials have had under consideration the project of a new hospital building at the Rock Island, Ill., Arsenal. General Crozier, army chief of ordnance, reports that the present structure is "so old and so uninhabitable as to be a disgrace," that it could not be used at all; that those requiring treatment should be taken to one of the two adjacent cities; that some adequate hospital accommodations should be provided for the 100 enlisted men stationed at the place, as well as for the 2,600 workmen employed in the plant. He is in receipt of an estimate and plans for a new hospital to cost \$20,000, added to which he has received the following memorandum from the surgeon-general of the army on the subject: It appears that Rock Island Arsenal has a garrison of 6 officers and about 100 enlisted men of the ordnance, who are entitled to medical and hospital treatment. This is about equal to a one-company post, of which there are at present 19, each having its own hospital. There is, however, an additional reason for the construction of a hospital with first-class surgical facilities at this post. About 2,600 workmen are employed, and, as there is much machinery, severe accidents are frequent. Under the regulations these men are entitled to medical treatment and to admission to a military hospital when no other is available.

EASTERN STATES.

A medical library has been established by the Atlantic City Academy of Medicine, and this society has entered into an arrangement with the Atlantic City Free Public Library, by which a room has been set apart for its books and periodicals. These will, however, only be given out to members of the academy and their friends, as it is deemed unwise to allow the public free access to medical books. Physicians visiting Atlantic City will be extended every courtesy the library can offer. Contributions on medical subjects will be gladly received, and may be directed to Dr. Wm. Edgar Darnall, president of the academy, or Dr. Philip Marvel, chairman of the committee.

NEW YORK.

Donation to Ear Clinic.—A gift of \$25,000 by Frank Tilford to the Manhattan Eye, Ear and Throat Hospital was announced recently.

Cerebrospinal Meningitis in New York.—The Board of Health has taken cognizance of the great spread of cerebrospinal meningitis within the last year, and Commissioner Darlington has been empowered to ask the Board of Estimate and Apportionment for a small sum to pay a commission to investigate the matter and try to find some remedy, or to retard and if possible, stamp out the disease. In January, 1904, there were 25 deaths, while in the same month this year there were 107. In February, 1904, there were 26 deaths, while in February, 1905, there were 149.

A Hospital Kindergarten.—A hospital kindergarten has been opened at Bellevue by the Board of Education for the convalescent children there. Every afternoon aches are forgotten, and fretfulness is chased away by kindergarten occupations and games adapted to the condition of the children. The Bellevue kindergarten is the first one of this sort to be supported by the Board of Education, but there have been two or three experiments in other hospitals under the auspices of the New York City Kindergarten Association, and the Hebrew Sheltering Guardian Society.—[Charities.]

PHILADELPHIA, PENNSYLVANIA, ETC.

The Philadelphia Polyclinic.—A special week in diseases of the eye will be held at the Philadelphia Polyclinic from April 3 to 8, 1905, during which a special effort will be made to present an interesting series of lectures, demonstrations, and operative cases.

Gift to Home for Colored Cripples.—The sum of \$10,000 has been given by a donor, whose name will not be made public, as an endowment fund for the chapel connected with the House of St. Michael's and All Angels for Young Colored Cripples, at Forty-third and Wallace streets.

Urges that Tuberculous Cases be Reported.—The officials of the Bureau of Health have mailed to every practicing physician in the city a circular letter requesting that all cases of tuberculosis be reported. It says: "Cases of tuberculosis are not regarded in the same light as are those of the acute transmissible diseases. They are not, therefore, subjected to the same official supervision. Nevertheless, for the protection of the public health, it is essential that cases of tuberculosis be kept under sanitary supervision. For the information of the Board upon this matter, you are requested to fill out the inclosed blank and forward it to this office. The names and addresses of patients with tuberculosis reported to this office are matters of official record, and will, under no circumstances, be made public."

Milk Exchange Drafting New Bill.—A bill regulating the production and selling of milk especially, and, at the same time, forming a part of the general pure food laws of the State, has been introduced in the Legislature at the request of the Philadelphia Milk Exchange. It is admitted that the primary object of the pure food laws must be the protection of the public health, but the milk representatives argue that there are sound reasons why the milk supply should be governed by a special code of regulations on account of its perishable character. The English law on milk supplies is cited, which provides for a part of the samples or such requisite information being given to the seller immediately upon completion of purchases by the Government's agents. It is suggested that a warranty from the farmers or dairymen as to the purity of milk supplied dealers should be accepted by the Food Commissioner as absolving the latter from legal penalties, provided that, as in England, the proof of wrongdoing on the part of farmers or dairymen must be furnished by the dealer.

The Pennsylvania Act Creating a Department of Health and Defining Its Powers and Duties.—According to terms of the act, the Department of Health shall consist of a commissioner of health and an advisory board. The advisory board to consist of six members, five of whom shall be physicians. The function of the advisory board is purely advisory, to assist the commissioner, to meet only at the call of the commissioner, and to assist him in drawing up rules and regulations. The commissioner is not limited as to the number of clerical and other assistants. He is given authority to issue subpoenas to secure the attendance of witnesses in any matter or proceeding before him or as authorized agent. All persons so authorized by the commissioner of health shall have the powers and authorities conferred by law on constables. He shall supervise the State registration of births, marriages, and deaths of practitioners of medicine and surgery, of midwives, nurses, and undertakers, and of all persons whose occupation is deemed to be of importance in obtaining information concerning births, deaths, marriages, and diseases. He may apportion the State into ten districts and in each district he may appoint a health officer, who shall, under his direction, have supervision and control of the sanitary affairs of the district and of the registration of vital statistics within the district. The commissioner of health shall have all the powers now possessed by the present State Board of Health. This short summary comprises the essential features of the bill. The intention of the bill is to substitute a high grade individual for the present State board and to give him as much authority and latitude as the constitution of Pennsylvania will permit. The rural districts of Pennsylvania should have some sort of sanitary police, who shall be appointed by and responsible to the head at Harrisburg. This bill enables the commissioner of health to police the State in a way that he deems best, as all specific directions, etc., have purposely been omitted. Two weeks ago in Harrisburg this bill was endorsed by the President of the State Medical Society; by Dr. McClelland, of Pittsburg, representing the State Homeopathic Society; by the members of the present State Board of Health, and by the Association of Health Authorities and Sanitarians. It has also been endorsed by the Board of Health and Director of Public Health of Philadelphia.

SOUTHERN STATES.

Think Executions Should Take Place in the Penitentiary.—A movement is on foot in Virginia to induce the Legislature to pass a law at its next session under which all hangings shall take place in the penitentiary. At present condemned men are executed at the courthouses of the counties in which they are tried and convicted. In many cases those in charge of the hangings are entirely without experience, and distressing blunders are likely to occur at any time. It is proposed to have at the penitentiary a regular hangman with assistants, and all executions that will take place behind the high walls will be witnessed by only a chosen few.

March Fourth in Washington, D. C.—News relative to accidents in Washington, D. C., during the inaugural celebrations, has it that the downtown hospitals were taxed severely in caring for the numerous cases of accidents and illness which required the attention of the physicians. While the majority of the ailments were of a minor character and yielded readily to treatment, still there were many of a more serious nature which will keep the injured persons in the hospitals for several

days. Probably more than 150 persons were taken to the various hospitals, several of which, notably the Emergency and Casualty, operated extra ambulances, improvised additional operating-rooms, and employed additional surgeons. The police arrangements for caring for the crowd were excellent, and there was little serious disorder.

WESTERN STATES.

Bill to Regulate Football.—A bill to regulate football has been passed by the lower House of the Legislature of South Dakota. The bill disqualifies any player who injures another, and makes it a misdemeanor for a player to enter another game for a period of 10 days from the date of disqualification. It also makes it a misdemeanor for a captain to allow a disqualified player to enter a game, and prohibits the entrance into State institutions of football players who take only part of the course of study.

War on Cocain in Illinois.—Marking a new development in the crusade to check the sale of cocain, the State Board of Pharmacy recently began suit for \$5,000 against Louis Re, proprietor of the National Drug Company, 430 Dearborn street. The suit is under the statute governing "second offenses" against the pharmacy law. Lawyer J. S. Dudley, acting for the Board, predicts that before the crusade ceases there will be an end of the sale in Chicago of the mixtures of cocain known to users of the drug as "flake."

Woman Doctor Honored.—For the first time in the history of the medical profession in the United States a statue stands today a memorial to a woman doctor. It is that dedicated a few days ago at the Art Institute of Chicago, when the friends and admirers of the late Dr. Mary Harris Thompson presented a portrait bust of her to the institute. Dr. Thompson who was the founder in 1865 of the Mary Thompson Hospital for Women and Children, West Adams and Paulina streets, and who was the pioneer woman physician of the Northwest, was paid high tribute by the speakers, both for her qualities as a woman and her capabilities as a surgeon.

Morbidity and Mortality in Chicago.—There were 162 fewer deaths from pneumonia—nearly 24% less—than during February, 1904; but the tuberculosis mortality remains substantially unchanged—285 and 278 respectively. Since the beginning of the current pneumonia season, October 1, 1904, up to date, March 4, 1905, there have been 1,299 deaths from tuberculosis and 193 from pneumonia, out of a total of 11,350 from all causes. These figures give proportions of 11.4% of the total mortality for tuberculosis, 18% for pneumonia, and an excess of 49% of pneumonia over tuberculosis. There were only 3 deaths reported from typhoid fever during the week and only 15 for the month of February.

FOREIGN NEWS AND NOTES

GENERAL.

Bed Endowed.—The sum of £1,000 has been presented by Mr. Edward Heron-Allen to the Westminster Hospital, London, to endow a bed in one of Dr. Murrell's wards "in recognition of his valuable contributions to pharmacology and his researches on the action of remedial agents in the treatment of disease."

Radium an Antidote to Snake Venom.—A new use of radium was announced at the meeting of the Académie of Sciences recently by M. Chaveau, resulting from experiments. Radium will destroy the toxicity of the venom of serpents. The venom of a viper and of a cobra if submitted to the action of radium for 50 or 60 hours entirely loses its virulent properties. In the cases of the poison of a toad and of a land salamander, the emanations only have effect after about seven days.

OBITUARIES.

Edward C. O'Brien, February 25, at his home in Buffalo. He was a graduate of the University of Buffalo, medical department, in 1867. He was a curator of the University of Buffalo; five times health officer of that city; and consulting physician to the Providence Retreat for the Insane; he was surgeon to the Buffalo Fire Department; and ex-president of the Erie County Medical Society and the University of Buffalo Alumni Association.

Charles E. Clark, aged 47, of Kansas City, Mo., February 17, from tuberculosis in Colorado Springs, where he had gone for his health. He was a graduate of Rush Medical College, Chicago, in 1886; was a member of the American Medical Association, and of the Missouri State Medical Association; was ex-president of the Jackson County Medical Society, and professor of laryngology in the Kansas City Medical College.

William Edward Griffiths, aged 62, February 20, at his home in Brooklyn. He was a graduate of the College of Physicians and Surgeons, New York City, in 1868, and had practised in Brooklyn for more than 30 years. He was studying medicine in Germany at the outbreak of the Franco-Prussian war and experienced ambulance service in the Bavarian army. At the time of his death he was visiting surgeon to St. Mary's Hospital and was connected with the Board of Health of Brooklyn.

Alfred Hadley Lindley, aged 83, February 16, at his home in Minneapolis, from pneumonia. He was a graduate of Jefferson Medical College in 1850, and was a pioneer practitioner of Minnesota, one of the founders of the Hennepin County Medical Society. At a special meeting of this society, February 17, appropriate resolutions concerning Dr. Lindley's death were passed.

Joseph B. Whiting, Jr., aged 39, February 19, at his home in Janesville, Wis. He was a graduate of the College of Physicians and Surgeons of Chicago in 1887; a member of the Association of Military Surgeons of the United States, and major and surgeon of the First Volunteer, N. G., Wis.; surgeon of the First Wisconsin U. S. V. during the Spanish-American war.

Abner Render Wellborn, aged 83, for many years practitioner of Atlanta, Ga., February 4, at the home of his daughter in Columbia, Ga. He was a graduate of New York University, New York City, in 1845; was surgeon in the Confederate service during the Civil war; one time clerk of the Superior Court of Coweta.

Obediah V. Garnett, aged 70, of Paterson, N. J., February 17, from chronic nephritis, at the Paterson General Hospital. He was a graduate of Jefferson Medical College, Philadelphia, in 1855; was a surgeon in the Confederate service during the Civil war, and for many years local surgeon to the Erie railway.

John A. Westfield, aged 84, February 3, at his home in McGregor, Tex. He was a graduate of the University of Louisville, medical department, in 1880, but a practitioner for 58 years. He was a surgeon of the Mexican and Civil wars, and practised for many years at Atkins, Ark.

Adolph Zipperlin, aged 80, February 28, at his home in Cincinnati. He was a graduate of the University of Tervingen, Germany, more than 50 years ago and was an honorary member of the faculty of his alma mater. He was a surgeon in the Federal army during the Civil war.

Richard W. Sanders, aged 68, February 3, at his home in Max Meadows, Va. He was a graduate of the University of Pennsylvania in 1851; was a member of the Virginia House of Delegates, 1893-1894, and president of the Southwest Virginia Medical Association.

James T. Berry, aged 64, February 20, at his home in Lagrange, Ky.; a graduate of the University of Louisiana, Louisville, Ky., in 1875. He was one time superintendent of the Kentucky Institute for the education and training of feeble minded children at Frankfort.

J. Theron Renouff, aged 55, February 13, from angina pectoris, at his home in Atlanta. He was a graduate of the Southern Medical College, Atlanta, in 1887, and late professor of materia medica and therapeutics in the Woman's Medical College of Georgia, Atlanta.

Cordelia P. Hickox, aged 77, at her home in Cedar Rapids, March 3. She was the first woman to practise medicine in Iowa, and even west of the Mississippi river. She was a graduate of the Cleveland Homeopathic Medical College, and went to Iowa in 1862.

James Taylor Pirtle, aged 69, February 19, at his home in St. Louis. He was a graduate of St. Louis Medical College in 1864, and one of the oldest members of the St. Louis Medical Society; was surgeon in the Confederate service during the Civil war.

Alfred L. Buchan, aged 57, of Racine, Wis., February 17, at the home of his brother in Dover, Wis., from cancer of the liver. He was a graduate of Rush Medical College, Chicago, in 1871, and a member of the Wisconsin State Medical Society.

Abel L. Witherspoon, aged 76, February 10, at his home in Corsicana, Tex.; a graduate of Tulane University of Louisiana, medical department, New Orleans, in 1854, and a surgeon in the Confederate service during the Civil war.

Elizabeth Johnson, aged 76, March 2, at her home in Brockton, Mass. She was a graduate of the New England Female Medical College in Boston, and was later attendant at the Boston Homeopathic Dispensary.

Henry R. Brown, aged 63, February 16, at his home in Leominster, Mass., from erysipelas; was a member of the American Medical Association, and for several years chairman of the Board of Health in his home city.

William C. Balckman, one of the oldest physicians of Davidson county, Tenn., February 14, at his home in Overton Station. He was a graduate of the University of Pennsylvania, medical department, in 1847.

George G. Wingo, February 15, at his home near Wright, Texas, after an illness of several years. He was a graduate of Missouri Medical College, St. Louis, in 1881, and formerly lived at Lock Spring, Mo.

J. Thomas Sim, aged 66, February 27, at his home in Liberty, Fred-

erick county, Md. He was a graduate of the University of Maryland, and had practised in his profession at Liberty for more than 40 years.

Flavius J. Downer, aged 67, February 18, at Newberry, Mich., from heart disease. He was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1871.

James E. Crisfield, of Danville, N. Y., February 21, at Jacksonville, Fla. He was one of the oldest practitioners in Livingston county, N. Y., and was prominent in local political circles.

William F. Robertson, Jr., aged 64, February 8, from cerebral hemorrhage, at his home in Iamonia, Fla.; a graduate of Tulane University, medical department, New Orleans, in 1880.

Henry B. Fay, aged 46, of Minneapolis, February 11, at the Swedish Hospital in that city of nephritis; a graduate of Howard University, medical department, Washington, D. C., in 1881.

George O. Cummins, aged 62, February 14, at his home in Dover, N. J.; a graduate of the University of Pennsylvania in 1868; a member of the county and State medical societies.

Samuel McGill, aged 63, March 2, at his home in Schuyler, Virginia. He was a graduate of the University of Virginia in 1864, and for many years a prominent physician in Virginia.

George I. Metcalf, aged 57, of St. Paul, Minn., recently, at Orrieto, Italy. He was a native of Brattleboro, Vt., and a graduate of Amherst College and Columbia University.

Thomas B. Bloomfield, aged 60, February 17, at his home in Westbrook, Conn.; a graduate of the College of Physicians and Surgeons, New York City, in 1876.

James B. Huston, of Charleston, W. Va., February 20, at the Virginia Hospital, Richmond, Va.; a graduate of the Medical College of Ohio, Cincinnati, in 1882.

Edward A. Opelt, February 18, at his home in Loggotee, Ind.; a graduate of Cleveland Medical College, medical department of Western Reserve University in 1858.

Mortimer Wright Shaw, aged 37, February 21, at his home in Middletown, N. Y. He was a graduate of Long Island College Hospital in 1892.

Richard E. Parker, aged 74, February 20, from pneumonia, at his home in Suffolk, Va.; a graduate of the University of Pennsylvania in 1857.

H. R. Worthington, aged 40, at his home in Trenton, February 23. He was a graduate of Hahnemann Medical College, Philadelphia.

D. W. Dundor, aged 48, February 23, at his home in Womelsdorf, Pa. He was a graduate of the University of Pennsylvania in 1879.

Halderman Stehley, aged 35, February 27, at his home in Keyser, W. Va.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 3, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Florida:	Jacksonville.....	Feb. 18-25.....	2	
Illinois:	Chicago.....	Feb. 18-25.....	18	2
	Danville.....	Feb. 18-25.....	4	
	Galesburg.....	Feb. 18-25.....	1	
Kentucky:	Louisville.....	Feb. 16-23.....	8	
Louisiana:	New Orleans.....	Feb. 16-25.....	14	1
			Five imported	
Massachusetts:	Boston.....	Feb. 18-25.....	1	
Michigan:	At 62 localities.....	Feb. 4-11.....	Present	
Missouri:	St. Louis.....	Feb. 18-25.....	38	5
Nebraska:	Omaha.....	Feb. 18-25.....	1	
New York:	New York.....	Feb. 18-25.....	5	1
Pennsylvania:	Johnstown.....	Feb. 18-25.....	1	
South Carolina:	Greenville.....	Feb. 11-25.....	5	2
Tennessee:	Memphis.....	Feb. 18-25.....	20	2
	Nashville.....	Feb. 18-25.....	2	
SMALLPOX—FOREIGN.				
Argentina:	Buenos Ayres.....	Jan. 1-29.....	102	25
Brazil:	Niteroy.....	Dec. 1-31.....	44	
	Para.....	Jan. 28-Feb. 11...	4	
	Pernambuco.....	Jan. 1-15.....	131	
China:	Shanghai.....	Jan. 7-21.....	21 cases, foreigners; 98 deaths, natives	
Ecuador:	Colta.....	Feb. 9.....	Present	
	Columbe.....	Feb. 9.....	Present	
	Guamote.....	Feb. 9.....	Present	
	Guayaquil.....	Jan. 31-Feb. 7.....	1	
France:	Paris.....	Feb. 4-11.....	28	1
Great Britain:	Hull.....	Jan. 28-Feb. 4.....	7	1
	Leeds.....	Feb. 4-11.....	12	
	London.....	Feb. 4-11.....	1	
	Newcastle-on-Tyne.....	Feb. 4-11.....	5	
	South Shields.....	Feb. 4-11.....	2	
	West Hartlepool.....	Feb. 4-11.....	3	
India:	Bombay.....	Jan. 24-31.....	109	
	Calcutta.....	Jan. 21-28.....	2	
	Karachi.....	Jan. 22-29.....	1	1
	Madras.....	Jan. 21-27.....	1	

Italy:	Catania.....	Jan. 26-Feb. 2.....	5
	Palermo.....	Jan. 28-Feb. 11.....	43
Norway:	Christiania.....	Jan. 28-Feb. 11.....	6
Russia:	Moscow.....	Jan. 28-Feb. 4.....	5
	Odessa.....	Feb. 4-11.....	2
Straits Settlements:	Singapore.....	Jan. 7-14.....	1
Switzerland:	Geneva.....	Jan. 21-Feb. 4.....	2
Turkey:	Constantinople.....	Jan. 30-Feb. 6.....	6
West Indies:	Grenada.....	Jan. 28-Feb. 9.....	8

YELLOW FEVER.

Brazil:	Madaos.....	Jan. 25-Feb. 8.....	3	2
	Para.....	Jan. 28-Feb. 11.....	2	2
Ecuador:	Guayaquil.....	Jan. 31-Feb. 7.....	2	1
Mexico:	Coatzacoalcas.....	Feb. 12-18.....	1	1
Panama:	Panama.....	Jan. 1-Feb. 14.....	27	7

CHOLERA.

India:	Calcutta.....	Jan. 21-28.....	108
Russia:	.....	Jan. 16-28.....	6
Turkey in Asia:	Van.....	To Jan. 24.....	1,200
			Estimated 500

PLAGUE.

Africa (Portuguese):	Lorenzo Marquez.....	Jan. 17.....	5	suspect
	Port Florence(Brit.).....	Jan. 5-12.....	9	8
Arabia:	Aden.....	Jan. 21-28.....	154	128
Week ended Jan. 21,	113 cases, corrected by	Aden plague authority		
Argentina:	Buenos Ayres.....	Jan. 28.....	9	suspect
Brazil:	Nietheroy.....	Dec. 1-31.....	1	
	Para.....	Jan. 28-Feb. 11.....	2	
Egypt:	Suez.....	Jan. 21-28.....	3	1
India:	General.....	Jan. 14-21.....	33,083	28,104
	Bombay.....	Jan. 24-31.....	408	
	Calcutta.....	Jan. 21-28.....	58	
	Karachi.....	Jan. 22-29.....	60	58
Siam:	Bangkok.....	Dec. 22-Jan. 3.....	2	2
Straits Settlements:	Singapore.....	Dec. 31-Jan. 14.....	3	

Changes in the Medical Corps of the U. S. Army for the week ended March 4, 1905:

OWEN, Major WILLIAM O., surgeon, orders of January 28 are amended so as to direct to proceed to the Army and Navy General Hospital, Hot Springs, Ark., for treatment, instead of the United States Army General Hospital, Presidio of San Francisco.

TEMPLE, OSCAR F., sergeant first class, Fort Ethan Allen will be sent to Fort Wingate to relieve Sergeant First Class James H. Boyle. Sergeant First Class Boyle will be sent to Fort Ethan Allen for duty.

VOLLMEYER, ERNEST, sergeant first class, now at Inwood on the Hudson, N. Y., upon expiration of furlough granted him from the Louisiana Purchase Exposition, St. Louis, Mo., will report at the Army General Hospital, Washington Barracks, for duty with Company A, Hospital Corps.

HOLLIDAY, OLIVER M., contract surgeon, will report to the commanding officer, Eighteenth Infantry, in camp at the Presidio of San Francisco, for duty and to accompany that regiment to Fort Leavenworth.

APPEL, Major AARON H., surgeon, will proceed to Camp Connell, Calbayog, Samar, P. I., for duty, relieving Major George M. Wells, surgeon.

Changes in the Medical Corps of the U. S. Navy for the week ended March 3, 1905:

TAYLOR, E. C., assistant surgeon, detached from the Bancroft and ordered to the Colorado—February 27.

HUNTINGTON, W. H., pharmacist, retired, ordered to the Naval Training Station, Newport, R. I.—February 28.

Changes in the Public Health and Marine-Hospital Service for the week ended March 1, 1905:

GLENNAN, A. H., assistant surgeon-general, granted leave of absence for fifteen days from March 6—February 17, 1905.

STONER, G. W., surgeon, to proceed to Boston, Mass., for special temporary duty—February 23, 1905.

BANKS, C. E., surgeon, relieved from duty at Chicago, Ill., and directed to proceed to Key West, Fla., and assume command of the service, relieving Passed Assistant Surgeon C. H. Gardner—February 13, 1905.

GARDNER, C. H., passed assistant surgeon, upon being relieved from duty at Key West, Fla., by Surgeon C. E. Banks, to proceed to Galveston, Texas, and assume command of the service—February 13, 1905.

HEISER, V. G., passed assistant surgeon, to report to the Governor-general of the Philippine Islands as health commissioner, in addition to duties as chief quarantine officer of the islands—February 25, 1905.

RAMUS, CARL, passed assistant surgeon, detailed as inspector of unserviceable property at Honolulu, T. H.—February 27, 1905.

EBERSOLE, R. E., assistant surgeon, granted leave of absence for three days on account of sickness—March 1, 1905.

STEVENSON, J. W., acting assistant surgeon, granted leave of absence for seven days from February 27, 1905, under provisions of paragraph 210 of the regulations.

ACHENBACH, JOHN, pharmacist, granted leave of absence for four days from February 17, 1905, under provisions of paragraph 210 of the regulations.

THURSTON, E. J., pharmacist, granted leave of absence for ten days from March 10—February 23, 1905.

Casualty.

Acting Assistant Surgeon Esteban Lopez died at Fajardo, Porto Rico, February 4, 1905.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

ETHICAL AND INETHICAL PROPRIETARY PREPARATIONS.

To the Editor of American Medicine:—I enclose a copy of the announcement of the Council on Pharmacy and Chemistry, in the form of a circular letter to the manufacturing pharmacists of the country. This Council is a body created by resolution of the Board of Trustees of the American Medical Association at its last meeting. Technically, this is an advisory committee on ethical preparations, as they relate to the advertising pages of *The Journal of the American Medical Association*; as a matter of fact, however, the functions of this Council are more than this, for it will pass on preparations whether offered for advertisements or not, and those which are approved will be incorporated in the book "New and Nonofficial Remedies." . . . Thus there will be provided a consistent and equitable standard to which articles must conform to be acceptable for the advertising pages of *The Journal of the American Medical Association*, and at the same time a book of reference that will be of incalculable value to physicians. The same standard will also govern the mention of articles in the reading pages. . . . We hope the movement will receive your endorsement and support. Criticisms and suggestions are asked for.

GEORGE H. SIMMONS.

Editor *Journal American Medical Association*.

AMERICAN MEDICAL ASSOCIATION.

COUNCIL ON PHARMACY AND CHEMISTRY.

CHICAGO, February 28, 1905.

To the Manufacturing Pharmacists and Chemists of the United States and to Others Concerned:

As the culmination of plans which have been under consideration for the past two years, the Board of Trustees, at a meeting held February 3, 1905, created by resolution an advisory board to be known as the Council on Pharmacy and Chemistry of the American Medical Association. The organization of the Council was perfected at Pittsburg, Pa., February 11, 1905, and it herewith presents the following statement:

PRELIMINARY ANNOUNCEMENT.

It is the immediate purpose of the Council to examine into the composition and status of the various medicinal preparations that are offered to physicians, and which are not included in the United States Pharmacopeia, or in other standard textbooks or formularies. These preparations will include the synthetic chemical compounds, as well as the so-called proprietaries and pharmaceutical specialties put out under trademarked names. Preparations which conform to the standard established by the ten rules governing the matter, will be incorporated in "New and Nonofficial Remedies," a book to be published by *The Journal of the American Medical Association*.

The general need of an accessible, authoritative work of reference of this character is obvious, for at present there is no such book to which the physician can refer. Its value will be proportional to its completeness. It is, therefore, proposed to be as liberal in approving articles for the book as is consistent with justice and equity to the public, to the manufacturing pharmacist and chemist, and to the physician. The acceptance of articles will be determined by the appended rules, an examination of which will show that they are sufficiently liberal to permit the admission of all articles offered to the medical profession that are honestly made, ethically exploited, and worthy of patronage by intelligent physicians.

The acceptance of an article will be based on a careful and unprejudiced examination of the accessible information from all sources, and in compliance with the adopted rules. An acceptance, however, is not to be interpreted as an endorsement,

neither is omission from the list to be construed; in every case, as condemning an article; it may mean that the necessary information has not been obtained. The Council does not pass judgment on the therapeutic value, but on the ethical status only. The Council does not presume to dictate what preparations should be prescribed; nor is it the present intention to conduct an active campaign against fraudulent products; but merely to supply necessary and desirable information concerning those which it considers unobjectionable.

The plan for the work is briefly as follows: All available information regarding a product will be secured from the manufacturer and from other sources. This information, together with specimens of the article, will be submitted to a committee of experts, who will examine critically into the product, consider the claims made for it, and make a report. On the basis of this report, the Council will accept, reject, or hold for further consideration. If accepted, the information will be condensed and arranged somewhat on the plan of the United States Pharmacopeia, but with the addition of brief pharmacologic and therapeutic data. The Council believes that there are many articles, at present not recognized by the Pharmacopeia, which comply with the required standard and do not need any further investigation. In this class come many of the synthetics as well as many wellknown pharmaceutical specialties. These are now being written up and it is proposed to issue the first edition of the book as soon as possible. No charge will be made for representation in the book.

As fast as new articles are accepted, all information regarding them will be published in *The Journal of the American Medical Association*, and will be incorporated in the next edition of the book.

The Council appreciates the importance and difficulties of the work to be undertaken and does not expect to take a step forward without being sure that it is right and just to all concerned. It does not dare to hope for perfect results and can only promise to strive earnestly, honestly, and impartially to avoid serious errors of commission and omission. It asks for the hearty cooperation and assistance of those it believes to be interested in the work—the entire medical profession and all honorable manufacturing pharmacists and chemists. Criticisms and suggestions will be welcome.

RULES GOVERNING THE ADMISSION OF ARTICLES.

The following rules are adopted to guide the Council on Pharmacy and Chemistry of the American Medical Association:

(The term "article" shall mean any drug, chemical or preparation used in the treatment of disease.)

RULE 1.—No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the Council to verify the statements made regarding the article, and to determine its status from time to time.)

RULE 2.—No chemical compound will be admitted unless information be furnished regarding tests for identity, purity, and strength, and, if a synthetic compound, the rational formula.

RULE 3.—No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods, and mineral waters, except when advertised in an objectionable manner.

RULE 4.—No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties, and doses may be stated. (This rule does not apply to vaccines and antitoxins, nor to literature distributed solely to physicians.)

RULE 5.—No article will be admitted or retained about which the manufacturer, or his agents, make false or misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

RULE 6.—No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated, or misleading statements.

RULE 7.—Labels on articles containing "heroin" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

RULE 8.—Every article should have a name or title indicative of its chemical composition or pharmaceutical character, in addition to its trade name, when such trade name is not sufficiently descriptive.

RULE 9.—If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the Council.

RULE 10.—If the article is patented—either process or product—the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

EXPLANATORY COMMENTS ON THE RULES.

Rule 1.—Certainly no one can object to this rule. The physician not only has the right to know, but it is his duty to know, the composition of medicines he prescribes for his patients. He may not be interested in the details of the method or of the process of manufacture of an article, but he should know what medicinal agents it contains, and the amounts represented in a given quantity of the article.

Only in exceptional instances is it necessary for the physician to know the solvent, vehicle or other diluent, or the particular flavoring agent which may have been employed. For this reason, while the Council desires the formula and the details as to the method of preparation to be sufficiently complete to enable it to verify the correctness of the assertions made regarding an article, the description to be published will usually consist only of a statement of the amount of each medicinal agent or ingredient in a certain quantity—generally the ordinary dose—of the article, and in some instances the general character of the solvent or vehicle and flavors.

In preparations for external use, the therapeutic efficiency is greatly influenced by the nature of the vehicle. Therefore, in such preparations, the character of the vehicle or base should be stated, so that it may be known whether the article is penetrative or simply protective.

RULE 2.—In order to avoid errors in the case of chemical compounds and to guard against adulterations, lack of potency or strength and mistaking one chemical for another, it is necessary to have at hand suitable identity tests. Where these facts have appeared in the literature, or in standard textbooks, reference to them will be sufficient, but with new chemicals, especially synthetics, the manufacturer or his representatives will be required to supply such tests to the Council, together with the rational or structural formula, in order that an intelligent opinion of these products may be obtained.

RULE 3.—While the correctness of the principle that physicians cannot be expected to favor any medicine which is exploited to the lay public will be readily conceded, this rule is to be modified in its application to articles not strictly medicinal.

RULE 4.—This rule may appear to some as radical, and yet on consideration it will be found just to the public, to the physician, to the manufacturing pharmacist and chemist, and also to the retail druggist. It must be remembered that it applies only to the package, and to the labels, circulars, etc., accompanying it. It does not in any way interfere with advertising, circulars, literature, etc., furnished to physicians. Experience has clearly shown, however, that it is not safe to enumerate on the package the diseases in which an article may be indicated, since this is also the means by which the laity, who are not competent to determine whether or not its employment is safe and proper, may be induced to continue its use or to recommend it to others, quite regardless of the evident dangers of forming drug habits or of doing serious injury by employing a remedy that in reality may be contraindicated. It is the physician's prerogative to determine in what disease the article may be indicated, and he is not supposed to go to the drug store for his knowledge regarding this. It is not the function of the pharmacist to recommend or to prescribe medicines, but only to be familiar with their pharmaceutical and chemical characters, strength and dosage and with the best forms of administration.

It is asserted that the naming of diseases on the label of the package is necessary, because many physicians will be unable to tell from the therapeutic properties alone in what diseases a medicinal article may be indicated. This may be true with a

certain class of doctors, but it is certainly not true with the vast majority of the educated, progressive physicians of America, and this is the class whose interests are concerned in this movement. There may be some exceptional articles, such as foods, digestants and mineral waters, in which the therapeutic properties alone may not sufficiently indicate the use, and in these cases, perhaps, reference may be made to certain symptoms; if such references appear, they will be carefully considered. Antitoxins and vaccines come under this exemption. The Council, however, is unanimously of the opinion that this method of exploiting the medical profession is one of the principal causes which has made the best physicians hesitate to prescribe any proprietary medicines, has led others into irrational therapeutics, has made pharmaceutical tyros believe that they could prescribe just as well as the physicians, and has been the means of causing scores of these medicines to be used for self-medication by the laity, to the detriment and sometimes to the serious and permanent injury of the person taking them. The physician would prefer that the manufacturer confine himself to furnishing the articles and reasonable information regarding their identity, quality, strength and pharmaceutical and chemical character, leaving the physician to indicate in what diseases they should be used.

It is believed that the application of this rule will most quickly determine what manufacturers would rather have the preference and favor of the vast majority of the medical profession and of the members of the American Medical Association than the doubtful support of a rapidly disappearing minority of practitioners.

Ample time will be given manufacturers to conform to this rule, and also to Rule 8, entailing changes in labels or in other printed matter.

RULE 5.—While this is a rare contingency, yet in the past many rank frauds of this nature have been perpetrated on the profession, and this rule will have a tendency to prevent such attempts in the future.

RULE 6.—As in the preceding instance, this rule will have the tendency to restrict manufacturers or agents in their claims as to the therapeutic superiority of their products, without interfering with any reasonable assertions, especially when such are confirmed by clinical data from responsible medical men.

RULE 7.—For the information of the pharmacist or dispenser, and to enable him to act as a safeguard to the patient and to the physician, all medicinal articles containing such potent agents as the poisonous alkaloids and other organic substances and the salts of some of the metals, should have the exact amount of these ingredients contained in the average adult dose stated on the label. A list of these potent substances will be prepared for more specific information.

RULE 8.—In order to prevent the confusion now existing with reference to many articles known only by more or less arbitrarily selected or coined, usually protected names, it is necessary that every article which is intended solely for physicians' use or prescription be designated by a scientific title, or by a name descriptive of its pharmaceutical character, and, as far as practicable, of its principal medicinal constituents. Synthetic chemical products should give the true chemical constitutional or structural name, in addition to the trade name. The application of this rule will enable physicians to use many of these articles which at present they are afraid to use, because of uncertainty as to the identity—owing to the similarity in the names of many of these entirely different products—or prefer not to prescribe in order to avoid criticism and the danger of self-prescription by their patients. This provision will thus be of great benefit to manufacturers of meritorious products, will relieve pharmacists of many trying situations in interpreting correctly the names of articles desired by physicians, and will protect both physicians and laity from the evils named.

The Council will use reasonable discretion in enforcing this rule with reference to trade names of long-established articles.

RULES 9 and 10.—This information is desired to enable the

Council, and others interested, to determine the legal status of these articles and for ready reference through publication.

Respectfully submitted.

ARTHUR R. CUSHNY, Ann Arbor.
C. LEWIS DIEHL, Louisville.
C. S. N. HALLBERG, Chicago.
ROBERT A. HATCHER, New York.
L. F. KEBLER, Washington.
J. H. LONG, Chicago.
F. G. NOVY, Ann Arbor.
W. A. PUCKNER, Chicago.
SAMUEL P. SADTLER, Philadelphia.
J. O. SCHLOTTERBECK, Ann Arbor.
GEO. H. SIMMONS, Chicago.
TORALD SOLLMANN, Cleveland.
JULIUS STIEGLITZ, Chicago.
M. I. WILBERT, Philadelphia.
H. W. WILEY, Washington.

*Members of the Council on Pharmacy and Chemistry,
American Medical Association.*

THE SECRET NOSTRUM VS. THE ETHICAL PROPRIETARY PREPARATION.

[Editorial in the *Journal of the American Medical Association*, March 4, 1905.]

For years the proprietary medicine question has been a perplexing problem for physicians, and as the articles of this class increase in number, the question becomes more vexed and more serious, and its solution more urgent. In taking up the subject, it may be stated at the outset that there is no more serious objection to a proprietary medicine, *per se* (i. e., one protected by a copyright or by a trademark) than to one that is protected by a patent; for example, one of the synthetic chemicals.¹

Technically, there is no difference between the proprietary medicines manufactured for physicians' use and the "patent medicines" exploited to the public, both being protected simply through copyright or trademark names. Yet the relation of the physician to those preparations is very different; about the latter he has little direct concern, save that he regrets that our laws permit the foisting on a suffering and unsuspecting public of preparations that are usually dangerous and always irrational. In the former he is directly and intensely interested, for they compose a part of the armamentarium which he is expected to use. On them he often has to depend or at least does depend, consequently on them rest his success and the health, sometimes the lives, of those who place themselves in his care. In theory, they reflect the advance made in pharmaceutical science; in fact, if we take the greater number of them as our criterion, they discredit pharmaceutical science, for the character of this greater number is such that they are creditable neither to those who make them nor to those who use them.

At first, these preparations were introduced under pharmaceutical or descriptive names; they were of wellknown composition, represented elegant preparations of standard formulas, and were manufactured by pharmaceutical houses which took pride in their products. These preparations the physician welcomed as an advance in pharmacy, and he gladly specified in his prescriptions the name of the manufacturer whose product he desired.

Such were the original prescriptions for elixirs, syrups, pills, etc., of the manufacturing pharmacists. Some 30 years ago, however, there appeared, one by one, preparations bearing coined names, protected from imitation by copyright or trademark, with formulas more or less mysterious and fictitious—in other words, secret. By making extravagant claims, and by persistent exploitation in various ways, the manufacturers induced physicians to use them, and as they were usually the

¹ It is acknowledged that the manufacturer should be protected when he has originated something of value to the public or to the profession. It is not acknowledged, however, that this protection should be unlimited, as is the case with the trademarked or copyrighted named articles; a protection for a limited period, such as a patent gives, is just and fair, but an unlimited protection is not.

simplest kind of mixtures, requiring little, if any, machinery or skill in their compounding, and being composed of inexpensive drugs, the profits were large. Thus the field for commercial enterprise became an enticing one. The manufacturer might be an individual with no pharmaceutical knowledge and his identity hidden under the anonymous name of some chemical company; thus, the better to impose on the credulous doctor, he combined the secrecy of his preparation with the mystery surrounding its manufacture. With their fancy therapeutic or disease-suggesting names, and with extravagant claims regarding their therapeutic value, these medicines appealed to a certain class of doctors; they were convenient, palatable, and, at least, satisfactory placebos. Further, they saved the doctor the trouble of writing a full prescription. It was not long, however, after these preparations became popular with the physician before they became popular in the true sense. The fancy, catchy names which caught the physician caught the layman as well, and the latter, finding not only full directions for use, but the names of the diseases in which the remedies were indicated, naturally bought them in preference to the so-called "patent medicines," for were these remedies not endorsed by the "faculty," and had they not testimonials from "the most prominent physicians"! Thus the physician became the unpaid peddler of secret nostrums; thus he encouraged his patient to prescribe for himself, and thus, as the secret nostrum manufacturer became richer, the physician became poorer.

All proprietary medicines, however, must not be classed as secret nostrums. While a few reputable manufacturing pharmacists have not been able to resist the temptation to sacrifice their good names by manufacturing and by exploiting preparations that are nothing more nor less than secret nostrums, and while so many physicians seem to be content to use such preparations, there are plenty of honestly made and ethically exploited proprietary preparations that are therapeutically valuable, and that are worthy of the patronage of the best physicians. In spite of all with which it has had to contend, the science of pharmacy in America is progressing, and is still leading the world. But how is the physician to separate these preparations which are ethical from those which are not? He is not supposed to be a chemist or a pharmacist, and if he were, he has neither time nor inclination to examine all the products he is asked to prescribe, or to inquire into the standing of those who exploit them. The number has become so great that to attempt to separate the good from the bad is bewildering, and no one individual is courageous enough even to try. The result of it all is that the educated, thinking physician—he who is honest with himself and with his patient—refuses to prescribe any proprietary mixture; he classes all as secret nostrums, and lets it go at that. What else can he do?

For many years the separation of the legitimate chemical and pharmaceutical preparations from those which we choose to call secret nostrums has been a difficult task for those conducting medical journals, whose advertising pages it was desired to keep free from unethical advertisements. The Board of Trustees of the American Medical Association has found the question most difficult of solution, and it has been before the board at nearly every meeting for many years. Ten years ago the board formulated certain rules, the basis of which was that the formula should be published; this, however, has proved very unsatisfactory. No manufacturer would furnish a working formula, and yet, without this, it is impracticable, except in very few instances, to verify the statements made regarding the composition of an article. Consequently, the claims made by the manufacturers had to be accepted, which means that the personal equation had to be considered in giving a decision, and this is not always a safe basis for sound judgment. It has long been recognized by those who have given thought to the question that a secret nostrum cannot be changed into an ethical preparation by attaching to it an incomplete formula; further, the problem is too complex to be solved so easily.

Five years ago we published a series of articles on "The Relation of Pharmacy to the Medical Profession." In these articles we discussed the problem in all its phases, the difficulties connected with the question were explained, and the fact was recognized that physicians cannot distinguish between the

preparations that are worthy and those that are unworthy. The remedy suggested was a board of control, to be composed of pharmacists and chemists, which should pass on all medicines offered for insertion in the advertising pages of the *Journal of the American Medical Association*. Although its execution was deferred, the idea has never been abandoned, but has been kept in view ever since.

One objection to the original idea was that the results would be negative, except insofar as they applied to the advertising question. The suggestion finally was made to broaden the scope of the proposed board by making its functions similar to those of the Committee on Revision of the United States Pharmacopeia; in other words, to have it take up the work where that committee leaves off, and to publish in book form a list descriptive of the preparations which conform to the required standard, but which are not official. For more than a year this idea has been under consideration and development. Opinions regarding its practicability were obtained from many of the leading pharmacists and chemists of the country. In a quiet way tests were made regarding the practical working of the proposed plan, as it affected certain phases of the question and certain articles, and full consideration was given to the results to be expected, as well as to the possibilities and to the limitations, before the Board of Trustees finally authorized the creation of the Council on Pharmacy and Chemistry, the name adopted rather than "board of control," as originally suggested.

It is expected that in the immediate future a corps of medical consultants will be formed, to be composed of physicians connected with the large hospitals in various parts of the country, who will make physiological and therapeutical tests of such preparations as it may be necessary to submit to such investigation. It is also in contemplation to establish a chemical and drug laboratory in the American Medical Association building, to be placed in charge of a competent chemist, who will examine such preparations as may be necessary.

DR. OSLER AND EUTHANASIA, AS VIEWED BY CONTRIBUTORS.

To the Editor of American Medicine:—In a short lull between tales of battle and revolt and periods of senatorial activity, the press has had much enjoyment out of William Osler's farewell address to Baltimore and America. Dr. Osler is reported to have said that a man does his best work before age 40, and quoted Trollope's suggestion, that it would be well if we all were chloroformed after we reach the age of 60. As Dr. Osler himself is some 56 years of age, he appears willing (if his reported remarks included himself) to limit his English residence and earthly career to some four remaining years. Or is it possible that the distinguished master regards his retirement from busy America to quiet Oxford as an effective substitute for a gentle euthanasia and as an absolution from the verdict of "chloroform at 60"?

On the whole, we feel convinced that Dr. Osler at the last moment has been unable to restrain his wellknown native and irresistible propensity for practical joking. On the eve of retirement to an atmosphere in which humor, it is said, goes unrewarded he has no doubt felt the need for one last successful sally at the expense of his American friends. This must be the true explanation of Dr. Osler's valedictory topic, for surely no one better than he knows that some men should be chloroformed long before attaining the age of 60, and that others are well entitled to the longest span of mundane tenure that nature, bacteria, alcohol, and tobacco will permit. With almost breathless expectancy the medical profession awaits the observations on this subject of some of Dr. Osler's intimates—medical men of eminence and of a few added years.

"NOT YET FORTY."

To the Editor of American Medicine:—Probably there is no man whose verbal *geschirr* does not occasionally become disarranged and betray him into a seeming ineptitude. There is doubtless as much truth in the remark of Dr. Osler, which has brought a little hailstorm of criticism and jest down upon

him, as in the aphorism of Victor Hugo, "Forty is the old age of youth and fifty is the youth of old age," which like most generalisms is not invariably the truth in particular. It must not be forgotten that the "epigram's peculiar grace" is its sting. In his writings, Dr. Osler, improving on Sydenham, has said that a man is as old as his coronary arteries are. In elasticity these arteries may be 10 years older or younger than the number of years the individual has lived—wisely or otherwise. Beside, the duration of youth and the period of growth, as also longevity and inchoative senility are matters of heredity and environments, as well as of calendar years.

E. L. B.

To the Editor of American Medicine:—Judging by the notices in the daily press, Prof. Osler's remarks concerning the comparative uselessness of men beyond the age of 40 have made considerable impression. There is nothing new in the idea, and those of us who have passed the fourth decade need not be alarmed. Vierordt's figures show that the brain reaches its maximum weight before the age of 20, and there is good authority for believing that no new association fibers are developed after the age of 33. If Prof. Osler had said that no one gets hold of an absolutely new idea after he is 30, he would simply be stating what many educators have long believed. No man of 40 is useless, provided that during the plastic stage of his nerve cells a sufficient number of ideas and impressions have been given to him. He will have material enough to last some time, and can devote himself to turning out a better finished product; very few of us can hope to produce something entirely new at any period of life. The trouble with most of us is that we do not make use of what we have. It would be well for the medical student to appreciate the importance of his years of training during the period of receptivity; when he is 40, it is "up to him" to prove Prof. Osler wrong.

VERITAS.

RECIPROCITY.

BY

EDWARD WILLARD WATSON, M.D.,
of Philadelphia.

To the Editor of American Medicine:—The letter of Dr. Chandos Burton Conner, in your issue of March 4, 1905, opens up very advanced questions. The advocacy of the reexamination of all physicians every five years and the passage of laws obliging them to keep full notes of all cases, and the reasons for their diagnoses and treatment, which notes are to be inspected by a board at frequent intervals, is indeed startling. Your excellent correspondent has evidently studied and struggled with acute nephritis, but fortunately can boast that he has passed two State Boards, one nine years after graduation, of which feat he is justly proud, but one who has done the same after thirty-seven years of practice does not necessarily feel the same glow.

But, seriously, the real question is this, is the doctor to be driven from the face of the earth? Are the older men to be Oslerized away by the younger? And how long, even if it be overcrowded now, will young men consent to enter a profession which, between years of hard study, State Licensing Boards, Boards of Health, nonreciprocity forbidding them to go anywhere else to live, and such requirements as Dr. Conner so glibly suggests, will soon cease to be a reasonable and reliable means of earning a livelihood? Another question also rises in the mind at once. Why, if these restrictions are so necessary, should they not be extended to engineers, lawyers, college professors, teachers, divines, in short to every one, and let the world have its work done entirely by men who have graduated within five years, and then support by pensions an army of men, superannuated long before their time?

Experience counts for something, and the new knowledge of today is old or dead tomorrow. Everything changes, and men, to be valuable, should possess some element of stability. It is possible to learn and know the latest knowledge, even if not a graduate of yesterday. Much may be forgiven to the young man who finds his pathway in practice unexpectedly hard, but if he has his way, it will soon be much harder, for in

a very few years he will himself be the victim of the restrictions he has himself advocated and created.

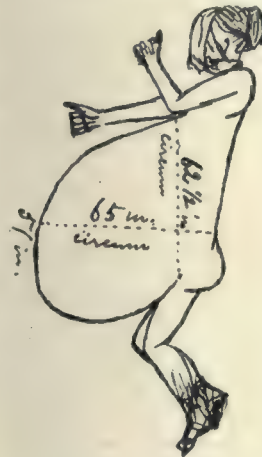
OVARIAN CYST.

BY

A. F. SQUIRE, M.D.,
of Newport, R. I.

To the Editor of American Medicine:—The case of ovarian cyst reported by Dr. Charles McGirk in your issue of December 17, reminds me of one that came to my knowledge somewhere about 1870, and as the sketch I made at the time has just turned up after all these years, I am tempted to send it to you with the following details:

An elder practitioner asked me to make an autopsy on the body of one of his patients just deceased. It was that of a Scotch



woman aged about 65, very tall and of large frame. She had been a very popular midwife and nurse in South Boston for many years and officiated in this capacity within six months of her demise. I made a sketch of the body as it lay on its side before section and afterward corrected it to correspond to the measurements taken, and so made the diagram I enclose according to a scale of one millimeter to one inch. I do not profess to be a draughtsman, but it is remarkable how closely the contour in the diagram resembles that in the photograph taken by Dr. McGirk. The tumor proved to be an ovarian cyst, monolocular, with very few adhesions, and I removed from it 144 pints (18 gallons) of dark, straw-colored, highly albuminous fluid, specific gravity, 1.014. The tumor weighed 152 pounds.

As such monstrosities will be impossible in the future, thanks to abdominal surgery, I thought it might be worth while to place on record this monument of the "good old times when doctors didn't want to cut you up for everything that ailed you." It must be acknowledged, however, that this patient had been several times offered surgical assistance, which, considering the times, she rather cannily refused.

SUPPLYING NEWSPAPERS WITH INFORMATION.

BY

MAURICE KAHN, M.D.,
of Leadville, Colo.,

President Lake County Medical Society.

To the Editor of American Medicine:—Apropos of the editorial published January 14, 1905, "Supplying the Newspapers with Information," in which you very properly approve of the admirable action taken by the New Orleans Parish Medical Society in its effort to eliminate the evil of advertising, I should like to call attention to the action taken by the Lake County Medical Society as long ago as 1900. The following circular letter, which is self explanatory, was mailed to each member of the society. I am pleased to inform you also, that since the appended letter was sent out no occasion has arisen for further action.

"DEAR DOCTOR:—At a meeting of the Lake County Medical Society, held May 24, 1900, the following resolution was passed: That this society considers unethical, the appearance of a practitioner's name in connection with any case published as a news article. Any doctor whose name so appears shall be assumed guilty of the indecorum of advertising. The press of the city has been requested, in the report of a case to withhold the name of the attending physician until his consent to its use shall have been obtained."

The Frances E. Willard National Temperance Hospital was dedicated February 17 to the memory of the temperance worker whose statue is the first of a woman to occupy a place in the statue hall of Congress. The hospital, which will accommodate several patients, is the only institution of its kind in the country that eliminates alcohol in the treatment of patients. The chemical will not be used even externally

ORIGINAL ARTICLES

THE MEDICAL TREATMENT OF GASTRIC ULCER.

BY

FREDERICK P. HENRY, A.M., M.D.,

of Philadelphia.

Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania; Physician to the Philadelphia Hospital.

It needs no detailed demonstration to prove that gastric ulcer is curable. In fact, the frequent observation of characteristic cicatrices in the stomachs of individuals who, during life, may have manifested no severe symptoms or signs of gastric disorder, shows that the tendency of the disease is toward recovery. The object of treatment, therefore, is to assist nature in her effort to cure. The most important indication is rest, both general and local. This is fulfilled by putting the patient to bed and nourishing him with rectal enemata. The following mixture has been found by Ewald to answer every purpose of rectal feeding. Two or three eggs are beaten up with a tablespoonful of cold water. A small quantity (*eine Messerspitze*) of starch is then boiled with half a cupful of a 20 percent solution of grape sugar to which is added a wineglassful of claret or red Rhine wine. The egg mixture is now slowly added, taking care that the fluid is not hot enough to coagulate the albumen. The nutritive enema, which should not amount to more than eight ounces, should be preceded by one of simple water containing a little salt in order to cleanse the rectum preliminary to its digestive performance. Such a mixture as that just described may be administered for a considerable period without causing undue irritation provided it be introduced as high up as possible and slowly injected. Ewald's rule is to continue the enemata for three days, and then to begin the administration of food by the mouth; but, if the strength permits, it is safer to continue to nourish the patient exclusively by the rectum for at least one week, the sense of hunger, if acute, being obtunded by opium which also relieves any pain that may be present, quiets the muscular layer of the stomach and prevents or allays vomiting. No absolute rule can be laid down with reference to the time during which rectal nourishment may be continued with the greatest advantage. This manifestly depends to a great extent upon the general condition of the patient and the tolerance of his rectum.

There are probably also decided individual variations with reference to the digestive and absorbent powers of this part of the intestine. When nourishment *per os* is resumed, it should be of the blandest character, consisting, at first, entirely of either milk or gruel. If milk is well tolerated it may constitute the sole article of diet for one, two, or more weeks. It should be administered warm and mixed with lime water in the proportion of half an ounce of lime water to four or six ounces of milk, or, if the gastric secretions are very acid, a little sodium bicarbonate may be added. It is preferable, however, to increase the proportion of lime water as the evolution of gas which follows the exhibition of the sodium bicarbonate might distend the stomach to an injurious extent. In some cases milk is better digested when boiled. If the milk is found to coagulate in hard curds which are vomited, or to disagree with the patient in other ways, a trial may be made of buttermilk, which is an excellent succedaneum. The formation of hard, indigestible curd in a hyperacid stomach may sometimes be prevented by adding to the milk a little flour previously well boiled with milk or water, or a small quantity of oatmeal or cornmeal gruel or, finally, the milk may be peptonized. Raw or soft-boiled eggs, beef, mutton, and chicken broths, and good preparations of beef peptone, are excellent articles of diet in these cases. The approaches are thus made toward a solid diet which is

not resumed until several weeks after the beginning of treatment. Even then, the greatest care must be taken for months afterward to exclude indigestible articles.

The medicinal treatment of gastric ulcer, while of secondary importance is, in my opinion, conducive to the healing process. There is a general belief, based upon careful clinical observation, in the value of bismuth subnitrate in this disease. It exerts a sedative action upon the stomach, neutralizes acidity and possibly, as some hold, forms a protective coating upon the surface of the ulcer. It should be administered in decided doses, at least half a drachm being taken thrice daily. It seems to me superfluous to administer such large doses as three drachms at a time; although good results are claimed for this heroic method of prescribing. The bismuth is best given suspended in barley water or mucilage. Benefit has been apparently derived from the use of silver nitrate, although it would seem more sensible to administer the chloride. In the hyperacid secretions of gastric ulcer the nitrate must be immediately converted into the chloride of silver. Pain, when severe, demands morphine or some other derivative of opium. Vomiting is best overcome by total abstinence from food by the mouth, by the hypodermic use of morphine, and by small doses of cocaine hydrochlorate. Hematemesis is met by hypodermic injection of ergot or adrenalin and the ingestion of small pieces of ice, conjoined with absolute rest, both general and local. Gallic acid and lead acetate are also of value in such cases. The springs of Carlsbad enjoy a well-earned reputation for the cure of gastric ulcer and many a patient afflicted with the disease has had reason to rejoice at having gone to this Mecca of dyspeptics. It is probable, however, that those who are unable to make this pilgrimage may derive quite as much benefit from the use of Carlsbad water in their own homes which offer so many collateral advantages. I fully agree with Ewald in the opinion that the good results attendant upon a stay at Carlsbad are largely due to the strict dietetic rules there enforced. The laxative effect of Carlsbad water is undoubtedly beneficial and may be obtained by giving from one to four drachms of the salt in a pint of water, the entire quantity being slowly consumed during the hour preceding the morning meal. Other purgatives should be used with great caution, especially mercury, which was believed by Brinton¹ to be of decided injury. "A single calomel purgative," says this well known authority, "has even appeared to undo all that months of sedulous treatment had been able to effect toward the relief of a gastric ulcer."

The frequent coincidence of gastric ulcer with chlorosis and other forms of anemia is notorious and, therefore, after the acute symptoms have subsided, attempts should be made to improve the condition of the blood with some bland preparation of iron. There is none better under the circumstances than the albuminate which may be given as manufactured by the chemist or prepared extemporaneously after the following formula of Ewald: A 2-3 percent solution of iron sesquichloride is made and of this one teaspoonful is taken thrice daily mingled with a wineglassful of egg-water; *i. e.*, with a solution of albumen made by adding one part of white-egg to two parts of water.

In a comparatively recent publication, Leube² gives the details of his method of treating gastric ulcer during a period of 15 years, and discusses the indications for surgical interference. His communication is of great value, both because of his world-wide authority on the subject of gastric disorders and especially on account of the fact that, during the period mentioned, he had, under his care, more than a thousand cases of gastric ulcer. The chief features of Leube's method consist in the systematic use of poultices and cold water compresses, the internal use of Carlsbad water, and a carefully regulated diet. Medication is altogether secondary and in many cases is not resorted to. Rest in bed, it is

scarcely necessary to say, is an important feature of the "cure." The mere haphazard employment of the above-mentioned measures does not warrant the claim that Leube's method has either succeeded or failed in any given case. The directions for their employment are minute and since his success has been remarkable, they deserve the most careful attention.

The patient is put to bed and kept there for ten days. On the first day the epigastrium is carefully washed with alcohol and sublimate solution; an ointment of boric acid spread upon a cloth is then applied to the same region, and over the cloth a hot flaxseed poultice about 20 cm. long by 10 cm. wide. The poultice is changed every fifteen minutes and is kept applied for from ten to twelve hours during the day. At night a cold water compress is substituted for the poultice, the cloth spread with ointment being interposed between the compress and the integument. The boric ointment dressing is changed but once in the twenty-four hours. An occasional effect of these continued hot applications is the formation of vesicles which rarely suppurate and invariably heal as soon as the dressings are discontinued. As a result of this topical treatment both the gastric pain and the epigastric tenderness disappear with remarkable regularity, about the fifth day. In the exceptional cases in which the pain persists, the poultices are continued (during the day) for five days after it has ceased. From the above it is evident that, in the majority of cases, the poulticing is kept up for ten days. After the cessation of the poulticing a cold water compress is applied at night for three weeks while, during the day, the patient wears an abdominal bandage of flannel. After meals, during the convalescent period, rest in the recumbent posture for one or two hours is enforced, and the patient is strictly forbidden to make any exertion or to pursue any occupation, such as sewing or knitting, which involves the bending forward of the trunk.

There are certain contraindications to the employment of poultices, one of which is the recent occurrence of gastric hemorrhage. Leube's rule is not to apply poultices unless three months have elapsed since the last hemorrhage. In such cases, the cold water compress is substituted, and even this is withheld unless eight days have passed without hemorrhage. The term hemorrhage, be it remembered, is not synonymous with hematemesis. To determine the presence or absence of hemorrhage, the feces should be carefully inspected. When hemorrhage is present at the beginning of the treatment or within eight days thereof, an ice bladder is first applied, to be replaced later by the cold water compress. Another contraindication to the employment of poultices is the occurrence of menstruation.

From the beginning of the course of treatment the patient is placed upon the use of Carlsbad water, which should be swallowed in the morning before breakfast with pauses between each mouthful. The water should be neither too hot nor too cold (35° to 38° C.) and the average quantity thus taken should be about one-fourth of a liter. In cases of extreme acidity the amount may be increased to one-half liter. From ten to fifteen minutes should be occupied in swallowing the water. The use of the Carlsbad water is continued for four weeks and for quenching the thirst during the day, a slightly alkaline water, such as the natural "*Selters wasser*," should be used. Drugs, as already stated, are not employed, as a rule, but when pain is severe, sodium bicarbonate, or bismuth, may be administered. Narcotics, such as opium and its preparations, including codeine, are never prescribed. In cases of obstinate constipation, enemata of tepid water may be employed daily, and every two or three days a dose of Carlsbad salt. After the eleventh day constipation may be relieved by a teaspoonful of a powder composed of powdered rhubarb, 20.0; sodium sulfate, 15; sodium bicarbonate, 7.5.

The third important factor in the treatment is the

diet. Nourishment is administered five times daily, and during the first ten days, *i. e.*, during the period of poulticing and rest in bed, is composed of boiled milk, Leube's meat solution and softened, unsweetened zwieback. The following week there is added to this dietary, soups made of rice or sago thoroughly softened by boiling in milk with white-of-egg, raw or soft-boiled eggs, calf's brain and boiled chicken. Other tender meats are gradually added, and after the fifth week the diet of health is resumed, although, as a matter of course, more than ordinary care should be taken to avoid indigestible articles of food.

The number of cases in which Leube has carried out this treatment is 556, of which 63 were private patients and 493 hospital patients; 116 were men and 360 were women; the proportion of women to men being, therefore, about 2 to 1. The ordinary mortality of gastric ulcer is about 13 percent, of which 6 to 7 percent is due to perforation, and 3 to 5 percent to hemorrhage. Out of Leube's 556 cases only 12 died, *i. e.*, 2.2 percent, of which 6 died of perforation and 6 from uncontrollable hemorrhage. In 69 of the cases the method was not carried out in all its rigor, the patients leaving the hospital before the cure was complete. This leaves 424 cases, of which 314 (74.1 percent) were cured; 93 (21.9 percent) were improved; 7 (1.6 percent) were not relieved; and 10 (2.4 percent) died.

It may be objected that in some of these cases the diagnosis of gastric ulcer was incorrect. With reference to this point Leube states that in 46 percent of his cases there was gastric hemorrhage, and further that in only one case was his diagnosis of gastric ulcer refuted by autopsy. The case in question was a hysterical woman who complained of great pain and tenderness in the epigastrium, and vomited blood. She died suddenly of pneumonia and, at the autopsy, the mucous membrane of the stomach was found intact.

With such results as these, Leube's claim that in from 75 percent to 96 percent of the cases of gastric ulcer surgery is uncalled for, seems to be fully established. In 75 percent, surgery is meddlesome because this percentage is cured by a single course of the treatment above outlined. In the remaining 21 percent which represents the cases merely benefited by a single course of the treatment, the method should be repeated once, twice, or even three times before considering the question of operation.

I have employed Leube's method in modified form in a sufficient number of cases to convince me of its efficacy. My modification consists in nourishing the patient, during the first week of treatment, either entirely or partially by rectal enemata, and in the *pro re nata* employment of opium and its derivatives. I can see nothing but advantage in the judicious employment of opiates in gastric ulcer.

I wish, in conclusion, to emphasize the importance of system in the treatment of disease: system based upon a thorough knowledge of the disease process, whatever it may be. System has accomplished wonders in neurology, in enteric fever, and, as we have just seen, in one of the most serious diseases of the stomach. It is system that has made the success of the Spas of Europe and this country, and the most successful system is the one which, like that of Leube, is not stereotyped but, on the contrary, is sufficiently elastic to adapt itself to the individual case.

REFERENCES.

- ¹ Lectures on the Diseases of the Stomach, London, 1884, p. 179.
- ² Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Band II, 1897.

Disabled in Line of Duty.—It has been held by the War Department that a soldier whose leg is broken by being run over by a car, has been disabled in line of duty. The soldier in the case at issue was obviously on pass, and moreover appears to have been absent from his post for the purpose of self-improvement (attending a lecture).

ADVANCES IN THE PHYSIOLOGY AND PATHOLOGY OF THE PANCREAS, AND THEIR APPLICATION TO THE DIAGNOSIS OF PANCREATIC DISEASES.*

BY

JOHN C. HEMMETER, M.D., PHIL. D., ETC.,

of Baltimore, Md.

Professor of Physiology, and Clinical Professor of Diseases of the Digestive Organs, in the University of Maryland, Baltimore, Md.

Exact physiologic knowledge concerning the functions of the pancreas dates from the year 1848, when Claude Bernard discovered that the secretion of this organ was capable of digesting fats, but he missed its tryptic action entirely. In 1857 Corvisart ascertained that the same secretion had the power of digesting proteid material. And although Frerichs in 1849, and Bidder and Schmidt in 1852 published comprehensive monographs on the total digestive process, nothing of medical interest was brought forward concerning the physiology and pathology of the pancreas until Friedreich¹ published his memorable communication on this subject in 1875.

From 1875 to 1887 was another period of fruitless endeavor. Then came the work of Müller² and the epoch-making discoveries of von Mering and Minkowski in 1889, who demonstrated in a manner exempt from all criticism that diabetes could be experimentally produced in the dog by extirpating the pancreas, and that the appearance of sugar in the animal's urine was accompanied by all the emblems of glycosuria as it occurs in the human being. It must be admitted that De Dominicas³ was about the same time experimenting in the same manner, and had arrived at the same results, but he did not publish them until 1892.

Speaking of the ebb of intellectual force, which we all from time to time experience, Alex. Bain says: "The uncertainty where to look for the next opening of discovery brings the pain of conflict and the debility of indecision." These words have in them the true ring of personal experience. The action of the investigator is periodic. He grapples with a subject of inquiry, wrestles with it, overcomes it, exhausts, it may be, both himself and it for the time being. He breathes a space, and then renews the struggle in another field. Now this period of halting between two investigations is not always one of pure repose. It is often a period of doubt and discomfort, of gloom and ennui. "The uncertainty where to look for the next opening of discovery brings the pain of conflict and the debility of indecision." This describes approximately the state of mind we are in at present regarding the applications of physiology to the diagnosis of pancreatic disease.

On the basis of numerous investigations into the pathologic histology of the pancreas in cases of diabetes, it was established that many cases of this type of disease are due to atrophy, fatty degeneration and tumors of the pancreas. Particularly have the degenerations of the islands of Langerhans been associated with diabetes. But it must be explicitly emphasized that in some cases of very severe diabetes no changes whatever were demonstrable in the pancreas in spite of very careful macroscopic and microscopic examination. Richard M. Pearce has recently furnished more confirmatory evidence that the islands of Langerhans, though originating through a proliferation and differentiation of the cells of the primitive secreting tubules of the pancreas, eventually become wholly independent structures anatomically. Pearce's studies in development of these interstitial islets were made on the human embryo. On the basis of physiology, histology, pathology and embryology, therefore, the pancreas as it now appears represents an organ within an organ. The glandular parenchyma is concerned with an external secretion, "the digestive pan-

creatic juice"; the islands of Langerhans are identified with an internal, if not secretion, certainly control of carbohydrate metabolism.

There are three requisites which conservative clinicians must demand of all published assertions concerning the clinical pathology of the pancreas: 1. A concrete and precise account of the objective and subjective signs and symptoms. 2. Quantitative and qualitative chemic analyses of feces, blood and urine after the ingestion of weighed amounts of proteid carbohydrates and fats; preferably each given alone. 3. Accurate description of the findings that are discoverable either at operation or at autopsy.

In very few of the more important contributions to this subject are these three requisites fulfilled with that regard for detail which the importance of pancreatic disease requires. Even in the very valuable paper by Müller,⁴ which in other respects is a scholarly contribution, the supposed anatomic changes in the pancreas, upon which he at times bases important conclusions, are not always confirmed either by autopsy or operation.

Future experimental aims will have to test (1) the possibility of separating the islands of Langerhans, concerned in control of carbohydrate metabolism, from the part of the pancreas concerned in secretion of the digestive juice; (2) the demonstration that active proteolysis may take place in the intestinal canal in the entire absence of pancreatic secretion.

In our efforts to study the effect of the pancreas upon the various food substances, we are considerably embarrassed by the possible effects that the succus entericus may have upon the same articles of diet. Hundreds of thousands of crypts of Lieberkühn are pouring their secretion into the intestinal lumen, and comparatively little has until recently been known about this secretion, except that it is capable of inverting the disaccharids. Pawlow was the first to show that one of the main actions of succus entericus was to reinforce and intensify the action of pancreatic juice, particularly its proteolytic power. Fresh pancreatic juice has practically no proteolytic power, but if fresh pancreatic and intestinal juice are mixed together, the result is a powerful proteolytic mixture, though neither juice by itself has any proteolytic activity. The substance contained in intestinal juice which has this action upon pancreatic juice, has been named by Pawlow "*enterokinase*" (he speaks of it as a ferment of the ferments). It mainly reinforces tryptic activity, but also has a similar but slighter activating influence on the fat-splitting ferment of the pancreas.

The influence of bacteria on intestinal proteolysis was first investigated by Busch⁵ at the surgical clinic of the University of Bonn. The person upon whom the investigations were made had been gored by a mad steer in such a way that a fistula had been formed, opening into the upper part of the jejunum, so that the entire gastric chyme, together with the bile, pancreatic juice, and the secretion of Brunner's glands, escaped exteriorly, and none of these substances could enter the lower section of the small intestine. Although large quantities of food substances were taken by the mouth, this patient seemed doomed to death from inanition, because the food materials after they had undergone gastric digestion and become mixed with the pancreatic juice and bile, escaped exteriorly before any further digestion or absorption could take place. Busch then resorted to feeding the patient by stuffing liquid and semisolid food into the lower section of the opened intestinal canal. Curiously enough, he succeeded in restoring the strength and weight of the patient, and in maintaining him in the nitrogen equilibrium. This rapid recuperation by nourishment being introduced into the lower opening of the fistula proves that digestion can be carried on in the intestinal canal in the entire absence of gastric or pancreatic juice, bile, or the secretion of Brunner's glands. The digestive process could have been effected either by the succus entericus, which, according to Demant⁶

* Address delivered by invitation of the Medical Society of Greater New York, February 8, 1904.

possesses no proteolytic properties, or by microorganisms. Busch seemed inclined to attribute to the succus entericus the power of dissolving coagulated egg albumen, but in none of his experiments can the action of the proteolytic microorganisms be eliminated. Concerning the action of succus entericus on protein substances, former views held that it is without influence on boiled white of egg and meat, but according to Thiry⁷ it has the power of dissolving fibrin. It cannot transform albumoses into peptone (Wenz⁸). I have gone over critically the literature given in this latter article, and also that in Hammarsten⁹ of those investigators who attribute a proteolytic action to the succus entericus. But in none of them can the action of bacteria be eliminated. This is particularly true of the experiments of Schiff,¹⁰ and those of Gachet and Pachin.¹¹ When the succus entericus was collected from animals and sterilized by filtration through a Pasteur filter and saturated with crystals of thymol, and the experiments were conducted under aseptic precautions, the succus entericus exhibited no proteolytic action. I was formerly disposed to attribute any proteolytic action recorded in the experiments of Busch to the action of proteolytic microorganisms. Busch inclosed coagulated egg albumen in small gauze sacs, and determined both the wet and the dry weight of the precipitated albumen used in his experiments. Attaching a string to the sacs, he permitted them to descend into the lower opening of the fistula. After they had remained in the intestine for about five hours, he withdrew them by means of the string, and determined the weight of the dry residue of albumen that had remained, and found that a loss of weight had taken place, varying from 5% to 35% of the introduced substance. Brücke¹² also favors the view that this proteolytic digestion is due to the intestinal bacteria.

In 1900, however, I showed that extracts from fecal matter, when thoroughly sterilized and proved to be sterile by test culture, still showed a remarkable proteolytic and amylolytic power, which was due to the presence of unorganized enzymes,¹³ and later on Otto Cohnheim¹⁴ discovered in this succus entericus a ferment which while it has no action on native proteids, like fibrin and egg albumen, still has a very powerful action on proteoses and peptone, which it rapidly and completely breaks up into simple substances like ammonia, leucin, tyrosin, and the hexone bases. Cohnheim has named this ferment "erepsin." Hamburger found that erepsin is also present in human intestinal juice, and it is not identical with enterokinase nor zymolysin (zymolysin is the name which Starling has given to enterokinase). The products of erepsin action are not discoverable in the blood or lymph stream. Hamburger therefore supposed that they were resynthesized into proteids during the process of absorption. Embden and Knoop¹⁵ however found neither a regeneration into coagulable (native?) albumin nor a further splitting up to occur from peptone, in the intestinal mucosa.

These recent contributions show that we have been in error in supposing that digestion in the entire absence of gastric and pancreatic juice was exclusively due to bacteria. It may be partly due to bacteria, but when a certain stage in the digestive process has been reached, erepsin (which is a very powerful enzyme) no doubt accomplishes the rest of the proteolytic work. It is also possible, from my results, that the succus entericus contains a proteolytic ferment very closely allied to trypsin, if not identical with it, in those cases in which the pancreatic secretion is prevented from being poured into the intestine; for I found subsequent to the experiments published in *Pflüger's Archiv*. l. c., that when the duct of Wirsung was ligated or stenosed, that a ferment could be extracted from the feces which could convert fibrin into peptones in an alkaline medium (accordingly it could not have been pepsin). This ferment was also found in the feces of a human patient in whom the pancreatic duct was stenosed by a huge pancreatic cyst.

All of these results go to show the difficulty in the way of facilitating the diagnosis of pancreatic diseases by judging from defective proteolysis as observed on undigested proteids in the fecal matter. Proteolytic ferments may be secreted in the succus entericus when those of the pancreas cannot enter the intestine, and again even when the pancreatic juice freely enters the intestine, it may not become active for proteids because of some inflammatory or degenerative process in the duodenal and ileal mucosa which prevents the formation of enterokinase or zymolysin. Thus this prospective aid to diagnosis is beset with many difficulties, for impaired proteolysis as observed on the feces may be due to many different deviations from the normal.

The Anatomy and Physiology of the Pancreas.—A recent and at the same time most valuable contribution to this subject is by Dr. Eugene L. Opie.¹⁶ I will pass over the description of the embryology and development of the pancreas, as not of absorbing interest to the clinician. In his description of the two ducts, the larger one, the duct of Wirsung, which enters the intestine in company with the common bile duct, and the smaller or accessory duct, that of Santorini, which terminates in the papilla situated nearer the stomach than that of the larger duct—he emphasizes that the duodenal orifice of the accessory duct is very minute, and joins the duct of Wirsung, into which doubtless pours its contents in the great majority of individuals. Opie has dissected the ducts after injection in 100 subjects. The two ducts were present in every instance, but one or the other was occasionally so small that it was found with difficulty. In 10 of the 100 instances the two ducts failed to anastomose within the gland, and in four additional subjects the two ducts were united by such a minute branch that they might be regarded as independent of one another. In 20 instances the duodenal end of the duct of Santorini was not patent. Thus these figures demonstrate that in at least two-thirds of all individuals the duct of Santorini cannot act as an accessory outlet, when the duct of Wirsung is occluded. In a considerable number of specimens the orifice of the duct of Santorini, though patent, was so minute that its functional significance was slight, and in 11 of the 100 specimens the duct of Santorini, on the contrary, was equal in size or larger than the duct of Wirsung, so that during life it was doubtless the outlet for the larger part of the pancreatic juice. The two ducts unite to form the short common channel, the diverticulum of Vater, which is subject to almost as much variation as the pancreatic ducts themselves. In 11 instances of the 100 subjects examined by Opie, no diverticulum was present, and the two ducts entered the duodenum separately at the summit of the bile papilla. The duodenal orifice of the diverticulum of Vater had an average diameter of 2.5 mm., and the length of the diverticulum varied from 1 mm. to 11 mm., and only in 30 of the 100 specimens did the length equal or exceed 5 mm. These dimensions are significant because they show that a calculus which has become impacted within the orifice, will completely fill the diverticulum and occlude both ducts.

Physiologists and pathologists are now more and more appreciating two functionally diverse elements of the pancreas. First, cells which supply the intestine with important digestive ferments, those which are concerned in the manufacture of pancreatic juice, and second, cells having no communication with the ducts of the gland, but in intimate relation with the bloodvessels, and producing an internal secretion concerned in carbohydrate metabolism. Cases have from time to time been reported in which it was claimed the entire pancreas had been destroyed by disease, and yet the carbohydrate metabolism did not appear disturbed. We can understand how the stomach and intestines may step in and take up the digestive functions of the pancreas vicariously, but this is not intelligible so far as the internal secretion is concerned. In such cases in which the pancreas is appar-

ently destroyed, the maintenance of normal carbohydrate metabolism might be explained by the discovery of Helly, who found lobules of pancreatic parenchyma situated within the papilla of the duct of Santorini, and also immediately below the duodenal mucosa. Occasionally these misplaced portions of pancreatic tissue were provided with an independent duct, and constituted a true accessory pancreas. In 1,800 autopsies performed at the Johns Hopkins Hospital, small masses of aberrant pancreatic tissue were found by Opie imbedded in the wall of the stomach or of the intestine in 10 cases at a variable distance from the pancreas. In two instances two accessory glands occurred in the same individual. These accessory and aberrant pancreatic glands may, in exceptional cases, explain the maintenance of the normal carbohydrate metabolism in those exceptional cases in which the pancreas was reported apparently entirely destroyed.

Proceeding to a consideration of the histology of the pancreas, Opie graphically describes the ferment-secreting cells, which are large and contain zymogen granules, presenting characteristic variations during different stages of secretion, and forming the secreting acini. Scattered among the secreting acini, and several times the size of a single acinus, are the round oval bodies composed of polygonal cells grouped together to form short tortuous columns which unite with one another in such a way that space is left for a network of wide capillary bloodvessels. These interacinar islands are surrounded by capillary vessels which, when injected, appear, tortuous dilated and resemble the glomeruli of the kidneys. These islands of Langerhans consist of columns of cells in intimate relation with a rich vascular supply, and having no communication with the pancreatic ducts. They are ductless glands resembling the adrenal and parathyroid bodies. They are not concerned in the elaboration of the pancreatic ferment, and abundant evidence has shown that the islands of Langerhans exert an influence upon the carbohydrate metabolism through an internal secretion. Opie refers to the pancreas of a child who died of diabetes. The disease in this case was hereditary, and affected six members of the same family. The number of the islands of Langerhans was only a third of that usually and normally present. It suggests the possibility that diabetes will occasionally be the result of a congenital anatomic defect in the pancreas.

Development and Pathology of the Islands of Langerhans of the Pancreas.—Before the American Association of Pathologists and Bacteriologists, at the meeting held May 12, 1903, Dr. R. M. Pearce reported an exhaustive study of these groups of cells in a large collection of anatomic material, including 21 human embryos of different stages. The paper had essentially an embryologic and histologic bearing, but emphasis was laid upon the fact that the cells of the islands of Langerhans gave evidence of a remarkable resistance to degenerative processes. This makes it conceivable that we may eventually succeed in destroying the digestive or ferment producing cells of the pancreas in a living animal, leaving the islands of Langerhans intact. It has occurred to me that possibly this might be produced by the pancreatic juice itself, or by inducing an autolysis of the digestive cells of the pancreas through the influence of its own digestive ferment after the trypsin has been activated by enterokinase. In an autopsy in a case of diabetes mellitus, in which the patient had recovered from the symptoms of glycosuria, but had eventually succumbed to consequences of cholelithiasis, I observed a partial autolysis of the glandular apparatus of the pancreas, whereas the islands of Langerhans did not appear diseased. Dr. R. M. Pearce, in a private conversation with me, was of the opinion that congenital syphilis might so affect the pancreas that the glandular cells would degenerate and the islands of Langerhans remain comparatively intact.

It seems to me that the functional exclusion of one or other of the two acting cell groups of the pancreas is the only exact way of arriving at conclusions concerning the role of the islands of Langerhans in carbohydrate metabolism, and it does not appear impossible that they may be isolated physiologically in one of the ways suggested.

Acute and Chronic Pancreatitis.—Before proceeding to the most recent contributions on the subject, I will have to refer to two American publications, one by W. S. Thayer¹⁵ and one by Eugene Opie.¹⁶ Thayer's conclusions were as follow: 1. Acute pancreatitis must be suspected in cases in which glycosuria develops with or following chronic cholelithiasis. 2. In cases of glycosuria with liver cirrhosis. 3. Cases of glycosuria with hemochromatosis. 4. Cases of glycosuria developing after attacks of supposed pancreatic colic. Pancreatic calculi can only be diagnosed by discovering them in the stool. Pancreatic cysts can be recognized from their position, but primary pancreatic cancer is often latent. Cancer of the pancreas should be suspected in cases of obstructive icterus with enlarged gallbladder, rapidly developing cachexia, and no, or only very slight, enlargement of the liver. Opie, in his contribution on "Chronic Interstitial Pancreatitis," made the following clinical conclusions: 1. It is more frequent in men than in women. 2. The most frequent cause of chronic pancreatitis is obstruction of the ducts of Wirsung from any cause. 3. Ascending infection of the pancreatic duct may cause this condition when the duct is not obstructed. 4. General or localized tuberculosis may cause profuse pancreatitis. 5. This disease is frequently brought about by the same causes which produce cirrhosis of the liver. As a rule, the chronic process attacks at first the interlobular tissues, later on, the acini themselves, and last of all, the islands of Langerhans. Only in very advanced cases does diabetes occur. 7. The pancreas is frequently the seat of a chronic inflammation in cases of Laennec's cirrhosis of the liver, which is then characterized by diffuse proliferation of the interacinar tissue. A similar pathologic condition accompanies also the hyaline degeneration of the islands of Langerhans, and the process known as hemochromatosis.

Chronic Indurative Pancreatitis.—S. M. Melkich¹⁷ reports two highly instructive cases of chronic pancreatitis. The true nature of the malady, however, was ascertained at the laparotomy. In a female of 38, the principal symptoms were those of bile retention. In another, a woman of 22, among many other symptoms the most poignant was violent attacks of colic with considerable elevation of temperature. This writer, in agreement with a former publication by myself¹⁸ and a very instructive paper by Reginald H. Fitz, to be reported, asserts that the diagnosis of chronic pancreatitis presents immense difficulties, and is as a rule not recognized before autopsy. According to Melkich this disease is either caused by alterations in the bloodvessels on the basis of alcoholism, syphilis or arterial sclerosis, or secondly by bacterial and catarrhal processes, the latter frequently associated with formation of concretions in the excretory ducts. If we can establish the coexistence clinically of diabetes, steatorrhea and azotorrhea in addition to a palpable enlargement of the head of the pancreas we should suspect an involvement of this organ. Unfortunately these symptoms are rarely present simultaneously. He finds that the most constant clinical sign is tumor in the particular abdominal lesion, that is, a swelling of the head of the pancreas; which means that phenomena of pressure resulting therefrom—for instance, compression of the pylorus, icterus, passive congestion in the portal vein system, ascites, and enlargement of the spleen, edema of the lower extremities, and celiac neuralgia—are provoked by pressure caused by increase in volume of the head of the pancreas. The differential diagnosis must consider the distinction from *catarrhal icterus*. A particularly stubborn icterus accompanying a palpable tumor in the

region of the pancreas speaks for pancreatitis. An existing pancreatitis may simulate cholelithiasis. Here the following argument seems logical: Chronic and slowly increasing icterus with simultaneous colics, enlarged gallbladder, with symptoms of protracted cholelithiasis, and an olive green or yellowish discoloration of the skin, speaks for pancreatitis; especially so when at the same time a tumor can be palpated in the pancreatic region. If carcinoma of the pancreas can be excluded, and an operation produces improvement, these consequent effects of the laparotomy confirm the diagnosis of chronic indurative pancreatitis.

Adrenalin Glycosuria and Certain Relations between the Adrenal Glands and Carbohydrate Metabolism, by C. A. Herter and A. J. Wakeman.¹⁹ Application of adrenalin on the pancreas causes a stronger excretion of sugar than when this substance is brought upon the brain, liver, skin, or kidneys. In one case 24 gm. of sugar was excreted inside of 12 hours after the head of the pancreas had been painted 10 times with 1 cc. of a solution of adrenalin chlorid, 1 to 1,000. In adrenalin glycosuria the amount of sugar in the blood is regularly increased, thus differing from the phloridzin glycosuria. These authors incline to the view that the pancreas is the organ which is principally concerned in the development of adrenalin glycosuria, for in five dogs in which the pancreas was completely removed after bilateral ligation of the vessels of the adrenal bodies, the urine contained no sugar, or only a trace. Nearly all reducing substances, not the oxidizing substances, produced glycosuria when brought upon the pancreas. The second part of this work considers the relation of the adrenal bodies to carbohydrate metabolism. Compression of the adrenals causes glycosuria, their extirpation causes diminution of the sugar in the blood.

Similar experiments on the spleen were negative. If adrenalin was brought into the abdominal cavity considerable time after the extirpation of the suprarenal bodies the glycosuria did not occur. We shall return to this subject in considering Professor Reginald H. Fitz's paper.

Pancreatic Disease Simulating Cholelithiasis.—Since the work of Opie, the physiologic, embryologic, and pathologic relationship between the pancreas and liver has been more carefully studied. Worobjew²⁰ also emphasizes that the pancreas frequently participates in diseases of the liver, and what is more important to know, it may closely simulate hepatic disease, particularly cholelithiasis. A complete clinical picture of gallstones may thus be present, due exclusively to chronic disease of the pancreas. Infrequently, also, both organs are affected, and we have reasons to surmise that the classic symptoms of biliary calculi are only in part due to the latter, the pancreatic component entering largely into the clinical picture. For the physician, and still more so for the surgeon, these facts carry the greatest weight. It has occurred that an operation was performed for "gallstones," and stones were removed from the gallbladder, yet no improvement resulted, and at the autopsy calculi were discovered in the pancreas. Symptoms pointing to pancreatic involvement (chronic inflammations, calculi, etc.) are: 1. Colicky pains in the left hypochondrium, unaccompanied by jaundice. 2. Diabetic manifestations, chiefly rapid emaciation. 3. Fatty evacuations. 4. Salivation. 5. Tumefaction and resistance in the region of the pancreas. 6. The appearance of calculi in the stools following attacks of colicky pains, the calculi consisting of carbonates and phosphates of lime. As to treatment, narcotics are of small value in pancreatic colic. Pilocarpin, hypodermically and pancreatin internally, deserve a trial, but in the event of failure, recourse should be had to surgical measures.

Steinhaus²¹ reports autopsy findings in 12 cases of cirrhosis of the liver. In 11 of these, chronic interstitial inflammation of the pancreas was found. The character of the inflammation is not described with the same exactness that Opie gives to this subject. It is said to

be a chronic interstitial inflammation of the pancreas, similar in each case to the condition found in the liver of the same subject. The islands of Langerhans were found affected in only one case. The diminished tolerance for sugar frequently observed in cirrhosis of the liver is, therefore, probably due to the implication of the pancreas and not to the liver condition. It is not necessary to classify separately the glycosurias accompanying cirrhosis of the liver, arteriosclerosis, pancreatic disease, etc. Rather, it is to be inferred from all recent investigations that every case of glycosuria is probably due to some disturbance in the functions of the pancreas, and that this organ alone controls the carbohydrate metabolism of the organism.

In recent American literature, two cases of pancreatitis, due to preceding cholelithiasis, are reported; one of acute pancreatitis with fat necrosis, by G. H. Monks and David B. Scannell, terminated fatally after the operation. The pancreas and the left suprarenal body were disintegrated by fatty necrosis. The second case was one of chronic pancreatitis, and is reported by Harding.²² It occurred in a woman of 49, who had previously had both breasts removed for cancer. The symptoms came on acutely, and consisted of severe pain in the epigastrium, lasting for four hours. Attacks of pain occurred every third day, associated with fulness in the stomach and frequent eructations of gas; jaundice, nausea, constipation and neurasthenic symptoms were present. At operation, the pancreas was found enlarged and nodular, which led to the suspicion of cancer. A small piece of the pancreas was examined, but showed simply chronic pancreatitis, and no cancer. Nothing was done, except to open and drain the gallbladder, and the patient recovered entirely. Both of these recent cases from American literature emphasize the necessity of exploratory laparotomy as soon as such conditions are suspected.

Relation of the Pancreas to Diabetes and Glycosuria.—Medical literature bearing upon this relationship in the past year has been very prolific, but it cannot be said that the various publications on this subject have distinctly advanced our knowledge. Professor Ribbert, in his excellent textbook on "Special Pathology, etc.," emphasizes that although destruction of the pancreas may cause diabetes in man and animal, there are cases of diabetes, on the other hand, in which no affection of the pancreatic tissue is apparent. This may find its explanation in such very slight degenerative changes of the pancreatic cells that they cannot be recognized even by the microscope; but on the other hand, it might be explained by the fact that there undoubtedly are forms of diabetes having a different anatomic substratum, not dependent on pancreatic changes. Pavy defined diabetes as a disease in which dextrose is present in the blood and urine, and in which ultimately levorotatory betahydroxybutyric acid appears in the blood and urine, and the output of carbohydrates in the urine is greater than can be accounted for by those in the food. Dr. Pavy, many years ago, pointed out that a diabetic patient who was on a strictly carbohydrate-free diet may, if a little carbohydrate be given, excrete far more sugar than that given in the food. In connection with this historic observation of Pavy, Dr. W. Hale White,²³ in a symposium at a meeting of the Chelsea Clinical Society, suggested that experiments might be made to see whether diabetics can utilize other forms of sugar, for he found that they may utilize levulose better than dextrose. He argued that information was needed on the three following questions: (1) Is alteration of the islands of Langerhans the essential feature of pancreatic disease which causes diabetes? (2) Can we tell during life which patients have and which have not diabetes? (3) What is the relationship of internal pancreatic secretion to diabetes?

To answer these questions in the reverse order in which they are placed, and answer them from recent

literature, I would have to say, basing my remarks on the work of Herter and Wakeman,¹⁹ and the book by Ribbert, as well as from deductions made from the symposium on pancreatic disease before the Association of American Physicians, Washington meeting, May, 1903, that the idea of an internal secretion of the islands of Langerhans is not yet sufficiently well grounded to justify reliable conclusions. The second question, whether during life we can tell which patients with diabetes have and which have not pancreatic disease, cannot be answered except by exploratory laparotomy. The first question is best answered by the following work of Weichselbaum and Stangl.

Histologic Examination of the Pancreas in Diabetes Mellitus.—Weichselbaum and Stangl²⁴ report 32 cases of diabetes, in all of which they made studies on the pancreas with especial reference to the islands of Langerhans. They found the pancreas diseased in all cases, but the changes affecting the islands of Langerhans were especially marked and constant. These alterations concerned the number, size and structure of the islands. There was diminution of their size and number in all the cases, but in addition they were affected by one or more of three special changes: Simple atrophy of the epithelium, vacuolization and liquefaction of the epithelium, and sclerosis of the islands; occasionally hemorrhage and calcareous infiltration were also present. All of these changes, however, led to diminution of size and ultimate destruction. The alterations in the parenchyma of the pancreas were neither constant nor ever sufficiently marked to be considered of primary importance. The lesions included atrophy of the tubules, proliferation of the central acini, increase in the amount of interstitial connective tissue, interstitial pancreatitis, both acute and chronic, fat necrosis, lipomatosis, cirrhosis of the pancreas, and atheroma of its arteries. Their results correspond very closely with those of other recent observations. The authors believe that the parenchymatous alterations and those in the islands of Langerhans are entirely independent of each other. While they are not positive in the statement that the changes in the islands of Langerhans cause diabetes, still they believe that the evidence gathered by themselves and others is in favor of the existence of such a causal relation. In addition to the pathologic changes mentioned they base their opinion on the facts that the alterations in the islands of Langerhans have never been observed in other diseases; that cases in which pancreatic disease exists without change in the islands of Langerhans are nondiabetic; that these changes are constant in diabetes, the alterations in the rest of the pancreas are not; and that as the two parts of the pancreas are so different in their development and structure, it is likely that they also vary in their function.

In the debate on diabetic and nondiabetic glycosuria, Saundby²⁵ defined these conditions as follows: Diabetic glycosuria is a glycosuria in which assimilation fails; and nondiabetic glycosuria is that in which assimilation is not at fault; and J. Rose Bradford said that many distinct and separate forms would be recognized in future, and although the presence of glycosuria was so intimately associated with diabetes, yet that disease might exist when no sugar was present. He suggested that five varieties of diabetic glycosuria might be described: (1) That dependent on disturbed function, of absorptive and other mechanisms of the digestive tract—the alimentary glycosuria. (2) Glycosuria of hepatic origin, abnormal glycogenic function of the liver. (3) Pancreatic diabetes. (4) Renal glycosuria based upon the experimental results with phloridzin, which caused glycosuria by action of the renal cells. (5) Diabetic glycosuria might arise as a result of primary disintegration of the tissues.

The form of glycosuria which can be produced by lesions of the nervous system, has only an experimental basis so far.

Symposium on Pancreas and Pancreatic Disease (Washington, May, 1903).—This symposium was led chiefly by E. L. Opie,²⁶ of Baltimore, on the anatomy and histology which I have already abstracted. A second paper was the physiology and physiologic chemistry by Prof. R. H. Chittenden, of New Haven, who dwelt upon the two distinctive functions of the pancreas. He referred to the work of Bayliss and Starling who had separated from the duodenal mucosa a substance which they call "secretin" upon which the secretion of the pancreatic juice depends. I wish to remark that these researches of Bayliss and Starling have recently been confirmed by two French experimenters, Enriquez and Hallion²⁷ who extend the physiologic effects of secretin, and assert that it is not a specific stimulant for pancreatic secretion, but also stimulates the secretion of bile. They also assert that an acid, as well as sodium bicarbonate, two antagonistic chemicals (acid and base) will produce an abundant flow of bile and pancreatic juice, when brought upon the mucosa of the duodenum in dogs that have a duodenal fistula. Chittenden does not furnish in his report satisfactory evidence that the cells of the islands of Langerhans have an internal secretion. The cells of the pancreas have more pentose than the other cells in the body. Chittenden called attention to the results of Herter and Wakeman concerning the adrenalin glycosuria, and the reducing action upon the pancreatic cells. The fact that many organs of the body might form reducing substances which might reach the pancreas in the blood stream, made probable that in this fact was to be found a new light on the origin of diabetes. However, Herter and Wakeman²⁸ found that not only reducing substances but also oxidizing substances could cause glycosuria. Adrenalin when brought upon brain, liver, spleen or kidney, also produces increased excretion of sugar, and they could not positively prove whether or not this adrenalin had been absorbed into the general circulation and after all produced its effect by acting upon the pancreas, for to decide this it would have been necessary to extirpate the pancreas, a procedure which in itself inevitably causes glycosuria. So the present state of the physiology of the pancreas gives us no new and precise information on these important questions.

The experiments of Herter and Wakeman would receive a new interpretation if the statements of Poehl²⁹ could be confirmed, concerning the derivation of the poison known as adrenalin. Poehl asserts that this substance does not by any means occur only in the adrenals, but in all other organs and tissues of the body. He attributes the priority of having discovered adrenalin in 1892 to Kondratiew, who it is claimed made a strong solution of it from the spleen of animals. So long as the adrenalin is in the nucleus of the cells, it is not only harmless, but of advantage to the organ. The poison leaves the cell, according to Poehl, when the juices of the organism become acid, which can occur from certain forms of anemia and diabetes. To avoid this extrusion of the poison from the cells, the alkalinity of the juices must be restored.

The report on the etiology and pathologic anatomy of pancreatic disease made in the foregoing symposium, by Simon Flexner, contains nothing new outside of what E. L. Opie has contributed on this subject in the *Journal of Experimental Medicine*, namely, that there are two forms of chronic inflammation of the pancreas, an interlobular and an interacinar form, and it is the latter form which is the one associated with diabetes.

The most valuable paper from a clinical standpoint that was contributed to the symposium was that on the symptomatology and diagnosis of disease of the pancreas, contributed by Prof. Reginald H. Fitz,³⁰ who began by a reference to the work of Friedreich,³¹ in 1875. According to Friedreich, no single symptom which may occur in diseases of the pancreas is a pathognomonic, and the occurrence of several does not always result in a

positive diagnosis; fatty stools, melituria, epigastric pain, with the characteristics of celiac neuralgia and palpable tumor, lead among the symptoms most useful in diagnosis, and then follows a remarkable statement of Friedreich, which I have, since his publication, occasionally seen erroneously attributed to others, viz.: "The presence of undigested striated muscle fibers in the feces is worthy of every consideration, and may prove of diagnostic value." Fitz agrees with other authorities that the symptoms and signs especially suggestive of pancreatic disease are dependent largely upon the resulting disturbances of (1) its functions, and (2) upon the physical condition and situation of the organ. The former include the various modifications in the composition of the urine and feces, the latter comprise the localized resistance, tenderness and pain, and the evidence of obstruction of the gastrointestinal and biliary tracts. The demonstration of sugar in the urine, of visible fecal fat, or undigested muscle fibers in the feces, often led to the assertion that pancreatic disease was present when one or more of these conditions had been determined. But when the results of clinical observation were compared with anatomic investigation, it became evident that diseases of the pancreas occurred much more frequently without the recognition of glycosuria, and excessive fat and muscle in the feces than when these abnormalities were evident. If diabetes is associated with long-continued bronzing of the skin and enlargement of the liver, in the absence of jaundice and the characteristic distribution of the pigment in Addison's disease, the suggestion is direct that chronic fibrous pancreatitis is present. Anschütz has tabulated 24 cases of complication since the original publication by Hanot and Chauffard on this subject (the bronzed diabetes of the French writers).

In this paper by Fitz there is a table showing the relation between visible fecal fat, jaundice, and pancreatic disease. Only those cases are included which gave anatomic changes at autopsy, a laparotomy, or by passage of a pancreatic calculus, that there was actual disease of the gland. Without going into details of figures, the table suggests that in about three-fifths of the cases of steatorrhea attributable to pancreatic disease there was neither diabetes nor jaundice; that in two-fifths there was either diabetes or jaundice in about equal proportions, and in but few instances was there a combination of diabetes and jaundice. In another table the view of Müller is brought out that in pancreatic disease there is less splitting of fat, and consequently an increase in the neutral fat, thus giving a satisfactory explanation of the oily stools of older writers. This is not the case without exception, however. The possibility that the feces may contain an excessive amount of fat occurs not only in cases of jaundice, but also when there is superabundance of fat in the diet or when there is an abnormality of the absorptive function within or without the intestinal wall. Steatorrhea is therefore to be regarded as an evidence of disease of the pancreas only when other causes for its presence can be excluded, the most important of which is interference of flow of the bile into the intestine.

Fitz emphasizes that any disturbance in the digestion and assimilation of fat, muscle, and carbohydrates from affections of the pancreas has almost invariably been connected with extensive and protracted lesions. It is obvious, therefore, that feeding with an increased quantity of one or the other of these constituents of diet in suspected cases of pancreatic disease might be followed by appreciable changes in the secretions and excretions earlier than otherwise would have been the case. It is clear, also, that deficiency in the digestion of fats, starches, and proteids, relieved by the addition of pancreas or its preparations to the diet, provided disease of the remaining digestive glands could be eliminated might furnish additional evidence in favor of the pancreatic source of the disturbance.

Regarding the dietetic experiment of testing the functions of the pancreas, Fitz favors the view that aims to increase the quantity of fat in the diet nearly to the limit which can be reached without producing steatorrhea in healthy persons or in patients not suffering from disease interfering with the absorption of fat. It would be particularly desirable to know the toleration of fat in those cases of diabetes in which the pancreas presents no abnormal condition. These methods require the trained physiologic chemist. In a like manner the capacity of the patient for digesting muscle fiber in the intestine as compared with that of a normal individual should be tested. Of course this would necessitate that we should first know the condition of the gastric function, and that we should introduce into the intestine muscle fiber as free as possible from the influence of gastric digestion.* We shall refer to a more practical method suggested by Adolf Schmidt³² at the end of this article.

The efficiency of the pancreas for digesting the starches might be tested by an experimental alimentary glycosuria. The salol method of Ewald and Sievers, and the glutoidiodoform capsules of Sahli are chemie methods of doubtful efficacy in the diagnosis of pancreatic disease. Yet one is justified in concluding that the secretory functions of the pancreas are normal whenever the iodoform (iodin) reaction in the saliva occurs within 3 to 4 hours of swallowing the capsule, but a delay in this reaction up to even 12 hours does not warrant the conclusion that there is an insufficient secretion of pancreas. Opie³² has suggested the possibility of discovering in the urine the fat-splitting ferment set free in acute pancreatitis. He endeavored to determine its presence in one case by following the method proposed by Kastle and Loevenhardt, which is based upon the decomposition of ethyl butyrate by lipase and the production of butyric acid. The urine neutralized with potassium hydroxid was divided into two portions, one of which was boiled for the purpose of destroying the ferment. Ethyl butyrate was added to each specimen. That unboiled after 24 hours gave an acid reaction, while the boiled specimen showed little if any change. It is necessary, however to know prior to accepting any conclusions from this test, whether normal urine does or does not contain lipase.

The symptoms which have proved most useful in the diagnosis are those which call attention directly to the region of the pancreas. They are epigastric pain, tenderness, tension and tumor, with or without obstructive jaundice, and evidence of mechanical interference with the motility of the stomach and duodenum. Although the diagnosis of diseases of the pancreas in the light of our present knowledge depends practically more on the symptoms calling attention to the locality of the organ, than upon the evidence of disturbance of its function, it is reached eventually by the exclusion of other sources than the pancreas, as causes of the local symptom. Fitz in his first publication on acute pancreatitis (1889), emphasized that the symptoms are essentially those of a peritonitis beginning in the epigastrium, and occurring suddenly during ordinary health without obvious cause. The diagnosis is based on the pain, tenderness and tympany limited to the region of the pancreas, and on the gradual development of deep-seated peritonitis. The differential diagnosis lies practically between an irritant poison, perforation of the digestive or biliary tracts, and acute intestinal obstruction. In cases of acute pancreatitis thus far reported, no new evidence has been furnished which gives to the diagnosis more than a variable degree of probability. Certainty has been reached only by laparotomy or a postmortem examination. Fortunately exploratory laparotomy has proved the most satisfactory method of treatment for relief of acute symptoms in an increasing number of cases.

The diagnosis of chronic pancreatic affections is based

* Ground meat pulp might be introduced into the duodenum by Hemmeter's or Kuhn's method of duodenal intubation.

on the occurrence of localized pain and presence of tumor; the evidences of disturbed pancreatic function are to be sought along the lines previously mentioned, but experience has shown that definite and convenient additions to our knowledge, are necessary before functional disturbances of the pancreas can be ascertained sufficiently early and with sufficient certainty to render assured the pancreatic source of the disease. Such personal efforts I shall describe in the following:

Fat Necrosis.—Gideon Wells³³ gives the results of his experiments on fat necrosis as follows: 1. Fat necrosis seems to be merely a special form of necrosis of fat tissue, differing from simple necrosis chiefly in the sharp limitation of the affected area, usually by a wall of leukocytes, and later by connective tissue; and the filling of the necrosed cells by the products of fat splitting. Each of these features can be produced experimentally in various ways, but the complete picture has never yet been produced except by products of the pancreas. 2. Fat necrosis can be produced with constancy in cats and dogs, less successfully in rabbits, by intraperitoneal injections of extracts of fresh hog pancreas, and nearly as well with dog pancreas. The results are the same with solutions that are in weak alkalies (Na_2CO_3), weak acids (NH_4COOH), or in water. Fat necrosis produced in this way is the same in appearance, both macroscopically and microscopically, as human fat necrosis. 3. Equally constant results can be obtained with ordinary commercial "pancreatins." 4. Preparations of carica papaya, although highly irritating, do not produce fat necrosis. 5. This property of pancreatin to produce fat necrosis survives for five minutes at a temperature as high as some point between 65°C . and 71°C .; above this point the property is entirely lost. The amount of fat necrosis produced decreases steadily after exposure at 55°C . and upward. These observations point to enzyme action as the source of the condition. 6. It has been impossible to ascertain which of the pancreatic enzymes causes fat necrosis.

Pancreatin, weak in or devoid of lipase, will not produce this effect. Lipolytic extracts of hog's liver or cat's serum are likewise inactive. Mixtures of lipolytic extracts of liver with pancreatic trypsin will not produce fat necrosis. Extracts of fresh dog pancreas that are, when injected, feeble in or devoid of tryptic power, but possess lipolytic power, cause fat necrosis. If to such extracts an emulsion of duodenal mucosa is added, the enterokinase greatly increasing the tryptic activity, no fat necrosis will be produced. As the lipase of pancreatic extract cannot be isolated, it is impossible to ascertain if it by itself is capable of causing fat necrosis; but it seems highly probable that it is essential. It may be that the lipase causes fat splitting after some other ingredient of the pancreatic juice has injured the cell. 7. When fat tissue within the body has been made necrotic and preserved from outside influences of absorption, etc., the lipase that it may contain does not produce the change of fat necrosis. 8. Simple alkaline solutions of the strength of pancreatic juice or slightly stronger (NaOH , $\text{Ca}(\text{OH})_2$, Na_2CO_3), do not produce fat necrosis. 9. Many of the features of fat necrosis may be produced after death in animals, and also in vitro, with pancreatin, but the resulting condition does not resemble fat necrosis at all closely. 10. Dissemination outside the abdominal cavity has been observed as early as 12 hours after intraperitoneal injection. The route by which the spreading is accomplished is probably the lymphatic system. 11. The forms of the foci produced seem to depend simply upon the area exposed to the action of the pancreatin. 12. The earliest change in fat necrosis is a simple necrosis of the surface tissue, which extends gradually into the deeper fat cells. Fat splitting is subsequent to the necrosis, and not its cause. At first the products are noncrystalline, but become crystalline later. 13. The process progresses for but a few hours at any one point, the extension seeming to be limited by the sur-

rounding leukocytes. Absorption of the area is accomplished by leukocytes, and healing is by proliferation of connective tissue from the margins. Adhesions are seldom formed. 14. The foci become visible to the naked eye in three to five hours. They may disappear within 11 days, or persist for a much longer time, depending chiefly upon their size. 15. Fat necrosis by itself is not dangerous to the affected animal, and may develop while the animal shows no observable symptoms.

Prospects of Diagnosing Pancreatic Insufficiency from Defective Proteolysis, Amylolysis, and Adipolysis.—The difficulties besetting deductions from defective proteolysis have already been considered, and concerning the amount of fat that appears in the feces undigested (defective adipolysis) the results would be misleading, unless we knew how much fat the intestinal wall regularly excretes into the fecal mass. In the feces of a person under starvation diet (that means the feces which appeared when no food at all was taken for several days) F. Müller³⁴ found from 26.3% to 35.46% of fat (in the dried feces), and Rubner found in the feces of a subject kept on an entirely fat-free diet 3.1 gm. to 6.5 gm. of ether extract a day. If these are the amounts of fat found in feces when no fat is taken in diet, it is logical to assume that much more is to be found when the diet contains moderate or abundant quantities of fats. Then there are great variations in fat digestibility that are dependent upon (1) the digestive or adipolytic power of the person under observation; (2) the digestibility of the fats, which is inversely proportional to their melting points. The higher the melting point, the less fat will be absorbed, and the more will appear in the feces. When the same quantities of stearin, mutton fat and olive oil are ingested, the amounts were determined as lost in the feces: Stearin, 86% to 91%; mutton fat, 7.4% to 9.15%; olive oil, 2.3%.

In looking about for some practical chemic method to facilitate the diagnosis of pancreatic disease, I entertained the hope that by careful qualitative and quantitative methods I might be able to determine the "threshold" of fat digestibility, and by repeated analyses of feces after ingestion of weighed amounts of fats, I might be able to ascertain approximately just how much fat an adult of known size and weight could digest, and determine the time when I would have a right to expect to find the fats excreted in the feces. Here we meet with almost unsurmountable difficulties, because to be of value, the "threshold" will have to be determined for each patient individually, and to experiment upon a sick person with ever-increasing fat diet is impossible. These aims to determine a limit of fat digestibility and absorbability, and what I might call a relative "pancreatic insufficiency," are in my opinion not feasible. It is only when the analyses for fecal fat show very decided increase of fat lost that this factor becomes available for diagnosis. Evidently this can only occur when the ducts of Wirsung (and Santorini) are completely stenosed, or when the pancreatic cells have undergone advanced degeneration. For an early diagnosis, even such analyses are not helpful.

Defective Amylolysis and Its Significance.—As a measure of intestinal amylolysis, we use test-meals made of potato puree or of well-boiled rice. Under normal conditions none of the ingredients of the stool should show a blue reaction with iodine after such a diet. Any cells of potato which may assume a pale violet color are, as a rule, found to be still retaining their cellulose envelope to a large extent. Now, defective starch digestion as shown in the stool does not in practice permit of a deduction concerning the condition of the pancreas. Defective starch digestion depends, in a great majority of cases, upon a disturbance of the secretion of the succus entericus. If, instead of the microscope, in testing for undigested starch, the fermentation test of Adolph Schmidt is used, it must be emphasized that only the positive occurrence of extensive fermentation is of diagnostic value, for the deduction is not logical that starch digestion is normal

when there is no abundant evolution of gas. For it is possible that the carbohydrate fermentation may be submerged under a more active putrefaction of proteid, and in fatty stools there may be formation of abundance of acid product without gas development (Adolph Schmidt³⁵).

Nondigestion of Nuclei in Meat Fiber a Criterion of Pancreatic Insufficiency (Test of Adolph Schmidt).—It is known from the interesting investigations of Adolf Schmidt³⁹ that raw connective tissue can only be digested by the gastric juice, while the nuclear substance of meat fiber can only be digested by pancreatic juice. Hence the appearance of remnants of undigested connective tissue in the feces points to insufficiency or absence of gastric secretion; and the appearance of nuclei of cells in meat fibers is significant of insufficient secretion of pancreatic juice. Personally, I have tested the first deduction of Schmidt's on eight cases of achylia gastrica and six cases of chronic atrophic gastritis with entire absence of free or combined HCl and ferments. In all eight cases of achylia gastrica, and in five cases of atrophic gastritis the undigested connective-tissue fibers were found in the feces. In two cases of heterochylia (*i. e.*, variable gastric secretion—hyperchlorhydria with excess of pepsin and chymosin alternating with absolute achylia in the same person after the identical test-meal.⁴⁰ The undigested connective-tissue fibers were found in the feces only during the periods of absolute achylia, when the gastric juice contained no free or combined HCl. They disappeared from the feces in periods during which the gastric juice was normal.

Two of these cases of heterochylia I have had under observation off and on for eight years. Their feces and gastric contents were examined during a period of five to six weeks in the spring and fall of each year. I might add that during the periods of absence of HCl and enzymes in the gastric juice, no biuret reaction could be obtained in the gastric filtrates, but that the addition of 10 cc. of officinal dilute hydrochloric acid, together with 1 gm. of pepsin, diluted with distilled water to represent the concentration of HCl in gastric juice, caused perfect digestion of connective tissue, if persisted in for 48 hours; that is, at 0.2% (two per mille) solution of HCl, with sufficient pepsin to approximate the concentration (amount) in gastric juice, will cause disappearance of undigested connective-tissue fibers from the stool. The amount of pepsin to be added varies with different patients and with different meals, but cannot be definitely stated *a priori*. It should be added to the gastric filtrate or chyme (10 cc.) until the reaction of free HCl appears on titration with Congo and the phloroglucin-vanillin test. Sometimes it is impossible for the patient to swallow such large quantities of dilute HCl. Then we occasionally succeeded by giving the requisite amount of officinal HCl in large gelatin capsules, and directing the patient to drink the corresponding amount of water afterward.

For studying the condition of the pancreatic secretion by means of its effect upon the nuclear substance of meat fiber, Ad. Schmidt uses slightly fibrous beef, which is cut into small cubes of 0.5 cm. square and preserves them in absolute alcohol. After they are hardened they are placed in very tiny sacs made of silk gauze and placed in alcohol. Prior to using them as tests they are immersed in water for three hours and given to the patient in wafers. The test-diet which Schmidt recommends⁴¹ must be faithfully adhered to and does not impose any inconveniences upon the patient. Personally, I make use of an improved Boas stool sieve for regaining the little silk sacs. If the patients have any pancreatic disturbance there must of course be remnants of muscle tissue in the sacs. In the sifted stools of 12 healthy students, no muscle remnants were ever found in 30 different tests. If muscle remnants are found they are washed in water, hardened in alcohol, sectioned if need be, and stained with nuclear stains. It is not, as a

rule, necessary to harden the beef remnants; after rinsing them in water they can be directly treated with oil acetic acid or methyl-blue. Wallenfang studied these beef remnants after they had passed through the entire digestive tracts of dogs that had been deprived of the pancreas. In three dogs that survived total extirpation of the pancreas, the meat fibers regularly contained their nuclei and were readily stainable.

Preservation of the nuclei justifies the conclusion of pancreatic disease or at least absence of pancreatic juice from the intestine (the two conditions are not always identical) only—if the time of the passage of the meat was of a normal period. A very rapid passage of the sacs such as occurs in diarrhea frustrates the action of the trypsin, even if it is present.

In two cases of pancreatic abnormality this test worked satisfactorily. One was a large pancreatic cyst compressing and obliterating the duct of Wirsung, a second case was stenosis and adhesion of this duct by an old pericholecystitis an extension of a preceding cholelithiasis. In the first case the pancreas itself did not appear seriously diseased at the operation, it seemed that its entire secretion was collected into the huge cyst, the contents of which had the same physiologic and chemic properties as a similar case closely studied by me in 1898.⁴² Both patients recovered after operation and six weeks thereafter no nuclei could be discovered in the stools. Adolf Schmidt believes that his test, when combined with the test of Sahli, will facilitate the diagnosis of pancreatic diseases, and if I may speak from my rather limited experience thus far, it must be in confirmation of his conclusion.

It has suggested itself to me that instead of looking for undigested residues of a meat diet with the microscope, we might determine the amount of total nitrogen in the feces, and from this the caloric value after a diet of a weighed amount of meat. Here, we would, however, meet a new difficulty, and that is of confounding defective proteolysis (imperfect meat digestion) with defective absorption, for the feces may show no undigested meat fibers whatever after a meat diet, and yet with the Kjeldahl method of determining the total nitrogen it can be demonstrated that the dried feces may contain from 8% to 10% of nitrogen, and that its ether extract may be from 11.5% to 13.5%. One gram of nitrogen of the feces, after they have been freed from fat and incinerated, corresponds to 45.4 calories; and after a weighed meal of meat given to dogs, it has been found that the nitrogen in the feces may be equal to 5,900 calories. These are deductions from the experiments of Frentzel and Schreuer, made upon dogs, but the same is true of the human feces, and the more meat is ingested in the diet the greater will be the percentage of nitrogen in human feces, and in enteritis the amount of nitrogen increases in proportion to the destruction of the mucosa. There may be larger amounts of nitrogen in the feces, and yet no undigested beef residues can be found with the microscope. This does not point to imperfect digestion, and permits of no deductions concerning the pancreas. It is pathognomonic of imperfect absorption. All chemic tests concerning the occurrence of undigested proteid, carbohydrates and fats in the stool, and their relation to pancreatic diseases, have a limited value when taken in conjunction with the physical signs, the anamnesis (icterus, cholelithiasis, hepatic colic, etc.) and the results of examination of the urine.

As these methods, however, are the most promising ones for furnishing new aids to diagnosis of pancreatic diseases, there must be no cessation in the progress of such investigations. Eventually we may find the one helpful and reliable method of diagnosis. As Hippocrates says in one of his aphorisms: "Ὁμὲν βίος βραχὺς ἡδὲ τέχνη μακρά" ("Life is short, but art is long.")

For most of our diagnostic methods of the present, our mental attitudes may be expressed in the words of Goethe's Faust:

O glücklich, wer noch hoffen kann,
Aus diesem Meer des Irrthums aufzutauchen!
Was man nicht weiss, das eben brauchte man,
Und was man weiss, kann man nicht brauchen.

BIBLIOGRAPHY.

- 1 von Ziemssen's Handb. d. sp. Path. u. Therap., 1875, viii, 2, p. 234.
- 2 Zeitschr. f. klin. Med., 1887, xii, 45.
- 3 Atti della R. Acad. Med.-chir. di Napoli, 1892.
- 4 Loc. cit.
- 5 Virchow's Archiv, E. Brücke, S. 351.
- 6 Virchow's Archiv, No. 75.
- 7 Wien. Sitzungsber. Bd. I.
- 8 Wien. Zeitschr. f. Biol. Bd. xxii.
- 9 Lehrbuch d. physiol. Chem., 1899, S. 285.
- 10 Arch. de physiol., Bd. v, S. 10.
- 11 Centralblatt f. d. med. Wissensch., 1888, S. 367.
- 12 Loc. cit.
- 13 Ce que deviennent les ferments digestifs; bactéries protéolytiques du colon, XIIIe Congrès International de Médecine (Section de Pathologie Interne), Paris, 1900. See also Hemmeter, Pfüger's Archiv f. d. ges. Physiologie, Bd. lxxxi, 1900.
- 14 "The Anatomy of the Pancreas," *American Medicine*, June 20, 1903, p. 986.
- 15 "The Diagnosis of Pancreatic Disease," *American Medicine*, March, 1902.
- 16 "One of the Causes and Varieties of Interstitial Pancreatitis," in the *American Journal Medical Sciences* for May, 1902.
- 17 Praktischeski Wratsch, 1902, No. 38-41.
- 18 International Clinics, 1902.
- 19 Amer. Journ. Med. Sci., January, 1903.
- 20 Chirurgia, January, 1903.
- 21 Deutsch. Archiv f. klin. Med., Bd. lxxiv, H. 5 and 6.
- 22 Washington Medical Annals, November, 1902, p. 357.
- 23 New York Medical Record, July 4, 1903.
- 24 Wiener klin. Woch., September 18, 1902.
- 25 New York Medical Record, July 4, p. 17.
- 26 Congress of American Physicians and Surgeons, May 12, 13 and 14, 1903, Washington.
- 27 Recherches nouvelles sur la "Secretine," Action sur le foie. *Presse Medicale*, Nr. 7, 1903.
- 28 Amer. Jour. Med. Sci., January, 1903.
- 29 Die neuesten Untersuchungen über die chemischen Lebensprozesse in Verbindung mit der Frage der Bedeutung des Adrenalchlorids (Adrenalin), Russki Wratsch, 1903, No. 13.
- 30 *American Medicine*, June 6, 1903, p. 907.
- 31 Ziemssen's Handbuch of Special Pathology.
- 32 Johns Hopkins Hospital Bulletin, 1902, Vol. xlii, p. 117.
- 33 Journal of Medical Research, February, 1903.
- 34 Virch. Arch., Bd. cxxxi, 1893, Supplement-heft.
- 35 "Die Funktionsprüfung des Darmes, etc.," Wiesbaden, 1904.
- 36 Hoppe-Seyler's Zeitschr. f. Physiol. Chem., Bd. 33, S. 451.
- 37 Embden and Knoop, Verhalten d. Albumosen i. d. Darmwand u. d. Vorkommen von Albumosen im Blute, Beitr. z. chem. Physiol. u. Pathol., Bd. iii, H. 1-3.
- 38 Adolf Schmidt, Neues diagnostisches Material bei Pankreas Erkrankungen, in Verhandl. d. XXI Congress f. inn. Med., S. 335.
- 39 Ad. Schmidt u. Strasburger, Die Feces des Menschen.
- 40 Ueber Heterochylie (Hemmeter) von Georg Korn, Archiv. f. Verdauungskrankheit., Bd. vii, 1902, S. 75.
- 41 Funktionsprüfung der Darms mittelst der Probekost, Wiesbaden, 1904.
- 42 Hemmeter, A Chemie and Physiol. Study of Pancreatic Cyst Fluid, etc., New York Med. Record, August 6, 1898.

A CONSIDERATION OF FIBROID TUMORS OF THE UTERUS, BASED UPON A STUDY OF A SERIES OF 210 CASES TREATED SURGICALLY.¹

BY

J. CLARENCE WEBSTER, M.D.,
of Chicago.

Professor of Obstetrics and Gynecology, Rush Medical College, Affiliated with the University of Chicago.

By the end of 1904, after a period of about five years of work in the Presbyterian Hospital, Chicago, and about 18 months in the Royal Victoria Hospital, Montreal, I had treated 210 cases of fibromyoma of the uterus by surgical measures. The nature of the operative procedures was as follows:

(a) Those involving opening of the peritoneal cavity:

	Cases.
Vaginal hysterectomy.....	36
Abdominal panhysterectomy.....	46
Abdominal supravaginal amputation.....	48
Vaginal myomectomy.....	8
Abdominal myomectomy.....	45
Removal of tubes and ovaries.....	2

(b) Those carried out without opening the peritoneum:

	Cases.
Vaginal ligation of uterine arteries.....	3
Removal of submucous polypoidal growths.....	27

Mortality.—One death occurred on the fifteenth day after abdominal panhysterectomy, due to pneumonia.

¹ Read before the Philadelphia Obstetrical Society, January 5, 1905.

In two cases of supravaginal amputation sepsis produced a fatal result. Another fatality followed vaginal extirpation of a suppurating myomatous uterus; the patient was profoundly septic at the time of operation. In another case in which porrocesarean section was performed, the patient died immediately after the operation. The latter was prolonged owing to technical difficulties, and there was much loss of blood.

The results show that in two cases death was due to infection of the abdominal cavity at the time of operation. As regards the sources of infection, in one instance a small portion of the ceiling fell into the abdomen during operation; in another case fluid accidentally escaped from an infected uterine tumor during its removal, and contaminated the peritoneum.

Nature of the Tumors.—The tumors represented all the wellknown varieties. The largest growth was found in a woman, aged 41. It was a cystic fibromyoma and weighed 87 pounds. The largest solid growth weighed 36 pounds. In about 90% of cases the tumors were multiple. In 8% of cases the growth was mainly submucous; in 20%, mainly interstitial; in 15%, chiefly subperitoneal. In 57% there was a combination of these varieties, mainly the interstitial and subperitoneal.

Degenerations:

	Cases.
Calcareous.....	2
Edematous.....	6
Cystic.....	13
Myomatous.....	4
Suppurating.....	10
Adenocarcinoma of cervix.....	1
Sarcoma.....	2
Hemorrhagic.....	3
Necrobiosis.....	11
	52

Pelvic complications:

	Cases.
Broad ligament development.....	11
Prolapsus uteri.....	7
Retroversion of the uterus.....	11
Hematosalpinx.....	6
Ovarian cystomas.....	12
Unilateral salpingoovariitis.....	7
Bilateral salpingoovariitis.....	42
Unilateral ovariitis.....	3
Bilateral ovariitis.....	29
Hernia.....	4
Appendicitis.....	26
Pregnancy.....	6
	164

Attention is particularly directed to this series of degenerations and pelvic complications. Of the former there were 52. It is interesting to compare these findings with those of some other workers who have given particular attention to the subject in recent years. Thus Scharlieb, in 100 cases of fibroids, found degeneration in 26; Cullingworth, in the same number, found it in 52; Noble, in 258 cases, found it in 47; Ellice McDonald, in 280 cases, found it in 135. As to pelvic complications there were 164 in my series of 210 cases. In McDonald's 280 cases there were 137. In a series of 583 cases reported by Noble, Cullingworth, Scharlieb, and Frederick, there were 182.

The frequency of diseases of the appendages must be noted. In 99 instances there were pathologic changes in the tubes and ovaries. Other workers have also noted the frequency of appendage disease. Thus Meredith, in studying Lawson Tait's cases, found that in 56% there was tubal disease, and in 46% ovarian disease. Daniels, in 124 cases, found pathologic lesions in the appendages in 72. In McDonald's series of 280 cases, practically all the 137 complications described were newgrowths or inflammatory affections of the tubes and ovaries. Twambly states that in at least 50% of interstitial fibroid tumors, the tubes sooner or later become diseased. It is not easy to explain the frequency of the inflammatory changes. In many cases there is no history of infection, and it may be that the etiologic factors are often venous enlargement and engorgement or other circulatory disturbances, mechanical irritation or pressure of the tumor. In other instances there is definite

evidence of an infective attack prior to the recognition of the tumor, or afterward.

The association of malignancy was noted only in three cases. In two there was sarcoma of the corpus uteri, involving the fibroid growth, in a third early adenocarcinoma of the cervix was present. It is possible that malignancy may have existed in other cases in which microscopic examination of growths removed at operation was not carried out. There has been some difference of opinion as to the relationship of fibroids and malignant growths, some holding that the latter occur in the myomatous uterus in a larger percentage of cases than in the nonmyomatous uterus. It has also been freely stated that the fibroid tumor may undergo direct transformation into sarcoma or carcinoma.

In 1,068 cases reported by Noble, Cullingworth, Scharlieb, Frederick and McDonald, sarcoma was present in 20, carcinoma in 40, and syncytioma in 2 cases. Various authorities believe that the occurrence of adenocarcinoma, especially, may be more or less determined by the presence of fibroids. It must, however, be considered impossible at present to make an exact statement on the subject. More careful statistical studies must be made before trustworthy conclusions can be formed.

In many cases in which microscopic examination is made, it is impossible to determine the original seat of the malignant growth. When the latter begins in the body of the uterus near the fibroid tumor, it may develop considerably before its presence is suspected. In such cases, it would be easy to make the mistake of describing the malignant development as having been primary in the fibroid. It is unlikely that carcinoma ever begins in the fibrous or muscular tissue of a fibroid, as is stated by some. It may develop either from portions of uterine mucosa covering the tumor, or from the epithelial inclusions frequently found in connection with fibroids, whether they be derived from early wolffian or müllerian remnants or from the deep-lying ends of glands derived from the developed uterine mucosa.

With regard to sarcoma, there is little doubt that it may occasionally develop in the substance of a fibroid, beginning either in the connective tissue or in the muscular elements.

Evelt has made a special investigation of this point and states that the former and not the latter is usually the starting point.

Occasionally, sarcoma may develop in a fibroid secondary to the disease elsewhere. In a specimen of fibroid uterus removed by me, sarcoma was found in the center of each of three independent interstitial fibroids. The patient recovered from the operation, but died in a few months from the malignant disease in the lung. Previous to the operation there had been one spell of slight hemoptysis, though no physical changes could be detected. There can be little doubt that the disease was primary in the lung in this case.

Pressure Complications.—Pressure effects are found in a considerable percentage of cases, chiefly in those in which the tumors are situated mainly within the pelvic cavity. These are marked in cases of impaction, adhesions, intraligamentous development; when the growths are associated with pregnancy, or when other enlargements are present, whether inflammatory, hemorrhagic or neoplastic. As a rule, pressure effects develop only gradually. Sometimes, they may develop rapidly, as when a tumor becomes edematous or congested; this is especially noted after torsion of the pedicle of a subperitoneal fibroid. The bladder is often disturbed, frequency of micturition being most commonly produced. The ureter is rarely pressed upon to such an extent as to cause hydronephrosis. Interference with nerves is rare. Occasionally the circulation is impeded so that there is varicosity or edema in one or both lower extremities, in the rectum, vagina or vulva. The ureters, veins and nerves are very much less frequently directly affected by fibroids than by carcinoma uteri. Phlebitis is occa-

sionally noted, being usually due to the complication of infection. Thrombosis is favored by a depressed state of health, anemia, cardiac degeneration, varicosity of pelvic veins, local injury of veins by pressure of a tumor, pregnancy, abortion, labor, operative or examination procedures and infection.

Pressure on the rectum interfering more or less with defecation is not very common. Hemorrhoids are quite frequent.

Intestinal obstruction is rare. It may be due to strangulation of the bowel by an adhesion, or rarely to the development of a fibroid extraperitoneally, the gut being stretched over the surface of the growth. Temporary obstruction, due to accumulation of hard fecal masses above the rectum, is occasionally observed, and may produce alarming symptoms.

Changes in Distant Organs.—Cardiovascular symptoms were present in about 25% of my cases. This is a smaller percentage than has been recorded by the few writers who have given special consideration to this subject. Strassmann and Lehmann, for example, studied 71 consecutive patients in Gusserow's clinic, and found that there were organic changes or marked functional cardiac disturbances in 40.8%. Fleck made a study of 325 case records and found a similar percentage; he states that in each instance in which an autopsy was made, definite cardiac changes were found, *e. g.*, brown atrophy, fatty degeneration, etc. He believes that the heart changes were not secondary to loss of blood, because out of 133 cases in which there had been no hemorrhage, cardiac changes were present in 34.6%. Roger Williams reports the findings in 22 autopsies in women with myoma uteri as follows:

	Cases.
Valvular disease, mostly chronic.....	6
Fatty degeneration.....	5
Hypertrophy and dilation.....	3
Atheroma of aorta.....	3
Small heart.....	1
Normal.....	12

Wilson, of Birmingham, Great Britain, has recently referred to a series of 10 autopsies in the Birmingham General Hospital, and states that the occurrence of myocardial degeneration in four at least among 10 women dying as the result of uterine fibromyoma, is suggestive that there is some close relationship between the two affections.

He also reports that in 72 cases in which radical surgical interference was indicated, there were cardiac disturbances in nearly 46%. They were as follows:

	Cases.
Adherent pericardium.....	1
Valvular disease.....	6
Myocardial affections.....	14
Murmurs, probably hemic.....	12

Shoemaker has also very recently directed attention to this subject.

More extended observations are necessary to enable us to speak positively in regard to the influence of uterine fibroids on the cardiovascular apparatus, but that there is an important relationship must be admitted by all who have given any consideration to the subject. Changes may be induced in various ways. In cases in which chronic anemia results from uterine hemorrhage, defective nutrition may cause degeneration in the heart and large vessels, while dilatation and weakening of the former may be induced. Very large tumors may lead to cardiac changes by interfering with the freedom of heart and lung action, by pressure on the large vessels, by interference with the alimentary functions, nutrition being impaired and toxic matter being absorbed from the bowel, by pressure on the kidneys, ureters or renal vessels, or reflexly by irritation of the cerebrospinal or sympathetic nervous apparatus, especially the large abdominal ganglionic masses belonging to the latter system.

Wilson believes that there is a certain amount of evidence to show that in some cases cardiac hypertrophy

may result even when the uterine tumor is only of moderate size, and thinks that this may be due to increased cardiac activity associated with increased vascular requirements.

Another question of considerable interest is that relating to the influence which may be exerted by products of the uterine growth on the heart and other organs through the medium of the circulation. Is it possible that the tumor continually produces some form of internal secretion which may be toxic in character, and in cases of degenerating fibroids does the disintegration of proteid material produce a poison capable of affecting distant organs?

Fleck has suggested that in many cases in which the ovaries are diseased, the heart and other organs may be influenced chiefly through a pathologic internal ovarian secretion. These suggestions, while supported by little more than crude speculations, certainly indicate the direction in which careful investigation should be made, especially by experts in pathologic chemistry.

Renal disturbances are more common in association with uterine fibroids than is generally believed. In about 30% of my cases there was noted one or more of the following conditions, viz.: Deficient amount of urine or urea, albumin, casts, edema of the feet. In no instance was there evidence of previous organic renal disease, nor did treatment fail to bring about marked improvement prior to operation. The factors concerned in the production of these renal disturbances are probably identical with those causing the cardiac changes already described. They are chiefly operative in the case of abdominal tumors or of those situated in the pelvis, which completely fill the latter, or develop extraperitoneally or are extensively adherent to the pelvic wall.

Mortality of Unoperated Uterine Fibroids.—It is impossible to give accurate statistics as to the mortality connected with these growths, directly or indirectly, just as it is difficult to estimate satisfactorily their frequency in women.

Winckel has stated that death results sooner or later in about 10% of cases. Noble, referring to a composite series in 1,188 cases operated by him and others, estimates that about a third would have died had operation not been carried out. This writer has done good service in emphasizing the importance of the tumor degenerations and pelvic complications capable of leading to a fatal issue. If it be claimed by some that he has exaggerated their significance, it may be stated, on the other hand, that the majority of writers has underestimated their influence.

The widely held views as to the comparative harmlessness of uterine fibroids must be greatly modified. Taking into consideration the pressure effects, the tumor degenerations, the pelvic and abdominal complications, the changes in the heart, large vessels, kidneys and liver, the chronic anemia of hemorrhagic cases, and other occasional associations, *e. g.*, suppuration, gangrene, peritonitis, phlebitis, embolism, the influence of pregnancy and labor, the newgrowth must be considered as seriously increasing morbidity and mortality in women in whom they occur.

Some General Remarks as to Treatment.—In recent years, surgical measures have gradually displaced all other methods of treatment in the hands of the majority of experienced gynecologists. Owing to improvements in technic and to careful preparation of patients, splendid results have been obtained, and the mortality from operative procedures greatly reduced. There are differences of opinion as to the frequency with which the latter should be carried out, but the present tendency is, undoubtedly, to extend their sphere of employment.

The custom so long prevalent in the profession, of encouraging women to be patient and to wait in the hope that the menopause may bring them relief, has been responsible for much unnecessary morbidity and premature death. Occasionally, such advice may have

a satisfactory issue, but in the light of our present knowledge and surgical attainments, to apply it indiscriminately to fibroids in general is indefensible.

It is, however, difficult to establish absolute indications for the guidance of those who are able to carry out surgical measures. There are some who hold that all fibroids of the uterus should be removed, unless there is some marked counterindication to operation. This attitude is considered as too extreme by the majority of gynecologists at the present time. A nearer approximation to the opinion of the latter would be the statement that all large or growing tumors or small ones, which cause troublesome or serious symptoms, should be treated surgically.

With regard to the uterus, there is the ultraconservative body of opinion favoring the preservation of as much of it as possible after removing the fibroid growths, and, on the other hand, the radical view that, in a very large proportion of cases, the uterine body or the entire organ should be excised along with the tumors.

In attempting to establish indications for surgical treatment, various factors must be considered. Sometimes one of these, sometimes several may determine the procedure.

Thus, the site of the growth may indicate early removal of a tumor, *e. g.*, a submucous polypoidal fibroid, a cervical growth, one developing extraperitoneally, a subperitoneal tumor, tending to fall within the pelvic cavity, etc.

The nature of the tumor may afford an indication, *e. g.*, rapid growth, cystic change, necrobiosis or infection, malignancy, association with pregnancy.

Various symptoms may suffice, *e. g.*, excessive or long-continued loss of blood at or between menstrual periods, pressure on bladder, ureter, bowel, bloodvessels, sterility, recurring abortions.

The size and number of the tumors within a somewhat ill-defined limit, are considered by many authorities as secondary to the other factors in determining surgical interference. Thus, for example, a very small growth may cause much disturbance of the function of the bladder, whereas a larger fibroid at a higher level might not cause any symptoms whatever. One or two small submucous growths might cause extreme loss of blood, whereas a subperitoneal tumor, several inches in diameter, might never produce any trouble.

One pedunculated subserous tumor, by falling below the pelvic brim, might cause serious pressure symptoms which might never be found with multiple sessile growths.

It must be emphatically stated that fibroids should not be allowed to reach a large size, *i. e.*, to become palpable abdominal swellings, for one particular reason (quite apart from other considerations) viz., that degeneration is apt to occur in the heart, liver, and kidneys, adding to the risk of delayed operative interference. Whenever large fibroid tumors are to be removed, the most careful preliminary treatment is always indicated in order that these and other organs may be placed in as healthy a condition as possible.

Finally, the nature of associated complications may often afford the indication for surgical measures. I have already fully referred to these, and have given abundant evidence to show that they are more frequent than is generally supposed. Indeed, in the past, they have been to a great extent ignored by the majority of workers. It is due to his special study of these complications that Noble has so strongly advised early operation in fibroid disease of the uterus, for the purpose of reducing morbidity as well as mortality among the women affected.

With regard to the question of the choice of surgical procedure in cases of fibroid uterus, my remarks shall be brief. The relative values of the various operations and their applicability to the different types of tumor, are topics which will continue to be debatable for a long

period. I shall limit myself to a few general considerations.

Ligation of the uterine arteries, in my opinion, has scarcely any place in the treatment of fibroid tumors. The effect of this procedure is not at all certain. In hemorrhagic cases temporary improvement has frequently been noted, permanent benefit rarely. Dysmenorrhea has sometimes been lessened, but usually it has not been much changed. Necrosis of a tumor has been produced, and in several cases the degenerated tissues have been invaded with microorganisms, leading to serious results.

Tait's operation of removing the uterine appendages, while still practised to a considerable extent in Great Britain, has largely been abandoned in America. In a large percentage of cases undoubtedly this procedure may bring about diminution in blood loss, cessation of growth, and in some cases reduction in size of the tumor. Occasionally, however, the bleeding may not cease, or, having ceased for a time, may begin again. The tumor may not shrink and its pressure effects may not be altered or it may continue to grow.

In fibroids developing after the menopause, in pedunculated subperitoneal tumors, and in those with cystic and other degenerations, removal of the appendages is practically worthless.

For these reasons, and because of the great reduction in the mortality associated with myomectomy, supravaginal amputation, and total extirpation of the myomatous uterus in the hands of skilled operators, in recent years Tait's operation has been widely abandoned. Indeed, at the present time it is doubtful if it should ever be employed, except in the rare cases in which these other procedures are inadvisable on account of the patient's general condition, or when the relationships of the tumor are such as to make removal impossible.

Myomectomy.—This operation has long been recognized as suitable to the majority of pedunculated submucous fibroids, especially those reaching as low as the cervical canal or projecting through it. Its applicability to subperitoneal and interstitial growths has also been clearly demonstrated in recent years, though there are great variations in the extent to which it has been employed in such cases in the practice of leading operators. I incline to the opinion, that owing to the brilliant results obtained in the reduction of the deathrate following total extirpation and supravaginal amputation of the uterus, there has been a tendency in this country to perform these operations in an unduly large percentage of cases, myomectomy having been gradually relegated to a position of very minor importance. In attempting, however, to give specific indications for the performance of this operation it is impossible to be precise and definite. The size of the fibroid uterus is an important element. I do not believe that myomectomy is advisable when there is a visible or palpable abdominal swelling composed of many small or medium-sized tumors, or of one or more large ones, except possibly when there is a pedunculated growth with a small area of attachment to the uterus in a woman under 35. Frequently, however, the operation does not come into consideration, even where the swelling does not extend much above the pelvic brim, *e. g.*, when it is composed of a very large number of small tumors.

Age is a factor which must be considered. Thus one might think of the possibility of performing myomectomy in a woman in the neighborhood of 30, whereas under similar conditions in one over 40 one would scarcely consider it at all.

A woman's desire to become pregnant may influence an operator to undertake myomectomy even in certain cases, in which he might not be inclined to perform it. The occasional occurrence of pregnancy after this procedure is certainly encouraging. I have had two patients in whom sterility ceased after the performance of multiple myomectomy, 6 small fibroids being removed

from one and 13 from the other. I would not advocate the operation for this purpose in a case in which the body of the uterus would require to be considerably reduced in size or greatly mutilated. A myomectomy which involves the establishment of a communication between the peritoneal and uterine cavities during the performance of the operation should never be carried out if there is any doubt as to the sterility of the uterine cavity. It is rarely indicated in cases in which the fibroid condition is accompanied by adnexal disease of such extent as to warrant bilateral salpingo-oophorectomy. Here it is usually advisable to carry out one of the major operations. When cystic or other degenerations exist in fibroids, myomectomy should not be performed except possibly in the case of a single large tumor in which the degeneration is nonmalignant.

As regards the selection of the abdominal or vaginal route in the performance of myomectomy, cervical fibroids and pedunculated submucous tumors growing from the body are removed per vaginam. The great majority of interstitial and subperitoneal tumors of the body should be excised through an abdominal opening; occasionally a small tumor situated near the lower part of the corpus uteri may be removed by vaginal section.

Regarding the remaining procedures, *viz.*, supravaginal amputation and total extirpation, little need be said. Each has its special advocates. The former has always been preferred by me as a routine operation, because it may usually be performed in somewhat shorter time; there is less hemorrhage; the anatomic relationships of the pelvic floor are better preserved; there is less risk of wounding the ureters. Richelot and others have recently tried to discredit this operation, because of the occasional occurrence of malignant disease in the stump after operation.

Very few instances of this nature have as yet been reported, but their rarity should not cause operators to neglect the careful examination of the cervix previous to operation. Whenever the latter is found to be pathologically altered, it probably would be a wise precaution to remove the entire uterus.

A more serious objection to the performance of supravaginal amputation is the occasional association of fibromyoma and malignant disease. In a considerable percentage of cases this is never suspected or discovered until the specimen is examined after removal. If, therefore, an operator does not practise total extirpation in every case he should curet the uterus thoroughly and examine the scrapings microscopically before carrying out the major operation. Such a procedure would undoubtedly increase the percentage of exact diagnosis, but there would still remain a small percentage of uncertain cases, *viz.*: Those in which the malignant disease could not be reached by the curet. It must therefore, be concluded, from the standpoint of malignancy in association with fibroids, that total extirpation of the whole uterus is the most scientific procedure.

As regards the choice of the vaginal or abdominal route where removal of the whole uterus is to be carried out, the former must be regarded as having a limited sphere. While in general, vaginal extirpation in favorable conditions is less disturbing to a patient than the abdominal operation, there are many cases in which it is more protracted than the latter and accompanied with more hemorrhage. Vaginal hysterectomy should not be attempted if the tumor be larger than a four-month pregnant uterus, if it be adherent or intraligamentous, if there be marked disease of the appendages or if the vagina be narrow.

The risks of injuring bowel, bladder, or ureter, of leaving extensive raw surfaces, or causing much hemorrhage, are far greater in the vaginal operation when such complications exist than in the abdominal operation.

Morcellement, generally necessary in the vaginal operation, is utterly inadmissible if the fibroid disease be associated with malignancy.

TUBERCULOSIS OF THE GASTROINTESTINAL TRACT: REPORT OF A CASE OF PERFORATION AND PARTIAL STENOSIS OF THE BOWELS.

BY

J. A. LICHTY, M.P.H., M.D.,

of Pittsburg, Pa.

Miss E. W., aged 36, first consulted me October 1, 1903. She had been well until two and a half years before, when she had pneumonia, which kept her in bed for 12 weeks. It left her with a hacking cough, but aside from this she seemed very well for a year.

During the following winter (1902-1903) she began to have pain in her abdomen, much gas in the bowels, and constipation. She also noticed that she was losing in weight and strength. She had a slight evening temperature. This condition continued to increase through the winter and spring and well into the summer until July 26, 1903, when she was seized with a severe pain in the left side in the region of the spleen. The pain extended down into the left groin. It could be controlled only by hypodermics of morphin. There was a diagnosis made of renal calculus. Four weeks previously she had a slight attack similar to this. It was recalled that she had had a similar attack 16 years ago, which had been diagnosed renal calculus. After recovery from this attack it was found that the patient had more fever than before. She also complained of a peculiar feeling in the left side below the spleen. The cough was the same, or a little worse. There was practically no expectoration then, nor through her whole sickness.

After this attack the bowels were more irregular; constipation was followed by a decided diarrhea, with considerable mucus in the stools, but no blood. At this stage the patient passed from the care of a homeopathic physician into my care. What history has been given thus far was furnished by the patient and the nurse, who was with her during the attack, which was supposed to be due to renal calculus. The nurse assured me that she saw a small calculus, which had been passed during the attack.

I learned further that previous to the pneumonia, which occurred two years before, the patient had been very closely associated for five years with an invalid sister, who had pulmonary tuberculosis which terminated fatally. They traveled together, slept and ate together.

At this time, October 1, 1903, the patient was confined to bed. She complained most of pain and discomfort in the abdomen, which was much increased by the distention from gas and pressure from the outside. She had profuse night sweats, her appetite was poor and very little food seemed to agree with her. Her bowels were difficult to regulate; any laxative produced an unaccountable amount of pain, and any kind of enema produced unbearable distress. Not enough food was taken to make the diet any factor in regulating the bowels, and yet when the bowels were left alone a constipation ensued which was followed by a painful and exhausting diarrhea. Her temperature averaged about 102° to 103° in the afternoon, while it was normal in the morning. The history of previous illnesses was such as I have already stated. There was no history of any hereditary disease. The patient had been exposed to tuberculosis for five years at least before her illness, and was, to say the least, reckless and unmindful of the dangers of contagion.

A physical examination showed the patient was very pale, and had a hectic flush. She was slightly emaciated; her normal weight was 108 pounds; at the time of the examination she weighed, perhaps, 95 pounds. She could not lie with comfort on either side. The tongue was coated. The pulse ranged from 96 to 120, depending on the temperature. There was no valvular heart disease, and the area of cardiac dullness seemed normal. The chest was not very well developed, and the respiratory expansion was less than an inch. This was found to be due to the pain in the abdomen which a deep respiration excited.

The examination of the lungs was absolutely negative, excepting that to the left of the cardiac space and extending to the posterior axillary line there was distant breathing, some dullness, and diminished fremitus, but no rales could be heard, nor was the respiratory expansion impaired more over this area than it was generally. The abdomen was distended, and there was general tenderness, but a rather marked tenderness over the course of the descending colon, beginning at the splenic flexure, at which point the patient often had severe pain, especially after using a laxative or an enema. At this point I could feel a mass which was not unlike a palpable kidney, but which lay too near the anterior abdominal wall to be a movable kidney. This mass was tender, and seemed to vary in size and position from day to day. The right kidney was freely movable.

The urine was 1,015, acid, amorphous phosphates, some mucus, no albumin, no sugar. After repeated examinations it was concluded that whatever trouble there might have been with the kidneys during the apparent attack of renal calculus, it had entirely subsided. There were no tubercle bacilli in the urine.

On October 1, the blood showed hemoglobin 47%, and 7,920 leukocytes, at the first examination. On October 4, the hemoglobin was 47%, erythrocytes 4,000,000, leukocytes 4,560.

Widal reaction negative. No plasmodiums of malaria. In several examinations of the stools no tubercle bacilli could be found. No sputum could be obtained for examination.

A diagnosis of enteritis, probably tuberculous, was made. The points which were obscure and needed explanation before a positive diagnosis could be made were: (1) The area of dullness to the left of the cardiac area; (2) the mass below the left costal margin; (3) if tuberculous enteritis, was it primary (a rare condition), or was it secondary? If secondary, where was the primary infection?

In spite of the fact that there was no leukocytosis, I plunged a needle into the seventh intercostal space on the left side, but found nothing but blood. I concluded that the dullness must be due to a thickened pleura.

To determine the nature of the mass below the left costal margin, I called to my assistance Dr. Lawrence Litchfield, of this city, who also suggested the exploratory puncture mentioned. The consultation did not result in any definite conclusion, and we called Dr. R. W. Stewart for an opinion on the surgical aspect of the mass. It was generally agreed that the condition was an enteritis of a tuberculous nature, and that the mass in question was one or more enlarged mesenteric glands. The third question, as to whether primary or secondary tuberculosis in the bowel, remained unanswered.

The patient's condition improved for a time under careful diet, but as it was impossible to regulate the bowels, the occasional attacks of diarrhea continued and always left the patient in a more exhausted condition. Each attack was accompanied with more acute pain. The abdominal muscles were rigid, whether there was distention with gas or not.

Repeated examinations of the chest showed that the conditions in the lung were the same as when examined October 1. October 29, the first sputum was secured, and a few tubercle bacilli were found. The patient's condition continued to become more serious. On the evening of November 1 there was severe pain in the abdomen, referred to a point slightly to the right and below the umbilicus. This pain could be controlled only by hypodermics of morphin. A condition of shock supervened, and the symptoms were somewhat similar to those of typhoid perforation of the bowel, though I must confess that this similarity occurred to me only after the autopsy. Death occurred on the morning of November 2, and on account of some misunderstanding, the autopsy was not performed until the early morning of November 3.

Autopsy Report.—Examination of the larynx and trachea could not be made. The right lung was normal, excepting near the apex, where there were a few cheesy nodules the size of a hazelnut. The left lung was normal and was removed with difficulty. The pleura covering the lower lobe was firmly adherent to the parietes and thickened. The spleen was slightly enlarged, and with the thickened pleura, evidently caused the percussion dullness described in the physical examination. The splenic flexure of the colon was decidedly enlarged and thickened, and covered with an exudative mass. Laying the colon open, showed a very large ulcer in this portion. Attempts at healing caused a partial stricture of the canal probably to a third its normal lumen and the throwing out of the exudation on the peritoneal side. Tubercle bacilli were found in the base of the ulcer.

In the ileum near the ileocecal valve, and at a point corresponding with the point of severe pain described before, there was a perforation which occurred in the base of a rather large ulcer. There were a number of ulcers characteristic of tuberculous ulcer of the bowels.

The kidneys were normal. The left showed no evidence of ever having been disturbed with a calculus.

The pathologic diagnosis was tuberculous ulceration of the bowel with partial stenosis and perforation. It was concluded that the mass in the left side below the costal cartilage was the thickened and constricted colon, which at times contained fecal masses, and that this condition of the colon was the cause of the great discomfort experienced by the patient when an enema was administered, or when the bowels were moved. It was also thought that probably the attack of pain in the left side, which had been looked upon as an attack of renal calculus, was due to the deep ulceration of the colon, which did not perforate on account of the abundant exudation of plastic lymph.

On account of finding the cheesy masses in the apex of the right lung, I did not think it wise to venture a diagnosis of primary tuberculosis of the intestines, but if I had found the same character of mass in another body not having an active tuberculous lesion, I would have considered it a very good specimen of a cured lesion of pulmonary tuberculosis.

I have entered rather fully into the report of the foregoing case, because it suggests many points in the consideration of tuberculosis of the gastrointestinal tract. First, the mode of infection which was rather doubtful in this case. That it was contracted from living with a tuberculous patient I think can be scarcely doubted, but whether it was primary in the alimentary canal or secondary to a pulmonary lesion is not so plain.

Some writers have denied the existence of primary tuberculosis in the intestine, but others of equal authority,

backed with unquestioned clinical data and laboratory experiments, declare that it is possible to have a primary infection of the intestine. In considering this question I will refer the reader to "Nothnagel's Encyclopedia of Practical Medicine." In the very complete volume upon tuberculosis, by Prof. Dr. G. Cornet, of Berlin, edited by Walter B. James, of New York, a very fair and unprejudiced exposition is given of the present day opinion of tuberculosis of the gastrointestinal tract. I would also refer to Diseases of the Stomach, and Diseases of the Intestines, by Dr. J. C. Hemmeter who treats the subject in a very concise way.

The modes of infection of the gastrointestinal canal differ insofar as the infection is primary or secondary. Pulmonary tuberculosis is probably the only cause of secondary infection, though it is conceivable, and cases have been reported in children, that a peribronchial lymph-gland, infected, might rupture into the esophagus and cause a secondary infection. Herxheimer has found 37 cases of intestinal tuberculosis in 58 cases of pulmonary tuberculosis, and Weigert states that 90% of patients with pulmonary tuberculosis have intestinal tuberculosis which is no doubt due to the swallowing of sputum. It has been observed that those patients who form or cultivate the unhygienic habit of swallowing their sputum are more likely to have a gastrointestinal complication. My own observation confirms this.

In primary infection the modes are not so clear, but they may be due to (1) inspiration; (2) kissing; (3) dirty objects or contaminated hands finding access to the mouth; (4) food from infected animals, or food which accidentally becomes infected.

It is, from the nature of things, difficult in any individual case to determine which one of the foregoing methods may have been in operation. In tuberculosis there is no definite period of incubation as in scarlet fever or typhoid. Beside, an intestinal infection may exist for some time before it is recognized or before a diagnosis of tuberculosis is made. The foregoing modes of infection will be discussed in taking up the distribution of tuberculous infection in the gastrointestinal canal.

The distribution of tuberculous lesions of primary infection does not differ from that of secondary infection. Each portion of the alimentary canal, beginning with the mouth, will be briefly considered.

1. *The Mouth.*—Infection of the mouth has been found, but it is very rare, as is shown by Heller, who, in 8,000 examinations, found only four or five cases. Squamous epithelium is more protective against infection than ciliated epithelium, beside the saliva easily envelops the germ and carries it to the stomach. A cavity in a tooth of a tuberculous patient may contain tubercle bacilli and be the nidus of infection. In kissing, the lips and tongue have been known to have become infected.

2. *The Pharynx.*—On account of the peculiar structure of the tonsil it is a frequent source of infection. In severe cases of pulmonary tuberculosis this infection is nearly always present; in mild cases, rarely. It is sometimes the seat of primary infection. The cervical glands are often infected secondarily to the tonsils. In the Polyclinic of the University of Berlin, Lublinski found only three or four cases of primary pharyngeal tuberculosis in 16,000 throat cases. Inspiration of the germ may cause a direct infection of the pharynx.

3. *The Esophagus.*—Primary tuberculosis of the esophagus is exceedingly rare. No case has been recorded. Caseous and suppurating bronchial and tracheal glands may be the cause of infection. By pressure they may cause stenosis.

4. *The Stomach.*—Primary tuberculosis of the stomach is as rare as in the esophagus. No case is recorded in which it has been found independently of tuberculosis in other portions of the body.

Van Wort, of Johns Hopkins Hospital, reports the following case:

Patient died, aged 88, of bronchopneumonia, and at the autopsy a solitary tubercle of the stomach was found in the form of a spheric tumor 3.5 cm. in diameter, protruding into the lumen of the stomach. It contained thick yellow caseous material, and tubercle bacilli. The tubercle was from the muscularis of the stomach, and in this tissue tubercle bacilli were also found. At the autopsy no other tuberculous lesion could be found, but there was an old chronic peritonitis, pleuritis and pericarditis.

It is thought that the acidity of the gastric juice acts as a protection, and that the bacillus very soon dies in an acid medium. In actual experimentation, however, it has been found that the bacillus will retain its virulence after being exposed for many hours to a normal gastric juice. In experiments upon dogs it was found that the bacillus can travel the entire alimentary tract and still maintain its virulence. It is also thought that because there are so many lymph follicles connected with the stomach, there is very rarely a specific lesion. In chronic tuberculosis, in which there is often an extreme reduction of HCl in the gastric contents, and in which intestinal ulcers are present, there is still very rarely a specific lesion. Chiara has reported a perforation of the stomach due to tuberculous lymph-glands. Opinions differ as to whether it is possible for tubercle bacilli to gain a foothold in a circular gastric ulcer.

I have made analyses of gastric contents in cases of pulmonary tuberculosis in the early stage. There was nothing peculiar to be found. While the acidity was usually depressed, I occasionally found a case in which there was hyperacidity. I see no reason why there could not be a coincidence of pulmonary tuberculosis and round ulcer, and the tubercle bacilli found in the base of the ulcer, though not being the cause of it. I saw the stained bacilli in a tuberculous ulcer of the stomach, exhibited by Dr. J. C. Hemmeter before the American Gastroenterological Association, at the annual session in Washington, in June, 1902. My own opinion is that the resistance which the stomach shows to the invasion of the tubercle bacillus is due not so much to the condition of the gastric juice as it is to the muscular activity of the stomach. A normal stomach is empty two to four hours after the ingestion of food, and the peristaltic action is continuous until it is empty, thus giving very little opportunity for microorganisms to gain a foothold. This is in marked contrast to the sluggish condition in the lower part of the ileum, where tuberculous ulceration is found most frequently. Lymph follicles are, of course, more abundant in the ileum, but I do not believe that this is the entire explanation for the greater frequency of ulceration in the ileum.

5. *The Intestines.*—Excepting typhoid fever and dysentery, tuberculosis is the most frequent cause of ulceration in the intestines. It may be primary here, due to food from infected animals, or to contamination of food, or other articles put into the mouth. While Koch's statement in London several years ago, in reference to bovine and human tuberculosis, caused considerable consternation and anxiety in medical and scientific realms, it had the good effect of bringing together a mass of evidence which proves without a reasonable doubt that bovine and human tuberculosis are identical. My own contribution upon this question, while it may not be necessary and may not be that scientific evidence which is sought and so enjoyed when found, is to me more convincing than many of the experiments performed upon dogs and other animals in laboratories. Experimental tuberculosis can, from the nature of things, hardly be made to conform with tuberculosis acquired in a natural way. The laboratory tests are necessary, but the clinical observations must not be neglected.

About 10 years ago, in a strong and healthy family of farmers in a neighboring county, a daughter of 33, developed pulmonary tuberculosis. They had a herd of cows, all Holsteins, except one, which was a Jersey cow. While all the members of the family used the milk, butter, and cheese from the dairy, the daughter drank the milk of the Jersey cow only,

on account of its richness. She died of pulmonary tuberculosis after an illness of nearly two years. Because the case was so isolated, no source of infection being evident, and because there was some suspicion thrown upon the dairy by its customers, an inspection was made by the State veterinarian. The Jersey cow was found tuberculous, and killed, while the rest of the herd was not infected. There had never been any tuberculosis in that family or upon that farm before, there has not been any since. I am indebted to Dr. F. L. Marsh, of Mt. Pleasant, Pa., the attending physician, for the accuracy of this account.

Fibiger and Jensen injected ten calves with human tuberculous material with this result: In two cases no virulence, in three cases slight virulence, and in five cases marked virulence. It behooves us as physicians therefore, to continue our efforts in insisting upon the inspection of meats, dairy products, and in fact all foods in which there is a likelihood that the tubercle bacillus may be found.

The most frequent cause of intestinal tuberculosis is, of course, the swallowing of tuberculous sputum. Before the discovery of the tubercle bacilli, Klebs associated tuberculosis of the intestine in pulmonary tuberculosis with the swallowing of sputum.

The ulcers have their longest diameter at right angles to the gut in contrast to the typhoid ulcer which is longitudinal. This is no doubt due to the course of the circular lymph spaces. The ulcers may penetrate or they may go on to a recovery and cause a constriction. In the case which I reported, both of these processes occurred. Tuberculous ulceration may occur in any portion of the gut, including the appendix, from the pylorus to the anus, but as stated before, it is most frequent in the lower portion of the ileum. Frerichs, in 250 cases of chronic pulmonary tuberculosis found tuberculosis of the ileum in 200; the colon was implicated in 115 cases; the rectum in 18; and the colon alone in 8 cases. Virchow considered the wealth of follicles of the intestinal mucosa as directly responsible for the frequent absorption of the tubercle bacillus. It seems that the bacillus can penetrate the wall of the gut, enter into a lymph channel and by means of wandering cells, can affect the mesenteric glands without leaving a recognizable trace of its passage. Soup containing tubercle bacilli was fed to dogs and the bacilli were found in the thoracic duct afterward. May it not be possible that even in pulmonary tuberculosis the primary infection is sometimes through the gastrointestinal canal? Tubercle bacilli have been found in the diseased appendix, but not so frequently as *B. coli communis* or pus producing microorganisms. Andrews¹ has treated four patients with tuberculous appendicitis. Various operations have been done by different surgeons, and there has been an encouraging percentage of cures resulting.

Tuberculous ulcers of the rectum can be observed clinically by inspection. They have a circular distribution, and may be the beginning of an ischiorectal abscess and an anal fistula. Fistula in ano, according to Spillman, occurs in 3.5% of pulmonary diseases, and about 51% of anal fistulas are tuberculous (Hartman).

The question of the advisability of operating in tuberculous anal fistula, and of the immediate and remote effects has received considerable attention. Late authorities seem to agree that the treatment of tuberculous anal fistulas should be the same as for fistulas from any other cause, and that the ultimate effect of such an operation upon the primary lesion in the lung is not necessarily deleterious; also that it is erroneous and untenable to contend that the cure of a fistula will result in the development of pulmonary tuberculosis.

The *symptomatology* of tuberculous ulcers of the gastrointestinal tract does not differ from that of other ulcers in the same portion of the tract. I have observed the abdomens of tuberculous patients, in private cases as well as those in the wards of the hospital, with the same care as one does in cases of typhoid fever, and I have been

particularly impressed by the similarity of the signs and symptoms.

The *diagnosis* is not always easy to make. When there is pulmonary tuberculosis, and a diarrhea ensues, it is quite natural to infer that there is tuberculous ulceration, but this may not always be the exact condition, for there is a diarrhea without ulceration which comes with amyloid degeneration, a frequent accompaniment of pulmonary tuberculosis or from the toxins contained in the sputum which is swallowed. If the ulcers lie in the upper part of the bowel, there may be no diarrhea whatever. Neither is it safe to attach too much importance to the finding of tubercle bacilli in the stools. Tubercle bacilli from swallowed sputum may pass through the entire gastrointestinal canal, and ulcers be present or absent. When there is no pulmonary tuberculosis, and there are symptoms of ulceration of the bowel, the finding of tubercle bacilli in the stools is very positive evidence, but on the other hand our inability to find them has very little weight in making a diagnosis.

The *prognosis* is very unfavorable.

The treatment of tuberculous ulceration of the gastrointestinal tract must conform to the treatment of ulceration in the same portion of the tract from other causes; with this point always in view however, that supporting the nutrition of the body generally is a greater necessity than in other forms of ulceration. It is usually stated in textbooks that foods should be devoid of fats. If this advice were followed in treating pulmonary tuberculosis it would constitute quite a handicap. Milk and cream and butter should be administered in tuberculosis of the bowel until it is found to be counterindicated. The administration of predigested foods will often control diarrhea. I have sometimes had the most happy results after the administration of dilute hydrochloric acid and pepsin. Astringents and so-called intestinal antiseptics are often very unsatisfactory, and if administered too freely, give distress to the patient. Rest, fresh air, and proper food must be relied upon, almost to the exclusion of all other methods and agents of treatment.

IODIN IN THE TREATMENT OF POSTOPERATIVE SEPSIS.*

BY

JAMES HAWLEY BURTENSHAW, M.D.,

of New York.

Adjunct Professor of Gynecology in the New York Polyclinic Medical School and Hospital.

The iodine treatment of sepsis during the puerperium was first proposed by Dr. T. J. Alloway,¹ in 1883. He advocated the introduction within the uterus of suppositories containing from .65 gm. to 1.3 gm. (10 gr. to 20 gr.) of iodoform night and morning, "the idea being," as he said, "to replace the frequent and often unsatisfactory intrauterine injection of antiseptic fluids." He reported three cases in which the patients were successfully treated by this method. In 1884, Dr. W. E. Boardman² reported a successful case in which he had employed iodoform insufflation within the uterus. But to the late W. R. Pryor, of New York, belongs the credit of having placed this method of treatment on a scientific basis, which, in my opinion, is unassailable from a deductive as well as from a resultant point of view, when our present knowledge of the pus-producing organisms and their action is given due consideration. Pryor's last paper on the subject was published in the *New York Medical Journal*, January 23, 1904. In patients in whom the constitutional symptoms are pronounced, or in whom it is suspected that the infection has passed beyond the uterus, he advocated thorough dilation of the cervix, curetting of the uterus, irrigation with salt

¹ *Annals of Surgery*, December, 1901, vol. xxxiv, No. 6.

* Read before the New York State Medical Association, October 19, 1904.

solution, and packing of the cavity with 10% iodoform gauze. He then opened Douglas' pouch and packed the pelvis with iodoform gauze of 5% strength. He removed the gauze from the uterus at the expiration of three days; usually, it was unnecessary to renew it; that in the pelvis was permitted to remain in place a week, and was renewed at the end of that period. The iodine reaction usually was demonstrable in the urine of the patient in from three to five hours. Pryor reported 37 cases in which this method of treatment was adopted. "Twenty-seven of the patients had not been operated on previously, and but one died; 10 had been cured before coming under observation, and three of these died."

The blood changes in septicemia are of extreme interest. While, as pointed out by many observers, the proportion of cases in which the pathogenic germs are demonstrable in the blood current is relatively small, there is no morbid condition known, with one exception, in which the destruction of the red cells is more constant. The average loss has been estimated by different observers as being from 200,000 to 1,000,000 a week in ordinary cases. Leukocytosis, as is well known, is not always present. DaCosta³ has pointed out that this is an extremely inconstant sign, as the blood in case after case of undoubted sepsis has been examined without finding any increase in the leukocytes above normal.

The pronounced affinity which the protoplasm of the leukocytes shows for iodine has been demonstrated many times. Goldberger and Weiss,⁴ in reporting the result of many microscopic examinations of normal and infected blood stained with a combination of iodine, 1 part, potassium iodide, 3 parts, and distilled water, 100 parts, state that "in the case of normal blood the protoplasm of the leukocytes is stained a pale yellow and the nuclei remain almost colorless; in all purulent conditions, and especially in puerperal sepsis, the protoplasm is stained a slight or intense brown, or contains numerous intensely stained reddish-brown granules, the latter change being the more common."

In a great majority of cases of puerperal sepsis the infection spreads from the uterus through the medium of the lymphatics. Pryor concluded that "that method of treatment which secures sterilization of the original wound and accomplishes the absorption by the infected lymphatics of a potent yet harmless antiseptic, if at the same time accompanied by such treatment as will promote the eliminative functions, will succeed best." In postoperative sepsis having its origin in the abdominal cavity it is probable that the bloodvessels play as important a role as the lymphatics in the dissemination of the toxins. It has been abundantly proved that iodine and its congeners, under certain well-defined conditions, exert a marked bactericidal effect on pathogenic germs, although in what way the agent directly influences the toxic products of germ activity is not known. Pryor has shown that if the pelvis is packed with iodoform gauze in puerperal sepsis, the absorption of the iodine is rapid, the growth of the germs at the point of development is inhibited, and the course of the infection is greatly shortened. These points being given due consideration, the question naturally arises: In postoperative sepsis of abdominal origin is it not rational to suppose that iodoform introduced into the abdominal cavity will exert the same beneficial influence? It is well known that a person suffering from septic infection will tolerate vastly larger doses of iodine in one or another form without showing evidences of iodism than under normal conditions, and therefore, under these circumstances, if such a procedure is adopted there need be little apprehension of poisoning.

I must confess that my own experience with iodine in these cases has been distinctly disappointing; yet I am convinced that further development of treatment along the lines indicated will, in the near future, yield brilliant results. During the past year I have had three cases of

postoperative sepsis in my practice, two of which resulted fatally. The first case was probably due to the use of defective ligatures, but the patient finally recovered, a result, in my opinion, to be attributed more to the degree of infection and to her robust constitution than to the curative measures employed. The infection in one of the fatal cases was traceable to the unavoidable soiling of the peritoneum from the rupture during operation of an enormous pelvic abscess; in the other case the source of infection was undiscoverable. It was in this case that the iodine treatment was given its most extended trial, and with absolutely negative results. Briefly, the details are as follows:

Case.—The patient was Mrs. M. N., a widow, aged 32. On August 17 last I removed a large pedunculated uterine fibroid, the right ovary and tube and the appendix, and resected the left ovary. The abdominal wound was closed by layer sutures. Her progress was eminently satisfactory during the succeeding 12 days, when, without warning, her temperature rose to 103° F., and her pulse to 140. I immediately reopened the lower third of the abdominal wound, introduced a sterilized rubber tube, and at frequent intervals during the following seven days flushed the cavity with hot normal salt solution. Twice a day, after this irrigation, I injected about 7.5 cc. (2 dr.) of a 10% solution of iodoform through the tube. A preparation of ergot, recently introduced, was given hypodermically every four hours. Her temperature and pulse-rate subsided to near normal within 24 hours of the institution of this treatment, but on September 2, she developed reflex vomiting characteristic of sepsis, which continued until her death on September 13.

On September 5, the drainage-tube was removed and the abdominal irrigation discontinued, because of the agglutination of the intestines. I then began the administration of iodine by another route. The condition of the patient precluded the opening of the posterior vaginal culdesac, and, therefore, I was prevented from applying the drug directly to the peritoneal surface. A suppository containing 6 gm. (1½ dr.) of iodoform was introduced into the vagina twice daily, and 15 cc. (½ oz.) of a preparation of iodine was injected high into the bowel every three hours during the day. Seven hours after the beginning of this treatment her urine was analyzed carefully, but no iodine reaction was demonstrable. On September 7 a suppository containing 2 gm. (30 gr.) of iodoform was introduced into the uterine cavity, the amount contained in the vaginal suppository was increased to 8 gm. (2 dr.) and 30 cc. (1 oz.) of the preparation of iodine was given every three hours by the bowel. Deep subcutaneous injections of .92 cc. (15 m.) of the preparation of ergot were given three times daily. This treatment was persisted in for three days, yet not in a single instance in which the urine was examined was it possible to detect the presence of iodine.

I am well aware that this method of treatment was empiric to a degree, but those who have had experience in septic cases of this character will bear testimony to the avidity with which one will have recourse to any plan which offers the slightest hope of success.

It has been questioned if iodoform can rightly be classed among the genuine antiseptics, as the fact has been proved many times that germs of various kinds will grow upon it, but it is equally well known that when brought in contact with animal secretions it is broken up and the iodine which is liberated is inimical to bacteria, either by inhibiting their growth, neutralizing their toxins, or by stimulating the protective power of the cells. In the case to which I have referred in this paper I am ignorant as to why a certain proportion of the iodine was not absorbed from the vagina and bowel, as shown from the failure to obtain the reaction in the urine. It would appear that, with the exception of the peritoneum, no more favorable site for absorption than these mucous surfaces could be desired. That iodine in the form of iodoform is readily absorbed even from the skin surface has been proved by Yeo.⁵ He reported four cases of tuberculous peritonitis successfully treated by daily applications to the skin of the abdomen of an ointment containing equal parts of iodoform and codliver oil. He believes that the iodine not only enters the blood and is eliminated by the secretions, but, also, that the secretions of the serous cavities absorb the drug, and as these do not pass out of the body, they probably become so charged with iodine compounds that the latter may exert an antitoxic or an antibacterial action.

The preparation of iodine, which was used in this case

by the rectum, the patient's stomach being unretentive, is an iodine-fat combination, entirely free from irritating properties, which is said to be broken up in an alkaline medium and the iodine set free. I have used it in other cases as a substitute for potassium iodide with very satisfactory results.

The use of ergot in these cases undoubtedly is distinctly beneficial. The contributions to the subject of ergot therapeutics by Dr. Alfred T. Livingston,⁶ of Jamestown, New York, are so valuable that they mark an era in medical progress. In the cases to which I have referred I employed a preparation of ergot from which the sclerotic acid has been removed. The injections, though so frequently repeated, were invariably painless.

No more appalling condition can confront a surgeon than general sepsis following an operation. There are no circumstances under which he more thoroughly appreciates his utter helplessness to ameliorate symptoms or to save life. The variety of measures advocated from time to time bear witness to the desperate inadequacy of our resources in this respect. The practice of surgery has taken giant strides forward within a period in the memory of us all, but as an art or as a science it cannot reach the highest plane of humanitarian endeavor until the successful treatment of sepsis has been evolved.

BIBLIOGRAPHY.

- ¹ Canada Medical and Surgical Journal, Vol. xi, page 526.
- ² Boston Medical and Surgical Journal, September 11, 1884, page 246.
- ³ Clinical Hematology, page 428.
- ⁴ Weir Klin. Wochn., 1897. Vol. x, page 601.
- ⁵ The Lancet, March 16, 1901.
- ⁶ Journal American Medical Association, March 21, 1903, and August 27, 1904.

THE ETIOLOGY AND TREATMENT OF ACUTE AND CHRONIC RHEUMATISM.¹

BY

G. MORTON ILLMAN, M.D.,

of Philadelphia.

Instructor in Gastrointestinal Diseases and Clinical Medicine, Medical Department, Temple College; Physician Outpatient Department, Samaritan Hospital.

Etiology.—It is not my intention to discuss the etiology and treatment of rheumatism in detail, but rather in some measure to point out the great necessity for prompt treatment of even slight rheumatic manifestations, based upon the assumption that the gastrointestinal tract is closely associated with the causation of rheumatism. It is therefore more from the standpoint of preventive medicine that I present this subject for discussion at this season of the year.

There have been almost innumerable theories advanced regarding the etiology of rheumatism, and among those still more or less seriously considered may be mentioned the nervous, metabolic, and infectious theories; the latter being probably at the present time in greater favor than any of the others, though no definite bacterium has as yet been isolated.

Stockman, Sahli, Guttman, Leyden, and others, have all isolated a germ or proved to their own satisfaction that rheumatism is purely an infection, but the difference of opinion among these investigators as to a definite bacillus leaves the question still open to discussion and investigation.

In any case it would seem that the digestive tract is vitally concerned in the causation of the condition both as regards metabolism and as a portal of an entering infection. The altered catarrhal walls of the stomach or bowel become permeable for germs to pass into the general circulation and give rise to both constitutional and local symptoms.

Gilbert and Lereboullet state that the entrance of infection in acute articular rheumatism by way of the throat is a fact established beyond question for a certain

number of cases, but that there are other cases in which the evidence points to a digestive origin, being especially frequent in cases of so-called "biliousness." Bouchard noted it 28 times in 100 cases of biliary lithiasis, and 16 times in 100 cases of diabetes. The portal of entry in these cases was thought to be the bowel, liver, pancreas, or appendix.

Ewald says that he has seen coincident dyspepsia in chronic articular rheumatism of so marked a character that the pains in the joints were comparatively insignificant, and Hemmeter states that he has had occasion to study cases of gastralgia which would yield to nothing but salicylate treatment.

Let us, then, quote Howard, who in Pepper's "System of Practice," some years ago referred indirectly to the digestive tract as being concerned in the etiology of rheumatism, and who in closing his comment on the nervous system theory, says: "May we not infer from analogy, as well as from the other evidence, that in so-called neurosis rheumatism, a considerable part of the phenomena are due to the perversion of the process of assimilation and excretion, and to the presence of some unknown intermediate product of destructive metamorphosis? It becomes then, more or less apparent that many of the deleterious results following a faulty condition of the gastrointestinal tract (as rheumatism) are in turn dependent upon some error of diet or hygiene that has not received careful attention either by the patient or physician."

With this point in mind, I have, during the past two years, carefully inquired of rheumatic patients as to the history of the very first attack or manifestation of rheumatism which they remember having, with especial reference to the condition of the stomach and bowel previous to that time, and, in a surprising number of cases the reply is to the effect that they have suffered from a so-called indigestion, diarrhea, or constipation, more frequently the latter, for a considerable period of time previous to the first rheumatic attack. For example, I will cite an extreme case:

A. M., a woman aged 41. The patient's father suffered for many years with acute articular rheumatism, and finally died from a complication of that condition. She had always had trouble with the stomach and bowels, suffering almost continuously from constipation. Fourteen years ago she began to have slight rheumatic pains in the small articulations of the right hand. She was treated at the time for rheumatism, but the condition of her alimentary tract received no attention whatsoever, with the exception of such laxative treatment as the patient herself instituted from time to time. The patient is now fast becoming a complete invalid as a result of nearly all the large and small articulations of both the upper and lower limbs being affected. I first saw her recently and was surprised to find that in all these years she has received only strict rheumatic treatment, and still suffers from chronic constipation, as she did 14 years ago, during which time the quantity of salicylates, potassium iodide, and other drugs that she has taken must be enormous when reckoned in total quantity, and yet her condition in spite of this excessive medication has been growing steadily worse.

Climate, season, age, sex, occupation, and heredity all have their especial influence in the causation of rheumatism. Regarding heredity, one might say a patient inherits rather a predisposition to the condition and proper prophylaxis, diet, and hygiene are often neglected before or in treating the very first and often apparently insignificant attacks. Many members of one family will become affected not so much through direct contagion or heredity, but more because of the fact that all the members of one family are living under identical conditions favorable to the production and further development of rheumatism. This is not only true of families but also of large communities; for instance, in London, meat forms a major part of the diet, and the city is famous for the great prevalence of gout—the close relative of rheumatism.

Some years ago Goodhardt claimed that obstinate headaches, severe anemia, night terrors, torticollis, tetany, muscular tremor, incontinence of urine, recur-

¹ Read before the North Branch Philadelphia County Medical Society, September 8, 1904.

ring abdominal pain and looseness of the bowels were all indications of a rheumatic predisposition. In all probability many of our patients who are now hopeless cripples might have been saved much of their suffering if proper and prompt attention had been given primarily to the gastrointestinal disorder, rather than to the slight rheumatic pain in the joint. It seems rather remarkable that many of our leading clinicians and authors give constipation as a symptom, but never consider it as a cause of rheumatism.

Treatment.—Believing that, primarily, the gastrointestinal tract is at fault in a large percentage of cases of acute and chronic articular rheumatism, I recently adopted salol as a basis of treatment, with most gratifying results.

As the result of an article "On the Advantages of Salol in the Treatment of Rheumatism," which I published in December, 1903, many practitioners questioned the benefits to be derived from salol, because of the comparatively small amount of salicylic acid the patient receives in the course of treatment; but it should be remembered that salol is not given primarily for the rheumatic condition, but rather for the cause of it—a fermenting catarrhal bowel.

How can one expect any marked or prompt results from any salicylate, even in enormous doses, as many authors advise, if the drug is to be poured down into a stomach and bowel filled with great quantities of mucus, undigested food, bile, and putrefying feces, as the very obnoxious fetor of the breath in the patient with inflammatory rheumatism only too plainly indicates?

To give great doses of the salicylates at once in such cases, is sure to defeat the very purpose for which they are given, by upsetting an already "sick stomach" and making worse the condition one is trying to alleviate. A purge is, therefore, the primary indication, and a clean alimentary tract is necessary before we can hope to get the best results from internal treatment. It is then the disinfectant and antifermentative effect of salol following a brisk saline purge that makes this drug so effective in rheumatic treatment, especially since it also contains five parts of salicylic acid.

If I were to name any one drug outside of the salicylates that is indicated in rheumatism, I should say magnesium sulfate, the results following its administration in slight rheumatic attacks often being as marked as though the salicylates had been given. In the treatment in a case of inflammatory rheumatism last winter, this result was particularly noticeable.

The patient was a young man with no family history of rheumatism or of a previous attack. However, he was in the habit of eating excessively rich food and condiments and used alcohol to excess. He was suddenly taken with acute rheumatism of the left shoulder. The pain, redness, swelling and constitutional symptoms developed rapidly. The patient was advised to take a large dose of magnesium sulfate, to be followed by the salicylates. To this he strongly objected, saying he had never taken a purgative medicine in his life, and verily his breath and toxic condition seemed to bear out this statement. Large doses of the salicylates were given, with practically a negative result. The pain increased to such an extent that the following day he gladly submitted to anything that would afford relief. Morphine, hypodermically, had been necessary to relieve the extreme, almost delirious, suffering the first night. An ounce of magnesium sulfate was now given in enough water to make a saturated solution, with the result that great quantities of an offensive material were evacuated; the residue no doubt of a combined banquet and debauch which the patient had participated in the night previous to his rheumatic attack. There was a rapid decrease in both local and constitutional symptoms, although the salicylates were practically discontinued. The bowels were kept freely open for the next three days with small doses of the saline. There was a complete and uncomplicated recovery. This was his primary attack, and with proper attention to his diet and hygiene he has not had any indications of a return.

In the treatment of chronic rheumatism we are confronted with the problem as to the propriety of the long-continued use of the salicylates. Relapses are considered to be more frequent than under other forms of treatment. There is a general average of 26% under

this method as against 16% under the alkaline and other methods. Relapses, however, appear to occur less frequently in cases which yield to the salicylates in the first few days than in those which take longer.

The salicylates neither control nor prevent any inflammation of the endocardium, pericardium or pleura, and with the exception of salol fail to have any marked effect upon the pyrexia. They do not prevent the condition from involving other organs even after the symptoms have subsided, hence they do not protect the heart; and no less an authority than Flint believes that rheumatic endocarditis and pericarditis are more frequent since the introduction of the salicylate treatment; Burwinkel also does not regard salicylic medication as an advance in the treatment of articular rheumatism. Excess of the salicylates is likely to produce unpleasant toxic effects, such as nausea, vomiting, abdominal pain, frontal headache, tinnitus aurium and other unpleasant symptoms which very often make the remedy worse than the disease. Therefore, I try to avoid the use of excessive doses of the salicylates, only giving them when beneficial results are not obtainable without them, and then not over a very extended period after the subsidence of the symptoms, depending upon baths, diet, hygienic and saline treatment to bring about a complete recovery.

The serum treatment seems to be reasonably successful. Schmidt tried Menzer's antistreptococcic serum; in 15 cases, 6 were unmistakably improved, 4 were subjectively improved, and in 5 cases no improvement was apparent. The more pronounced the reaction the better the results observed. Schaefer, in 6 cases of articular rheumatism in adults and children, tried Menzer's serum with the best results; the attacks were shortened and the health afterward was unusually good. Stengel has also noted decided improvement from the use of antistreptococcic serum in 3 cases of protracted recurring rheumatism. In treating acute and chronic rheumatism I regard the patient in much the same light as the surgeon does an infected cavity, the all-important necessity being drainage in both instances. Whether the drainage is for the purpose of eliminating a germ or its toxic product or the toxic product of a faulty metabolism, the economy demands an elimination of the detrimental substance before results from medication may be expected. We should then institute a system of drainage, especially from the skin, kidneys, and bowel. We assist nature in her effort of elimination from the skin by producing profuse sweats with diaphoretics and hot local or general applications and draining from the kidneys with mild diuretics.

The use of the static wave current should also be considered as a means to assist the patient in the elimination of urea. The effect of this treatment has been carefully observed by Boardman Reed, who reports one case in particular, in which the urine before static wave current treatment contained 0.8% of urea, and after a 15-minute treatment with the static wave current contained 2% of urea.

Haig's idea that uric acid is the cause of "all evil" (so to speak), and of rheumatism, has long been disproved by Billings and other leading clinicians. On the other hand, there is no disputing the fact that the increased elimination of urea is productive of good results in treating rheumatism.

Drainage from the bowel is obtained by the use of salines, especially magnesium sulfate, in small or large doses, as necessary. Burwinkel even prefers to treat the condition by venesection, withdrawing 150 cc. to 300 cc. of blood at a time. This is drainage in the full appreciation of the term, but such a procedure is not to be considered in the treatment of primary mild attacks.

In chronic rheumatism, massage both local and general, exercise, faradism and baths are very beneficial. The patient should be cautioned especially as to diet, each case being a law unto itself in this respect; but meats,

condiments, fruits, especially too green or too ripe, alcoholic and cold drinks are to be reduced in quantity or prohibited, as is also any other particular article of food which acts as a gastrointestinal irritant in a given case.

In suitable cases, residence in a dry, unchangeable climate, or at one of the European bath resorts, may be productive of excellent results. It is often surprising to see the great care as to bath, diet, and regularity of habits that these patients observe. They drink great quantities of water, which is usually alkaline and laxative, and thus a mild system of drainage is established by the patient himself through the effect of these waters constantly upon the bowel and kidneys. It is true that an emaciated crippled rheumatic is a poor subject to begin a system of drainage upon, but it is not to patients of this class that I refer, as their treatment must, naturally, be more symptomatic and tonic, if necessary. It is the patient in the early stage of the disease who should be given more than passing attention. The etiology should in each case be carefully investigated, and a hasty diagnosis should not be made, followed by a hasty description of a standard dose of salicylates in a syrup, and the case dismissed. A little more care, primarily, of what is thought to be only a slight pain or swelling, will very often be the means of avoiding the distressing sight in later years of a helpless cripple.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 4, 1905. [Vol. XLIV, No. 9.]

1. The Importance of General Therapeutics in the Treatment of Ocular Diseases. A. MAITLAND RAMSAY.
2. The Sanitary and Moral Prophylaxis of Venereal Diseases. PRINCE A. MORROW.
3. What Is the Right Attitude of the Medical Profession Toward the Social Evil? HOWARD A. KELLY.
4. Syphilis as a Disease Innocently Acquired. L. DUNCAN BULKLEY.
5. Syphilis Affecting Infant Mortality. HENRY ENOS TULRY.
6. Acute Yellow Atrophy of the Liver. H. GIDEON WELLS and PETER BASOEE.
7. Delirium as a Symptom of Hysteria: Report of Four Illustrative Cases. THEODORE DILLER.
8. The Relation of States of Apprehension to Cardiac Disease. WILLIAM RUSH DUNTON, JR.
9. Spastic Diplegia Following Pertussis. J. H. W. RHEIN.
10. Acute Intestinal Surgery, with Remarks on Technic. JOHN YOUNG BROWN.
11. Valedictory Address at Johns Hopkins University. WILLIAM OSLER.

1.—See *American Medicine*, Vol. VIII, No. 1, p. 9.

2.—See *American Medicine*, Vol. VIII, No. 3, p. 97.

3, 4.—See *American Medicine*, Vol. VII, No. 24, p. 929.

5.—See *American Medicine*, Vol. VII, No. 24, p. 973.

6.—**Acute Yellow Atrophy of the Liver.**—H. G. Wells and P. Basoee (Chicago) have studied four cases of acute yellow atrophy of the liver. While they admit that these do not throw much light on the obscure subject of the etiology of the condition, they discuss this at some length and suggest that a better insight into this perplexing disease may be obtained through later investigations on autolysis or self-digestion of cells. They state that in acute yellow atrophy of the liver they are forcibly reminded of the processes of autolysis by the rapid absorption of the liver tissue which takes place with the appearance at the same time of the products of proteolysis in the urine. The slight involvement of the bile ducts is against the theory of an ascending biliary infection, and there are objections, such as the rarity of obstructions in the ampulla of Vater and the greater pressure of the bile as compared with that of the pancreatic secretion, to Quincke's ingenious theory of pancreatic digestion. The authors suggest that this condition may be explained by assuming the poisoning of the liver by some substance having a specific affinity for some vital ingredient of the liver cells, but not affecting the autolytic ferments of these cells. They contradict the statement often made that the chief change is fatty degeneration. The yellow color is not due to fat, but to bilirubin. In two of their cases in which frozen sections were stained for fat, a surprisingly small quantity of this substance was present.

7.—See *American Medicine*, Vol. VII, No. 25, p. 973.

8.—**The Condition of Fear in Cardiac Disease.**—W. R. Dunton, Jr., Towson Md., incited by a statement that all cases of alienation showing apprehension revealed cardiac disease, examined the 25 most recent admissions in the Sheppard and Enoch Pratt Hospital and some 20 cases in the Johns Hopkins Hospital. He concludes that the cardiac lesion is not the primary factor in causing the associated state of apprehension. What we may call, for want of a better term, the idiosyncrasy of the patient, is largely responsible for apprehension associated with cardiac lesions. In neurasthenic types a lack of vagus control is an important etiologic factor. Our knowledge of the subject is still not yet exact, and he asks the cooperation of clinicians in the investigation.

9.—See *American Medicine*, Vol. VII, No. 25, p. 973.

10.—**Exploratory Abdominal Section.**—John Young Brown, St. Louis, insists on the importance of exploratory section in all cases of penetrating wounds of the abdomen; when multiple perforations exist, or when the blood supply is cut off resection of the bowel is imperative. For this purpose, in case of gunshot wounds, he considers the Murphy button the ideal method. In severe abdominal contusions, he agrees with Bottomley, that operation is generally advisable, especially when there is pain, tenderness, and muscular rigidity. In cases of strangulated hernia, when there is any question as to the integrity of the bowel, he believes that resection should be performed. The distended loop should be drained above the constriction. As soon as the gut has been delivered through the supplementary incision he clamps it off and ties a glass tube, to which is attached a rubber hose, into its proximal end, and then proceeds with the resection. This is time saving, and drainage is effected without soiling the field.

11.—**Valedictory Address at Johns Hopkins University.**

—The *Journal* prints in full, March 4, the valedictory address of Dr. Osler, of Johns Hopkins University, which has been quoted and misquoted in the daily press. He deals with some of the problems of university life and states that at times the loss of a professor may be of benefit to a university. He stated that to a man of active mind too long attachment to one college is apt to breed self-satisfaction, to foster a local spirit, and to promote senility. He said that much of the phenomenal success of the Johns Hopkins University has been due to the concentration of a group of intellectual men, without local ties, whose operations were not restricted and who were willing to serve faithfully in whatever field of action they were placed. Dr. Osler advised the interchange of teachers, both national and international, and even advised the changing of college presidents now and then "for the good of the exchequer." He said that intellectual infantilism and progeria were two appalling maladies due to careless habits "of intellectual feeding." As a prophylactic measure, he advised visiting other universities and colleges, both at home and abroad. He said that it is a very serious matter to have all the professors in a university growing old at the same time, and said that there should be a fixed period for the teacher, either of time of service or of age. He spoke of the comparative uselessness of men above 40, and said that to modify an old saying, "A man is sane morally at 30, rich mentally at 40, wise spiritually at 50—or never." He said that the young man should be encouraged and afforded every possible chance to show what is in him, and that the chief value of the teacher, who is no longer a productive factor, is to determine whether the thoughts which the young men are bringing to the light are false idols or true and noble ideas. He said that it would be of incalculable benefit in commercial, political, and professional life if men would retire from work at the age of 60. He said that the teacher's life should have three periods, study until 25, investigation until 40, profession until 60, at which age he would have him retired on a double allowance. He went at some length into the history of the Johns Hopkins Medical School, mentioning the strict entrance requirements and the scientific teaching in laboratory work especially. He dwelt on the necessity for practical training in the hospital wards as well as in the laboratories and class rooms. He said that the faculty of Johns Hopkins University has been blessed with two remarkable presidents, who had been a stimulus in every department, and that the good fellowship and harmony among the faculty have been delightful.

Boston Medical and Surgical Journal.

March 4, 1905. [Vol. CLII, No. 9.]

1. Certain Aspects of Bile Duct Disease. JAMES G. MUMFORD.
2. Ptosis of the Abdominal Organs with Special Reference to the Kidney. M. P. SMITHWICK.
3. Treatment of Ptosis of Abdominal Organs by Abdominal Supporters. WILLIAM H. SMITH.
4. The Actual Results at the Massachusetts General Hospital, Following Operative Treatment. F. G. BALCH, and J. R. TORBERT.
5. Results of Surgical Treatment of Movable Kidney at the Boston City Hospital. PAUL THORNDIKE, and L. R. G. CRANDON.

1.—Certain Aspects of Bile Duct Disease.—James G. Mumford says the most important fact to remember in connection with this subject is that bile duct disease is an infectious process; the formation and presence of stones is of secondary importance. The serious aspect is the infection, not the mere presence of stones. Failure to appreciate this fact has led to much error. Cholangitis is poorly defined in many books. Mumford defines it in the following terms: Cholangitis is an inflammation of the bile passages, local or general, mild or virulent, acute or chronic, as the case may be; and cholecystitis is but one manifestation of cholangitis. The author holds that in most instances the sharp, definite signs and symptoms of gallbladder disease are presaged by more or less chronic gastrointestinal disorder. In regard to operation he states that both cholecystostomy and cholecystectomy have definite but overlapping indications in surgery. He says: (1) Remove stones; for if left behind they are very sure to cause subsequent disturbance, and we know conversely that after the thorough removal of stones their recurrence is almost unknown; (2) remove so far as possible all disorganized, degenerated and permanently crippled tissue, for we have seen how such tissue, when left behind, may become the nidus for subsequent inflammation, stone formation and a return to the invalid condition; (3) drain, for without drainage we have no certainty of the removal of infectious material. [A.B.C.]

2.—Ptosis of the Abdominal Organs, with Special Reference to the Kidney.—M. P. Smithwick examined a series of cases to determine the frequency with which nephroptosis is associated with other ptoses. He included all with ptosis of either kidney. The minimum of nephroptosis for inclusion in the list was the ability to grasp definitely the kidney during inspiration. He found 68 cases. There was ptosis of the right kidney in all (100%); of the left kidney, in 20%; of the stomach and colon, in 62%; of the liver, in 7%. In no case was the renal function impaired, and in no case did the malposition of a kidney interfere by pressure with other organs. In no case has the author seen renal colic produced by nephroptosis. He is of opinion that in most cases so diagnosed, the colic is due to gallstone, rather than to a displaced kidney. An illustrative case is recited. In the author's series there were several instances of marked ptosis of the both kidneys, without symptoms. The patients with associated ptoses are nearly all of the neurasthenic type. The fundamental characteristic is weakness—nervous, more than physical; deficient nervous reserve power and infinite capacity for its dissipation. [A.B.C.]

3.—Treatment of Ptosis of the Abdominal Organs by Abdominal Supporters.—William H. Smith's remarks are mostly in reference to the treatment of nephroptosis, and several illustrative cases are reported. One case is reported, having combined nephroptosis and gastroptosis. In simple gastroptosis he has had no experience with belts alone. In five cases they have been used in addition to other well-recognized methods of treatment; four wore the padded belts, one the simple abdominal supporter. Three have ordered new padded belts, one can wear hers only at times, as the distention of the stomach with gas causes so much pain that she has to remove the belt. In conclusion, he states that while the number of cases is too small to warrant any deductions being drawn, his opinion in regard to the use of belts is briefly this: Without the intelligent cooperation of both patient and physician, but little benefit will follow the use of abdominal supporters; where this cooperation can be secured and a properly fitted belt is made and properly worn, he believes relief is to be obtained in certain cases, especially of nephroptosis with Dietl's crises. In some cases he believes this relief will be permanent. [A.B.C.]

4.—Results at the Massachusetts General Hospital,

Following Operative Treatment of Nephroptosis.—F. G. Balch and J. R. Torbert give a synopsis of the results of operations performed between 1890 and 1904. Some 92 cases were on record, but the after-histories of but 41 cases could be obtained. Eighty-six of these operations were performed upon females. Of the females 61 were married and 25 were single. Pregnancy was given as the starting point of the trouble in 33 cases, trauma in 10 and in 49 cases the cause was not known. Of these 49 cases 25 were married and 24 were single. The time spent in the hospital varied from 15 to 45 days. The average time was 28 days. Seventeen cases had other operations beside the nephropexy done at the same time. There were urinary symptoms in 22 cases. Of the total 92 cases they have called 28 relieved. Thirteen were not relieved, and 51 patients were not heard from. The authors are of opinion that the results of nephropexy are much better in private practice, where patients take sufficient rest and receive proper care after operation. In hospital patients, even when there is intermittent hydronephrosis or stomach symptoms, evidently referable to the nephroptosis, the authors would, in some cases, advise the tentative use of suitable supporters. [A.B.C.]

5.—Results of the Surgical Treatment of Movable Kidney at the Boston City Hospital.—Paul Thorndike and L. R. G. Crandon state that of 16,559 operations performed in the Boston City Hospital during the past 10 years but 17 were for movable kidney. Only 10 of these could be followed and the results given. Judging from the reports, 3 of these patients were completely relieved, 6 were improved, and 1 was not improved. Their conclusions are: From 40% to 80% of all women have a palpable or even movable kidney. The causes of the condition seem to be lack of general muscular tone, anatomic peculiarities, or increase in the weight of the kidney, one or all. The symptoms are: A sensation, subjective or objective, of a mass moving from the flank into the abdomen; crises of kidney pain, a variety of nervous derangements from nervous dyspepsia to neurasthenia. The diagnosis is made on the presence of the mobile tumor, the symptoms just given, and by ruling out kidney stone, newgrowth, and gallstones. The treatment should be first mental; second, development of abdominal and back muscles; and last, if necessary, and no contraindication exists, fixation of the kidney by operation. The prognosis, after an operation, which is technically proper, is for perfect cure. [A.B.C.]

Medical Record.

March 4, 1905. [Vol. 67, No. 9.]

1. The Digestion of Caseins, and Its Relation to Certain Problems in Infant Feeding. THOMAS S. SOUTHWORTH.
2. A Study of Fifteen Patients with Erysipelas Treated by Injections of Antistreptococcus Serum. J. C. AYER.
3. Chronic Rheumatism, Gout and Other Uric Acid Diatheses Treated by the Röntgen Ray, High-frequency Currents, and Vibratory Massage. SINCLAIR TOUSEY.
4. The Prosthetic Treatment of Fracture of the Mandible. FRANCIS ASHLEY FAUGHT.
5. Acute Intussusception in an Infant; Resection of Gangrenous Intussusception; Murphy Button Anastomosis: Recovery. EDWARD W. PETERSON.
6. The Use of Extract of Dichondra as a Bactericide in Diphtheria. M. ARAMIAN.

1.—Digestion of Caseins and Its Relation to Certain Problems in Infant Feeding.—T. S. Southworth says that the nature of casein digestion is an important feature in the management of artificially-fed infants that has not received the consideration it deserves. Hammersten's erroneous conclusions have been copied and accepted without question by so many authors that it is only recently that it has been shown that much of the teaching of the past requires recasting. The ferment first formed in the stomach of the young is the rennet ferment, which changes casein into paracasein. At first this is digested in the intestine, but as hydrochloric acid begins to be secreted, this combines with the paracasein, forming hydrochlorid of casein, which is fitted for peptic digestion. The greater the amount of acid present, the tougher will be the curd; but at the same time more pepsin is secreted, so that as the infant develops, the work performed by the stomach is regulated automatically. An excess of acid causes the formation of a less digestible dihydrochlorid of paracasein; but if the acid is so abundant that some of it is uncombined, or free,

the new substance is readily digested. The presence of lactic acid in sour milk may greatly modify the digestive processes in the infant's stomach, and this question, as well as the rationale of adding alkalies to food mixtures, is discussed in detail by the author.

2.—A Study of 15 Patients with Erysipelas Treated by Injections of Antistreptococcus Serum.—J. C. Ayer compares the results in 15 patients with erysipelas treated by means of Marmorek's serum with those obtained in 79 patients managed by the usual methods in vogue before the introduction of serum therapy. The conclusions reached are as follows: 1. That the administration of antistreptococcus serum shortens considerably the course of uncomplicated attacks of erysipelas. 2. That it tends to inhibit extension of the disease. 3. That it has a strikingly beneficial effect upon the general condition of the patient, reducing the temperature, pain and discomfort incidental to the disease. 4. That it rapidly reduces the pathologic leukocytosis. 5. That it prevents or suppresses febrile albuminuria. 6. That its use is attended with no danger, even in large doses. 7. That the only disagreeable symptom referable to the serum observed by the writer is a transient eruption which occasionally occurs at the site of the injection. 8. That the efficacy of the serum treatment is in direct ratio to the length of time which has elapsed between the onset of the disease and the first injection of serum.

4.—The Prosthetic Treatment of Fracture of the Mandible.—F. A. Faught says that fracture of the mandible is usually compound, and that probably in a fourth of the cases the injury is multiple, but that the prognosis is generally favorable, except in extreme old age. The problem of securing adequate fixation of the fragments without interfering with mastication, and the proper care of the mouth, is often difficult, and some of the plans employed are open to serious objections. Among these is the use of the upper teeth as a splint and guide for maintaining the fragments in place, because it is uncertain in result and entails much discomfort. The continued use of a fixation bandage passing around the front of the chin is also unsatisfactory, and may lead to positive and permanent harm. The introduction of wire sutures through holes drilled in the bone is to be resorted to only after all other methods have failed. The author describes the steps necessary to produce a metallic cap splint, which is accurately modeled on the restored cast of the injured jaw and is cemented to the teeth.

5.—Acute Intussusception in an Infant; Resection of Gangrenous Intussusceptum; Anastomosis; Recovery.—E. W. Peterson reports what he believes to be the first successful operation on an infant, for the relief of intussusception, in which resection of the gut was performed. The patient was an infant of 4 months and 20 days, with typical symptoms pointing to an intussusception of about 30 hours' duration. Four inches of the ileum, the cecum, and an inch of the ascending colon were resected and an end-to-end anastomosis made by means of the Murphy button. Convalescence was stormy, but the patient was discharged cured on the fifteenth day. The button was expelled on the fourth day. The author considers that it is of importance to avoid the systematic use of opium in the post-operative treatment of these cases, owing to the risk of the drug's aggravating the enteritis and toxemia usually present.

6.—Extract of Dichondra as a Bactericide in Diphtheria.—M. Aramian describes the results obtained in treating diphtheria by local applications of extract of dichondra in glycerin. The preparation is obtained from the seeds and stems of *Dichondra brevifolia*, and to a solution containing one part of the extract in three parts of glycerin the author gives the name antidiphtherin. Numerous species of dichondra grow in this country, and it is probable that their properties are similar to those of *Dichondra brevifolia*. Applied to the affected mucous membranes, not less than four times daily, the preparation exerts a bactericidal action which is specific for the Klebs-Löffler bacillus and rapidly exterminates it, though the effect is only local and the toxin already formed is not neutralized. When used in conjunction with antitoxin, which does not affect the bacilli, though it renders their products inert, antidiphtherin shortens the illness and effects a cure in a period of time never exceeding seven days, and usually of only two or three days.

Illustrative cases and statistics are quoted to show that the disease is best treated by the combined use of dichondra and antitoxin.

New York Medical Journal.

February 25, 1905. [Vol. LXXXI, No. 8.]

1. Resection of Twenty-three Inches of Gangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis: Report of Thirty-three Cases of Intestinal Obstruction Caused by Unoperated Appendicitis. CLARENCE A. McWILLIAMS.
2. Myocardial Degeneration. ALBERT E. ROUSSEL.
3. Cotarnin Hydrochlorid in Uterine Bleeding. H. J. BOLDT.
4. A Brief Review of the Treatment of Puerperal and Puerperal Hemorrhages. CHARLES J. C. O. HASTINGS.
5. Intestinal Perforation in Typhoid Fever. HUGH M. TAYLOR.
6. Lumbar Puncture: Its Value in Diagnosis and Treatment. EDGAR P. COOK.
7. Electricity in Otolaryngology. J. J. RICHARDSON.
8. Retrodisplacement of the Uterus. HELEN HUGHES.

2.—Myocardial Degeneration.—A. E. Roussel discusses the different forms of myocardial degeneration. In regard to treatment, he says that in that group of cases characterized by a heart of normal dimensions and absence of evidences of dilation, but existence of cardiac weakness, rest in bed for a certain period of time is probably the first indication. Easily digested food, largely nitrogenous in composition, and attention to the condition of the bowels, are of importance. The regular use of an after-dinner pill or an occasional mercurial purge, alternating from time to time with high rectal irrigation, is beneficial. Strychnin, arsenic, and iron are the drugs which are of most use. The digitalis group is, as a rule, to be avoided. The writer makes regular use of oxygen, two or three times daily, for periods of 10 to 20 minutes, with good results. In cases in which there are evidences of increased arterial tension, the nitrites are of benefit. When the contrary is the case, small doses of atropin may be tried with good results. Aromatic stimulants are, as a rule, better suited for syncopal attacks than whisky or brandy, but the use of light wines is often beneficial. In attacks of angina, nitrite of amyl and nitroglycerin may be given hypodermically. As the patient improves, graduated exercise, either by the Oertel or Schott treatment, should be instigated. In patients with a syphilitic history, the usage of potassium iodid for long periods should be carried out, as some brilliant results have been reported. [C.A.O.]

3.—Cotarnin Hydrochlorid.—H. J. Boldt has made use of this drug to control bleeding from the uterus, and he believes that its therapeutic value has been established with exactness. Of 35 patients with fibromas, 11 were more or less benefited by its administration, and 24 were not benefited at all. Its uselessness was most marked in instances of submucous tumors. He quotes one example in which relief was very marked. The result was negative in 9 instances of hemorrhage, due to carcinoma of the uterus. In 5 instances of postpuerperal bleeding, the results were good. Out of 13 patients with hyperplastic endometritis, benefit was derived in 3 instances. There were 5 instances of retroversion of the uterus with endometritis, but in only 1 patient was the menorrhagia relieved without resorting to surgical intervention. Of 9 patients with chronic metroendometritis, 5 were more or less benefited. Of 23 patients with various forms of nonsuppurative pelvic inflammation, the uterus itself not being markedly affected, the pathologic bleeding was subdued in 8 instances; was markedly improved in 9 patients, was somewhat improved in 3, and had a negative result 3 times. Patients who have slight, irregular bleeding during pregnancy are greatly benefited by this drug. There were 17 instances of profuse menstruation in virgins, without detectable changes being found in pelvic organs on rectoabdominal examination, and in only 5 was the result entirely negative. It has been found that in instances of too profuse menstruation, the best plan is to begin with 1 gr. doses 3 times daily about a week before the expected flow, and as soon as the flow begins, to let the patient take 2½ gr. every 3 hours, to be continued during the entire period. In instances of metrorrhagia, from 2½ gr. to 5 gr. may be given at intervals of from 2 to 3 hours, until the bleeding is lessened, then the dose may be decreased to from 1 gr. to 2½ gr. at intervals of 3 to 4 hours. If a quick result is important, it is best to give 3 gr. to 5 gr. in a 10% solution, subcutaneously, into the buttocks. [C.A.O.]

5.—Perforation in Typhoid Fever.—H. M. Taylor re-

views in a general way the work done by other surgeons in this condition and enters a plea for an early diagnosis, and operation whenever and wherever a case of typhoid perforation occurs. [C.A.O.]

Medical News.

March 4, 1905. [Vol. 86, No. 9.]

1. The Equilibrium between Infection and Immunity as Illustrated in the Tonsillar Crypt. JONATHAN WRIGHT.
2. Multiple Neuritis in Wood Alcohol Poisoning. SMITH ELY JELLIFFE.
3. Appendicitis as a Visceral Manifestation of Erythema Exudativum Multiforme. JAMES S. CHENOWETH.
4. Short and Easy Methods of Arriving at Good Results in Diseases of the Ear and Upper Air Tract, Illustrated by Recent Cases. W. SOHIER BRYANT.
5. The Diagnosis of Malaria by the Finding of Pigmented White Corpuscles in Unstained Blood Films. J. R. CLEMENS.
. Psammoma of the Maxillary Sinus. JOHN C. MUNRO.

1.—Equilibrium between Infection and Immunity.—J. Wright thinks mechanical protectors to the animal organism act chiefly by diminishing the dose and retarding the action of bacteria and their toxins. Since dust particles pass the epithelial layer in health and bacteria do not, there must be something beyond mechanical obstruction which prevents the entrance of the latter. Endotoxin is a property which does not cause the appearance of antiendotoxin to counteract its poisonous effects, but does cause the manufacture of a bacteriolysin which dissolves the invading organism. This is to some extent destruction to the bacterium as it lies within the crypt as in the tonsils, but must be still more effective when it enters the epithelial hedge. We see, therefore, how in the throat this bacteriolysis is the most important of adjuvants to the antitoxin of diphtheria, for it is exerted on the bacterium before it enters the circulatory system. After recovery from diphtheria it is left to this lysin to make an end of the infection. Sometimes *B. diphtheriae* becomes a permanent dweller in the tonsillar crypt. An equilibrium has been established between the endotoxin and the bacteriolysin. This must also exist in the case of the staphylococcus, streptococcus and tubercle bacillus also found in these crypts in health. This same principle is to be applied to all situations where germs may lodge. Why are harmless germs also kept out? Wolff's conclusion is that all endotoxins are simply albumin of foreign origin and therefore poisonous like every other foreign albumin. This lysin seems to be formed in epithelium as well as in the leukocytes. [H.M.]

2.—Multiple Neuritis in Wood Alcohol Poisoning.—S. E. Jelliffe infers from his search through literature that this condition has been overlooked. Three patients have come under his observation, one from drinking adulterated whisky and the others from breathing the fumes of wood alcohol. The comparative toxicity of this alcohol series is: Methyl, .5 to .7; ethyl, 1; propyl, 2 to 3; butyl, 3 to 5; amyl, 5 to 8. Dose for dose in the lower animals methyl alcohol is slightly less toxic than ordinary alcohol, but it is remarkably cumulative in its action, while the others are not or distinctly less so. Moreover, the action of a single toxic dose is much more prolonged than for any of the other alcohols. In small, repeated doses, it is probably very slowly oxidized, remaining first as methyl alcohol in contact with the tissues a long time, and probably formaldehyde and formic acid play some part in the poisoning. At one time it was used extensively in New York in the manufacture of the official tinctures. There are a number of reasons why more cases of peripheral neuritis are not reported. One is that death occurs so promptly in many instances there is not enough time to develop the lesion in the peripheral nerves; or because of the greater susceptibility of the retinal ganglion cells, blindness appears so promptly that methyl alcohol mixtures are not taken longer. [H.M.]

3.—Appendicitis Due to Erythema Exudativum Multiforme.—J. S. Chenoweth states that vesical lesions which have been noted in a large percentage of cases may precede or follow the eruption, and may cause a fatal termination. There is generally intense colic, high fever, nose bleed, hematuria, hematemesis, and intestinal hemorrhage, one or all of which may be present. The anatomic peculiarities, the abundant lymphoid tissue with its dense fibromuscular sheath, the terminal circulation, make this organ particularly liable to

serious circulatory disturbances. The diagnosis in these cases must rest upon classic signs. In the author's experience in the abdominal crises of exudative erythema there has not been muscular rigidity and localized tenderness, except in involvement of the appendix, as demonstrated by operation in four cases. [H.M.]

5.—Diagnosis of Malaria by Pigmented White Corpuscles.—J. R. Clemens, since Manson announced that these pigmented cells were pathognomonic, has examined 500 unstained blood films in which these were present, and has never had occasion to regret the diagnosis of malaria made in each case. The advantages over diagnosis by plasmodiums are that the former are a constant index found always, irrespective of the time of sporulation or the action of quinin (within certain limits). The technic is simple and the recognition of unstained pigmented whites is infinitely more easy than that of the plasmodiums in stained specimens. They are trustworthy guides in all manner of irregular attacks simulating other diseases. [H.M.]

6.—Psammoma of the Maxillary Sinus.—John C. Munro reports that a woman of 20 had noticed for the past 7 years that the left eye was a little more prominent than the right; the condition was gradually becoming more pronounced. There had never been diplopia. Palpation revealed a smooth, rounded mass in the lower part of the orbit and extending backward to an indefinite distance. At operation by a modified Krönlein method a large cystic tumor was found full of reddish granular material, feeling like a mixture of sand and putty. On curetting out this material, it was found to extend through the floor of the orbit into the antrum of Highmore. The latter was opened and cleansed of the material. The patient did poorly and two months later a subsequent operation was performed, at which time a mass of the same material was found at the roof of the pharynx, and on removing this the material appeared to extend into the sphenoidal and ethmoidal sinuses. All pathologic material was removed and the patient recovered. Microscopic examination resulted in a diagnosis of psammoma of a peculiar type, which should probably be classified as sarcoma. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Infectivity and Management of Scarlet Fever.—W. T. Gordon Pugh¹ carried out a series of investigations, from which he concludes that the evidence of infectivity lies not in the desquamating cuticle, but in the throat and nasal cavities. In scarlet fever as in diphtheria, it is impossible to ascertain definitely by clinical means when the patient has been freed from infection; prolonged infectivity is probably not the rule. It is probable that at the end of six weeks for scarlet fever and four weeks for diphtheria that most cases will not infect others. A patient with nasal discharge is to be regarded with suspicion, for if the contagion is still in the mucous membrane the nose will act as a vehicle for discharge. He discusses the best form of treatment, and concludes that hospital treatment for the great majority of cases is best; that neither hospital treatment nor home treatment is ideal. The beneficial influence of hospital treatment on the course of scarlet fever cannot be realized fully without cooperation on the part of the parents, medical attendants, and sanitary authorities. It is of importance that the microorganisms of scarlet fever should be isolated and identified. It would probably lead to saving of public money were an organized search made into this subject, for there can be little doubt that under the present system, while some are discharged who are still infectious, many are isolated for an unnecessarily long period. [A.B.C.]

Suppurative Myositis Due to Micrococcus Gonorrhea.—From the pus of an abscess of the muscles of the leg Harris and Haskell² succeeded in isolating an organism which they recognize as the bacillus of Neisser. No history of an acute infection could be obtained and no other lesions could be dis-

¹ The Lancet, February 4, 1905.

² Johns Hopkins Hospital Bulletin, 1904, xv, 395.

covered, excepting the abscesses of the calf and the muscles of the back. The patient made a good recovery, but the wounds were a long time in healing. [E.L.]

Atresia of the Pulmonary Artery.—Koller-Aeby¹ reports two cases of this condition. One case is unique, in that the pulmonary artery was replaced, not by the ductus botalli, but by the greatly dilated bronchial arteries; the latter were connected with the closed pulmonary artery by large anastomotic branches. Thus the arterialization of the blood still occurred through the branches of the pulmonary artery. In the second case the blood reached the lungs from the aorta through the ductus botalli. In both cases the ventricular septum was defective. Both exhibited, during life, cyanosis without dyspnea, and in the first case the cyanosis did not develop until about the second year of life. Regarding the physiology of such cases, the author propounds various theories. It is probable that the mixture of arterial and venous blood produces a condition in which the individual red corpuscles contain varying quantities of oxygen, depending upon whether they have passed several times in succession through the lungs or through the systemic circulation. The average tension of the oxygen in the blood is lower than in the normal body. In order to maintain the volume of oxygen in the mixed blood at its normal quantity, it would be necessary for the blood coming from the lungs to contain 26½ volumes percent oxygen. Experimentally it has been shown that this figure cannot be brought above 23%. Hence, the amount of oxygen in the mixed blood is necessarily below normal. This deficiency of oxygen in the systemic circulation no doubt accounts for the cyanosis. The author explains the absence of dyspnea by the theory that this symptom is not caused by deficiency in circulating oxygen, but that it is due to reflex action from the respiratory tract. In these cases of congenital cyanosis the conditions in the lungs are approximately normal, and therefore no dyspnea results. [B.K.]

The Prognostic Value of Diazo Reaction in Enteric Fever.—J. D. Rolleston² bases his observations upon 65 cases in which the diazo reaction was employed. He states that a positive reaction in enteric fever is first obtained about the fourth day. The following showed the diazo reaction in the series of cases at various stages of the disease: Cases in the first week 9, all positive; second week, 24 positive, 9 negative; third week, 9 positive, 8 negative; fourth week, 2 positive, 2 negative; fifth week, 1 positive, 1 negative. In 27 of these patients in whom the test was employed throughout the disease, the diazo reaction became finally negative at the following dates: First week, 9; second week, 6; third week, 12; fourth week, 3; fifth week, 4; sixth week, 1; seventh week, 1. An intense reaction does not necessarily indicate a severe form of the disease, as it is found in the great majority of patients in which the urine is examined during the first fortnight. It is only the persistence of a positive reaction that characterizes a severe attack. The author's summary is as follows: 1. In all but severe attacks, the diazo reaction tends to disappear in the course of the second or third week, the disappearance shortly preceding or coinciding with the commencement of lysis. 2. Its reappearance during or after the completion of lysis is a warning of recrudescence or relapse, or of complications directly due to the specific bacillus. 3. A sudden disappearance of the reaction, associated with a deterioration of the general condition, is of bad omen. 4. The character of the reaction is a useful adjunct to the history. [A.B.C.]

Infantile Paralysis of the Abdominal Muscles.—W. B. Cornell³ reports the case of a boy of 21 months, who had an attack of fever lasting three days, during which he slept almost constantly. After the attack the boy could neither sit nor stand, his right leg and left arm being paralyzed. He recovered from these paralyses with the exception of those of the muscles of the abdomen. The abdominal skin reflex was present on the left side, absent on the right side. As the child raised the intra-abdominal pressure, the right side ballooned out very markedly. Irritation caused contraction of the muscles of the left side, but not of the right. In the erect position the condi-

tions were intensified. The paralyzed muscles were the obliqui, the transversalis, and half of the rectus abdominis on the right side; the electric reactions could not be tested. [E.L.]

Cholecystocele and Hepatoptosis.—L. Bouveret¹ has observed several cases in which a distention of the gallbladder accompanied a marked ptosis of the liver, without there being any neoplasm or calculus to account for the obstruction of the bile ducts. The condition has been recognized previously, and is always found in women with pronounced enteroptosis. There is no history in these cases of cholelithiasis or biliary colic. The patients present merely the symptoms and physical signs of their enteroptosis. The displacement of the liver may cause the cholecystocele to make its appearance in various parts of the abdomen. The tumor is not at all tender, and moves with respiration. It has sometimes been mistaken for a tumor of the kidney or other neoplasm, and must always be thought of in making a diagnosis. When the suspected tumor has finally been recognized as the distended gallbladder, calculous obstruction may be eliminated by the absence of pain, and neoplastic obstruction by the nonprogressive nature of the condition. The distention is probably caused by a flexion of the cystic duct, brought about by the displacement of the liver. [B.K.]

The Role of an Excessive Meat Diet in the Indication of Gout.—J. Chalmers Watson² contributes another article on this important subject. He says that a belief in the infective nature of gout in no way minimizes the importance of a study of diet for this reason: If there is an infective element in the disease, the main source of infection is the digestive tract, and there is good reason to believe that the activity of the bacteria in the intestinal contents must depend largely on the character of the foodstuffs. He discusses at some length the effect of an excessive raw meat and water diet on the thyroid and parathyroid glands in poultry, and in rats, in both of which he has carried out a series of investigations. In poultry the diet caused a striking hypertrophy of the gland with great increase of colloid material. In rats a striking change was the alteration in the character of the secretion with catarrh of the epithelial lining of the vesicles and the general appearance of the gland indicated exhaustion of function. He states that further investigations are necessary before the difference in the results obtained in the two classes of animals can be explained. In the meantime the new facts are of practical importance. There are statistics which prove conclusively that there has been a great increase in the consumption of meat in England in the past 30 years. Evidence is accumulating to show that thyroid medication is of value in a number of diseased conditions which have no relationship to the thyroid gland, such as skin diseases, mental effects, eclampsia, and other disorders, and he asks the question: May not the new facts suggested in the present paper explain the value of thyroid medication in those cases? He believes it possible that as a result of excessive meat diet there has been established in many subjects an alteration in the character of the thyroid secretion, which defect is remedied in the cases in question by the administration of thyroid gland. In fact, he has administered thyroid extract in two inveterate cases of chronic gout with most beneficial results. [A.B.C.]

Adrenalin and Thyroid Extract in Diabetes Mellitus.—D. N. Paton³ was led by the fact that morphin causes glycosuria in the healthy and diminishes it in the diabetic, to investigate the action of adrenalin in the latter condition, animal experiment having demonstrated that it causes glycosuria in normal conditions. Apart from action on the sugar-regulating mechanism of the liver, whether direct or through the pancreas, theoretically it might appear that a substance which has a tonic effect on the muscles should increase the utilization of sugar, and thus decrease its excretion in diabetes. Experiments on diabetic patients, however, prove that the excretion of glucose and of nitrogen is markedly increased, the increase in glucose being out of proportion to that of nitrogen. It seemed from the influence of thyroid gland in increasing the metabolism of proteins and fats, that it might also increase the metabolism of sugar in diabetes. A patient was given doses

¹ Dent. Archiv f. klin. Med., Bd. lxxvii, p. 228.

² The Lancet, February 4, 1905.

³ Johns Hopkins Hospital Bulletin, 1905, xvi, 11, No. 1.

¹ Lyon Medical, January 22, 1905.

² The Lancet, February 11, 1905.

³ Scottish Medical and Surgical Journal, December, 1904.

increasing from .5 gm to 10 gm. daily for six days, when symptoms of thyroidism supervened with a threatening of diabetic coma, and the drug was discontinued. The excretion of glucose or nitrogen was not modified. [H.M.]

Diagnostic Significance of Hematemesis in Appendicitis.—K. Sick¹ reports a case that began as a pure appendicitis. Later marked hematemesis set in, and the expectant treatment of gastric ulcer was adopted. The patient gradually became worse, however; a subphrenic abscess developed from a rupture of the appendix, and general peritonitis led to death. At autopsy the gastric mucosa showed multiple hemorrhages by diapedesis, hemorrhagic erosions, and fresh, miliary foci of inflammation with necrosis of the mucous membrane. If Sahli's theory be accepted, that appendicitis is an infectious disease of a lymphatic apparatus, it can be understood how this disease may be complicated by necroses of the gastric mucous membrane. A bacterial infection of the stomach must be ruled out, however, as other organs would also be necessarily affected. It is much more plausible to assume that the necrosis is due to the action of circulating bacterial toxins in combination with the digestive action of the gastric juice. Even without hematemesis, the diagnosis between appendicitis and gastric ulcer may be difficult; but since it has been shown by this and other cases that even this symptom does not rule out the possibility of appendicitis, the diagnosis is often made doubly hard. [B.K.]

Carbonic Acid as a Factor in the Genesis of the Gouty State.—Donald F. Shearer² states we are aware that one factor common to all the antecedents of gout is the tendency to the production of an excess of carbonic acid in the blood. The cardinal feature of muscular exercise is the large increase in the output of carbonic acid without affecting the nitrogenous excreta. Alcohol and carbohydrates can only produce, as the end-products of their combustion, water and carbonic acid. Nitrogenous diet increases metabolism, not only of proteid, but of carbohydrate and hydrocarbons and thus leads to an increased amount of carbonic acid. His suggestion is that if persons are supplied with a varied quantity of food without exhibiting the muscular activity necessary to excrete it they will either not assimilate it, or it will be converted into fat, or it will be metabolized and excreted as carbonic acid. We know that it is not assimilated; we know that only a small part of it is converted into fat; and we are compelled to the conclusion that it must be excreted as carbonic acid in the absence of muscular activity, which would naturally increase the rapidity of the pulse, and the frequency and depth of respiration. The exchange of carbonic acid with air must be greater than normal. It is among persons living such a life that gout most frequently develops. [A.B.C.]

Physiology of the Intestines.—N. D. Stragesko³ concludes from his experiments that under normal physiologic conditions the work of digesting and assimilating is almost finished before the valvula Bauhin is reached by the intestinal contents. Some absorption takes place in the large intestine, and even some digestion continues to take place below Bauhin's valve, but this part of digestion is done by the ferments originating above and brought down with the food, because the large intestine does not secrete any ferments. Thus, normally, the colon plays a very subordinate part in digestion. This is different under abnormal conditions, when owing to increased peristalsis, the intestinal contents are rapidly carried along and reach the colon in an undigested state. Then the large intestine takes upon itself the work of digestion and assimilation, although even in this case it must utilize the secretions brought down from the small intestine. [L.J.]

The Alternating Sinusoidal Current in the Bath.—A. D. Fordyce⁴ describes the sinusoidal current in which, owing to the evenness in variation of the intensity of the current, the minimum amount of shock is administered to nervous structures, so that currents of considerable strength can be applied without muscular contraction or marked sensory phenomena. In the dipolar method the electrodes are im-

mersed in the water, the amount of the current passing through the body varying with the temperature and the amount of water. The usual temperature is from 90° F. to 100° F., the patient remaining in the water for 10 to 30 minutes. The general effects are tonic, with a certain sedative effect on pain, and, consequently, improved sleep. There can be no doubt also that in many cases the psychic effect is one of the most important factors to be considered. In cases of infantile paralysis of 4 to 6 months' duration without reaction of degeneration, marked though gradual improvement occurred, but not any was noted in cases of 18 months' duration. The treatment was satisfactory in rickets, rheumatoid arthritis and neurasthenia. Hysteria was not benefited. [H.M.]

Aids to the Clinical Diagnosis of Intrathoracic Diseases.—A. Gröber¹ calls attention to certain pupillary and other phenomena in connection with diseases of the chest. Inequality of the pupils is a frequent symptom of apical tuberculosis, the pupil on the affected side being dilated, owing to irritation of the sympathetic. Another aid to diagnosis may be found in the swelling of the veins in the neck and upper part of the chest, on making a forcible expiratory effort with closed mouth and nose. Normally these veins are equally and simultaneously dilated on both sides of the body. In certain pathologic conditions, the veins on the affected side dilate earlier and to a greater extent than those on the sound side. In making this test with a normal person, it is observed that the pupils undergo a slight dilation, followed by a slight contraction. If any variation of this phenomenon is observed, it indicates some pathologic condition in the thorax on the side which shows the variation from the normal. The pupil phenomena are observed especially in changes that occur in the region of the vertebral column, while the venous phenomena occur especially in disease of the anterior mediastinum. Another aid to diagnosis is found in percussion over the manubrium. Normally this gives the ordinary pulmonary resonance. In retrosternal tumors, excepting aortic aneurysm, we get a pure, dull note with closed mouth, or a dull note with tympanitic ring, if the mouth is open. In tumors of the posterior mediastinum, the note is a pure tympanitic one. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

The Morphology of Carcinoma and the Parasitic Theory (Geheim-Medizinalrath).—Prof. Dr. Johannes Orth,² of Berlin, says the principal problems before pathologists of the present times are: 1. In what way is cancer morphology characterized? 2. What can be said concerning the parasitic theory of origin? There can be no doubt that the characteristic and distinguishing features of the cancer cells are that they are none other than epithelial cells, not only in accordance with structure, but with respect to the nature of their protoplasm and nuclei. They are epithelial in accordance with their pathologic activities and also in their origin. There is no metaplasia from connective-tissue cells, or cells of that nature into epithelial cells, or cancer cells. An epithelial cell can never be made from connective-tissue cells, and conversely connective-tissue cells can never be transformed into an epithelial cell. All that we know of cancer proves that the epithelial cancer cells form the essential element of the cancer, and that they are not only the most important, but indeed the *only* important element. The other tissues which may be present, such as the stroma, are without significance. What is to be explained in cancer is the limitless aberrant growth of epithelial cells. Concerning the parasitic theory, he states that the cause throughout is not such that a satisfactory explanation can be arrived at through the assumption of parasitic activity, but rather we are in good position to comprehend all the phenomena in the morphology and biology of cancer without parasites. His conclusions with reference to this theory are: 1. No one, up to

¹ Deut. Archiv f. klin. Med., Bd. lxxx, p. 263.

² The Lancet, February 11, 1905.

³ Russk. Vrach, December 4, 1904.

⁴ Scottish Medical and Surgical Journal, December, 1904.

¹ Deut. Archiv f. klin. Med., Bd. lxxxii, p. 241.

² Annals of Surgery, December, 1904.

the present time, has produced proof that cancer is of parasitic origin. 2. There is no necessity to assume a parasitic etiology in carcinoma. [A.B.C.]

The Present Position of Surgery of the Hypertrophied Prostate.—J. William White¹ makes reference to a paper written by himself and published in the *Annals of Surgery*, in 1893, on this subject. He gives a summary of the various theories which have been adduced to explain hypertrophy of the prostate, and discusses and details the symptoms produced by the disease. He states that within the last decade he has found but 15 cases in which he deemed castration justifiable, and 37 cases in which he performed vasectomy. His present opinion is that castration and vasectomy are likely to occupy a more and more restricted field in the treatment of this disease. In properly selected cases he still believes they are likely to have a low mortality, and that when fully successful they secure a return to a condition more closely resembling the normal than most of the other operations for this trouble. Largely from the work of Mr. Freyer, suprapubic enucleation of the entire gland has, during the last decade, become the operation of choice, in the majority of cases. The operation is described in detail, and Freyer's results are rehearsed. The author states that the anatomic discussion as to the possibility of "total" enucleation, as to the presence of a "true" capsule, as to the retention of the uninjured prostatic urethra, etc., while interesting, are of academic rather than practical importance. As to the other methods of prostatectomy, the perineal and the combined routes, there can be no doubt that they have given good results in the hands of some surgeons, and are still the methods preferred by a number of able workers. [A.B.C.]

Slipping Cartilage in the Knee-joint.—Edmund Owen² says it by no means follows that because a man has a loose semilunar cartilage his knee-joint must be opened. It should first be seen if wearing an apparatus may not suffice to render the knee comfortable and safe. Football, hockey and cricket games in which the injury is often received, should be given up entirely. In operating upon the knee-joint, it must be remembered that the synovial membrane has no "margin of error;" that is, it is almost absolutely helpless in dealing with bacteria which may be introduced at operation; the risks, therefore, are ever present and very real. Owen has never had any but satisfactory results from operation, but two cases gave him much worry. He keeps the patient in bed three days before operation. A leather splint is moulded to the leg, to be in readiness to apply when the wooden splint is removed a few days after the knee is opened. The skin is made as aseptic as possible, and he and his assistants wear rubber gloves. A 7 cm. (3 in.) incision is made to the inner side of the patella. Usually when the joint is opened, the inner cartilage is seen lying across the top of the internal tuberosity of the tibia, and perhaps detached from the internal lateral ligament; if so, the knee is flexed and the cartilage cut across as far back as possible. A drainage-tube is left in for 24 hours. On the seventh day the stitches are removed, the wound covered with collodion and the leather splint applied. [A.G.E.]

Duodenal Ulcers.—From January, 1904 to September, 1904 B. G. A. Moynihan³ operated on 51 patients: There were 7 cases of perforated duodenal ulcer, with 5 recoveries; 22 operations for duodenal ulcer, associated with gastric ulcer, with 1 death; and 22 operations for duodenal ulcer alone, with 1 death. The author states that the relative frequency of duodenal ulcer to gastric ulcer has been greater in his experience than in many of the statistics published by others. He believes that duodenal ulcer is far more common than has been believed, and that the association of duodenal ulcer with gastric ulcer is frequent. He holds that the symptoms of duodenal ulcer in many cases are characteristic and admit of an unhesitating diagnosis. Ulcers in the first portion of the duodenum are at least ten times more frequent than in the second. In his series of cases all the ulcers which perforated were in the first portion of the duodenum; of the chronic ulcers, 43 were in the first portion, and 1 in the second portion. Moynihan believes that the sequence of events in this trouble is: (1) Gastric ulcer, then

hyperchlorhydria, and then duodenal ulcer. Duodenal ulcer may occur at any age. In the 51 reported cases the ulcer occurred 32 times in males, and 19 times in females. The classic symptoms are pain, hematemesis, and melena. Attention is called to the remarkable mimicry which perforating duodenal ulcer may bear to appendicitis. [A.B.C.]

Intussusception of Meckel's Diverticulum.—W. Watson Cheyne¹ reports that a man of 19 was admitted to the hospital with a history of indefinite abdominal discomfort during the past two years, which culminated in an attack of vomiting and diarrhea. Recurrence was frequent, the latter increasing until finally an attack occurred about once a week. Finally, symptoms of intestinal obstruction developed, laparotomy was performed, and intussusception was found. The intussusception, which was 18 inches long, was easily reduced, there being no lymph or any tendency to adhesion. When this was reduced a second intussusception was found, and this was reduced. A third intussusception was found which could not be reduced, and the whole mass, which was inextricably involved, was excised, and intestinal anastomosis performed. The position of the excised portion of bowel was from 2 ft. to 3 ft. above the ileocecal valve. The patient made a good recovery. An examination of the mass after its removal, showed an intussuscepted Meckel's diverticulum, and similar to a number of other reported cases in which it was essentially the mucous membrane which was invaginated. The case differs, however, from the published ones, with one exception, in that there was a narrow strictured canal connecting the upper and lower portions of the intestine. This stricture appeared to be a congenital narrowing of the small intestine. On searching the literature, Cheyne was able to find reference to 14 reported cases of intussusception of Meckel's diverticulum. [A.B.C.]

Bilateral Nephrolithiasis.—Treplin² reports five such cases, in each of which there was bilateral colic and palpable hydronephrosis. As etiologic factors he mentions pyelitis consecutive to cystitis and tuberculosis of the kidneys; calculi incident to these conditions he regards as secondary. He speaks of a primary form, where the stones are formed in the pelvis of the kidney without an apparent cause. Anuria, induced by calculi, is indicative of immediate operation, and if the calculi are large, both kidneys must be relieved at the same operation; the most extensively diseased organ should be done first. In order to determine which shows the greater lesion, ureteral catheterization and cryoscopic examination of the urine obtained is necessary. A cure is not affected until the freezing-point of the blood is normal again. The prognosis is not very favorable in these cases, since in one of his cases another stone formed on one side and in another case they were again detected upon both sides later. [J.F.]

Pathologic Findings in Seven Cases of Enlarged Prostate.—L. S. Dudgeon and Cuthbert Wallace³ state that three opinions are held as to the manner in which hypertrophy of the prostate occurs: (1) That the growth is merely a neoplasm; (2) that the increase is due to a fibrosis constricting the ducts near the urethra and causing a retention of the gland products—the fibrosis is suggested to be the result of a chronic inflammatory process, possibly gonorrheal in origin; (3) that the increase is due to an inflammation of the gland tissue which produces blocking of the duct by desquamation of the cells. This inflammation is said to be brought about by an extension of septic organisms from the bladder. In consequence of the divergent views held by medical men, the authors undertook a systematic examination of prostates. In seven instances this examination has been carried out; microscopic examination was made of each prostate gland; the urine was examined in each case systematically, with special reference to the bacteria which it contained. No definite conclusions were reached, but it was observed that in the greater number of the cases the tumors removed from the prostates showed unmistakable signs of infection by microorganisms, and that in some instances the infected organisms were the same as those found in the urine. To a certain extent, therefore, the results lend support to the view that the initial lesion in prostatic enlarge-

¹ *Annals of Surgery*, December, 1904.

² *The Practitioner*, February, 1905.

³ *The Lancet*, February 11, 1905.

¹ *Annals of Surgery*, December, 1904.

² *Arch. f. klin. Chirg.*, 1904, Bd. lxxiv, Heft 4.

³ *British Medical Journal*, December 31, 1904.

ment may, in certain cases, be a septic infection from the bladder. At the same time, the authors state, it is difficult to accept the view that all such enlargements are due to such a cause, as this would involve the septic infection of a large proportion of bladders in individuals above the age of 50 years. [A.B.C.]

Hernia of the Bladder Complicating Inguinal Hernia.

—Francis J. Shepherd,¹ of Montreal, publishes the report of four cases. In each instance there was a right inguinal hernia complicated by hernia of the bladder. In one instance the sac was bilobated; and in two instances inguinal hernia was direct and in one of these there was not only hernia of the bladder, but hydrocele of the sac. The author states that it is most important to recognize hernia of the bladder when operating for radical cure of hernia, and there are certain points to which he would direct attention: 1. The inguinal opening is always large, out of proportion to the size of the protruding intestines. 2. The cord is not intimately associated with the sac of the tumor, but can be readily held aside without dissection; it is usually to the outside of the tumor. 3. In all the cases here reported, the hernia had been produced by a sudden strain. 4. The difficulty of finding a neck to the sac, for the anterior portion of the sac stretches away to the pubis, and is, perhaps, covered with granular and very vascular fat. In the first case the author wounded the bladder, but avoided it in the subsequent cases. [A.B.C.]

Hey's Internal Derangement of the Knee-joint.

—J. Knott² reviews the literature of the subject and describes his personal experience of its causes, symptoms, and treatment. With him it has resulted at least 40 times from indirect and very slight violence, the force causing rotation at the knee-joint when more or less flexed and with the surrounding structures as relaxed as possible. It occurred several times sitting at table when the inner side of the great toe, in adducting the lower extremity, collided with a leg of the table. The pain is agonizing, and power of voluntary motion is absolutely lost. In his first experience as a boy, firm pressure on each side of the knee was followed by a loud clucking sensation and instant relief. The internal semilunar cartilage has never been displaced from its tibial attachments. An immediately reducible displacement of this cartilage is a physical impossibility. Two prominences could be detected on the inner aspect of the joint, one the inner margin of the internal condyle of the femur, the other no doubt the rim of the semilunar cartilage still preserving its attachments. By combined slight rotation and external flexion the tibia undergoes subluxation. The articular extremity of the condyle is jerked over the edge of the rim of the latter, and there becoming hitched, the tibia has its upper extremity "locked" in a position of slight displacement—mostly rotary, with an outward and forward movement of the inner portion of the head, and its cartilaginous semilune. The less frequent derangement of the outer section of this articulation is due to the greater mobility of the outer semilune, its more circular outline, and strong femoral attachments. [H.M.]

Pyloroplasty.—Rutherford Morrison³ says cases suitable for pyloroplasty are those with a history of longstanding stomach trouble, foul, abundant vomiting toward night, thin patients with dilated stomachs and with a palpable, movable nodule in the pylorus. He reports 17 cases of pyloroplasty, with after-history for periods varying from 10 years to 5 years and 3 months after operation. In 3 patients the symptoms recurred necessitating further operation. In 2 of these recurrence was due to stricture, in the third the patient has complained more or less ever since her first operation, and at that time there was no organic stricture. She has always looked well, despite her complaints of pain about the stomach. In the second operation the pylorus easily admitted three fingers. Of the remaining 14 patients, in 8 the result may be said to be perfect; in 6, symptoms more or less troublesome are complained of. On critical examination of these 6 cases he found that in 1 no definite organic obstruction was found at the pylorus, and that in spite of some trouble, probably alcoholic in origin, the patient has gained

weight. In one the patient occasionally vomits, but her health is better than before and she is still gaining in weight; in one the symptoms are slight and the gain in weight is maintained; in one the symptoms also are slight, but the patient has lost weight during the last 3 years; in one the only complaint is of slight bilious attacks; in one the miserable condition of the patient before the operation has been converted into one of comparative comfort. [A.B.C.]

The Undescended Testicle.—Walter B. Odiorne and Channing C. Simmons¹ present a study of 77 cases. In the last orchidopexy was performed seven times, in children ranging from 5 to 13 years. In but two instances was a good result obtained, and this in the same patient, aged 13, who had double retention. Both testicles are normal in size, position and probably in function. Two other boys were operated upon at 13, and in both the testicles have remained in the scrotum, although they have retracted to a high position and neither is notably atrophied. In one patient, aged 11, there was a poor result, the testicle being much atrophied and fixed just outside the ring where it causes constant pain. Two children were 5 years old at operation; in one the testicle withdrew into the canal where it remains small and undeveloped; in the other it retracted to the pubic region where as yet it has given no trouble. The only satisfactory results were in the four instances in which the patients were aged 13. The operation was performed 11 times in adults from 16 to 42 years of age; 5 testicles have remained in the scrotum, 4 of them occupying a high position, while 1 is in good position and is half normal size, yet it is the seat of attacks of inflammation due to injury; 3 testicles retracted soon after operation into the canals where they remained atrophied, 1 causing pain; 2 have retracted to the pubic region where they are a source of annoyance due to position. In every case in which the organ appeared normal at the time of operation there has been subsequent diminution in size. In 2 cases, symptoms were definitely removed; in 3 not removed; in 2 others were aggravated. [A.B.C.]

The Treatment of Perityphilitis.—Sonnenburg² says we can divide the cases of acute appendicitis into two great groups; one in which the process soon becomes localized in the ileocecal region, and in which the constitutional effects are not great, and the other, the diffuse form, in which the process does not become localized at all, or if so, very late. The first can be treated palliatively, but the second requires operation very early, the sooner the better. The last-named form is instituted by gangrenous or perforative appendicitis. He maintains that the physician knows these forms, and when he comes in contact with a case in which the condition does not become localized, he calls in the surgeon. [J.F.]

The Significance of Scars in the Genital Region in the Retrospective Diagnosis of Syphilis.—Arthur Cooper³ discusses venereal diseases, and says the diagnostic value of genital scars is not always easy to determine, yet the retrospective diagnosis of syphilis is a matter of such importance that an attempt should always be made to get information from every possible source, and attention to these points will sometimes help materially in the clearing up of an otherwise doubtful case. The following summary he deems of value: (1) Genital scars are more common and more marked in hospitals than in private practice; (2) in many cases of nervous or other low forms of internal syphilis, the genital region is free from scars; (3) a single scar on the skin of the penis suggests syphilis; (4) a single scar on the mucous membrane also suggests syphilis, as a rule, occasionally the local chancre; (5) multiple scars on the mucous surface of the penis only suggest the local chancre; (6) multiple scars on both mucous membrane and skin also suggest the local chancre; (7) inguinal scars, together with scar of the penis, suggest the local chancre; (8) an inguinal scar without any penile scar, if venereal at all, suggests gonorrhea; extensive scarring of the penis or groin, or both, suggests phagedena; (10) genital scars with scars on other parts of the body, suggest an ulcerating syphilid. [A.B.C.]

¹ Annals of Surgery, December, 1904.

² St. Paul Medical Journal, December, 1904.

³ The Lancet, February 11, 1905.

¹ Annals of Surgery, December, 1904.

² Arch. f. klin. Chirg., 1904, Bd. lxxiv, Heft 4.

³ British Medical Journal, January 21, 1905.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Birth Fractures of the Skull.—James H. Nicholl,¹ of Glasgow, discusses this subject at some length, and concludes as follows: 1. The statement frequently made that in the majority of instances, depressed green-stick fractures of the skull, in infants, rectifies itself if left alone, lacks confirmation. It is more true of the traumatic (as opposed to the parturition) green-stick fractures of the skull than it would be of green-stick fractures elsewhere. In parturition cases it may be true that slight indentations may spontaneously disappear within a day or two. In more marked cases, such as in the cases where depression lasts for more than a month, spontaneous obliteration is problematic. 2. In green-stick depressed fractures of the skull in infants and children, which have not been remedied when recent by Kerr's method, operation is justified, simply for the correction of deformity. The deformity of a cranial depression is unsightly, and is the cause of much anxiety to parents, while the operation for its correction is not more serious than is the removal of a nevus or keloid. The author reports 23 cases operated upon without a death. 3. Of the two methods available, elevation and inversion, the latter is decidedly the better, alike in the freedom from risk and the perfection of the result obtained. [A.B.C.]

Postoperative Anuria.—Before giving the details of his experiments carried out upon the cadaver, Betagh² speaks of a case of anuria in which he claims the condition was due to the indirect pressure or by occlusion of the ureters through the downward traction of the clamps on the stumps of the broad ligament. Although the clamp was applied to the left side only he explains the suppression of the function of the right kidney by reflex action. He maintains that it is not necessary to completely occlude the lumen of the ureter in order to produce anuria as a partial occlusion is quite sufficient. From his experiments he concludes that it is easy to avoid injuries to ureters in performing vaginal hysterectomy, yet they occur occasionally; their occurrence is favored by abnormal adhesions of the uterus and the manner in which the clamps are applied. The pelvic portion or the so-called vesical portion of Fraisse is the part of the ureter most frequently affected. This point is where the ureter is in relation with the base of the broad ligament, where this ligament possesses little laxity in its relation to the posterior surface of the bladder wall and where it adheres closely to this organ. Upon infection of solidifiable material into the ureters of the cadavers upon which he experimented he found that in the lower 2 cm. or 3 cm. of the organ the substance was always absent but occlusion was not complete as a filament column of liquid substance always passed through. Such a diminution in caliber, he maintains, is sufficient clinically to give rise to reflex anuria. [J.F.]

Fibromyoma of the Pregnant Uterus.—E. B. v. Fernwald³ reported his experience with 6 cases of this character. In one case he successfully delivered the woman of a healthy living child by means of forceps, when there was present a fibromyoma the size of a child's head. In the second case, by practising a conservative myotomy in the third month, the pregnancy continued undisturbed. In 2 cases, both in the fourth month of pregnancy, good results followed a supra-vaginal amputation of the myomatous uterus. Two cases were cured by practising a conservative cesarean section with myotomy at the end of the pregnant period. Both children survived. [J.H.W.R.]

Tubal Pregnancy of Long Duration.—E. Hurry Fenwick⁴ reports that a woman of 45 presented the following condition: Large abdominal tumor of long duration, fecal urine, pneumaturia, hectic temperature of long duration, and great emaciation and cachexia. The cystoscope revealed a normal bladder, but a fistulous opening could be seen. The diagnosis was suppurating ovarian dermoid; laparotomy was performed; pus, feces and gas escaped in large quantities. After irrigation,

fetal bones were detected in the sac, which was adherent to the abdominal wall and which had been opened by the abdominal incision. The macerated fetus was removed, piece by piece. The peritoneal cavity was not invaded; the large cavity was packed with gauze, but the patient died in a few hours. From the patient the following history, though regarded with doubt by Fenwick, was secured: Eight years ago she became pregnant, there being the various signs and symptoms of pregnancy. These, however, gradually disappeared and her abdominal swelling subsided, but for the past seven years she had had a "large lump" in the right side, which remained after the abdominal enlargement had otherwise disappeared. Three months ago she received a severe blow on this lump and two days later began to complain of distress of the abdomen, since which time she has been ill. Necropsy showed the condition was originally one of left tubal pregnancy which had suppurated, becoming adherent in every direction and had perforated on the bowel and bladder. The sac which had contained the fetus could not be dissected away from the hollow viscera; the bones showed the fetus at about the fifth month. [A.B.C.]

Stem Pessary for Dysmenorrhea.—In considering this condition, Carstens¹ calls attention to the various forms of dysmenorrhea, but lays little stress upon those that were not or are not benefited by the use of the stem pessary. The first type of the condition in which he finds good results following this appliance is in the dysmenorrhea dependent upon the infantile uterus. Examination of these patients reveals only the abnormally small, thin, and firm cervix. Carstens finds this condition occurring in two classes of patients. 1. In those individuals who have just begun to menstruate, and in whom the entire body is insufficiently developed. 2. In those girls who are well developed except the pelvic organs. The other form of dysmenorrhea benefited by the stem pessary are women who, although they had normal pelvic organs once upon a time, have assumed an occupation which requires much mental but no physical exercise, consequently the organs of regeneration undergo retrogressive changes resulting in fibroid substitution. He finds it of value in uteri which have undergone excessive involution after labor. Carstens maintains that the introduction of stem pessaries into these uteri acts as foreign bodies, which induce the organs to contract in an effort to expel them. The continued contraction day after day affords exercise of the organs which tends to increase the musculature. [J.F.]

Nephritis in Obstetrics.—G. W. Dobbin² discusses cases of chronic nephritis in which pregnancy occurs, and cases of toxemia peculiar to pregnancy itself, including eclampsia. Pregnancy is always a serious complication of the first condition. These cases rarely terminate in eclampsia, but the renal lesions occasionally become so aggravated that uremic poisoning results. The so-called red infarcts in the placenta are probably the cause of the high fetal mortality. In eclampsia the kidney lesions are often insignificant. The intoxication has been attributed to products of fetal metabolism, to deficiency of iodothyron, to an organic acid, etc. Whatever its cause, its presence is recognized from albuminuria and diminished urea. If the condition of the kidneys before pregnancy is not known it is difficult to differentiate between pregnancy with nephritis and a threatened eclampsia. In both conditions elimination must be stimulated by sweats, drugs, and diet. In nephritis fetal death is common about the seventh month. The writer has had no experience with thyroid extract in eclampsia. He advocates prompt emptying of the uterus. Necessity for cesarean section is rare, but this causes far less shock than a difficult accouchement force. Venesection followed by infusion is a safe and efficient method of eliminating the poison. Edebohl has practised renal decapsulation for eclampsia in two cases with recovery. [H.M.]

Histogenesis and Pathogenesis of Chorioepithelioma Malignum.—Burdzinsky,³ after giving a short description of his six cases, concludes that the cells of this growth are derivatives of the "zotten." The cell derivatives undergo certain changes. The protoplasm and nuclei of the second layer become enlarged, and the synovial cells are separated into iso-

¹ Annals of Surgery, December, 1904.² Annals of Gynecol. and Pediatry, Vol. xviii, No. 1, 1905.³ Wiener klin. Woch., December, 1904, p. 1397.⁴ British Medical Journal, December 31, 1904.¹ Annals of Gynecol. and Pediatry, 1904, Vol. xvii, No. 12.² Maryland Medical Journal, December, 1904.³ Zentralbl. f. Gynäk., 1904, No. 52.

lated cells or groups of mononucleated cells. In consequence of these changes, the cells cannot be identified either as syncytial or Langhans cells, although they bear a resemblance to both. In his preparations, he found many mitotic figures, not only in the cells morphologically changed, but also in the typic syncytium. He is of the opinion that in the tumor cells, both direct and indirect division occurs. This he explains by the fact that the syncytial cells which are constantly bathed with blood undergo direct division, while the cells of Langhans proliferate by indirect division. Burdzinsky says there are two forms of chorioepithelioma—the typic and the atypic. In the atypic form the tumor cells infiltrate the uterus diffusely, and the musculature of the organ undergoes a gradual degeneration and necrosis, while in the typic form, the muscle fibers of the uterus swell, lose their nuclei, and die so soon as the tumor invades the organ. The Langhans cells may evince a more rapid growth than the syncytium, therefore he notes that a nodule may be composed of cells derived from this layer, because the syncytium is destroyed by the rapidly proliferating cells of the inner layer. [J.F.]

A Dermoid Cyst of the Pelvic Connective Tissue.—Harry M. Germain¹ reports that a woman of 35, married, and the mother of four children, eight years ago, during one of her pregnancies, was told by two attending physicians that she had a tumor in the pelvis. She paid no attention to this information on account of lack of symptoms. In the present instance vaginal examination revealed a tumor in the pelvis, posterior to the rectum and pushing the latter forward. Operation was performed by Dr. Monroe, and in the retrorectal space a multilocular cyst the size of two fists was found. So far as could be seen there was no connection between the cyst and the spinal canal. The cyst was ruptured, its wall removed, the pelvis irrigated, and the patient made a good recovery. The pathologic diagnosis was dermoid cyst. In another case, a woman, aged 18, noticed that six months ago the lower abdomen began to enlarge; it became tender and painful without other symptoms. Examination revealed an immobile tumor in the median line of the hypogastric region. It was noted that the tumor presented two nodules. Operation performed by Dr. Bottomley revealed a large fluctuant tumor in the upper half of the pelvis. The tumor was tapped, yellowish fluid containing hair and curdy detritus escaped. The patient's condition became alarming and operation was postponed, the patient eventually dying. The pathologic diagnosis was dermoid cyst. The author states that including these two cases and a study of 25 reported in literature, he comes to the following conclusions: 1. Dermoid cysts of the pelvic connective tissue are of rare occurrence. 2. They appear most frequently in women in the child-bearing period of life. 3. Their most common situation is posterior to the rectum and above the levator ani muscle. 4. They can be cured only by radical surgical interference. 5. Their origin is to be referred to the fetal period of life. [A.B.C.]

The "Glands of Pregnancy" Described by Opitz.—To determine the true nature of Hitschmann's statements concerning Opitz's glands of pregnancy, that "it is not only the fertilization of ova, but also the menstrual congestion which produces the papillary form of these glands," M. Schwab² has examined the curetment particles from 41 patients operated on in Wyder's clinic, at Zurich, with the result of finding these glands in characteristic form 5 times. In only one of these cases had pregnancy preceded the operation, and in the 4 others it could be clearly proved that the result was dependent upon menstrual changes. In the first case the mucosa was removed two days before the menstrual terminus; in the second, the curetage took place during the menses; in the fourth, menstruation occurred on the third day after the operation; and in the fifth, menstruation was expected on the day after. Schwab therefore agrees with Hitschmann, and adds that the change of form in these glands, as noted by Opitz, is not rare. [E.L.]

Angioma Simplex of the Ovary.—S. D. Jacobson³ reports a case of this condition in which rupture caused death. He finds no record of a similar case in literature, although a number of articles, by their title or contents, show some re-

semblance to it. These cases are reported as ovarian apoplexy, ovarian hematoma, ovarian hematocele or hemorrhage, or retrouterine hematocele. Notes of 26 of these cases are given. The patient in Jacobson's case was a married woman of 35, who had borne two children. Collapse and severe pain in the abdomen led to the diagnosis of hemorrhage from the right adnexa and operation was performed, but the patient failed to rally. The right ovary was removed, the hemorrhage evidently proceeding from that organ. Examination of the specimen showed a small growth on the ovary which under the microscope proved to be a simple angioma, the nutrient vessel being traced from the ovary. Rupture of the growth had led to the fatal hemorrhage. [A.G.E.]

Pubic Osteotomy by Gigli's Method.—R. de Bovis¹ presents a plea for this operation in obstetric practice. It consists of section of the pubis to one side of the symphysis by means of the Gigli saw, this operation being performed for the purpose of enlarging the pelvis. It is superior in its results to symphysiotomy, and avoids the dangers and bad after-effects of cesarean section. The part of the pubis, which is the seat of operation, is not in close relation to any important organ or blood vessel. The line of osteotomy begins at the superior border of the symphysis, and ends at the inferior extremity of the corpus cavernosum. The resulting enlargement is practically the same as in the case of symphysiotomy, but the pelvis assumes an oblique oval shape. Neither fever nor rupture of the amniotic sac is a contraindication for this operation, as it is for cesarean section. The best time for the operation is when the cervix is sufficiently soft to ensure ready dilation. It is easily performed in private practice. The side upon which the osteotomy should be done is indicated by the presentation of the fetus. The author describes the operation in detail, and reports two cases in which he performed it, with satisfactory results. After the child is delivered, the two halves of the pelvis are brought together as closely as possible, and rendered immovable by a plaster cast, if desired. This is left on for two weeks, and a week later the patient may get out of bed. The bone usually heals, with the formation of a moderate amount of callus. [B.K.]

Calculation of the Date of Delivery in Pregnancy.—W. J. Caie² says it is generally agreed that there is no absolutely sure method of calculating the exact date of delivery, and he enumerates the conditions which lead to error. The length of gestation is given by Matthew Duncan at 278 days; Schlichting, 273.2 days; Oldfeld, 281.6 days; Löwenhardt, 279.8 days; Hassler, 280 days; Montgomery, 276 days; Edgar, 208 days, giving an average of 278.3 days. The here employed calculation was that proposed by Naegele, which consists in counting back three months from the date of onset of the last menstrual period, adding seven days, and counting a year forward from the resulting date. The author kept record of 200 cases after this method. In 53.7% labor occurred on an average 3.4 days before the estimated date; in 24.5% of patients labor occurred on an average 1.8 days after the estimated date, and in 16% of the patients the estimated date was exactly correct. It is thus observed that the percentage of labors occurring before the estimated date is far in excess of those occurring after date. The author argues from these facts that in Naegele's method the number of days added is too great, and that by adding fewer days a still nearer approximation to the date of delivery may be had. In 50 cases calculated by Löwenhardt's method the date of delivery was all within 1.6 days of the estimated time. Löwenhardt's method consists in counting the number of days between the last menstrual period and the one preceding that, and multiply by 10. [A.B.C.]

A Case of Gynecomasty.—G. Sommer³ reports the case of a youth of 15, who, perfectly well formed in every other way, presented hypertrophied mammary glands. Their growth had advanced rapidly within a year, and had been associated with violent drawing pain. No other male in the family was thus afflicted and the patient presented no other female tendencies. [E.L.]

¹ Annals of Surgery, December, 1904.

² Zent. f. Gynäkologie, 1904, xxviii, 1425, No. 47.

³ The Postgraduate, January, 1905.

¹ La Semaine Médicale, December 21, 1904.

² British Medical Journal, February 4, 1905.

³ Münchener medizinische Wochenschrift, 1904, II, No. 40, 1788.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 11.

MARCH 18, 1905.

\$5.00 YEARLY.

Mental deterioration in the tropics has long been known as a form of exhaustion from which there is recovery upon removal to cooler latitudes, the completeness of the recovery depending upon the age of the sufferer and the degree of exhaustion. The young and vigorous soon recuperate even from insanity. The Surgeon-General's reports indicate a very high recovery rate in soldiers sent home in past years from the Philippines. In older men, of course, recuperation cannot be expected. It is well to bear this in mind in interpreting the curious press dispatches from Manila. We recently have been informed that a major of the army, for an alleged swindling of the civil government of \$1,500, has been sentenced to 40 years confinement in prison! A captain of engineers, for swindling the U. S. Government in Charleston, S. C., some years since, received a five-year sentence, though the amount of money involved was a thousand times greater. There is need of some investigation, particularly as a citizen of the U. S. is deprived of his constitutional right to a trial by jury if he is accused of an offense in the Philippines. It does not seem safe to trust life and liberty into the hands of a judge who may himself be suffering from the effects of the climate. We certainly are inviting future disaster of some kind.

The Panama Canal is so vital to the civilization of the world that its construction is no doubt the most important work as well as the greatest that the United States has undertaken in its history. The present tangle in our Isthmian affairs is therefore an international disaster, and Congress has wisely attempted to straighten out matters as quickly as possible to escape the condemnation of the civilized world. The incapacity of the French company was primarily due to their neglect of sanitation, and it seems that the only sensible thing for our President to do would be to eliminate all the military restrictions now built up by military minds to hamper inferiors and make them subordinate. He should imitate Leonard Wood, who, in his Cuban administration, gave the sanitarians carte blanche to proceed as their expert and tried judgment dictated, and his results were vastly different from those of our military camps of 1898, where the sanitarians were military subordinates, who were considered insubordinate and unmilitary if they desired to change existing things. In Panama, the

slightest interference with the work of the sanitarians should be followed by severe punishment. The same rule applies to the engineers who are said to be paralyzed by the military restrictions growing up and destroying their professional initiative. It is well also to remember that Panama is nearer the equator than India, and is as trying to health as Central Africa. Our annual experience of city life shows that mental vigor is impossible after long periods of excessive heat and it is wise to inquire whether any of the men who are already showing incapacity for so great a work or whose judgment is at fault have been so much damaged as to have lost the mental balance needed in an enterprise of such magnitude. The whole work should be in the hands of men in the prime of their powers. It is no place for the senile. We need men who can think for themselves, and not men who will do nothing except what is ordered from higher authority. The nation demands results and wants them soon.

The physician's consecration to his high calling seldom has received so touching an exemplification as in the death of Dr. Albert B. Craig, one of the collaborators and subeditors of *American Medicine*, who this week gave his life in the line of duty. Summoned to the bedside of a patient suffering from the fulminant type of cerebrospinal meningitis, his sympathies aroused by the absence of all friends and the serious condition of the patient, he gave himself literally night and day in the patient's service. The loss of sleep, the mental strain, the extraordinary fatigue, with the exposure to infection, constituted a risk of which he was fully conscious. Upon the onset of his symptoms, he diagnosed his own case, bravely set his affairs in order, prepared his bride of but five months for the probable end, and to the last moment of consciousness comforted her for her trial. His words, "I am neither ashamed nor afraid to die," contain the essence of what is noblest in our profession, and are a worthy epitaph to this latest of our medical heroes. One such sacrifice does more for his chosen profession than hundreds of learned polemics. Though all too short, his life was glorious in its fulfillments. He has not lived in vain.

More Atrocities in Cuba.—*American Medicine* has twice given such notice as they deserved to reports of the New York *Herald's* Special Sanitary Commission in

Cuba. We have not hitherto said that these reports are essentially unveracious, though our statement that two of the commissioners are ill-acquainted with the history and principles of public hygiene might justify the inference. One of the sanitary experts has recently undertaken a kind of observation which any man, however ignorant, may make without error, and since his published notes are wholly false, justice is not satisfied with the simple statement that he is a poor observer. The *Herald* of March 12 prints a long article on Havana, by the same commissioner who previously reported on Santiago and Pinar del Rio. That opulence of misinformation, especially concerning yellow fever, which characterized his former communications, is as evident in this from Havana. On tuberculosis, he is apparently no better informed, and from his remarks upon tuberculosis, we abstract the following statement, which would be unimportant if it were simply untrue. He says:

The people of Cuba—I speak of them collectively—expectorate anywhere and everywhere, in cabs, buses, street cars, railway cars, as well as in the marble-floored hotels. I include the best of them in this statement. If such vile practices obtain among the well-to-do, what can one expect from the working classes? Can we expect them to be better mannered than their superiors?

The antiexpectoration ordinances are probably more effective in New York City than elsewhere in America, but the trolley cars of Havana are cleaner than those of New York, and so far as expectoration is concerned, much cleaner. The indecency of spitting in any part of a Havana street car has very little chance to pass unnoticed, for the Cuban conductor is no more likely to wink at such an act than to forget a fare. Cubans do not spit in the cars, but foreigners, especially those from the States, need to be watched. The Cubans think that their street cars are operated after Yankee models, and would no doubt be surprised to know that as regards noise, dirt, and deportment their street railways are better than any in the United States. The people of Havana assemble nightly to hear open air concerts in Central Park or at the Malecon. After the crowds disperse the fine pavements give striking proof that a Cuban crowd does not defile public places as similar crowds do in the States. The good hotels in Havana are as free from the spitting nuisance as the best hotels in the States, and this is true even of the hotels frequented by Americans. The unsightly utensils which an American hotel must provide throughout the house are not needed in Havana, for the Cubans are not afflicted as our people are with the catarrhs, which in part explain our renown as a spitting nation. The cafes and the dulceria abound in Havana as do saloons in the States. The best of them are frequented by the best people of Havana, both men and women. All of them are wide open and brilliantly lighted at night, so that one can easily observe those of various grades. A thoughtless visitor can hardly fail to note that all the proprieties are better observed than in places of corresponding grade in this country. Indeed, the distinction is for us unenviable, and that especially in the matters of smoking and spitting. The *Herald* commissioner has not failed for want of opportunity to make true records on this point. His

chances to be informed have been ample, as ample as he himself proclaims.

A Tuberculosis Scare.—Cuba does, however, suffer a very heavy mortality from tuberculosis, and the *Herald* commissioner dilates upon it at length. The fact that the public prints of Havana credit tuberculosis with between 15% and 20% of the total mortality, devolves upon him the solemn "duty to place the facts before the public," especially before the "officers of public health in the United States of America." As sources of information he prefers the Havana newspapers to the Superior Board of Health, and he pours scorn on the vital statistics of Cuba, forgetful or ignorant that of the 46 States composing this union, but nine have as good vital statistics as Cuba. Admitting the approximate truth of the newspaper statements, what do the figures signify? In the United States the tuberculosis mortality is, for whites 173, and for negroes 490 per 100,000 living. If the population were equally divided between whites and blacks, these figures would give a tuberculosis mortality of 332 per 100,000. The combined mortality from tuberculosis in this country is in fact 187 per 100,000 living, and corresponds to 10.9% of the total mortality. If our population were equally divided, as that of Havana is, between blacks and whites, the known figures would give us a tuberculosis mortality of 332 per 100,000, or 19.3% of the total mortality.

The influence of a large negro population is illustrated by figures which admit of no dispute, in the case of a certain American city, corresponding in size and political importance to Havana. Washington has a population 30% negro, and giving a tuberculosis mortality of 305 per 100,000, corresponding to 13.4% of her total mortality. If we raised the negro population of Washington to 50%, on the ratios afforded by the experience of the whole country, Washington would yield a tuberculosis mortality equal to 18% of the total mortality. The actual experience of Washington, when equated for the race elements, gives 16.25% of her mortality due to tuberculosis, so that the experience of Havana may very well lie within the limits proposed by the unschooled correspondent of the *Herald*, and still suffer nothing in comparison with the experience of the United States. If one should take into account the fact that in Washington all citizens having discernible admixture of negro blood are classed as black, while in Cuba those showing good preponderance of white blood are classed as whites; or if we should take into account the difference of age constitution; or if we should utilize the American figures for 1890, when the general tuberculosis rate was 290, instead of 187, the *Herald* correspondent would have to guess more insanely than the Havana newspaper reporters in order to produce the desired sensation.

Cui Bono?—Once before we guessed at the influence of the *Herald* agitation upon certain business interests in this country. Having guessed well once, a second guess is justified. The business of life insurance in Cuba has always counted yellow fever as an adverse factor, and the premiums in Cuba are accordingly very high.

American life companies, in their relations to Cuban business, divide naturally into two classes; those who have declined all risks in Cuba, and those who are selling insurance to the Cubans at high rates. Those who have been kept out of Cuba by the ever present danger of yellow fever, would like now to enter that territory and their rates would not include the customary load against death by yellow fever. Those, on the other hand, who already carry large business in Cuba naturally enjoy the mental relief, to say nothing of the monetary advantage, resulting from the extinction of yellow fever. It will serve the interests of certain American life insurance companies admirably if it can be made to appear that their present premiums are quite fair; that yellow fever still prevails in Cuba; that yellow fever will be widely epidemic in July; that the extra premium on Cuban policies is not the yellow fever load anyhow, but the extraordinary cost of other diseases always excessively fatal to the insuring classes in Cuba; in short, if prospective competitors, figuring rates to fit the actual vital conditions, can be intimidated by such alarming reports as these two amateur sanitarians are producing under the auspices of a metropolitan daily.

Pioneer Course in State Medicine.—A few weeks since, in commenting upon the course of instruction in public health to be inaugurated by the University of Pennsylvania, we stated that to the best of our knowledge this was the first attempt systematically to teach the subject in this country. Later we were furnished a copy of the announcement of Rush Medical College for 1895-96, in which is outlined such a course leading to the degree of doctor medicinæ civitatis. This college soon found, however, that the plan was premature, there being little demand for the course. The scheme has since been under discussion as a part of a university medical school, although not in active practise. We are glad to be set right in this matter; the priority of institutions is of no great moment, but the time of inaugurating the course is of considerable interest. The reception of the course to be offered by the University of Pennsylvania will in a manner show the advance in this particular phase of medicine during the 10 years since the authorities of Rush perceived its importance. We trust that both these institutions, with others as well, will ere long find a course in State medicine an appreciated part of their regular instruction.

A Simple Method of Disinfecting with Formaldehyd.—The sterling value of formaldehyd as a disinfecting agent is too well known to require comment, but the difficulty in effectively liberating the gas without the aid of more or less complex and expensive apparatus has, in many instances been a hindrance to its employment. The Maine State Board of Health has recently promulgated a simple and safe method in which no special apparatus is needed, and by a long series of experiments has demonstrated the efficiency of the process; these findings have also been corroborated by health officers in New Hampshire and Vermont. Potassium permanganate, 200 gm. (6½ oz.) to each 500 cc. (pt.) of formaldehyd, is placed in a vessel of considerable size, a 10-quart pail suffices, in the room to be disin-

fected which is preferably quite warm. The formaldehyd, 1,000 cc. (2 pt.) to each 1,000 cubic feet of space, is then poured over the permanganate, and the operator makes a hasty retreat. The room is kept closed for four hours, when disinfection is said to be complete. The advantages of this simple method are evident, no apparatus to transport, absence of danger of fire from lamps, and the liberation of all the available gas in a few moments. These more than counterbalance the considerably larger quantity of formaldehyd than is usually employed by other methods.

A protest against eddyistic and faith-cure teaching is made by implication in the leaflet of a western Methodist Episcopal Church issued to parishioners. We quote some of the sentences:

Any book which flatly contradicts God's Word and denies the reality of sin, sickness and disease, and the efficacy of Christ's atonement for sin, should not be believed, no matter how pious a name it may bear.

We must not confine the grace of God to the sacraments of the altar; all the gifts of nature, all the specifics of science, all the ministries of knowledge and experience are sacramental, and to be received and realized by faith with thanksgiving.

All true science is Christian, and the cultured physician, working closely on the lines which condition health, is a loyal servant of God and humanity in whom the pious sufferer has special grounds for trust.

John Wesley tells us that on a certain occasion he was "cured by sulfur and supplication," and all men who are wise as they are good will practise the dual treatment.

To refuse medical aid and its prescriptions, trusting wholly in God, may by some be mistaken for sublime faith, but it is really practical atheism, ignoring as it does the established order of God.

Be on your guard against any system which denies the divine personality. The Lord's Prayer is replete with the personality of God. We breathe its petition to the Father in heaven, devoutly recognize His will, pray for the daily ministries of His providence, for His gracious forgiveness and heavenly guidance. This prayer is useless and without meaning for any one who does not believe in a personal God.

Medical Directory.—It is announced that as one of the practical results of extended and uniform organization, the American Medical Association is about to publish a directory that will contain the names of all the members of all the State and county organizations. As a beginning, the list for Illinois is now being compiled. When carried to completion this project will put into professional control an associated activity that long has been profitably exploited by commercial enterprise. The profession, organized, is entitled to these profits, and it is good to see a start made.

EDITORIAL ECHOES

Mental Fossilization in Men of Science.—The poet's plaint that "crabbed age and youth cannot live together" is as true in medicine as in love. In love, of course, youth is an easy conqueror, but in medicine, age, being generally the examiner, has an unfair advantage of youth. Goethe said that no man ever got a new idea after 40. We think he fixed the boundary of receptivity a trifle under the natural limit. The ossification of the intellect, like that of the larynx, occurs earlier in some persons than in others. In either case the process is a natural one, which while impairing flexibility, need not seriously damage efficiency. But the mind is liable to a

much more disastrous change; like the man of whom it was said that he had been dead for some years but people did not like to tell him so, it may while still seemingly alive undergo a process analogous to fossilization. Examples are to be seen in all departments of human activity, but in none are they so conspicuous as in science, which is nothing if not progressive. It is pathetic to see a man who was once a pioneer in the discovery and exploration of new regions of scientific thought become, as his way of life falls into the sere and yellow leaf, obstructive and even reactionary. It is pitiful to hear the voice, once like a trumpet call in the battle of truth against ignorance and error, maundering in Nestor-like reminiscences of a bygone day, and decrying the efforts and achievements of a younger generation. At the recent meeting of the French Medical Congress, in Paris, Professor Cornil delivered an address on the part played by morbid anatomy in contemporary medicine, in which he told of the opposition which the newer science met with from the powers and principalities of medicine in his own early days. The story is so interesting that we venture to repeat it almost in the words of the distinguished narrator:

Professor Cornil as a student first worked in the hospitals from 1857 to 1860. At that time Virchow's great work on cellular pathology had lately been published, and Trousseau's career as a clinical teacher had begun. The Faculty of Paris, justly proud of the fame of Corvisart, Laennec, Bouillaud, Grisolle, and so many others, was strongly inclined *stare super antiquas vias*. Official medicine had indeed, like Bottom, "an exposition of sleep" come upon it, and it was content to dream of the glory of the great men who had shed luster on it. Instead of going forward, many of the teachers of that day recommended to their pupils old writers like Baglivi, Borsieri, Lorry, Franck, and Boerhaave, with the commentary of Van Swieten. At the Academy of Medicine, Velpeau vehemently denounced the histologic examinations of tumors made by Lebert, Pollin, and Verneuil. When Professor Cornil presented his thesis for the doctor's degree in 1864, which dealt with the histology of nephritis, one of his examiners said to him, "Your work is extremely meritorious, but what the devil is the good of it all? Have you found under your microscope a way to cure albuminuria?" Another said: "You speak in your paper of the multiplication and proliferation of cells; have you ever seen such a thing? I have often tried, but have never succeeded." The examiner was good enough to describe his method of search, which struck the young candidate as so futile that he thought it prudent to say nothing; his silence gave his judge an easy triumph. Such being the attitude of the Faculty, it can readily be understood that it was by no means disposed to sanction the establishment of a chair of histology. Duruy, one of the most enlightened Ministers of Public Instruction France has ever possessed, had for years striven to overcome the resistance of the Faculty, and a small *coup d'état* was required to make it yield.

It is an interesting piece of medical history. We, however, have no reason to congratulate ourselves that we are not even as those foreigners. Fossilization is as common here as elsewhere. Have we not known one of the greatest teachers of physiology who to the last denied the migration of blood-corpuscles? Have we not known a physician of the highest eminence who said, in reference to the same thing, that he would as soon believe that a brick could pass through the wall of a house as that a corpuscle could escape from a bloodvessel? Did not a leading surgeon, only 25 years ago, warn his pupils against speaking of the "lumen" of an artery to the examiners at the College of Surgeons, because "they would pluck you for it, you know"? Lister's teaching encountered no more bigoted opposition anywhere than in his own country, and bacteriology was a laughing-stock to most men over middle age, up to a comparatively recent time.—[*British Medical Journal*, December 3, 1904.]

To Modify Liquor Law.—A House bill reduces the minimum fine for selling liquor without a license from \$500 to \$200, and leaves it to the discretion of the Court whether or not the imprisonment of from three months to one year, which is made compulsory in the present law, shall also be imposed. The bill also permits the Court to withhold imprisonment of from 20 to 90 days, in its discretion, for selling or giving away on election days or Sundays, or to minors, or to any person of intemperate habits, or visibly intoxicated.

AMERICAN NEWS AND NOTES

GENERAL.

Drunkenness and Marriage.—It is said that the Prohibitionists of New Jersey will father a bill in the Legislature looking to the placing on the statute books a law denying the right to an "habitual drunkard" of obtaining a marriage license. Such a law has been enacted in Ohio and was recently enforced.

Marines to be Removed from Isthmus.—It is reported that Gen. Davis, Governor of the Panama Canal zone, has notified the Secretary of War that he can dispense with nearly all of the marines on the isthmus, on account of the fear of an epidemic of yellow fever in the locality where the marines are stationed. The Secretary of the Navy has been called upon to order all of the marines north except about 100. They will probably be sent to Guantanamo.

Ample Cause for Death!—Upon inquiring into the circumstances of a death the following reply was received: "The cause was Brain fever. It set in 28 hour after delivery mildly but in 48 hour had assumed gigantic proportions. Partial Paraplegia of Brain, Bowels and womb. the innerSide of womb was so great that it Resided down but very little up to her Death. Profound Como or Stupor was Present all the time after Spinal fever set in. The Prognosis was unfavorable with us almost from the beginning. There was no Lochia discharge after third day."

The Naval Medical Corps.—There are 36 vacancies in the junior grade of the Naval Medical Corps. While this is an unusual number, it must be remembered that 25 of the places are newly created, and have only existed since the first of the year. According to the *Army and Navy Register*, it is expected there will be no more than the usual difficulty in obtaining qualified candidates, to which end the examining board, which is in continual session in Washington, is applying itself diligently. Applications are being received and examinations are promptly made. Several have been reported as qualified for appointment, but have not yet signified their acceptance of the conditions.

Three New United States Food Laboratories to be Established.—It is stated that new laboratories will be established in Boston, New Orleans and San Francisco. The New York bureau was established about six months ago as an experiment. Under the present system, importers receive their goods two or three days sooner than under the old system, when they were sent to Washington. A circular was issued recently by the Treasury Department, instructing Collectors that in cases wherein analyses prove that the goods are all right, the results must not be communicated to the importers. In cases where the analyses disclose a condition which would justify exclusion of the foods, the importer must be informed, in order that he may put in a defense. Such information must, however, be given by the Department of Agriculture, and not by local officers.

A Great Sewer System for Manila.—Robert G. Dieck, superintendent of water-supply and sewers in Manila, said recently that when Manila passed into the control of this government it had no water pipe connections in the houses. The residents were compelled to carry water from public fountains on the street corners. Neither was there any connection with sewers. The refuse was carried to inlets, which only carried the sewage away when flushed by rains. In the last two years, this country has done much to alleviate such conditions by ditching the sewers so as to flush them from the river. The Government now proposes to spend \$2,500,000 to build a modern system. The sum of \$1,500,000 has been appropriated for a new water-supply. The water, according to the new plans, will be taken from the Mariquina river, about 14 miles above the city.

The Pure Food Bill again Falls.—Congress has adjourned without passing the pure food bill. Those who deliberately adulterate the food of the people with poisonous substances have won again—with the assistance of certain senators who ought instead to be engaged in the protection of the people. The chief obstructionists have been Senators Platt, of Connecticut, and Spooner, of Wisconsin. Something appropriate should be done to them by their respective constituencies. Senator Heyburn, of Idaho, and his supporters, Senator McCumber, of North Dakota, and others, deserve great praise for their manly fight against the specious objections made to the bill. It should bring a blush of shame to the cheek of every citizen of this country to know that dishonest manufacturers have so powerful an influence in the United States Senate that a pure food law cannot be passed. We trust that a wave of popular indignation will force this bill through the next Congress. The poor Senate has so many moneyed interests to look after that it cannot devote its time and attention to the daily food of the common people. But the fight is still on. Let no one be discouraged. Pure food legislation shall be passed.—[*Jour. Am. Med. Assoc.*]

Laboratory Analysis of Water.—The system of laboratory investigation of the water-supply as carried out by the Board of Health in Chicago, and developed by Drs. Biehn and Whitman, is stated to be as follows: Systematic colony counting; plates being made on litmus agar and litmus gelatin, on which conclusions as to gross sewage (or rainfall) contamination may be based. Inoculation of tubes containing 15 cc. of double-strength bouillon, with 15 cc. of the water to be tested and incubation for 24 hours at 42° C. If no growth occurs it may be concluded that none of the ordinary water-borne pathogens are present and the water is therefore potable. If growth occurs the water is to be regarded as nonpotable, pending confirmation by such further tests as may be necessary. The results by this method correspond closely to those foreshadowed by the previous chemic examinations upon which the daily characterizations—"safe" or "unsafe"—are made each morning.

The Physical Development of Midshipmen.—The report of Surgeon E. S. Bogert, United States Navy, has received the endorsement of the Surgeon-General of the Navy, who agrees with the various suggestions made by the medical officer on duty at the Naval Academy. There is no question that athletic work, in the gymnasium and on the field and track, should be regulated according to the individual needs of the midshipmen. The plan outlined, and in large part already in practice, will undoubtedly be continued, says the *Army and Navy Register*, although it is doubtful if provision is made for the employment of additional instructors in physical work, such as wrestling and the other forms of activity which are deemed necessary in the development of the young man at the academy. It is not likely, either, that the department will change its position against the detail of a medical officer as a member of the academic board at Annapolis, which was one of the important recommendations.

Senate Agrees to Convention Dealing with Plague and Cholera.—The Senate has ratified and made public an international sanitary treaty, adopted by a convention of representatives of practically all nations, held for the purpose of agreeing upon uniform safeguards of the public health against the invasion and propagation of plague and cholera. The treaty includes the regulations to be observed by the powers signatory to the convention as soon as plague or cholera appear in their territory; the measures of defense by other countries against territories declared infected, and special arrangements for countries outside Europe. In relation to yellow fever the treaty is as follows: "It is recommended to interested countries to modify their sanitary regulations in such a way as to put them in accord with the present position of science upon the method of transmission of yellow fever, and, above all, upon the role of mosquitos as vehicles of the germs of the disease."

Increase of Immigrants.—Commissioner of Immigration Frank Sargent has made public some surprising figures on the increase in immigration. This increase amounts to 77% for January, 1905, over January, 1904. The total number of aliens entering during this month in 1904 was 28,528, while for the same month this year it has grown to 56,265. During the same period 43,725 landed at the port of New York, of which 1,320 were debarred, while Baltimore stood second on the list, with 3,106 landed and 18 debarred. This remarkable increase is largely attributed to a desire on the part of Russians to escape service in the army, as is shown by the fact that the percentage of Russian immigrants has increased out of all proportion to that from other countries. For January, 1904, the Russian figures are 7,202, while this year 15,743 arrived, an increase of 155%. For the 6 months ended January 31 the commissioner-general gives the following figures: 1904, total number of immigrants, 365,119; from Russia alone, 62,589; 1905, total number of immigrants, 398,379, an increase of 31%; from Russia, 87,282, an increase of 70%. This is notwithstanding the fact that the debarments increased likewise 45%.

Lent, Meager Diet, and Health.—The Bulletin of Chicago's Health Department, commenting on the sage advice of our forbears, relative to the health in spring time, says in part: The amount of work done in the human body during the winter in the mere maintenance of our normal 98° to 99° of heat would, of itself, be sufficient to overload the system with tissue waste by the return of spring. But when to this is added the special nerve waste caused by the wear and tear of the brain and nervous system in the whirl of excitement and mental activity of a city winter, there should be no wonder that March is accredited with bringing "humours" and giving "rise to pains." Increased production and reduced excretion of waste, of refuse matter, of the ashes of the human furnace, are the real causes, and not any occult influence of the season. Knowing this we are the better able to understand why roots and salads, "green food" and little meat, are now craved by the natural appetite; and to recognize the wise hygienic principle in the observance of Lent, with its meager diet and abstinence from worldly gaiety and excitement. What we need physically, in this milder weather, is to "train down," to favor the "moulting of the tissues," and, mentally, to get rid of brain-fag and worry—for only by rest can the normal tone of the nervous system be restored.

EASTERN STATES.

Local Prohibition in Vermont.—Vermont cities and towns have voted for the third time on the question of license or no license, and nine more communities are added to the territory under voluntary local prohibition. In the first year of the new law, 1903, there were 91 license towns; the next year there were 40, and for the coming year there will be only 31. The Vermont cities seem to be developing habits of discontent with whichever system they happen to have in operation. Barre, which voted for license a year ago by a majority of 78, went the other way this time by 95, while Rutland, which was a license town in 1903, but became "dry" a year ago, has now gone back to license. As the *Rutland Herald* remarked the day before election, referring to the experience with local prohibition, while "things are not as they ought to be . . . the traffic is neither as extensive nor as offensive as it was in the days of State prohibition."—[*New York Evening Post*.]

Vivisection Again.—The Committee on Probate and Chancery of the Massachusetts Legislature is hearing the arguments upon a petition for restriction of vivisection. In its essentials the bill which is before the committee this year is the same that was heard last year. It provides that no person shall cause pain to any animal through experiments, except subject to restrictions, these restrictions providing that experiments shall be performed only under authority of the faculty of an incorporated college or university; that the animals shall be thoroughly under the influence of some general anesthetic, and shall be killed before recovering its senses if the after-effect of such experiment is likely to prove painful. It is further provided that the governor, with the consent of the council, shall appoint a commission of three persons, not more than one of whom shall be a registered physician, whose duty it shall be to inspect laboratories where such experiments are authorized. The bill also provides that any person who performs such experiments contrary to the provisions of the act may be sentenced to a term of not more than a year in jail, or to a fine of \$250, or both.

NEW YORK.

Spitting on Sidewalks.—There have been printed 2,700,000 pasters, which will be placed in all school textbooks in New York City, warning scholars against spitting on sidewalks and floors of public places.

Dust in the Subway.—Dr. William H. Park, director of the research laboratory of the health department, has reached the conclusions that there is no likelihood of miner's pulmonary tuberculosis being developed by the dust in the subway; that there are few germs down there, save those which women's dresses and men's shoes carry in, and that the germs which cling to the advertising signs on the sides of the tunnel are so few as to make the danger infinitesimal.

Athletics in Professional Schools.—In the *Buffalo Medical Journal*, of February, 1905, is a paper read by Dr. B. T. Simpson before the faculties of Medicine, Law, Pharmacy and Dentistry of the University of Buffalo, in which is considered the advisability of athletics in professional colleges, especially the university in question. The reader was in favor of football, and after the discussion which followed the paper, a vote was taken. This resulted in 29 votes for and 4 against football.

Prison for Practising Medicine without a License.—James M. Solomon, who claims to live in Brookline, Mass., and who has had an office, with a physician's sign out, in New York City, has been committed to the Tombs for 30 days and ordered to pay, in addition, a fine of \$500, or serve one day additional for each dollar not paid. Solomon was convicted in Special Sessions of violating the medical law in practising medicine in this county without a license. Agents of the County Medical Society furnished the evidence when Solomon was arrested on February 7.

A Comparison in Deathrates.—According to a statement issued by Health Commissioner Darlington, the deathrate per 1,000 in New York last year was 20.23. In London it was 16.6. In fact, there were more deaths in New York last year than there were in London, New York having 77,985, while London had 77,094, although the population of the British capital is estimated at 4,684,000, against 3,666,000 for the American metropolis. In New York City there were 25,623 deaths of children last year, 5,636 under 2 years of age, while London had 4,801. New York had 5,195 deaths from accidents, while in London there were 4,068, but the Slocum disaster added 1,000.

Epidemic Cerebrospinal Meningitis.—The number of deaths from simple meningitis in New York last week was 80, an increase of 64 over the corresponding week of 1904. Cerebrospinal meningitis caused 60 deaths, an increase of 11. Dr. Darlington, Commissioner of the Health Department, is awaiting an appropriation from the aldermen to appoint a committee of leading physicians for the work of studying this disease and devising a method of treatment. He has also been distributing typhoid antitoxin to the various city hospitals for use in this disease. A statement as to the results of the drug cannot yet be made. About 50% of those attacked by this disease recover.

High Deathrate in New York during 1904.—State Commissioner of Health Daniel Lewis, in his annual report, states that, estimated by the deathrate from all causes, the sanitary condition of the State for 1904 was unsatisfactory. There were 141,564 deaths reported, which is largely in excess of previous records. The annual average mortality for the past twenty years, including 1904, is 116,600. Of epidemic diseases, cerebrospinal meningitis and measles alone have shown any material increase. This was due to an outbreak of the former disease in the city of New York, beginning in March and continuing several months. Measles has increased in the southern and eastern parts of the State, New York City having had nearly twice as many deaths from this cause as in 1903. The chief cause for increase in the mortality of 1904 has been pneumonia. This alone caused 13,500 deaths, against 10,250 in the preceding year. These figures were nearly reached in the years of largest prevalence of the grip, 1891-1893, which in the first five months of the year amounted to an eighth of the total. There were over 14,000 deaths from tuberculosis, the mortality from which is also excessive in grip epidemics, and last year's exceeds any previous year's record. This State is today practically free from smallpox, and this has been accomplished largely by the persistent efforts to secure general vaccination.

War on the Quacks.—News from New York City says: Champe S. Andrews, attorney for the Medical Society of the County of New York, is making a vigorous war upon quacks and other medical frauds who have been reaping a rich harvest here for years. Recently he caused the arrest of a quack on the charge of having signed the name of Prof. Robert Koch, the famous Berlin physician, to a letter given to a woman detective employed by the Medical Society. In an affidavit, the female detective states that she called at the office of the "Doctor," who stated that he was Professor Koch, and after a cursory examination, declared that she was in the first stages of consumption, and reached him just in time to be saved. The woman consented to take treatment. The doctor called to an attendant to "turn on No. 7," and the patient was left to herself in a room which appeared to be equipped with some process for supplying oxygen. After a few moments she was taken into another room and allowed to take several long breaths in front of an imposing-looking machine. This concluded the treatment at the doctor's office, and as she went away a package was handed her containing medicine, which the doctor said would aid materially in strengthening her. In possession of the quack were found a number of pamphlets and office cards, on all of which was printed the name and a woodcut of "Professor Koch, of Berlin." The doctor resembles Professor Koch, and imitates him, in that he wears green glasses while examining patients.

PHILADELPHIA, PENNSYLVANIA, ETC.

Merger of Surgical Manufacturing Plants.—The J. Ellwood Lee Company, of Conshohocken, and Johnson & Johnson, of New Brunswick, N. J., have become merged.

Patient Leaps to Death.—A leap from a second-story window of the German Hospital last week caused the death of Fridtor Nystadt, a patient. He was a seaman of the barge Paxinos, and was delirious from typhoid fever when he took the leap.

Move for an Italian Hospital.—The Italian Federation, a corporation composed of representatives of the various Italian societies throughout Philadelphia, has started a movement for the establishment of an Italian hospital. The need of such a hospital has been strongly felt.

Anthrax Victim Recovering.—Oliver Justice, of Swedesboro, N. J., who contracted anthrax while handling a beef hide, is recovering at the Municipal Hospital, Philadelphia. No other cases of anthrax are looked for in the vicinity, as under the State Board of Health's direction quick inoculation followed on all the other cattle of the vicinity.

Philadelphia's Health.—Beyond an increase of 25 cases of typhoid fever last week over those reported previously, the health of the city continues good. The total number of new typhoid cases reached 92, due, the health officials say, to the melting of filthy ice accumulations and the failure of housekeepers to boil water for domestic purposes. Another decrease in the deaths from pneumonia, which was noted last week when 90 victims were reported, or 13 less than the preceding week, was maintained, the total falling to 72. No case of smallpox has been reported since the middle of December.

Vaccination against Bovine Tuberculosis.—Dr. Leonard Pearson, State veterinarian, has announced that a method of vaccinating cattle against tuberculosis has been carried out successfully for the first time in this State within the last two weeks. These experiments have reached a stage that permits of the method being put into practical operation, with assurances of success under ordinary circumstances. A theory suggested by this success is that the milk of highly vaccinated cows may contain an antitoxin that will halt tuberculosis in

human beings, and experiments are now being carried on along that line.

Alcoholic Patent Medicines and the Women's Christian Temperance Union.—A blow at numerous patent medicines is dealt in a bill prepared by Elton J. Buckley, counsel for the Women's Christian Temperance Union of Pennsylvania, which will be introduced into the Legislature by State Senator Charles L. Brown. Those behind the bill are planning an extensive campaign, it being proposed to have it introduced in every State Legislature in the country. This bill is entitled "An act to regulate the sale of proprietary and patent medicines containing alcohol, and providing penalties for the violation of the provisions of said act." The first section provides that no person, firm, or corporation shall sell or offer for sale any patent or proprietary medicine or remedy which contains alcohol, except upon the personal prescription of a regularly registered physician, naming specifically the particular medicine prescribed. The second section provides a penalty of not less than \$50 fine or imprisonment not exceeding 30 days for any violation of the act.

SOUTHERN STATES.

To Stamp Out Anthrax.—The Delaware House has passed the bill appropriating \$2,500 to stamp out anthrax.

To Abolish the Pillory.—The Delaware Senate has passed the bill abolishing the pillory as a punishment for crime by a vote of 14 to 2. The bill now goes to the House for consideration.

A summer course at the naval medical school in Washington will begin on May 1. The class will be made up of 12 or 15 officers of the medical corps who have been more than three years in the service and who have never been to the school for the preliminary instruction which is now given to newly-appointed medical officers. The same faculty which is now on duty at the school will be retained during the course in May and June, and arrangements are now being made for this special instruction. The practice will be kept up each year.

The Allegany Hospital has been incorporated and has purchased a fine old mansion in Cumberland, Md., which will be remodeled to meet hospital needs. The incorporators are Drs. Robert Y. Fechtig, Edward H. White, W. M. Hodges, Charles H. Brace, William B. Foard, Edwin B. Claybrook, Henry C. Wallis, George L. Broadrup, Arthur H. Hawkins, and Arch A. Young, an attorney. The capital is \$25,000. The directors are Dr. Clinton Brottemarkle, late surgeon in charge of the Western Maryland Hospital; Drs. Edward H. White, Edwin B. Claybrook, Charles H. Brace, George Schwarzenbach, William E. Walsh, and Arch A. Young. While there has been friction for some years between a number of Cumberland physicians and the Western Maryland Hospital, it is denied that the present move is intended to conflict in any way with the older institution.

Report of Medical Inspection of Schools in Baltimore.—Health Commissioner Bosley has given out a statement showing the results of the medical inspection of schools, started on February 7: "Altogether 1,450 pupils in three schools widely separated were examined and 910 children were found to be suffering with minor ailments, 5 of whom were sent home for treatment. The trained nurse visited 66 homes, treated 39 cases of sore eyes, 17 cases of ringworm and 128 miscellaneous cases. She advised 73 parents and 501 pupils as to treatment. Thirty-three children were found without satisfactory vaccination marks. This was only 2.2% of the children examined. One of the medical inspectors who was assigned to a school in one of the most uncleanly sections of the city said that probably 50% of the girls and 75% of the boys do not bathe during the winter. Nearly 50% of the children have pediculosis, and this percentage runs much higher in the girls than in the boys. In one class of 40 girls, 37 had pediculosis. The examinations of the throats in this school showed a large percentage—19.7—affected. Of these chronic enlargement of the tonsils occupied the chief place, with 102 cases. Of postpharyngeal catarrh there were 34 cases, and of quinsy 28." Tonsillitis was the most prevalent complaint, 231 cases being found.

WESTERN STATES.

No Cigaretts for Wisconsin.—The State Assembly has passed a bill at a session of the Legislature prohibiting the sale or manufacture of cigarettes or cigaret papers with but one dissenting vote. The measure is expected to encounter no opposition in the Senate and soon may be enacted into a law.

Is There a Drug Trust?—Frank E. Holliday, vice chairman, and Jos. E. Toms, secretary of the National Wholesale Druggists' Association, and John N. Carey, chairman of the Proprietary Association of America, have appeared before Noble C. Butler, clerk of the United States Court, Indianapolis, to give testimony as to the existence of an alleged combination controlling the drug business of the United States. The case is in the Federal court at Philadelphia, and is being brought by C. C. A. Loder, a retail druggist of that city.

Urge Farm for the Tuberculous.—A State farm and buildings for the treatment of tuberculous unfortunates was advocated before the house committee on appropriations by physicians and officials of labor and charitable organizations. The bill under consideration was Representative Glackin's measure appropriating \$200,000 for the establishment of a State sanatorium for the tuberculous. A series of "pin" maps was shown before the committee, presenting the number of tuberculosis cases in wards of Chicago, especially in the crowded tenement districts, where some blocks were shown to have from 5 to 12 cases.

Tuberculosis Circular in Bohemian.—Upon the urgent solicitation of prominent representatives of the Bohemian people of Chicago, the State Board of Health is now having published for general distribution, an edition of its circular on the causes and prevention of tuberculosis, in the Bohemian language. Those who have been most interested in securing this Bohemian edition of the circular, state that there are 20,000 Bohemian families in Chicago alone among whom the circular should be distributed. Efforts are being made by representatives of the Jewish, Polish, and Italian people of Chicago to have editions of the circulars printed in their languages, and this will probably be done in the near future.

FOREIGN NEWS AND NOTES

GENERAL.

Plague in India.—The deaths from the plague last week numbered 34,000. Statistics show that the deaths from bubonic plague in India within a few years reach nearly 3,000,000. In 1903 the mortality in India from the plague alone was 850,000. The infection recently spread to Burmah, where it is making rapid strides. The Indian Government is making every effort to eradicate it, destroying by fire whole sections of towns and segregating the inhabitants.

Eyeglasses in the Abdomen.—Mrs. Mabel Quirk, an American, described in the papers as being rich, has started legal proceedings in Paris in an extraordinary case. She is said to have undergone a laparotomy in America. Her health was not improved, and she was operated upon a second time in Germany. Her health was still unimproved, and finally she was operated on in Paris by doctors who took from the wound a pair of gold-rimmed eyeglasses. Mrs. Quirk has recovered her health, and has appeared in court to find out who left the eyeglasses in the wound, the American or the German.

Theories as to Cancer.—Professor Orth, of Berlin University, and Professor von Hausmann are reported to have claimed at a recent meeting of the Berlin Medical Society that cancer was neither contagious nor parasitic. They also declared that the supposedly alarming increase in the number of cases was wholly due to the fact that more cases were recognized now than formerly. They added that their investigations had failed to show that cancer was epidemic in particular places or prevalent in certain families through heredity. They urged that the public be induced to abandon the theory that the disease was contagious, because it caused unnecessary odium to be attached to cancer sufferers. Professor von Leyden combated these theories. He said that parasites imbedded in the cells caused the inflammation, and declared that chemie researches had demonstrated the parasitic nature of cancer.

Britain's Low Birthrate.—The birthrate for England and Wales during the year 1904 was 27.9 per 1,000 of the population, a decrease of 1.3 per 1,000 compared with the average for the 10 years, 1894-1904, and lower than the rate of any other year on record. This startling fact, says the London *Express*, is shown in a return issued by the registrar general. The gradual dwindling of the birthrate during recent years may be seen at a glance in the following table, showing the percentage of the births to every 1,000 of the population:

1897	29.6	1901	28.5
1898	29.3	1902	28.5
1899	29.1	1903	28.4
1900	28.7	1904	24.9

Not only has the birthrate fallen according to the percentage of the population, but the number of actual births shows a decrease of over 3,000 on the figures of 1903, the totals being: 1903, 947,949; 1904, 944,703. While the birthrate is dwindling, the deaths of babies in their first year are still abnormally large. The figures for the last quarter only are given, but these are representative of the year. During the three months that ended in December 138,405 deaths were registered, and of these 30,967 were infants under one year of age. There were in the same period 228,413 births. Thus, for every 1,000 babies born, 136 died. This extraordinary and alarming mortality varied according to districts. It is significant that it reached its worst aspect among the 76 great towns in two of the cotton manufacturing towns of Lancashire.

OBITUARIES.

Albert B. Craig, aged 38, March 14, at his home in Philadelphia, from cerebrospinal meningitis, contracted from a patient, in whose service he had been unremitting. Although everything known to medical science was done to save his life, the progress of the disease was so rapid that he succumbed in ten hours. He was a graduate of Jefferson Medical College in 1901, and one of the most promising men in the profession. He was married only five months ago. He was connected with the late *Philadelphia Medical Journal* for one year, leaving it to go with *American Medicine* at its inception, which he served as subeditor and collaborator until the time of his death. He was formerly a resident of Jefferson Hospital, and at the time of his death was an assistant in the outpatient department of that institution, and demonstrator of anatomy and an assistant demonstrator of surgery of the Jefferson Medical College.

Walter S. Christopher, aged 45, March 2, at his home in Chicago, from myocarditis and chronic nephritis. He was graduated from the Medical College of Ohio, Cincinnati, in 1883. In 1890 he was appointed to the chair of theory and practice of medicine in the University of Michigan, Ann Arbor. In 1892 he was appointed professor of diseases of children at the Chicago Polyclinic, and a year later in the College of Physicians and Surgeons. He was a member of the American Medical Association, the Illinois State Medical Society, Chicago Medical Society, Chicago Pediatric Society, and various other local societies.

John J. Prendergast, aged 58, March 1, at his home in Brooklyn, N. Y. He graduated from the Seton College in 1864, and from the New York College of Physicians and Surgeons in 1868. He was visiting physician to the St. Francis Hospital, Jersey City, for several years, and was one of the founders of the Manhattan Eye and Ear Hospital.

Alvah R. Cummings, aged 78, February 26, at his home in Claremont, N. H., from cerebral hemorrhage. He was a graduate of Dartmouth Medical School, Hanover, N. H., in 1853. He was the oldest practitioner in New Hampshire, and the oldest member of the New Hampshire Medical Society.

Benjamin Brook Temple, aged 66, of a complication of ailments, at Danville, Va., March 11. He was a gallant soldier in the Confederate army, serving throughout the war, and was highly esteemed as a physician, but gave up his practice several years ago.

David LeRoy, aged 83, February 27, at his home in Streator, Ill., from senile debility; a graduate of the Medical College of Ohio, Cincinnati, in 1848. He served as major and surgeon of the Ninety-first Illinois Volunteer Infantry during the Civil war.

Napoleon B. Woolsey, of Braymer, Mo., February 23; a graduate of the Ensorworth Medical College, St. Joseph, Mo., in 1893. He was a member of the American Medical Association, Medical Association of Missouri, and other local societies.

Martin H. Tierney, aged 45, March 7, at his home in Leominster, Mass., from septicemia, the result of a carbuncle caused by the irritation of a collar button. He was a graduate of the College of Physicians and Surgeons, New York, in 1886.

Hiram Wiggins, aged 90, February 20, at his home in Elbridge, N. Y.; a graduate of the College of Physicians and Surgeons of the Western District of New York, Fairfield, in 1838; and one of the oldest physicians of Onondaga county.

Thomas W. Barrett, aged 32, February 19, at his home in Portland, Oregon, from typhoid fever complicated with pneumonia; a graduate of the College of Physicians and Surgeons, New York City, in 1897.

H. C. Van Gleson, aged 66, March 8, at his home in Omaha, Neb. He was graduated from Bowdoin College, Brunswick, Me. He served as assistant surgeon in the United States Navy during the Civil war.

William Hendry, of Cleveland, Ohio, was killed in a train wreck near Emsworth, Pa., March 3. He was a graduate of the medical department of Western Reserve University, Cleveland, in 1896.

Thomas Terrill, aged 59, of Elizabeth, N. J., February 22, from cerebral hemorrhage, at the Alexian Brothers' Hospital; a graduate of the College of Physicians and Surgeons, New York, in 1867.

David H. Scott, aged 76, February 25, at his home in Fruit Hill, Chillicothe, Ohio; a graduate of Cleveland Medical College in 1855, and for many years professor of surgery in that institution.

Stias Burbank, aged 65, February 26, at his home in Mount Vernon, Me., from heart disease. He was a graduate of the Medical School of Maine, Bowdoin College, Brunswick, Me., in 1864.

Edward A. Hering, aged 78, February 25, at his home in Harrisonburg, Va., from cerebral hemorrhage; a graduate of the University of Maryland School of Medicine, Baltimore, in 1855.

Peregrine C. Jones, aged 71, February 23, at his home in Kansas City, Mo., from cerebral hemorrhage; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1888.

William Moore, aged 50, February 23, at his home in Cripple Creek, Colo., from pneumonia. He was a graduate of Gross Medical College, Denver, Colo., in 1892.

George Lederman Hyslop, aged 79, March 2, at his home in New York City, from heart disease; a graduate of New York University, New York City, in 1850.

J. H. Fleetwood, aged 75, March 7, at his home in Thibodaux, La., from pneumonia. He was a graduate of Tulane University, medical department, in 1872.

Chalmers A. Parker, aged 47, February 23, at his home in Fort Worth, Texas. He was a graduate of the Kentucky School of Medicine, Louisville, in 1883.

Elijah Luther VanCleve, aged 49, February 18, at his home in Rockville, Ind., from pneumonia; a graduate of Rush Medical College, Chicago, in 1895.

Thomas J. Marlin, aged 61, February 18, at his home in Tarkio, Mo., from pneumonia; a graduate of Jefferson Medical College, Philadelphia, in 1873.

Daniel P. Fahrney, aged 64, March 5, at his home in Hagerstown, Md., from paralysis. He was a prominent member of the society of Dunkards.

Isaac C. Edson, aged 81, February 22, at his home in Windsor, N. Y.; a graduate of Albany (N. Y.) Medical College in 1867.

Carter Berkely, aged 68, March 7, from heart failure. He served as a Confederate soldier during the Civil war.

John Brill, aged 50, of Taylorsville, Miss., March 7, at Silver Creek, from apoplexy.

John M. O'Brien, aged 88, March 5, at the home of his son in Danville, Va.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 10, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	Los Angeles.....	Feb. 18-25.....	2	
	San Francisco.....	Feb. 18-25.....	2	
	Jacksonville.....	Feb. 25-Mar. 4.....	1	
Illinois:	Chicago.....	Feb. 25-Mar. 4.....	16	3
Indiana:	Hammond.....	Feb. 21-28.....	1	
Kentucky:	Louisville.....	Feb. 23-Mar. 2.....	1	
Louisiana:	New Orleans.....	Feb. 25-Mar. 4.....	6	
			Four imported	
Michigan:	Detroit.....	Feb. 25-Mar. 4.....	2	
	At 74 localities.....	Feb. 11-18.....	Present	
Missouri:	St. Louis.....	Feb. 25-Mar. 4.....	47	2
Nebraska:	Omaha.....	Feb. 25-Mar. 4.....	2	
New York:	Mount Vernon.....	Feb. 25-Mar. 4.....	1	
Ohio:	Toledo.....	Feb. 25-Mar. 4.....	3	
Tennessee:	Memphis.....	Feb. 25-Mar. 4.....	23	
	Nashville.....	Feb. 25-Mar. 4.....	6	
West Virginia:	Wheeling.....	Feb. 25-Mar. 4.....	1	
Wisconsin:	Milwaukee.....	Feb. 11-25.....	21	
SMALLPOX—INSULAR.				
	Manila.....	Jan. 7-28.....	5	1
SMALLPOX—FOREIGN.				
Bosnia and Herzegovina:	Paris.....	Dec. 1-31.....	17	2
France:	Nantes.....	Feb. 11-8.....	8	2
	Leeds.....	Feb. 8-22.....	19	7
Great Britain:	Leith.....	Feb. 11-18.....	9	
	London.....	Feb. 11-18.....	3	
	Newcastle-on-Tyne.....	Feb. 11-18.....	3	
	Nottingham.....	Feb. 11-18.....	6	
	South Shields.....	Feb. 11-18.....	1	
India:	Bombay.....	Jan. 31-Feb. 7.....	2	122
	Karachi.....	Jan. 29-Feb. 5.....	7	2
	Madras.....	Jan. 28-Feb. 3.....	1	
Italy:	Lecce.....	Feb. 9-16.....	84	1
	Treviso Province.....	Feb. 9-16.....	4	
Japan:	Ehime.....	Feb. 2.....	26	
	Fukuoka.....	Feb. 2.....	2	
	Hiroshima.....	Feb. 2.....	2	
	Kumamoto.....	Feb. 2.....	1	
	Nagasaki.....	Feb. 2.....	2	
	Osaka.....	Feb. 2.....	8	
	Yamaguchi.....	Feb. 2.....	1	
Mexico:	City of Mexico.....	Jan. 27-Feb. 11.....	4	6
Straits Settlements:	Singapore.....	Jan. 14-21.....	1	
YELLOW FEVER.				
Mexico:	Coatzacoalcas.....	Feb. 12-18.....	1	1
Panama:	Panama.....	Jan. 1-Feb. 14.....	27	8
CHOLERA.				
India:	Bombay.....	Jan. 31-Feb. 7.....	1	
Russia:	Brivan.....	Jan. 16-23.....	1	
	Saratov.....	Jan. 16-23.....	5	3
PLAGUE—INSULAR.				
Hawaii:	Aleia.....	Mar. 2.....	1	
PLAGUE—FOREIGN.				
Arabia:	Aden.....	Feb. 4-11.....	280	257
India:	General.....	Jan. 21-28.....	38,204	33,087
	Bombay.....	Jan. 31-Feb. 7.....	450	
	Calcutta.....	Jan. 28-Feb. 4.....	84	
	Karachi.....	Jan. 29-Feb. 5.....	44	41
Russia:	Ural Territory.....	Jan. 3-9.....	8	15

Changes in the Medical Corps of the U. S. Army for the week ended March 11, 1905:

HALLWOOD, JAMES B., contract surgeon, Louisiana Purchase Exposition Grounds, St. Louis, Mo., is granted leave for five days.

SHOCKLEY, First Lieutenant Major A. W., assistant surgeon, will, at such time as he may be required, appear before the board to determine his fitness for promotion.

SHILLOCK, Major PAUL, surgeon, is granted leave for one month and fifteen days, from about March 10.

THORP, CHARLES W., contract surgeon, will proceed to Fort Adams for temporary duty during the absence on leave for two months of First Lieutenant George W. Jean, assistant surgeon. Upon the return of Lieutenant Jean, Contract Surgeon Thorp will return to his station—Fort Ethan Allen.

JONES, First Lieutenant PERCY L., assistant surgeon, will repair to this city and report to the commanding officer, United States Army General Hospital, Washington Barracks, for temporary duty at that hospital.

HOFF, Colonel JOHN VAN R., assistant surgeon-general, Fort Leavenworth, Kansas, is granted leave for one month, to take effect at such date in the month of March as his services can be spared by his post commander.

RENO, First Lieutenant WILLIAM W., assistant surgeon, will proceed from Fort Myer, Va., to New York City and report to the general superintendent of the army transport service for duty as surgeon on the transport Sumner.

DAVIS, HARRY A., sergeant first class, hospital corps, Fort Totten, N. Y., will be sent to New York City, reporting to the medical superintendent, army transport service, for duty aboard the transport Sumner.

KEEFER, Major FRANK R., surgeon, is granted leave for one month and fifteen days with permission to visit China and Japan.

COMEGYS, Lieutenant Colonel EDWARD T., deputy surgeon-general, chief surgeon, these headquarters, is detailed as surveying officer at these headquarters, vice Captain Clarence S. Nettles, acting judge advocate, judge advocate, these headquarters, relieved.

JONES, First Lieutenant PERCY L., assistant surgeon, to report at Washington Barracks for temporary duty.

MILLIKIN, JOHN D., dental surgeon, orders of March 6 relating to him are revoked.

Changes in the Medical Corps of the U. S. Navy for the week ended March 11, 1905:

BENTON, F. L., passed assistant surgeon, ordered to the Naval Recruiting Station, Philadelphia, Pa.—March 3.

DELANCY, C. H., passed assistant surgeon, detached from the Petrel and ordered to the Marblehead—March 6.

KERR, D. B., passed assistant surgeon, detached from the Buffalo and ordered to the Boston—March 6.

MANCHESTER, J. D., assistant surgeon, detached from the Marblehead and ordered to the Petrel—March 6.

MILLER, J., JR., assistant surgeon, detached from the Boston and ordered to the Buffalo—March 6.

COOKE, O. H., medical director, retired, detached from the Naval Recruiting Station, Philadelphia, Pa., etc., and ordered home—March 7.

RODMAN, S. S., passed assistant surgeon, detached from the Pensacola and ordered to the Ranger, March 25—March 7.

Cable from Commander-in-Chief, Asiatic Fleet, Cavite, P. I., March 9:

BACHMANN, R. A., assistant surgeon, detached from the Wilmington and ordered to the Villalobos.

MICHEL, R. H., assistant surgeon, detached from the Villalobos and ordered to the Wilmington.

Changes in the Public Health and Marine-Hospital Service for the week ended March 8, 1905:

GRUBBS, S. B., passed assistant surgeon, granted leave of absence for two days from March 7—March 6, 1905.

BILLINGS, W. C., passed assistant surgeon, granted leave of absence for fourteen days from March 3—March 3, 1905.

MCLAUGHLIN, A. J., assistant surgeon, granted leave of absence for six days from March 6—March 3, 1905.

FRANCIS, EDWARD, assistant surgeon, granted leave of absence for seven days from March 6, 1905, under paragraph 191 of the regulations.

KEATLEY, K. W., acting assistant surgeon, granted leave of absence for four days from March 1, 1905, under paragraph 210 of the regulations.

LOPEZ, ESTEBAN, acting assistant surgeon, granted leave of absence for thirty days from January 1—March 6, 1905. Granted leave of absence for five days from January 31, 1905, on account of sickness—March 6, 1905.

ROSSELLO, M. M., acting assistant surgeon, granted leave of absence for seven days from February 18, 1905, under paragraph 210 of the regulations.

STEVENSON, J. W., acting assistant surgeon, leave of absence granted for seven days from February 27, 1905, revoked—March 8, 1905.

ACHENBACH, JOHN, pharmacist, granted leave of absence for three days from February 26, 1905, under paragraph 210 of the regulations. Granted leave of absence for seven days from March 3, 1905, under paragraph 210 of the regulations.

Boards Convened.

Board convened to meet at Washington, D. C., March 10, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board convened to meet at San Francisco, Cal., April 3, 1905, for the examination of assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Passed Assistant Surgeon Rupert Blue, chairman; Passed Assistant Surgeon H. S. Cumming, Passed Assistant Surgeon D. H. Currie, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

IS THIS AN IMPROPER FEE ?

To the Editor of *American Medicine*:—The correspondence here given is practically verbatim, with just enough change to conceal identities.

B. C., M.D.

PART I.

To Mrs. A., for services rendered her son.

Operation for appendicitis \$5,000

B. C., M.D., Dr.

PART II.

DOCTOR B. C.

My Dear Doctor: This is an age of big things, but I must confess that your bill for services rather shocked me. The case was certainly not a complicated one. The nurses say that only a few minutes were required for the work; and yet your charge is several times as large as would have been the charge of several equally competent surgeons of my acquaintance. It was our doctor, you remember, who made the selection, and I had really no voice in the matter beyond a general acquiescence. I happen to know of your charges for Mr. D. and for Mr. E., in similar cases, and note the difference. Really, Doctor, is there not a menace to the public in such charges as you have made—on the ground that operations will often be done for the sake of the fee, and not always for the patient's best interest? Understand that I am not unappreciative of what you have done for my son. In fact, we are all extremely grateful, and if it were really necessary, I would pay a bill of ten times the amount, but I shall feel better satisfied if you can send me a bill for just half of the amount charged.

Can you itemize the account?

Yours truly,

Mrs. A.

PART III.

Mrs. A.

Dear Madam: Allow me to answer at some length the charges that you make against my charges.

This was the boy's second attack of appendicitis. On the occasion of his first attack last summer, I understand that the several consultants disagreed about the advisability of operating, and your son gradually recovered from that attack while they were debating the matter, on wise and conservative grounds no doubt. You know what would have happened on this occasion if the same thing had been repeated, for you examined the appendix, and know that it was on the very point of perforation. A sharp local peritonitis was under way. It is true that the case would not have been called a complicated one, excepting for the presence of adhesions resulting from the first attack.

Now in regard to the charges that I made for Mr. D. and for Mr. E. Mr. D., as a college professor, has to live very closely in order to rear his children politely and keep within his income. It was our privilege to be generous to him in the way of charges. Patti did not charge at all for services when she sang for the orphan asylum, and the children of a college professor may be next thing to orphans. Mr. E. is a trusted bank clerk, and while a great deal of money passes through his hands, I did not wish to tempt him to divert enough to measure the gratitude which he expressed. A poor woman from the country once brought me three chickens nicely dressed, in payment for services, and it was learned later that she had stolen the chickens. Ergo: Patients are willing to steal in order to pay doctor's bills, and I must not tempt people like Mr. E. Your idea that large fees are a menace to the public, because the hope of such reward may lead to unnecessary work, is a new one to me, but it may have occurred to other members of the laity. Surgeons cannot command proper fees until they have gained the confidence of the public, or what is more to the point, the confidence of physicians; for it is the physician who is and should be in charge of the situation. People have no conception of the feeling of responsibility on the part of the physician

when he makes a choice of men who are to help him out with the special features of a case.

I will itemize the account as you suggest:

Item 1.	For recognizing the signs of impending disaster,	\$1,000
Item 2.	For making the operation last but a few minutes, when it might have been prolonged for an hour	1,000
Item 3.	For employment of a method of operating which avoids certain subsequent complications . . .	1,000
Item 4.	For obtaining primary union through employment of methods requiring considerable training	1,000
Item 5.	For the employment of methods for separating adhesions and removing the appendix in such a way as to cause a minimum amount of surgical damage	1,000
Total		\$5,000

If your son had been a man of large and complicated responsibilities, each one of the five parts of the bill would have been much larger, because the surgeon's responsibility is increased in such a case, and any untoward feature of the operation would subject him to loss of prestige and of patronage.

B. C., M.D.

PART IV.

Dr. B. C.

My Dear Doctor: Please find enclosed my check for the amount of your bill, but I wish to ask for a rebate in this way. There is a young man in our office who will need your services, and if you are willing, I would like to have you do the work without charge. I will pay his hospital expenses.

Yours truly,

Mrs. A.

ECTOPIC PREGNANCY.

BY

H. B. OSBORN, M.D.,
of Kalamazoo, Mich.

Mrs. L., aged 29, a multipara, missed her menstrual period February 16, 1903, and on March 30 had pains in the back and abdomen simulating the menstrual pain, accompanied with vaginal flow. A physician was called who feared a miscarriage and put her in bed, enjoining perfect rest. This she did for about two weeks, when she got up and resumed her household duties. On April 29 a profuse hemorrhage occurred about 4 p.m. I was summoned to the house about 9 o'clock p.m., and found the patient very nervous, with pulse quick and weak. Examination disclosed the vagina filled with coagulated blood, and the os patulous, but not dilated. After using a warm sterile douche, I ordered an opiate, and rest in bed. April 30, at 9 a.m., the temperature was normal, pulse 75, and the vaginal flow absent, and no abdominal pain or soreness present. Continued rest was recommended, and repetition of the vaginal douche. May 2 the os was dilated, admitting tip of the index finger, and filled with a malodorous clot of blood. As there was no fever, and the patient otherwise comfortable, I left a laxative, to be taken at once, and ordered another warm sterile douche to be given, and repeated in the morning, when, with the assistance of Dr. Edward Ames, I thoroughly curetted the uterus, removing a large amount of what appeared to be broken down placental tissue. After thoroughly washing out the uterine cavity, the patient was made comfortable in bed, where she remained for seven days, when she resumed light household duties.

The latter part of May I called to adjust a retrodisplacement and found her in other respects very comfortable, and did not see her again until after my summer vacation, August 31, when an examination disclosed the following conditions: Skin pale and pigmented, same condition about areola of nipples, a tumor in left side of abdomen extending two and a half inches above iliac crest, and filling the whole left iliac space. Digital examination of the vagina disclosed the uterus small but pushed to the right side, and the tumor filling the left vaginal space and Douglas' pouch. Bimanual pressure elicited a lively fetal kick, disclosing at once an ectopic gestation of six months at least. The state of affairs was at once communicated to her family, and an immediate operation for her relief recommended.

On September 2 Drs. Ames and Paul F. Butler saw her, concurring in my opinion of speedy operation. She entered the Kalamazoo Hospital next day and the hour for the operation was fixed at 10 a.m., September 5. The usual preparation of the patient being made on the evening of September 4, I entered the hospital at about 9.20 a.m. to make all ready for the operation and was hastily summoned to her bedside, as she

had a moment before experienced a sharp pain in the left side, vomited and fainted, I found her unconscious, pulseless and bathed in cold perspiration. The nurse administered 2 mg. ($\frac{1}{30}$ gr.) strychnin hypodermically and hot bottles were placed around her and her friends were informed of her critical condition and consented to let me do what I thought best. She was taken hastily to the operating table and while the anesthetic was being administered we opened the abdomen, incised the amniotic sac and removed a 4½-pound child, and turning out large clots of blood, proceeded to clean the abdominal cavity with warm normal salt solution.

As soon as the child was extracted the sac contracted, expelling the amniotic fluid and the bleeding ceased. The umbilical cord was tied and severed close to its placental attachment. After thoroughly washing out the abdominal cavity we discovered that the hemorrhages had taken place at the placental attachment with the transverse colon. An injection of strychnin, 2 mg. ($\frac{1}{30}$ gr.), was given and we took a hasty survey of the conditions. The placental attachment covered the transverse colon, omentum, and descending colon down to the sigmoid flexure, the fundus of the bladder and anterior surface of the uterus. All thought or possibility of enucleation of the placenta was hopeless, and on the advice of Dr. Ames whose assistance made the operation possible, we closed up the upper angle of the abdominal wound also that of the amniotic sac and then attached the free edges of the sac to the abdominal peritoneum by continuous suture, leaving a free opening in the lower angle of the abdominal wound communicating directly with the amniotic cavity and placenta, this cavity we packed loosely with sterile gauze, applied the abdominal dressings and binder and after injecting a pint of warm normal salt solution and a third 2 mg. ($\frac{1}{30}$ gr.) of strychnin injection placed her in bed surrounded by hot water bottles.

Reaction came on slowly. The temperature at completion of operation was 5° below normal and gradually approached normal at the end of 12 hours. During this first 12 hours normal salt rectal injections were resorted to every four hours. She slept at short intervals during the night, taking a teaspoonful of hot water as thirst presented. Fortunately, no vomiting followed the operation. Twenty-four hours after operation, the abdominal dressings were replaced by fresh ones; the gauze from the placental cavity was changed on the third day, and every day thereafter till the end of the treatment. Hot milk was given at short intervals after the first 24 hours, followed by liquid foods.

The decidual cavity began contracting at once, and the cavity that at first held a loose gauze dressing the size of an orange only permitted enough for drainage at the end of the third week. The abdominal wound healed by first intention down to the drainage and the sutures were removed on the tenth day.

Menstruation appeared 10 days after the operation. The pulse dropped from 140 per minute after the first week to 100, and there held for nearly three weeks. The temperature never rose above normal after reaction from the operation, except at the menstrual flow and once when she overate. November 21, p.m., she had a sharp pain in the left side of the abdomen and became much excited, fearing a hemorrhage. The dressings were removed, and it was found that placental tissue was protruding from the abdominal opening and that the drainage gauze was forced out. There being no increase of temperature and pulse normal, we replaced the dressings and left her for the night. On the morning of November 22, by slight compression and a little traction, the placenta was delivered en masse. Examination of the cavity disclosed a complete sac about the size of a baseball, which we washed out with sterile water and lightly packed with gauze. We replaced the dressings. This cavity contracted down and filled with granulation and closed up the abdominal wound in about two weeks. An elastic abdominal support was adjusted and the patient returned to her home the fourteenth week after operation entirely recovered, which under the circumstances seems remarkable.

I was ably assisted by Drs. E. Ames, D. P. Osborn, and L. P. Fernandez. Drs. Della Pierce, DenBleyker, and Beebe were present.

This was the fourth case of ectopic pregnancy in the Kalamazoo Hospital within a year, three of these occurring within a month; all the patients recovered. Two patients suffered rupture of the tube with severe hemorrhage, and the first and last patients each aborted from the end of the tube near the hiatus fallopii; attachment was found on the omentum and abdominal parietes.

In reviewing my experience of nearly 45 years, I recall many cases of "pelvic hematocele" in which some patients, after suffering months, recovered, and others became chronic invalids; all might have been given long lives of comfort and usefulness with proper surgical aid. Who could have believed 25 years ago that a case could go 11 weeks without suppurative discharges from the wound. The only discharge was serous, at first stained with blood, then becoming slightly stained, and lastly clear.

A CASE OF APPENDICITIS SIMULATING CHOLELITHIASIS.

BY

C. D. SPIVAK, M.D.,

of Denver, Colo.

Miss H. S., aged 13, several hours after having supped on a half dozen apples, woke up with severe pain in her right side, which continued during the whole night with but slight remissions. In the morning she was given castor-oil, after which she vomited. An enema was given which resulted in a free movement of the bowels. Repeated enemata, home remedies, hot applications were of no avail; the patient suffered almost continuously. On the following morning, 34 hours from the onset of the disease, I called to see her. The patient pointed to the region of the liver as the site of the pain, and complained that she could not take a deep breath. Her temperature was normal, pulse 134. The contour of the abdomen was normal, but slightly tympanitic on percussion; there was no dullness or pain over McBurney's point, no rigidity of the right abdominal muscles. Palpation revealed no tumor. Bimanual pressure below the arch of the right ribs elicited pain. The diagnosis



Appendix bent on itself, showing a gangrenous annular band.

lay between pleurisy, some biliary trouble, and appendicitis. The normal temperature and the absence of physical signs excluded pleurisy. The possibility of gallstones in a girl of 13 is, as far as I know, so rare that the textbooks of diseases of children (Keating, Taylor, etc.) do not consider it necessary even to refer to it. Of other pathologic processes that would give rise to such symptoms as in this case, I could not think. I have decided that it must be appendicitis. Dr. Freeman, who saw the patient with me an hour later, confirmed the diagnosis. At 6 p. m. the operation was performed, and an angry appendix bent on itself and pointing upward toward the liver was brought to light. The specimen is certainly a very rare one. Having opened the organ by a longitudinal slit from base to apex, a black, annular, sharply defined gangrenous band about a quarter of an inch wide and a fifth of an inch deep, about an inch from the apex was found.

BACKACHE.

BY

ROBERT HESSLER, M.D.,

of Logansport, Ind.

To the Editor of *American Medicine*:—The brief editorial reference to my paper on "Backache," in *American Medicine*, January 21, has a tendency, it seems to me, to place the views therein in a false light. The paper excepted backaches due to specific diseases, and specific causes, and referred only to those known as neurotic and rheumatic, the statements being applied only to local conditions; the paper contained a subhead "Local Conditions."

Toward the close of the paper I said: "The treatment of backache is mainly prophylactic, avoiding it. Prevention is easier than a cure." Cases of definite etiology would, in all probability, be ruled out, especially such as cannot be prevented or avoided. The closing paragraph was as follows: "A patient with backache who gets well and remains well in a good atmosphere, and in whom the ailment returns with a return to a bad atmosphere can safely be regarded as a case causatively influenced by infected dust."

INSTRUCTION IN PUBLIC HEALTH.

BY

S. H. CORRIGAN, M.D.,

of Swanville, Minn.

To the Editor of *American Medicine*:—Your interesting editorial published February 4, re the establishing of a course of "Instruction in Public Health" by the University of Pennsylvania, comes as good news to all honest physicians. In this connection I would call attention to the fact that the University of Toronto has already established a thoroughly scientific course for graduates in medicine, the course leading to the granting of a diploma of public health.

ORIGINAL ARTICLES

CHOLECYSTITIS AS A COMPLICATION OF LOBAR PNEUMONIA: WITH A REPORT OF THREE CASES, AND REMARKS ON ICTERUS IN PNEUMONIA.

BY

J. M. ANDERS, M.D., LL.D.,

of Philadelphia.

Professor of Medicine and Clinical Medicine in the Medico-Chirurgical College, etc., Philadelphia.

The principal object of this paper is to report a few cases of pneumonia complicated with cholecystitis. It were futile, to attempt to present statistical evidence with a view to showing the frequency of occurrence of cholecystitis in the course of pneumonia, in view of the fact that the former condition has not in the past been recognized as a complication of the latter. My observations appear to show that a remote relationship exists between cholecystitis and lobar pneumonia.

A few years ago, I met a patient with pneumonia in which a complicating cholecystitis was observed. Unfortunately, no clinical record of the case was made, hence it cannot be reported in detail at present writing. No jaundice, however, was manifested and the patient recovered. Subsequently, minor degrees of cholecystitis as a complication of lobar pneumonia were also encountered. More recently, three instances, which are reported with a view to directing attention to the condition, fell under my observation.

CASE I.—Mrs. D. H. T., aged 58, weight 170 pounds, height not known. The family history is without discoverable hereditary taint. The patient had had most of the childish diseases and grip a few years previous to last illness; she has complained of slight rheumatic symptoms at long intervals. The social history furnishes no causative factors of importance; has used tea and coffee, but no alcoholic stimulants; has two adult children living and well, and the menopause occurred eight years ago.

The present illness had been ushered in five days previous to my seeing the patient at the request of Dr. Chas. A. Service, the attending physician, with the characteristic features of lobar pneumonia. The symptomatology and course were typical until the fifth day, when jaundice supervened. The temperature was moderately elevated. The consolidation was confined to the upper and middle lobes of the right lung.

A physical examination of the liver revealed a slight enlargement of this organ, and also a tense pear-shaped enlargement of the gallbladder, with marked tenderness to pressure. The pulse was of good volume and regular rhythm at 110 and the pulse-respiration ratio was 1 to 1½. The breathing was shallow, the decubitus dorsal and prostration pronounced. The urine analysis revealed slight albuminuria and the presence of considerable bile pigment; it was otherwise negative in its results.

The patient died 24 hours later, or on the eighth day of the illness, the jaundice having become well marked before death. Dr. Service informed me by letter that death came as a result of extreme edema of the lungs and cardiac exhaustion. No autopsy was allowed.

CASE II.—Mrs. A. M., aged 40, married, childless, occupation housework, nativity Italian. The family history is excellent—all relatives living and well. With the exception of childish diseases, the patient had never been ill, save for slight colds, until the date of onset of the present complaint. The social history reveals good habits and regular menstruation. The present illness set in suddenly on January 7, with a severe chill, accompanied by stabbing pains in the right side of the thorax; 12 hours later respiration rate was 50 per minute, pulse 120, and temperature 104° F. On the second day the physical examination indicated consolidation of the lower and middle lobes of the right lung.

January 12, 1904. All symptoms mentioned were aggravated and the patient delirious. I was requested to see the patient by Dr. G. V. Ciccone, who kindly furnished the data mentioned above. A slight grade of jaundice was observed. The gallbladder was palpated as a tender, resisting, pyriform tumor mass. There was no rigidity of the right rectus. The patient made no complaint of pain.

The jaundice increased in intensity up to January 14, when a crisis set in, accompanied by free perspiration and bilious diarrhea, and the temperature dropped to 100° F. over night. The following morning a second fall took place to 98° F. with similar critical symptoms associated. Immediately after the crisis occurred the jaundice and other symptoms indicative of

cholecystitis slowly disappeared, and the patient made a good recovery.

CASE III.—A German, aged 50, carpenter by occupation, developed a characteristic case of lobar pneumonia. His temperature ranged from 103° F. to 104.4° F., and the fever terminated by crisis on the ninth day. In this case there was no jaundice, but the physical signs, as observed on the sixth day of the illness, indicated a pyriform enlargement of the gallbladder. This organ was quite sensitive to the touch, and the patient complained of localized pain and soreness. There was slight downward enlargement of the liver, which was also slightly sensitive to palpation at its lower margin. The abnormal physical signs as well as the subjective symptoms gradually and slowly subsided following the occurrence of the crisis.

The cases so far as observed, have been apparently of the catarrhal type, and of mild grade, since resolution promptly occurred in two. On the other hand, P. Clairmont¹ records a case of cholangitis and abscess about the gallbladder (empyema) in a woman of 79, suffering from pneumonia, in which Friedländer's pneumobacillus was found. Not any of the cases observed by myself (three in number) were sufficiently well marked to constitute a grave complication, and although Case I proved fatal, death was due to edema of the lungs and cardiac exhaustion (*vide supra*).

The existence of associated catarrhal lesions of the biliary passages (*e. g.*, the intrahepatic canaliculi, common duct), accompanied by jaundice may be assumed to exist in most cases at least (two out of three in my series), and these more or less obscure the clinical manifestations of the cholecystitis.

In a disease attended with profound prostration and more or less torpidity of the sensorium, as is especially true of lobar pneumonia, it is obvious that cholecystitis may arise as a complication without local pain to invite attention to the condition. It is also well known that a serious form of the affection may exist and be entirely latent. Moreover, it must be borne in mind that cholecystitis due to other causes, varies within wide limits in its intensity. I have met cases of cholecystitis in subjects of typhoid fever who did not complain of pain. The diagnosis in the cases reported above, rests upon the physical signs alone, in view of their extreme latency and may therefore with justice be questioned.

Gilbert and Grenet² investigated the boundaries of the liver in 48 cases of pneumonia. In adults the organ dipped below the edge of the ribs in about a fourth of the instances; in six children the liver was enlarged, while in four aged patients it was normal. This enlargement appears at the height of the disease and subsides during convalescence.

Rolleston³ has observed downward displacement of the right half of the diaphragm and of the liver at the autopsy of a child with an extensive tuberculous pneumonia of the right lung. It is probable that the enlargement of the liver due to cloudy swelling and associated hyperemia also causes downward extension of this organ.

It is probable that it tends to conceal any moderate degree of distention of the gallbladder due to the cholecystitis that may be present. Jaundice, however, is not a constant concomitant; there was an absence of this symptom in one of the cases that came under my notice (*vide supra*).

As to the cause or mode of origin of the cholecystitis complicating lobar pneumonia our knowledge is quite incomplete. Whether the cases are due to infection of the bile ducts from the alimentary canal with spreading to the gallbladder (secondary infection) or to hemic infection, *Micrococcus lanceolatus* being deposited in the gallbladder from the branches of the hepatic artery is as yet unknown. It is unlikely that pneumonia causes specific changes in the liver if we except cloudy swelling, hyperemia of the organ and catarrhal infection of the biliary passages, including cholecystitis. The cases of cholecystitis observed by myself were not attended by antecedent hepatic lesions, so far as could be determined by the history.

Jaundice as a symptom or complication of lobar pneumonia is a subject of keen interest to clinicians. Jurgensen⁴ has pointed out that the estimated frequency of icterus differs in different statistical accounts and depends principally on the amount of discoloration which would cause it to be included in an enumeration of cases. Infection of the bile passages without associated involvement of the gallbladder may occur from various causes, and while the bacteriology is as yet unknown, the colon bacillus was found in one of my own cases.⁵ Gilbert and Grenet⁶ believe that the icterus often observed in pneumonia is due to an angiocolitis caused by *Bacterium coli commune*. They found this organism in the bile in three cases of pneumonia in which icterus had been present, and also believe that this symptom is much more likely to occur in pneumonia in subjects of previous hepatic disease, especially in those addicted to alcohol.

I quite agree with A. Grenet⁷ that descending infection of the biliary passages by the pneumococcus, giving rise to icterus, probably never occurs. Jaundice is often witnessed in cases in which the pneumonia is purely apical. On the other hand, Banti⁸ investigated into the bacteriology of some cases of pneumonia in which icterus was present, and after carefully conducting certain animal experiments, concluded that the icterus of pneumonia is due to an accidental hemolytic action of the diplococcus, and is, therefore, hemogenic. Petrov⁹ has also performed animal experiments, the results of which lead him to believe that the jaundice is due to local disease of the hepatic ducts, and not to hemolysis. Legg¹⁰ offers a different explanation, namely, that a certain degree of parenchymatous change occurs in the liver akin to that which in the kidneys so frequently causes albumin in the progress of pneumonia.

The consensus of opinion, however, is to the effect that icterus is a symptom or complication of pneumonia only when a catarrhal (mechanical) obstruction of the biliary passages occurs. This obstruction may be confined to the intrahepatic biliary canaliculi (as in my case cited above). Similarly, the jaundice accompanying cholecystitis is caused by the associated catarrhal infection of the bile ducts.

It is generally conceded that pneumonias complicated with jaundice are more dangerous to life than uncomplicated cases. The increased gravity is probably to a lesser extent, due to the catarrhal infection of the biliary passages than to the previous chronic hepatic disease. Some of the older writers, for example, Stoll and Traube,¹¹ described a "bilious pneumonia" not necessarily associated with jaundice, although jaundice may be an occasional complication of this variety. Jaundice probably increases the morbidity of this disease, but I have in several cases seen the crisis appear at the usual time with recovery. Lebert¹² states that jaundice adds to the gravity of lobar pneumonia, and in severe cases the defervescence may be retarded.

An analysis of the three cases of cholecystitis complicating pneumonia briefly reported above, unsupported by any postmortem evidence, does not warrant us in drawing any general conclusions, but on the other hand, these clinical observations may yet serve to direct attention to a symptom-complex which is associated in rare cases of lobar pneumonia and indicate the presence of cholecystitis as a complication. The local symptoms and physical signs are characteristic, but the type of the condition is not severe, hence to a great extent overshadowed by the grave, underlying, or pneumonic condition.

No general or constitutional symptoms, distinctive of the lesion, are recognizable. I am pretty firmly convinced that the clinical course of cases of pneumonia is not materially modified, as a rule, by the occurrence of catarrhal cholecystitis as a complication. In cases in which chronic hepatic disease previously existed, however, the toxemic symptoms may be intensified by the development of an acute, widespread cholangitis and

cholecystitis. Complicating cholecystitis in the course of lobar pneumonia does not arise from direct extension through continuity of tissues, but the source of the infection is probably the gastrointestinal tract or less commonly perhaps, the channel of transmission of the infection is the bloodvessel or the lymphatic system.

Recovery followed in two of my cases, but not as the result of any special method of treatment. The attention was mainly bestowed upon the serious, primary affection. A mild saline laxative was employed in one of the cases, and small doses of the mild mercuric chlorid in another. In Case I (which proved fatal) nothing but the general treatment of the pneumonia was carried out, for the reason that the grave pneumonic features and the cardiac and pulmonary complications called for active measures.

BIBLIOGRAPHY.

- ¹ Wien. klin. Woch., October 26, 1899.
- ² Compt. rend. de la Soc. de Biol., December 24, 1898.
- ³ Diseases of the Liver, Gallbladder and Bile Ducts, p. 19.
- ⁴ Ziemssen's Handbuch, v. 116.
- ⁵ Jaundice, with Reports of Interesting Illustrative Cases. A contribution to the toxic forms of this condition. Amer. Jour. Med. Sciences, April, 1903.
- ⁶ Arch. gén. de Méd., February, 1899.
- ⁷ Centralbl. f. Bakt. u. Inf., December 10, 1896.
- ⁸ Thèse de Paris, 1899.
- ⁹ Cited by E. Aufrecht, Nothnagel's Practice, Diseases of the Bronchi, Pleura and Lungs, p. 496.
- ¹⁰ The Bile, Jaundice and Bilious Diseases, 1880, pp. 412, 413, 589.
- ¹¹ Ges. Beiträge, iii, 289, 293.
- ¹² Brustkrankheiten, i, 555, 584.

PRIMARY TUBERCULOSIS OF THE FEMALE BREAST, WITH A REPORT OF A RECENT CASE.

BY

G. W. SPENCER, M.D.,

of Philadelphia.

Demonstrator of Surgery, Jefferson Medical College; Chief of the Surgical Clinic; Assistant Surgeon, Jefferson Medical College Hospital, Philadelphia.

M. K., aged 20, single; birthplace, Ireland; occupation, housework; was admitted to the Jefferson Hospital July 25, 1904.

The patient's father, three sisters and one brother are living and in good health; her mother died in confinement. There is positively no history of tuberculous disease in the family. When a child, she had measles and pertussis. With these exceptions, she has always had perfect health until the present trouble, which began about a year and a half ago. There is no history of traumatism. One year ago she was operated upon for enlarged glands of the right axilla, some of which had broken down and were discharging pus. She asserts that at this time there was a tumor in the outer side of the same breast, which was not removed. This tumor was observed some time before enlargement of the axillary glands, and since the operation on the glands, pressure on the tumor expels fluid from the lower part of the axillary incision.

When admitted to the hospital, physical examination showed the patient to be unusually well nourished, robust, and apparently in the best of health. Examination of the heart, lungs, sputum and urine revealed nothing abnormal. In the upper and outer quadrant of the right breast was a distinct mass about three fingers in width and four in length, nodular, hard below, and cystic above, and quite movable. At points, the skin seemed to be adherent. In the axilla was a scar, which marked the site of the former operation. There was a sinus at the lower end of the incision. Just above the upper limit and a little internal to the breast, was another sinus. On pressure over the mass in the breast, a fluid resembling pus flowed from both sinuses. This breast was larger than the other, but never was the seat of much pain. The other breast and axilla appeared normal in every respect.

On July 27, 1904, two days after admission, I operated. On account of the sinus, which was above and internal to the breast, it was impossible to make the Halsted incision. I circumscribed the breast by two curvilinear incisions in such a manner that the apex of the incision pointed toward the junction of the inner and middle thirds of the clavicle. I then prolonged the apex of the incision outward and terminated it just above the anterior axillary fold. This incision gave me access to the enlarged glands of the axilla, and also to both sinuses. The entire breast was amputated, together with the axillary glands, fat, and fascia. The mass was sent to Professor Coplin for a pathologic and microscopic examination. He made the following report:

Specimen.—Tissue from right breast and axilla.

Specimen consists of an elliptic mass of tissue 14 cm. long, 6.5 cm. wide, and 4.5 cm. thick; weight, 281 gm. Two surfaces

are presented for consideration. One consists of an elliptic piece of skin 9 cm. in length and 5 cm. maximum width, and an enclosing border of what appears to be adipose tissue. About 3 cm. from one end of the area of skin is the nipple, almost free from pigmentation and retracted to such an extent as to form a dimple. The other surface is an irregularly cut plane, composed of fascia, adipose and connective tissues. Lying between these two surfaces is breast tissue, normal in consistency and appearance, except in one small area a little to one side of the retracted nipple. Here a small cavity is found, surrounded by a wall of hard, firm tissue. This cavity had been incised and drained when the specimen was received.

Blocks of tissue were taken from the evidently diseased area, fixed, mounted, cut, and stained, according to approved laboratory methods.

Microscopically the sections consist of connective tissue in which are varying numbers of lymphoid cells; in some areas the cellular elements are scanty, while in others they are more abundant. This cellular connective tissue contains ducts and tuberculous glands lined with columnar epithelium; also a few bloodvessels whose walls are somewhat thickened. The interstitial connective tissue is notably increased, the gland lobules are infiltrated by lymphoid cells, and the fibrous walls of the ducts are much thickened. In one end of the section a number of areas of greater pathologic significance are found. These areas are clearly marked out from the surrounding tissue, are circular in shape, and consist of a delicate connective-tissue matrix, supporting numerous leukocytes and epithelioid cells, while some of the areas also contain typical giant cells, and others give some evidence of beginning caseation. In a section stained with carbol fuchsin and decolorized by Gabbet's solution, typical tubercle bacilli are found.

A small irregular mass of tissue accompanied the specimen. It weighs 23 gm. and consists of four globular bodies, varying in diameter from 0.8 cm. to 1.7 cm. and bound together by fascia and adipose tissue. These little nodules are firm, tough but not hard in consistency. Upon incision a thick, yellowish, creamy fluid escapes. Spreads of this fluid were made, and stained with carbol fuchsin, but tubercle bacilli were not found.

Pieces of the globular bodies were fixed and stained. Microscopically the sections consist of a fibrous connective-tissue capsule surrounding a mass of adenoid tissue. From this fibrous border, thick trabeculae extend toward the center, dividing the adenoid tissue into irregular pockets or compartments which vary considerably in density. In the center this fibrous framework entirely disappears, and the cellular elements are fragmentary and respond feebly to the stains. Along the border at one end of the section are small areas surrounded by a circular band of fibrous tissue, and composed of a delicate connective-tissue matrix supporting numerous lymphoid and epithelioid cells. Here and there in the fibrous border are bloodvessels with markedly thickened walls.

Diagnosis.—Tuberculosis of the breast with associated involvement of neighboring lymph-nodes.

In this case we were exceedingly fortunate in finding typical tubercle bacilli.

W. Scott Schley,¹ discussing primary tuberculosis of the breast, states that Gautier, in 77 collected cases of tuberculosis of the breast, found tubercle bacilli but 29 times. Scudder found the bacillus 29 times in 80 cases. Schley asserts other observers have failed to find the tubercle bacillus in over 100 resections. In view of these facts I feel justified in submitting to those interested in this subject, the report of my case as furnished me by Professor Coplin.

In speaking of its frequency he states of all the neoplasms of the breast reported, scarcely more than 100 have been reported as tuberculous. A number of these were doubtful and possibly examples of simple mastitis in tuberculous subjects. If we reject the cases not verified by histologic examination or the finding of tubercle bacilli, the number is reduced to about 65. Careful examination of these 65 cases shows that only about 12 can fairly be regarded as primary in the mammary gland itself, that is, if we exclude, as we must, all determinable foci of tuberculous disease elsewhere, involvement of axillary and supraclavicular glands, visceral infection, bone lesions, etc.

Admitting, "no case is complete without an autopsy," nevertheless, judging from my patient's general condition, absence of tuberculosis in her family, failure to find evidence of tuberculous foci in other parts of her body, the secondary axillary involvement, the pathologic and microscopic examination, all prove if such a condition as primary tuberculosis of the female breast exists, my case should be recorded as such.

On carefully reviewing the literature we find there

are 5 routes cited by which the breast can become infected by the tubercle bacilli: (1) Through the blood or lymphatic channels; most writers claim this as the source of infection; (2) through the milk ducts; (3) through a surface wound, such as an abrasion on the breast or a fissured nipple; (4) the breast may become involved through contiguity of structure; (5) one case is reported in which the infection extended from diseased bone of the chest wall. A. E. Halstead and E. R. LeCount² believe infection in most cases is due to a retrogressive lymphatic tuberculosis from the axilla or from the thoracic cavity.

I cannot say how the infection took place in my case, but I think it probably gained entrance through an unnoticed abrasion on the breast or nipple.

Prof. Edward P. Davis reported a case of primary tuberculosis of the breast in the *Medical News*, in 1897, in which he seemed to think the breast became infected through contact with the mouth of a tuberculous individual. There is no doubt that functional activity of the breast and nipple strongly predispose to this disease. Powers³ states that of 35 recorded cases of tuberculosis of the breast, 1 was in a male and 34 in females. Of the 34, 22 were married, and 21 of the 22 had borne children. Age is not of diagnostic value in this disease. It may occur in patients past the middle age of life, also in infants. In the majority of the cases reported, however, the patients were under 38, and comparatively few under 21. The youngest patient reported was a case of Demme's⁴ the patient being under 1 year. The most advanced age recorded up to date is 53; an account of this case was given by Remy and Noel.⁵

There are only a few cases on record in which diagnosis was made prior to operation. In the majority of cases the diagnosis was not made until after the removed tissue was subjected to a microscopic examination. The diagnosis in my own case was made before operation and was based on the history, secondary axillary involvement and by excluding such conditions of the female breast as simple cyst, chronic mastitis, fibroadenoma, sarcoma, carcinoma, and gumma. If I had seen the patient before the axillary involvement, in all probability I would have made a diagnosis of chronic mastitis or fibroadenoma. The best authorities claim that before the nodules soften and break, and in the absence of axillary involvement, the diagnosis cannot be made without a microscopic examination of the tissue.

Treatment.—Such operations as curetting and cauterizing sinuses, incising abscesses, removing the tumor without the breast, have not been attended by good results. I think radical operation is indicated and in every case of unquestionable tuberculosis of the breast, the breast together with the skin overlying the tuberculoma, the glands, fat, and fascia from the axilla should all be removed as one piece. This appears to be the safest way to prevent recurrence and dissemination. Such was my procedure and it has proved most satisfactory in every respect.

I am indebted to J. Howard Anderson, M.D., Resident Pathologist, Jefferson Hospital, for the excellent report he made of this case.

BIBLIOGRAPHY.

- ¹ *Annals of Surgery*, 1903, Vol. xxxvii, 1
- ² *Annals of Surgery*, Vol. xxxiii, 1896, p. 696.
- ³ *Annals of Surgery*, Vol. xx, No. 2, 1894.
- ⁴ *Schmidt's Jahrb.*, 1891.
- ⁵ *Bull. de la Soc. Anat.*, Paris, 1893.

A Philanthropic Self-imposed Stamp Tax.—The Danish government has issued a new stamp of the value of a half cent, the proceeds from the sale of which are to be used to augment the fund for a sanatorium for tuberculous children. The stamp has a picture of the late queen, and is affixed by those charitably inclined to all postal matters in addition to the regular postage. Twenty-seven thousand dollars has already been raised in this way. The plan has found a favorable reception among the Danes, and is being considered for adoption in other European countries.—[*Charities*.]

A DISSERTATION ON TEMPERAMENT, DIATHESIS, DYSCRASIA, PREDISPOSITION, CACHEXIA, SUSCEPTIBILITY, IDIOSYNCRASY AND HEREDITY.

Introducing, as a New Conception of the Involved Problems, a Definite and Orderly Biologic-retrogressive Series of Physical Manifestations, Constituting the Symptologic Expressions of the Phases and Stages of the Pathology of Katabolism, Including an Analysis of Etiologic Homogeneity.

BY

HOMER WAKEFIELD, M.D.,
of New York.

During the nineteenth century, especially in a great group of intimately related affections, variously denominated as *diathic* and as *constitutional* diseases, it has been the habit of medical authors to assign much importance to imperfectly understood predisposing factors, such as temperament, diathesis, dyscrasia, cachexia, or simply to predisposition, as vaguely expressing recognized pre-determining proclivities, constitutional or acquired, to particular diseases; and when such predilections could not be otherwise ascribed intelligently, they were accredited as idiosyncrasies, or heredity was burdened with the responsibility, however remote or incompatible with accrued evidence. Inadequate knowledge of pathogenesis, and a consequent ignorance of the time relations of one disease with another, were responsible for many errors of according to one disease process the dignity of being a primary etiologic factor of another disease or group of diseases, when in truth often both were due to the same primary causative factor, or perhaps as such, one should follow the other as a logical sequence, or the diseases may alternate as the ultimate effect of pathogenic conditions is varied by intercurrent influences, as by shifting of the predominant distribution of the blood, by change of diet, habit, environment, etc.

A critical review of the great mass of medical literature of the past, both recent and remote, reveals the fact that the most the old medical writers achieved in etiology was the linking together of the great groups of diseases in the order of cause and effect, and a study of the several grand divisions thus grouped and identified under the head of dyscrasias and so-called diathic conditions has convinced me that they but represent several different phases of a homogeneous condition, which is due to a common process and which finds a common etiology in several diverse derangements of the organism.

An extensive and critical inquiry into this subject, studiously pursued since 1894, has led me to a solution of the problem which I believe I can ultimately convince the profession is the correct one. This shall be the subject of discussion in this paper, and I will preface it by stating that the homogeneous condition is that which I have previously identified as katabolic stasis, and that the etiologic factors are those which I have heretofore established as the morbid processes leading directly to subkatabolism.

Temperament, diathesis, dyscrasia and idiosyncrasy are defined and differentiated by Hutchinson⁴⁰ as follows:

Temperament, is a term applicable to the sum of all the physical peculiarities of an individual, exclusive of all definite tendencies to disease. When most strongly marked, temperament is still consistent with prolonged enjoyment of perfect health. If there be distinct proclivity, we must then use a stronger term and speak of *diathesis*; and I would define diathesis to be any bodily condition, however induced, in virtue of which the individual is, through a long period, or usually through the whole life prone to suffer from some peculiar type of disease. We do not confuse diathesis with *dyscrasia*, for while the latter definitely implies bad health, the former only denotes proclivity, and may be used when the subject is perfectly well. Thus to distinguish between temperament and diathesis, we may say that the former is a matter of physiology and the latter of disease, and that the former term is applicable only to peculiarities which are a part of the original organization of the individual, while the latter may be acquired as well

as inherited. Thus inherited diathesis is more often than not entirely latent at birth, and is susceptible of aggravation, or, in some cases, of cure in after life. Such alterations are not possible in the constitutional peculiarities which we name as temperament.

Concerning the word *idiosyncrasy*, I will not say more in the way of definition than that it is applicable to any definite peculiarity of organization of which the consequences may occur unexpectedly and otherwise inexplicably. It does not, like diathesis, imply any special proneness to disease, only that under certain wellknown circumstances, results which are peculiar to the individual will certainly occur. Although, as I shall have occasion to observe, it is quite possible that idiosyncrasies may in many instances have sprung from diatheses.

Temperament concerns the original inherited organization of the individual, and does not include anything which is the result of the influences to which his life has exposed him. That which has accrued to him during life goes to produce or aggravate diathesis, but can do nothing in modification or temperament. The very names of the temperaments in many instances denote the record of the results of long preexisting disease rather than of peculiarities as regards vital activity.

The principal varieties of temperament may be named as lymphatic, sanguine, phlegmatic and melancholic; temperaments which have been recognized in the literature. There is much absurdity in the temperament classifications, and I agree with Hutchinson⁴⁰ that they may all well be resolved into major types, namely, those of the blond and brunet, and relating to the diverse states of pigmentation, which are not without significance in pathogenesis. The negro is more immune to tropic diseases, owing to the fact that his pigmented skin shields him from much of the anemia which tropic heat is so potent in causing in the white man. Conversely tropic anemia in the white man, by its causation of katabolic stasis, acts secondarily to the sun and heat, singly and in conjunction with other factors in producing many tropic diseases. The negro, independent of his skin, must be recognized as a type of primitive man, and to this may be ascribed the fact that diseases of sexual debility and obsolescence are not so prevalent as in the white. Authors have related cases of old colored women nursing their grandchildren. The negro has the distinction of tolerating syphilis better than the white, and of being predisposed to pulmonary tuberculosis, complicated by multiple neuritis, as a consequence of civilization influences.

There appears to be good ground for the theory that all primitive peoples experience great difficulty in acclimatization to the mode of life of the civilized races. The negro is able to withstand great heat, by reason of his dark skin, which A. F. A. King,^{30(c)} of Washington, D. C., has with sound logic, attributed to its property of thus shielding the inner structures. The reverse of this theory, namely, that his skin, owing to its superopacity, is responsible for his remarkable tendency to tuberculosis, and to the extreme subkatabolism of the tissues, approximating anesthetic leprosy (multiple neuritis) in an inactive (darkened) indoor life, is probably also true. The American Indian, the native Hawaiian, and other primitive peoples, succumb, as is well known, in large numbers, during an attempted transition to a civilized mode of life. The explanation is to be found in the fact that every race, and each sex, establishes a metabolic equilibrium. Health depends upon its general attunement and involved harmony. When this established balance is disturbed or distorted, until a new equalization is attained, disproportionate metabolism obtains, generally a katabolic stasis. The menopause of the human female is an example.

In both adolescence and climacteric, there is manifested a temporary disparity in metabolic equilibrium, which results in either a fatal issue, or is terminated by the attainment of a new metabolic standard of compensation, or equilibrium. This disruption and readjustment of metabolic balance is neglected in present works on variation and adaptation of species. Not only does the primitive man have a different standard from the civilized man, but the tropic inhabitant from that of the

temperate and frigid zones, man from woman, and the capsulated unicellular, and multicellular, from the naked unicellular organisms.

The temperaments as permanent definite types, in the white man, are more apparent than real; for example, the florid complexion of the sanguine temperament may be absent in a cachectic blond, and conversely may be present in a brunet alcoholic. The bilious and nervous states are, according to the definitions of Hutchison,⁴⁰ dyscrasias or diatheses, according to their permanence. The lymphatic and phlegmatic temperaments represent conditions which vary in relation to states of health and disease. Not uncommonly also, as we observe elsewhere, the defective vascular activity, "innervation," and subsanguification of the lymphatic, is a cause of the obese tendency of the phlegmatic, and they not infrequently are observed together in the same subject.

It is to be observed that the term diathesis is used in two relations: (1) As expressing morbid proclivities, and (2) that series of diseases which are identified as the common product of diathetic etiology. Cachexia is an expression not of a tendency to disease, but of the attainment of an advanced state of disease pervading the general system. Like the diatheses and dyscrasias, it is mentioned in relation to the disease producing it, as the cancerous, malarious, etc. Unlike the others mentioned, however, cachexias are similar in all diseases, constituting a peculiar systemic depravity characterized by marked debility, and usually by an ashen, cadaverish, waxy complexion, attended with more or less edema and tissue degeneration. Many of the diseases associated with diatheses are also similarly connected with cachexia, generally thus expressing respectively their established and ultimate effects. As I shall show later, cachexia is in general an advanced stage of subkatabolism, but little diversified as it is developed by processes of diverse predominant features.

Predisposition is naturally associated with direct or immediate causes of disease, as two factors, expressed in order of occurrence. Differentiation of predisposing from exciting causes of disease, brings us back to a former classification, namely a dyscrasia which expresses proclivity or predisposition. *Susceptibility* at once suggests immunity, which though intimately related, must be excluded from this paper, owing to space limitations.

The chief significance of susceptibility, as differentiated from the other proclivities mentioned before, is its relation to infection, and I will endeavor to show further on that while it is due to katabolic stasis, it is due, moreover to the very fundamentals of the degeneration, involving the malchemistry producing it. *Idiosyncrasy*, like dyscrasia, does not represent a pathologic condition, but an individual peculiarity which may play a role in the deviation of disease processes, and in the physiologic response and toleration to therapeutic and toxic agents. It must be recognized that this classification has done a full service as a general dumping ground for physicians of all times, who have found it convenient when pressed to account for all kinds of symptoms and manifestations of which they were ignorant. Naturally all unidentifiable factors, complicating disease and its therapy, are due to some cause inherent in the patient, but it may be due to some temperament, dyscrasia, or to diathesis, when finally determined. *Heredity* undoubtedly is, of all the abused and misappropriated terms, the greatest sufferer. Pathology has succeeded to the ecclesiastic dogma, that "the diseases of the fathers shall be visited unto the children of the third and fourth generations." Since many supposedly hereditary diseases have proved to be of parasitic origin, and as the heredity of parasitic infection is a *prima facie* absurdity, the heredity of disease sifts itself down to an inherited tendency to disease. Then with the rise of chemic pathogenesis, it is further resolved into congenital structural characteristics, which constitute predisposing factors to subkatabolic disease.

As I shall show later, even syphilis and alcoholism

come within this analysis. Thus, it is observed that, inasmuch as I discredit the heredity of specific diseases, I would accordingly propose that the terminology be revised in conformity with the hypothesis of congenital descent.

Otherwise than the direct descent of disease from the mother to the child, in utero, I hold that only a diminished capacity for oxygenation, or oxidation, *per se*, is transmitted from parents, who have acquired suboxidation as a sequence of vices and life habits, syphilis, alcoholism, etc., of which the literature is full. Thus it is observed that our literature is burdened with a lot of terms that bear reference to vagaries, which lack differentiation, which are pregnant with fallacy, are misleading, and not in harmony with modern conceptions of etiology and pathology.

The foregoing review of the prevailing nomenclature of the so-called diathetic group of ailments, will, I trust, evince the chaotic condition of our present system. Some recent writers have complained of the indefiniteness of the names of some diseases of this group, especially of rheumatism. Advocates of the parasitic theory of acute rheumatism object to it bearing a common name with chronic rheumatism, which they admit their inability to account for, by the parasitic or other theory. In the succeeding lines I have endeavored to account for the pain element of rheumatism by establishing its place as an expression stage of a graded series of manifestations of the subkatabolic retrograde metamorphosis of tissue. Now, assuming that my adduced evidence is acceptable to the profession in sustaining my views, I think we are justified both in resubscribing to the idea of the unity of the disease, and in retaining the time-honored name rheumatism for all the phases heretofore embraced by the term.

Personally, I anticipate the time, in the evolution of medical science, when pathologic nomenclature will be entirely based on the definite stages of manifestations of the graded biologic series. I can conceive of no other definite, and no better systematic and consistent foundation. It should be observed that pathologic nomenclature is simply a convenient means of identifying and differentiating morbid manifestations. Much confusion has, however, been caused by the imperfections of the prevailing chaotic usages, inherited from our forefathers, and many have been misled by erroneous grouping of diseases, by adhering too closely to ideas of exclusive relations between supposedly specific causes and effects; and by innocent exaggerations of really meager demarcations between divers syndromes. Predominant manifestations have in most instances determined the conception of disease processes. Not infrequently illnesses vary in their dominant symptoms as they progress; often from slight causes, and thus with the prevailing nomenclature, it has been made necessary to describe one disease as emanating from another, and finally the pernicious practice of unqualifiedly attributing to one disease the dignity of being the cause of another, has become practically universal.

One aim in describing the biologic retrogressive* series, is to remedy this defect in our nomenclature, and to propose this definite pathologic series as a future basis of nomenclature, interpretation, and deduction.

The specific effect of progressive katabolic stasis upon the tissues is in many respects well illustrated by its effect upon unicellular organisms, namely, a primary streaming, then contraction, increasing to an extreme degree, when finally cell disorganization occurs, gelatinification attended with exudation of collagen elements and other cell inclusions, liquefactions, disintegration by colloidation, fatty, or putrid change. During the flaccid stage, the katabolic stasis (cell superannuation) is most pronounced, it is most marked in cells possessing the most collagen, and conversely, in the most albuminous

* In order to forestall any possible confusion arising in regard to my use of the terms retrogression and retrogressive, especially the latter, I should explain that I use them as indicating a progressive retrograde metamorphosis. However correct or incorrect, that is my adaptation.

protoplasm, and in the softest tissues, we find the phenomenon of hyperplasia is of most transient character. There is a gradual transition from the contracted state to the gelatiniform state, the latter increasing with the decline of the former.

In both blood and tissue cells we observe a transient swelling, in the order of their softness, the muscle and red blood cells being first and most transient, when exposed to subkatabolic influences. Conversely, subkatabolic superannuation of cells is for the same reason most pronounced in the harder tissues. In all tissues the stage of contraction is eventually followed by relaxation, flaccidity, disorganization, necrosis, colloidation, liquefaction and disintegration. The tissues first involved in the superannuation of katabolic stasis are always those most difficult of digestion (autolysis), and similarly the tissues requiring the highest degree of katabolic capacity, first manifest the effect of its failure, namely, superannuation, which, when these cells are interspaced with living growing cells, explains malignancy and the universal occurrence of fibrosis, interstitial thickenings, scar formation and of sarcoma, at an earlier period of life than carcinoma, which comes with oxidase obsolescence.

I have stated before that soft tissues pass through a transient stage of hypertrophy followed by disintegration, well in advance of the harder tissues.* This accounts for the coexistence of atrophy of the soft tissues with the hypertrophy of the harder tissues. There is also another factor which is not rarely of importance; namely, that during their oxidase integrity the epithelial tissues do not succumb to subkatabolism as readily as do the fibrous tissues; but parallel with the decline of the sexual vitality, they become the most vulnerable to katabolic stasis. Thus of the two major processes of katabolism, oxidation and autolysis, it may be said that the tissue of greatest oxidase activity, namely, the epithelium, is first to succumb to suboxidation, while that of most difficult digestibility, namely, fibrous tissue, fails most pronouncedly of autolysis. While both phases of subkatabolism are commonly enough associated, one or the other generally predominates. Under a given stasis of autolysis, the softer, the red blood cells and muscle cells exhibit but a slight and transient retardation, and proceed to disintegration. Conversely, the fibrous tissues exhibit the most pronounced and long-continued restriction, and as a consequence—superannuation. Leukocytes exhibit subautolysis and superannuation (leukocytosis) commonly enough, with a coexistent hyperdestruction of the red cells.

Owing to the foregoing named laws, whole volumes of blood, or tissues, may be increased, or decreased, according to the kind and extent of tissue, or blood cells involved, and according to the rate of liquefaction, putrefaction or fatty degeneration existing, which in turn bears relation to location, extraneous influences of air, water, etc. Incident to the transition from the stage of contraction to that of liquefaction, several other tissue conditions occur which are of vital importance in certain pathogenic states and processes.† During the

* This should be explained: That the more transient tissue changes best exhibit the contrast in autolytic rate, between the hard and soft tissues. Thus in the subkatabolism of the blood, the hemoglobin and red cells commonly are decreased or decreasing, coexisting with leukocytosis. In many parts of the body, interstitial hypertrophy is accompanied by parenchymatous atrophy. Yet, in the many sluggish, lingering and protracted diseases, herein treated, we have abundant exhibitions of coexistent expansions and extensions of both varieties of tissue, and of interconfluence, as with the establishment of extreme subkatabolism, tissue specialization is obliterated, and it is resolved into a homogeneous mass.

† The remarkable expansion and extension of tissue, together with its simultaneously acquired succulence, and gelatinous and colloid substance, is well accounted for by Stricker, thus: "When cells enlarge they absorb fluid, since an increase of volume, without an increase of mass is impossible. By a reduction in size, on the other hand, fluid must be forced out." This explanation is supported by the presence of the necessary conditions, namely: by the loose spongy texture of the parenchyma, when hypertrophied, and the above recorded observations upon unicellular organisms, in which water is forced out during tetanic contraction. Also, it is significant that inspissation and increase of specific gravity of tissue, is attained, in restoration from subkatabolic states.⁹²

height of the contraction, when it is little modified by liquefaction, pain is one of the most marked symptoms. Thus all indurations are painful, all tetanic contractions are painful, pressure is painful, in ratio to the pressure, up to a certain point where numbness and anesthesia succeed it. All tension is painful, and however related, they are all associated with the contraction stage of katabolic stasis of tissues; be they muscle, connective or nerve tissues.* The relation of pain to neuralgia, rheumatism, cicatricial inflammations, etc., I will leave to fuller consideration further on.

In subkatabolic tissue conditions, insufficient for the production of atrophy of the soft, and hypertrophy of the hard tissues, we observe several states of gelatinification of the soft tissues, which according to the stage of the process, the location and function of the involved tissue may be expressed by general relaxation, distention and expansion, extension of equilibrium, length of muscles, and dilation of the walls of contained bloodvessels, especially capillaries, typifying so-called vascularization. The harder tissues are often involved with the soft tissues, in producing elongation of tendons, ligaments, supporting fascias, etc., which together with muscle-fiber prolongation, are responsible for atony, and organal and intestinal ptoses and prolapsus. The same process is productive of catarrhal conditions of mucous membranes, exudations of serous membranes, and a still more advanced stage of softening admits of dropsical and hemorrhagic infarctions and transudations. Continued and severe strains and irritations produce in tissues of opposite nerve terminals, according to the degree of severity, painful cramps, tetany, etc., up to the fatigue limit, then followed by tremor, spasms, epileptiform or other form of convulsions. Grand mal epilepsy conforms to the characteristics of subkatabolic course and the typical seizures begin as tonic contractions, becoming clonic convulsions as an intermediate stage, and terminating with the attainment of fatigue extension of the equilibrium length of the involved muscles.†

The extreme degree of the subkatabolic metamorphosis of the cell, which is characterized by colloidation and disintegration, is manifested by atrophy of muscle tissue, hemoglobinemia, oligocythemia, hemophilia, thrombus, embolism, cholin formation, convulsions, and when diffuse, by diabetes.

According to Halliburton,⁹² the nucleins which are broken down and set free in the vascular system, when in moderate amount, prevent coagulation of the blood (hemophilia), and when of large amount, produce intravascular clotting, thrombi, and may even cause death by general coagulation. Cholin, the hydration product of the neuronucleins, has been experimentally determined to be capable of producing epileptic fits.

Physiologists are quite agreed that, with contraction, muscle consumes oxygen and excretes sarcolactic and carbonic acids. The oxygen intake of contraction is additional to the continuous respiration of the muscles and other cells. During physiologic activity, the acid products of muscles are destroyed by the oxidation process, but if by extraordinary, great or prolonged muscular exertions, the acid is created in excess of its consumption, if any of the elements of oxidation are

* An analysis of the phenomena of contraction readily explains the definite intermediate place that it occupies in the biologic series. When it is recalled that it is the reaction stage of subkatabolism, it is evident that its occurrence is possible only after the attainment of a sufficient degree of subkatabolism, whether of direct irritation or of secondary irritation from the accumulated metabolic products, of other factors of subkatabolism, and yet only prior to the attainment of flaccid relaxation, during which contraction reaction would be impossible.

† It must be understood that the effect of extending the equilibrium length of muscle, refers exclusively to striped muscle, having the effect of weakening the contractions and hence the function of the muscle. The same subkatabolic effect on unstriped fiber, merely meets the requirements for the only type of relaxation of which it is capable, namely atony, as distinguished from its converse effect or state, namely tonicity. Atony of the unstriped fiber is physiologic in the hypertrophied gravid uterus, and pathologic in the walls of the vascular system. The effect in direct flaccid distention and extension of unstriped fiber and that expressed by the extension of equilibrium length of striped fiber are not greatly dissimilar.

diminished, or missing, or if excretion is blocked, hyperacidity results and subkatabolism follows. During the normal oxidative process, not only is the metabolic acid product destroyed, but both autogenous and heterogeneous toxins are, by this electrochemic process, changed into antitoxins.⁵¹ It is thus observed that the failure of oxidation entails an accumulation of both acids and toxins, which accounts for toxic effects from suboxidative causes, that are akin to those of snake venoms. It remains yet to be determined whether the convulsion-producing and other properties of cholin, can be eliminated by active oxidation, as has been observed with snake venoms and other toxins.

The biologic series represent the series of stages through which all individual cells and complex tissues pass, in their progressive subkatabolic decadence. All pathogenic processes are identified by a predominance of one or more of these stages; also, sometimes simultaneously, associated with minor manifestations of one or more of the other stages, or progressive in retrograde order, down the succeeding series.

This serial order, or linear succession of cellular reactions to environmental influences, is not an idle dream, on my part, nor is it merely an artificial arrangement or classification made simply for convenience of consideration. It is the simplest matter for any observer, after identifying any particular stage of the series in simple individual cells, experimentally to advance it into the next stage, or any successive stage to the end, by means of any one or more of the etiologic factors herein enumerated, or conversely to cause its recession into preceding stages, by the necessary agents of counteraction or neutralization of the etiologic factors. As will be seen, the application of the definite relations of one diathetic condition to another in this serial order makes a perfect working hypothesis, and moreover, it is compatible with all the related phenomena.*

Now proceeding to multicellular life and to composite tissues we find the same laws apply. If we subject living tissue to an acid bath, which, as pointed out, will neutralize the intercellular alkalinity, the opposite conditions, namely, those necessary to oxidation—ionization, are annulled, and hence, with the destruction of its source of origin, animal electricity gradually ceases. But this is not the end of the process of neutralization of the vital chemic conditions of animal life. Gradually the tissues become gelatinous, the collagenous inclusions of the organized protoplasm are dissolved, and finally set free and exuded by the cells; the cytoplasm next is released by the nucleus, and ultimately the nucleus releases its phosphatic and other inclusions, which have given them their varied individualities.

It is to be observed that protoplasm exists and has its being by virtue of the electrochemic changes of oxidation. During continuous oxidation there occurs a synthesis of protoplasm, and a maintenance of a high density, akin to crystallization, with all its vital properties. Without it, the living substance gradually declines in density, and parallel with it, it undergoes deionization, a disorganization into a homogeneous mass,

and a parallel decline and loss of its vital property, death, and disintegration.

I wish to direct attention to the fact that there is quite an extensive group of diseases, to which I shall refer in detail presently, that while more or less diverse in their predominant manifestations, are yet so similar in their pathology that slight influences often develop manifestations of one or more of the others of the group, as transitions, or as complications, and they are all caused or aggravated by a particular group of causative factors, which are so similar in their ultimate effects that not only can one interchange or accentuate the other, but any one of them may act as an etiologic factor to any one of the group of diseases alluded to. The enumeration and analysis of these groups of etiologic factors, and resulting diseases, and their relation to each other as cause and effect, and to the pathology of katabolism, shall be the object and aim of the latter part of this paper.

Let us first enumerate the diathetic diseases, and then analyze them in the order in which they occur, as classified in several grand divisions, according to nature of manifestation.*

Of the grand divisions of the diatheses the first presenting itself in biologic order, though of perhaps most general systemic implication, occupies a subordinate place in the biologic scale. This division, which we will designate *constitutional*, will include the scrofulous or strumous, the malarious and the nervous, lithemic, or uric acid diatheses. The second division, *contraction* (Fere) will embrace the rheumatic, the asthmatic, the choreic, the ague, the hysteric, the eclamptic and the epileptic diatheses. The third division, *flaccid*, will include the atonic (the ptoses and dilations) the nervous, obetic, and pernicious anemic series. The fourth division under a diathetic name sufficiently broad, namely the *catarrhal*,† will include the diathetic forms of catarrhal, the bronchitic (the "bronchocele"), and the serous. The fifth division, *hemorrhagic*, will include the scorbutic and all of the other diseases characterized by hemorrhagic symptoms. The sixth and last shall embrace the scope of the old group known as *cancerous* or *cachectic*.

My object in making the foregoing classification is not to facilitate their consideration on the basis of the old standards, but rather their interpretation by a new one (biologic).

*The exact position of all of the symptoms in the graded arrangement of the biologic series cannot be absolute. Many of the manifestations overlap the stages of others, and some are more or less parallel to others of different classification, for example: The unequal action of subkatabolism *per se* and the physiologic effect of constrictor secretions, as the suppurative, which vary the tissue densities, as described elsewhere in this paper. The main stages and their principal features are quite definite, both in positions and interrelations, yet great difficulties have attended the precise placing of many of the subordinate ones. It should be distinctly understood that syndromes of disease, however intimately related to the symptoms classified in the biologic series, are not supposed to be confined to particular stages of the series, but may represent almost any variation, and moreover may exhibit two or more stages concomitantly. Malaria may exhibit symptoms varied from simple suboxygenation to the most well-defined hemorrhagic and cachectic.

†The catarrhal stage may appear out of place, after the flaccid, yet while a circumscribed condition, locally, it will be observed that a vesicular condition is producible by the irritation of a tumefaction, which is the morphologic equivalent of the flaccid stage, and on further irritation it is passed on into the suppurative. A progressive rhinitis produces a watery discharge immediately preceding the purulent stage, and moreover purulent rhinitis is treated by hydrogen dioxide, alkalies, etc., the first stage of recovery attained is characterized by watery discharge. However, the catarrhal is not an essential or a typical expression stage, and will not be seriously treated as such. In rudimentary cell life, the exudation of water is a late manifestation just preceding necrotic disintegration. The so-called catarrhal conditions of the bronchials are commonly observed in all stages of transition into purulent states. The state of tissue permitting serous effusion is only a little short of that which fails to restrain blood transudation (the hemorrhagic.) The explanation of the indefinite relations borne by the catarrhal, and perhaps the hemorrhagic as well, is that the permeability of the tissues is governed by two factors, namely oxidation and condensation by the so-called constrictor or hemostatic group of drugs. While generally parallel, these actions are not always exerted in equal magnitudes, and thus a given degree of subkatabolism may in one case be expressed by expansion and hemorrhagic looseness of texture, in another by putrefactive disintegration. Water impregnated tissues are prone to putrefaction, while water removal by the attraction for it by alcohol, hydrogen removal by halogens, as iodine, bromine, chlorine, etc., and inspissating (constricting) agents as suprarenal extract, ergot, etc., inhibit putrefaction.

*In the so-called professional "neuroses" writer's, telegrapher's, typewriter's, pianist's, violinist's, flutist's, drummer's, clockmaker's, embroiderer's, tailor's, cigarmaker's, and milkmaid's cramps, we have good illustrations of unaccompanied local manifestations of a descending progression in the biologic series. The first stage is expressed by the sense of fatigue, headache, trembling, and choreiform or athetoid movements of the fingers. The second stage, by variations from an indolent spasmodic contraction, attended by a very annoying sense of weight, to true painful cramp, limited to the hand, or extending along the course of the radial or median nerves; frequently associated with other spasms in other parts of the body, emotional excitement and depression, vertigo, insomnia, etc.; the third stage, by diminished suppleness, stiffness, paralysis, numbness, and more rarely anesthesia. The fourth stage, by "congestion of the spinal cord," and passive congestions in the fingers, and, finally the fifth stage, by ulcerations, dryness or "hyperhydrosis," or "trophic" changes in the nails. "There may be formication, numbness, and pins and needles sensations, chiefly in the extremities which are especially affected by anesthesia." Cramplike pains are exaggerated by voluntary or passive movements, and spasm may be produced by (Trousseau's sign) compression of the supplying artery or nerve of the part. (See Fere, on Spasmodic Neuroses, Twentieth Cent. Prac. of Med., Vol. x.)

The specific progressive series of manifestations of katabolic stasis is thus, in many respects, well illustrated by those produced in naked unicellular organisms, which react to irritations (1) by streaming, (2) by the withdrawal of pseudopodia, (3) by contraction, (4) by disorganization, loss of ciliary motion; (5) colloidalization, (6) disintegration. Analogous to the foregoing we have in the higher animals, as a reaction to irritation, fatigue or other factors of subkatabolism, primarily a sensation of tension, irritation, and painful contraction, which may be very circumscribed, as in the so-called neuralgias, less so as in muscular rheumatisms, distributed as in tetanus, or constitutional as in epilepsy following the contraction stage, as with the unicellular organism, comes loss of motive power, flaccidity, disorganization, and finally disintegration. During late transitional stages of impaired integrity of the tissues, transudation of blood elements constitutes a hemorrhagic stage, analogously to the relation observed of the acuteness of the contraction and concurrent pain, with the extent of area involved, but conversely, is the relation of associated clonic contraction or convulsions following the tonic contraction of large areas, and the obtuseness of the contraction. That the two manifestations are opposite in nature is further supported by the fact that pain and convulsions seldom, if ever coexist, though the latter is commonly enough the consequence of the former.*

I fully appreciate the fact that the equivalent stages of expression are not universally directly opposite, in all forms of life, but conversely are more advanced in the lower varieties of naked cellular and gelatinous forms. The higher forms with membrane-invested cells attain a higher adulthood, and react less sensitively and less actively to extraneous vicissitudes of all kinds. The outward manifestations of katabolic stasis are largely those of the muscular system, but still more entirely those of soft (parenchymatous) tissues, as distinguished from the fibrous. The lymphoid and mucous tissues, so-called, the tonsils, gums, etc., are prominent among the most expressive of the soft tissues. Perhaps most analogous to the streaming of unicellular organisms are the inflammatory catarrhal manifestations of the mucous membranes and the spongy expansion of mucoid and lymphoid structures, none of which, however, approximates the physiologic colloid character of the protoplasm of the naked unicellular organism.

A certain degree of muscular contraction is produced by that physiologic degree of irritation which we call stimulation, or a certain degree of cold we call tone. Owing to the fact that the physiologic restoration of normal tone is always attended with a resumption of that normal protoplasmic activity which is characterized in the unicellular organisms by ameboid and ciliary movements, there is reason to believe that the hypertonic states and painful contractions are one and all tetanics, and are akin to the foregoing illustrated instance, in which tetany is produced by the superinduction of repeated shocks, which serve to inhibit the normal rhythmic movements of the protoplasm. Such a theory would be compatible with all other causes of pain, such as pressure, torsion, stretching, etc., in which instances of protoplasmic reaction contraction could be induced, yet with the normal protoplasmic movement inhibited. The observed close relation of this movement with normal katabolism is significant in the explanation of the subkatabolic actions of inhibitors of both. As pointed out later, by cold we may produce tonic, which involves a greater density of the protoplasm, and in excessive amount cramps (tetany or rigor). A continuation of the same irritation

produces a gradual transition, with the development of exhaustion, in which the tissue density gradually evolves to a state of expansion and rarefaction. If the transition is sufficiently prolonged, we have intermediate expressions of the breaking integrity of the contracted state, as tremor or clonic contractions (convulsions). This is very well illustrated in the ascension to high altitudes, where suboxidation is due to the rarefaction of the atmosphere, observed in mountain and balloon ascensions. With gradually increasing rarefaction of the air, and dyspnea, great lassitude follows marked fatigue manifestations (which, though accentuated by mountain climbing, are later results of balloon ascension) and intense headache described as tensional, "at times the forehead would feel as if it were held in a vise." As the highest phosphorized tissues (of highest oxidative and metabolic activity) first suffer from and react to diminished oxidation of the general economy, especially when due to oxidase failure and suboxygenation, the brain cells would be expected to express first painful contraction and loss of functional capacity, which is the case.* Also, "bloodshot eyes" express suboxygenation of these organs of highly active metabolism; vertigo, numbness, spasmodic tremors, prostration and finally paralysis, well illustrate the retrogressive series of reactive manifestations of protoplasm. Instead of by suboxygenation, the same series of expressions may be elicited by prolonged irritation, by acidity or suboxidase capacity.

The manifestation prototype in the naked unicellular organism, which illustrates the general biologic (protoplasmic) nature of this series, is expressed by experimental morphologists, varying according to the nature, violence and time relations of the acting cause and the resistance of the organism experimented on, as follows: The organism manifesting metabolic activity by ameboid motion, in the rhizopod, which we will take for a type, exhibits an arrest of motion.

When actinospermum is subjected to a slight stimulation, such as would be produced by other protozoa wandering among its pseudopodia, it shows no response. But when an infusorian or a rotifer swims against the pseudopodia with force, they discharge a sticky substance which holds the disturbing organism fast. The same result follows the irritation of one of the pseudopodia by touching it with a fiber of cloth or filter paper. Like effects follow the irritation of thalassidoli. Thus some protista respond to particular kinds of contact by the excretion of a sticky substance. In the higher animals also, contact may call forth secretions. (Davenport.)

* Hard cancers are painful, colloid cancers are anesthetic. In general, the colloid zone of a cancer is anesthetic. Its indurated growing edge is exceedingly painful. Edematous tissue is numb or anesthetic. Painful inflammations of serous membranes are characterized by tetanic cellular contraction and exudation of water; and the extreme stages of tissue colloidalization and mucoid (collagenous) infiltration in multiple neuritis, myelitis, tabes dorsalis, anesthetic leprosy, scleroderma, elephantiasis, myxedema or akromegaly are anesthetic.

* Physiologic and biologic researches seem to point to the fact that so-called anodyne and narcotic groups of drugs, produce their characteristic effects, by virtue of their inhibitive effect upon cell oxidation. By reason of their abolition of irritability, hence of all movement and therefore of oxidation, the effect is identical with that of oxidase arrest, in the event of which oxidation is impossible, even in the presence of an abundance of oxygen, and in an alkaline medium. The explanation of the anodyne and narcotic effects is that those tissues of greatest oxidative capacity and activity, namely, the brain, cord and nerves, like the glandular organs, succumb to suboxidation (flaccid paralysis) prior to the muscles, and hence sensory transmission and perception are annulled in advance of the contraction stage of reaction by the muscles. This is further supported by the fact that in the reverse action, namely during the passing, or recovery, from the narcosis, the exhibition of painful contraction is not infrequent, signifying that in the resumption of oxidation, the narcosis is also first freed from these structures, making possible the perception of pain. The deduction of some investigators that the oxidation of these highly phosphorized structures is nearly nil, because of the small elimination of CO₂, is absurd, for even if such findings are not otherwise beyond criticism, they only imply a paucity of carbon combustion. It must not be lost sight of, that throughout the economy, all seats of great and unusual functional capacity, other than muscular, whether oxidative in character, as in the glands, or what we call mental and nervous forces and transmissions, are provided with a parallel equipment of those highly phosphorized tissues, which are known as nucleins. Under equivalent normal conditions, and a unit amount of stress, or test of functional activity, the capacity of a motor nerve will by far exceed that of the muscle of its distribution. The nerve can compensate against fatigue products and exhaustion, far ahead of the muscles cooperating; and yet its oxidative requirements are so predominant, that when this function of its superiority is abolished, its great oxidative demand causes it to be first to exhibit suboxidation. To recapitulate, when oxidation fails, owing to oxidase failure, the tissues of highest oxidase capacity and activity, first exhibit suboxidation; and conversely, when the cause of failure is suboxygenation, the tissues of highest oxidase capacity will utilize the available oxygen to the deprivation of other tissues, and thus they will be last to succumb to suboxygenation. Acids, sulfuric ether, etc., which are productive of anesthesia, narcosis and even coma, may sooner or later exhibit predominant irritant (painful) reactions of muscle; differing according to its striped or unstriped texture.

An ameba, any other rhizopod, or a white blood-corpusele, contracts when the cover-glass over it is disturbed, the streaming in the plasmodia of myxomycetes is retarded or inhibited upon shaking. When alga cells such as those of *Chara* or *Ballisneria* are freshly transformed to the slide, the disturbance causes cessation of movements. (Hofmeister.)

Again if an individual of *diffugia* be slightly shaken, the pseudopodium contracts into its shell; if it be violently shaken, the following changes occur: Drops of a less highly refractive substance seem to gather on the surface of the filamentous pseudopodium and unite to form a sheath surrounding a more highly refractive axis. At the same time axis and sheath retreat into the central mass. In this case then we have a segregation of dissimilar protoplasmic substances and a tendency to collect about centers along the pseudopodium and in the whole mass. The same thing is seen in the widely dissimilar actinospherium. Here is especially noticeable the tendency to produce fusiform or spheric aggregations, and to retract the pseudopodia. So, too, in the irritated stamen hairs of *Tradescantia*. These similar phenomena from various organisms are fundamental. (Davenport.)

A few words concerning rhythmically repeated disturbances. A single disturbance gives rise, as we have seen, to a series of phenomena producing contraction; but in a few seconds the effects of the disturbances are past and the protoplasm returns to its uncontracted form. If, however, the shock is repeated before relaxation has fully occurred a new contraction is superimposed on the first, and the resulting contraction is more violent than a single one. If now shock follow shock in quick succession a violently contracted condition known as tetanus results. Under the condition of tetanus, the ameba becomes a spheric mass. Actinospherium retracts all its pseudopodia, a branching carhesium stock forms a little ball and muscle fibers are greatly shortened. (Davenport.)

Let us now recur to more powerful agents for the disturbance of these fundamental forms of life. Electricity will serve the purpose of demonstrating the typical, and on to the extreme reaction of protoplasm.

The primary effect of a weak constant current is thus a centripetal flowing of the protoplasm. The current stimulates to contraction. If now the current be increased, or be longer continued, further changes occur. The pseudopodialyng in the current become varicose and break up into a chain of drops; the vacuoles on the periphery begin to burst, emptying out their fluids; and in these regions the protoplasm collapses. So these data may be considered as of general worth for naked protoplasm. When an actinospherium is stimulated by such a (alternating) current, the pseudopodia at both poles contract and become varicose, and finally the protoplasmic substance begins to disintegrate and to flow out from the cell toward the two electrodes until the body acquires a biconcave form. Thus when an ameba is subjected to an alternating current, it becomes spheric; the protoplasmic streaming of the plasmodium of a myxomycete ceases, and with stronger currents the whole mass contracts, water being forced out. (Davenport.)

It is observed that the rudimentary forms of animal life manifest a definite series of reactions to environmental stimuli in relation to the degree of the disturbance produced, namely, streaming, contraction, etc.

If an individual be subjected to factors of subkatabolism of a diffuse and general character, but of comparatively moderate degree, as exemplified by the inspiration of atmosphere, vitiated by watery vapor, carbon dioxid, carbon monoxid, sulfuretted hydrogen, ammonium sulfid, or other organic effluvia; by the dyspnea of deficient oxygen in the air, or as a consequence of broken cardiac compensation, of oligocythemia, of hemoglobinemia, and of marked disturbances of the equilibrium of the distribution of the blood, as exhibited in fright and other shocks; by the slow chronic poisoning of arsenic, lead and other poisons in foods and beverages, or the counteroxidation of hyperoxidizable foods as sugar, and of alcoholic beverages; by hyperacidities of the digestive tract; by hyperacid foods; by cold, fatigue, etc.; by heterotoxication and autointoxication; by dark habitations; by oxidase deficiencies, as observed during menstruation, pregnancy, lactation and the menopause, as they occur singly, and combined in a great variety of affections, are primarily productive of a group of symptoms which comprise quite a homogeneous entity, typical of the degree of subkatabolism attained, yet atypical in its relation to the particular etiologic factor involved, or even to the nature of that factor, other than to the degree of katabolic inhibition caused by it. Among this group of symptoms, briefly, are headache, malaise,

capricious appetite or loss of it, debility, a chill, occasional chills, chilly sensations, foul breath, furred tongue, nausea and vomiting, a pallid or possibly an icteric complexion, parched skin and more or less pyrexia. More or less of these and other similar symptoms, together with irritability of temper and "irritable weakness," in various combinations, comprise the manifestations of a unit degree of subkatabolism, and I have constituted them the first or constitutional stage; and, as such, it is made to embrace an approximately equivalent degree of subkatabolism, constituting the inaugural symptoms of a countless number of diseases, and the salient manifestations of the so-called nervous and neurotic diseases.

Not infrequently associated with more or less of the group of symptoms, and with those of the allied symptoms, elsewhere enumerated, are vague pains in the legs and back. With a step further in the degree of the involved subkatabolism, the dominant feature becomes one of pain, and thus the succeeding contraction stage is attained. A continuation, a stage further, even by the same factors of primary etiology, will bring a relaxation and with it a flaccid stage. Continuing a stage further, rarefaction of the parenchyma becomes so pronounced as to destroy the integrity of the tissues, and thus of the capillary walls, producing the typical hemorrhagic manifestations. But another step now, and the progressive degeneration has attained the cancerous or cachectic stage. (A permeability to water, or catarrhal stage, might also be inserted immediately preceding the hemorrhagic stage.)

Thus we observe, clinically, a retrogressive series of pathologic (subkatabolic) manifestations, of which those seen in the simple, unicellular organisms are the prototypes.* The detailed consideration of the several stages and phases of the foregoing series will be respectively treated under separate headings.

Accordingly, as manifestations of more advanced stages of the biologic series complicate or dominate a syndrome, the custom has been to describe them as a diathesis disposing to it, or to ascribe them under another name as due to it. As, for example, a malarial diathesis, or as due to malaria, as the malarial theory of the etiology of rheumatism. Tonsillitis, bronchitis, asthma, chorea, endocarditis, etc., are commonly described as outgrowths of the rheumatic diathesis, or as due to the rheumatic process, *per se*. In families in which gout prevails, and by authors on gout, these manifestation types are included in the gouty series.²⁴ Such has been the manner of recognition of the interrelation of the types of manifestations now classified in the biologic series. The biologic character and the definite order of succession, and stages of events, appear to have been overlooked by the early writers.

The serofulous diathesis, also known as the lymphatic and the strumous, applies to so wide a symptomatology that it would seem that the old-time practitioners really recognized the unity of the entire subkatabolic group. However, there is a more restricted meaning of the term, and Billroth has thus expressed it:

Persons with this diathesis, especially children, are greatly disposed to chronic inflammatory swellings of the lymphatic

* More satisfactory than a series of diseases, individually expressing the stages of the biologic series, as essential manifestations, are those progressive diseases which by their established course, progress from one stage to another, until terminated either by recovery or a fatal issue. Such diseases are somewhat atypical, yet there is a characteristic conformation of expression between average cases of fully developed myxedema, akromegaly, scleroderma, elephantiasis, multiple neuritis, myelitis, tabes and anesthetic leprosy. As a first stage, a grouping of more or less of the following symptoms: headache, malaise, anorexia, nausea and vomiting, variable pyrexia, hyperesthesia, etc. Second stage, variations from vague aches to intense and long protracted cramps and pains. Third stage, tingling, numbness, paresthesia, anesthesia, and weakness, tremor, ataxia and paralysis. Thickening or hypertrophy of tissues, both expansion and elongation of muscle, ligaments and tendons; edema and swelling of skin and subcutaneous tissues, especially of the extremities, increase of weight, affected parts cold to touch, proclivity to warts. Fourth stage, extreme degrees of previous manifestations, transudations of collagenous lymph and serous fluids into the contiguous tissues, hemorrhagic and subnormal temperature, and as a fifth stage, ulcerous and putrefactive and malignant sequelae.

glands, even after inconsiderable irritations, to certain inflammations of the skin (eczema, impetigo), especially of the face and head; to catarrhal inflammations of the mucous membranes, especially of the conjunctiva, more rarely of the intestinal canal and respiratory organs; to chronic inflammations of the periosteum and of the synovial membranes of different joints. As regards the swelling of the lymphatic glands, especially of the submaxillary and occipital, it has been asserted that it is merely a result of irritation from dentition, or of the eczematous eruptions on the head, of the inflammations of the eye, ear, etc. This is partly correct, but even taking this view, that all swellings of the lymphatic glands are secondary, even then, for the glands to swell after dentition, for instance, there must be an abnormal irritability of the lymphatic system; moreover, such local irritations cannot be found for the affections of the bronchial and mesenteric glands, which are about as frequent. It may be developed by improper modes of life; among the most injurious causes are given: Chief or exclusive diet of potatoes, flour, or sour bread; unhealthy damp dwellings, lack of cleanliness, fresh air, etc. [Gen'l Surg. Pathology, Trans. by Hackley, New York, 1874.]

Often congenital syphilis was included among the observed predispositions of children, as pointed out by Sir Frederick Treves.⁵⁷ Naturally, the same proclivity not infrequently proves to be the primary etiologic factor of tuberculosis, pneumonias, divers fevers, and other infections. The disease, scrofula, also was not even differentiated from tuberculosis by the early practitioners as at the present day.

Comby¹⁷ mentions what he styles "scrofulizing affections," as whoopingcough, measles, and typhoid, especially measles, favors the evolution of scrofula. Under prophylaxis and treatment, he says:

We should insist upon all those hygienic measures which increase metabolism, such as dry rubbing of the skin, salt and sulfur baths, cold douches, massage, open-air games, etc. The food should be abundant and contain a large proportion of nitrogen and phosphates (meat, dry vegetables, eggs, lettuce, fish, bread, etc.).

Comby¹⁷ thus differentiates scrofula from tuberculosis:

Scrofula is neither contagious nor inoculable; these are qualities which distinguish the tuberculous from the scrofulous affections.

On the heredity of scrofula, Comby¹⁷ adds:

More than half of all scrofulous children come from tuberculous parents. Other causes of congenital scrofula are syphilis, arthritis, consanguinity, old age or extreme youth of the progenitors.

The significance of this will appear in my remarks on heredity.

Allchin,¹ after quoting Woodhead as finding 78% and Colman 66% and Carr 54% of involvement of the mesenteric glands of large groups of tuberculosis in children studied, remarks:

Susceptibility of these glands is easily understood when their liability to irritation from even transient intestinal derangement is remembered. Occurring also, at a period when their activity is at its maximum and their liability to disturbance is relatively greatest, circumstances combine to diminish their normal resistance to microbic invasion.

It is significant that scrofula, so largely a glandular disease, is as characteristic of the period of sexual prematurity as cancer is of sexual obsolescence; only the latter is more localized to the sexual organs. The rarity of carcinoma in the young is accounted for by better blood, better circulation, and even better oxidase capacity, than is exhibited by the cancerous susceptibility of obsolescence, especially in the sexual organs, *per se*.

The catarrhal feature of scrofula is so predominant in some cases that the term scrofula is omitted, and the predilection leading to it is called the catarrhal diathesis.* This group of manifestations is composed of scrofulous ophthalmia, otitis, coryza, or eczema, singly or combined. Measles is a common exciting cause of the

catarrhal features, when the child was previously disposed by subkatabolism. The catarrhal manifestation is a continual morbid discharge from the mucous membranes, on slight or no local irritation, the mucoid excess suggesting an intermediate stage of disorganization of the epithelial cells, in which the collagenous content is set free and exuded. Not infrequently, also, when circumscribed patches are subjected to greater stasis of katabolism they exhibit more advanced degenerations, as ulcerations, etc. Perhaps the nearest approach to neoplasm formation attained by children in this relation, are the nasal hypertrophies, and polyps, postpharyngeal adenoid vegetations, and tonsil hypertrophies, which sometimes attain considerable proportion. The acrid nature of the discharge from the nose is manifested by such irritation of the upper lip that it becomes hypertrophied and the seat of diffuse lymphoma, forming the characteristic lip of the scrofulous (labial scrofuloderma), from whence it may spread to the lower lip and cheeks, cracks become infected, and crusted, or ulcerated. In the words of Comby,¹⁷ "every intercurrent disease is modified by the scrofulous soil," and "every lymphatic or scrofulous child is predisposed to tuberculosis."

The serous diathesis I interpret as the expression of the common factor, subkatabolism, in its relation to diseases affecting the serous membranes, commonly attended by herpes labialis.

Influenza, or catarrhal fever, is an atypic endemic disease, occurring during unusual humidity, and "often followed by remarkable storms." While clinical reports are not in harmony, it is undoubtedly an uncommunicable disease, however it is endemic in manifestation; measles, bronchitis, pneumonia, influenza, and similar diseases are commonly coexistent. All of the diseases of the subkatabolic group are aggravated by the prevalent etiologic factors. There is a universal conception that coryzal symptoms are common to damp climates and humid weather, which is not without foundation. Much discussion has been indulged in as to whether influenza is of malarial origin. Sometimes catarrhal symptoms, as weeping eyes, sneezing, tingling of, and acrid discharge from the nostrils, a sense of weight and pain in the forehead, soreness of fauces, hoarseness, cough, bronchitis, dyspnea, and a sense of constriction about the throat and chest are predominant; at other times head and backache, and pain in the extremities, fever, rashes, etc., predominate, and general malaise, chilliness, and prostration are more common features. Many writers have recorded the fact that coexisting with influenza, other diseases flourish, especially endemic diseases. Some have pointed a close relation with plagues. I have purposely omitted the parasitic phase of influenza, it being, I believe, a factor of secondary importance and, moreover, of secondary occurrence, a logical consequence of the susceptibility produced by the subkatabolism.

The fact that quinin, eucalyptus, etc., are almost or quite as specific in the acute serous inflammations and other processes, as "colds," as in malaria, signifies that there is a common underlying condition, upon which it operates, and this I hold to be subkatabolism.

An advanced state of the subkatabolisms of serous and mucous surfaces, is manifested by colloid exudations from these tissues, as they attain to a degeneration, beyond the catarrhal stage. In the gallbladder, the kidneys, the vesical bladder and many joints are seats of calcification of these colloid exudations, forming stones in the former, and uric acid deposits in the latter instances. The proclivity of retained colloid foci to impregnation by the various biliary, xanthin, and basic salts, cholesterin, etc., and to the enlargement of same by repeated investments of colloid protoplasm, which in turn become thus impregnated. The fact that all marine shell, coral, and fauna formations are species of infiltrated colloid protoplasm, once living forms, by inorganic bases, is significant to the thinking investigator. It is evident that in all cases of deposits of inorganic bases

* Here, differentiation between acute and chronic catarrh should be made; the former being an outcome of the contraction (reaction) stage, of inflammatory conditions, while the latter is the consequence of the imperviousness of the tissues, to water, type of a stage, late in the flaccid stage, or of a transition stage, intermediate between the flaccid and the hemorrhagic stages, which might be constituted the catarrhal stage.

within animal bodies, we have exhibited circumscribed tissue colloidation, and in some cases an excess of the crystallizable or amorphous organic or inorganic deposited substance; in others, the product of decalcification (demineralization), somewhere in the economy, often in the immediate vicinity of its site of redeposit. This explains the intimate relation existing between catarrhal processes, gelatinification, and colloidation on the one hand and so-called lithiasis and calcification on the other; both are products of subkatabolism, and hence they occur together in the frequency observed. Of the articulations, that of the metatarsophalangeal, of the great toe, being the one most disposed to strain, is most prone to neoplastic formation as well as to gouty deposit.

In passing from this division of general subkatabolism, of the inaugural stage,* a word should be devoted to the so-called lithemic or uric acid diathesis. The general application of these terms has been so extensive that it can almost be said that they are synonyms, the former on the bases of the theory of the subkatabolic etiology and the latter on the uric acid theory of the causation, of the same group of diseases. I will, however, not further consider it here for it must be observed that different diseases of the group are scattered, according to their dominant manifestations, through the several stages of the biologic series.

Nervous.—In the present classification, under the head of constitutional diseases, I have found it expedient to include the foregoing general diseases of katabolism, yet they do not represent a specific stage in the biologic series. A group that particularly typifies the stage in this graded series, and naturally preceding its succeeding stage, is that group of manifestations which are vaguely denominated nervousness, neurasthenia, etc., which I have commented upon, under a different subject head. (Fatigue.)

Metabolic products occur in excess, as a result of several different causes, but principally, either owing to excessive production, as a result of cellular fatigue, which may be mental, nervous, muscular, or fibrous, and in which event they are known as fatigue products; or owing to diminished or arrested oxidation, or elimination, or both together, in which event they are variously known as suboxidation products, uremic, or merely autotoxemic products. I hold that the excess of these products in the blood is responsible for irritation effects upon the tissues of the economy; not merely the nervous tissues, but all of the tissues, which react to it, in accordance to their specific peculiarities, namely, the soft tissues by atrophy, the fibrous by hypertrophy; the muscular tissues, by more or less tetanic or incomplete contraction, and symptoms ranging from discomfort to pain.

This stage is considered best in two divisions, namely, as a diathesis and as an attained condition. Under the former we observe what is usually termed the nervous diathesis. In this state a continual subkatabolism of a more or less mild degree is maintained by one or more of the factors elsewhere analyzed, thus ensuring a constant but slight excess of metabolic products in the blood and tissues. With this condition at issue, it is evident that the victim is predisposed to fatigue, for the slightest exertions often are the promoters of pronounced fatigue manifestations. A person so affected constantly suffers from irritability, unrest, inability to withstand mental or muscular labor, or even a tax upon the patience. There is an instability of the muscular system which is

characterized by twitching, choreic movements, etc., to unsteady, emotional, and explosive responses to physical effort, and proneness to anger and violence on slight, or no provocation. Especially are the latter group of symptoms manifested whenever any additional factors of subkatabolism are brought to bear, such as during periods of oxidase depression, observed in women, as menstruation, pregnancy, etc.

[To be continued.]

SURGICAL TREATMENT OF BRIGHT'S DISEASE.*

BY

W. HERSHEY THOMAS, M.D.,

of Philadelphia.

Lecturer on Surgery, Medico-Chirurgical College; Assistant Surgeon to Medico-Chirurgical Hospital.

Although the surgical treatment of Bright's disease is, at the present time, synonymous with decapsulation of the kidneys, it may be advisable to review briefly the procedures which have been employed at various times in nephritis, even though they may not have been specifically directed toward the cure of the inflammatory process.

Practically every writer upon this subject begins his paper with an allusion to the articles of Reginald Harrison, whose publication referred exclusively to acute and subacute nephritis. In *The Lancet*, January 4, 1896, he reported three cases, the first of scarlatinal nephritis, the second a nephritis from exposure to cold and damp, and the third a subacute nephritis, probably due to a preceding influenza, in all of which the symptoms disappeared as the result of exploratory nephrotomy. In the first of these cases, the operation was performed for a suspected abscess, and in the second and third for a suspected stone. In the *British Medical Journal*, October 17, 1896, Harrison again reported these three cases with some others (Hoerber, Newman) and proposed incision into the kidney in acute suppression of urine and in acute nephritis with tenderness upon pressure over the kidney and slow disappearance of casts and albumin. At the sixty-ninth annual meeting of the British Medical Association, the same author¹ read a paper before the Section on Surgery, entitled "Renal Tension and Its Treatment by Surgical Means," in which he again repeats his three original cases and adds three new ones. His fourth personal case was a nephrotomy for acute pain in an inflamed kidney and he believed that the incision aborted the nephritis. The fifth case was one of renipuncture for suppression of urine from renal congestion following upon an injury, and the sixth was one of incision and drainage in a case of cystic degeneration. The underlying idea in all of Harrison's articles was the relief of tension by nephrotomy or renipuncture, which he aptly compared to the relief obtained by incision in orchitis or by an iridectomy in glaucoma, and this explanation of the good results obtained by him in these six acute cases still remains unchallenged. In the *Medical Record*, April 26, 1902, Edebohl's stated that his unpublished experience in a number of cases in which he operated upon the kidneys, either for the relief of acute suppression of urine, for severe hematuria, or for enormous swelling due to acute nephritis bore out the correctness of Harrison's explanation in acute cases, and, in a great proportion at least, of acute exacerbations of chronic conditions.

In June, 1899, Israel² read a paper before a Berlin surgical society entitled "The Influence of Nephrotomy upon Acute and Chronic Disease Processes in the Renal Parenchyma" in which he advocated nephrotomy for hematuria and nephralgia occurring in the course of Bright's disease, reporting 14 cases with 3 deaths, 6 complete recoveries, 3 recurrences after long intervals, and 2

*In the pursuance of any critical investigation of the clinical application of the biologic series, the reader is admonished not to confound disease syndromes with the single manifestation stages of the series. I have been compelled to classify some syndromes under the classification of stages of the series, owing to inadequacies of our present nomenclature, yet it must be constantly borne in mind that syndromes of disease, however intimately related to the symptoms, as graded in the biologic series, are not supposed to be limited to single stages of same, but may in fact represent almost any variation, and even two or more stages concomitantly. Many manifestations overlap the stages of others, and some may exist, more or less parallel to each other.

¹Read by invitation before the Northern Medical Society, of Philadelphia, Friday, October 28, 1904.

failures. In a subsequent paper³ in 1902, Israel specifically says that he never attempted to cure any form of nephritis by the use of the knife, and disclaims any intention of inaugurating an era of surgical treatment for Bright's disease.

Pousson⁴ has also reported a number of cases of nephrotomy and nephrectomy in cases of chronic Bright's disease. In his last paper⁵ he says that he simply operated to give his patients a chance to combat accidental complications which had resisted medical treatment.

In 1902 there appeared a most interesting article by Rovsing,⁶ in which he advocated nephrolysis in those cases of nephritis associated with compression of the kidney by perinephritic adhesions. As far as possible, his cases, 17 in number, were studied bacteriologically and by catheterization of the ureters and, as a result of his operative experience, Rovsing formulated the following conclusions in reference to treatment: 1. Nephrolysis in septic and aseptic cases combined with perinephritis has a most excellent effect, completely relieving pain and furnishing favorable circumstances for the repair of the inflammatory process. 2. Nephrotomy is undoubtedly indicated in certain cases to drain suppurating or inflamed portions of the kidney. 3. Nephrotomy for hematuria is questionable. 4. Nephrotomy exerts a favorable influence upon the milder forms of infectious nephritis (those due to *Bacillus coli communis* for example) but it is dangerous in the more violent infections.

Owing to a more or less widespread misconception as to the nature of renal decapsulation and nephrolysis voiced particularly by Maragliano,⁷ Edebohls⁸ called attention to the fact that nephrolysis alone, *i. e.*, without a concomitant decapsulation or nephrotomy, had not as yet been performed, so that the good results claimed by Rovsing were not proved to be due to the nephrolysis. In reply to this, Rovsing⁹ distinctly stated that he advised against any operative treatment whatsoever in all true cases of Bright's disease, *i. e.*, in all cases of diffuse, bilateral noninfectious nephritis, and that the only condition which can justify an operation in these cases is the occurrence of severe pain due to subcapsular accumulations or to other causes.

From this brief review it will be seen that nephrotomy, renipuncture, nephrectomy and nephrolysis have all been employed in cases of Bright's disease but that with the possible exception of Harrison's suggestions in acute cases, no operative procedure had ever been performed specifically to cure Bright's disease.

The first suggestion to treat chronic Bright's disease surgically was made by Edebohls¹⁰ in an article entitled "Chronic Nephritis Affecting a Movable Kidney as an Indication for Nephropexy," which appeared in the *Medical News*, April 22, 1899. It had been rather generally taught that the presence of either acute or chronic Bright's disease was a counterindication to anchoring a movable kidney. Edebohls had performed nephropexy upon five movable kidneys, which were known to be the seat of a chronic inflammation. In the author's own words, "in none of the first five cases was the nephropexy undertaken with any idea of favorably influencing the chronic nephritis known to exist; the indication for operation was given simply by the existence in an aggravated degree of the usual symptoms due to mobility of the kidney or kidneys. The effects of the nephropexy upon the chronic renal inflammation, whatever they might prove to be, were simply hazarded, in view of the necessity of relieving the patient of a number of intolerable symptoms." The first patient was operated upon November 29, 1892; the fifth, April 1, 1897. In three of the five cases, the albumin and casts permanently disappeared from the urine, and the patients were restored to perfect health. These results led Edebohls deliberately to operate upon his sixth patient with the avowed purpose of favorably influencing the inflammatory process. This patient was operated upon January

10, 1898. The albumin and casts disappeared from the urine in about a month and did not return for a year and a half, when the urine showed slight traces of renal irritation during an attack of appendicitis, for which the patient was operated upon June 8, 1899. After this operation the urine again became normal, and with the exception of a slight occasional disturbance, has remained so up to the last examination (June 3, 1904), more than six years after the first operation. It is worthy of note that the patient gave birth to twins July 6, 1903, and that neither during her pregnancy nor at any subsequent time was there any evidence of disturbed health of the kidneys. In a later paper Edebohls¹¹ formally proposed to treat all patients with chronic Bright's disease surgically, whether the kidney was movable or not, and he reported 18 nephropexies, in which a cure of the nephritis followed operative fixation of the kidneys in a large proportion of cases. In this paper he stated that when the kidney was not movable, operative fixation of the organ is not indicated, and that he would content himself with denuding the kidney of its capsule proper and afford free opportunity for the formation of free vascular connections between the bloodvessels of the kidney and its fatty capsule. In a subsequent communication,¹² "The Cure of Chronic Bright's Disease by Operation," he reviewed these 18 cases, stating that no deaths occurred in any of the operations, and that of the 9 patients operated upon more than a year previously, only 1 showed a failure to cure, and that 8 patients operated upon and observed from 1 to 8 years, remained cured, as a result of the operation. His description of the operation is as follows:

The patient is placed prone upon the table, with the author's kidney air-cushion underlying and supporting the abdomen. Both kidneys are thus rendered accessible to operation without the necessity of changing the patient's position. An incision is carried from the twelfth rib to the crest of the ilium, along the outer margin of the erector spinae, without opening the sheath of that muscle. The fibers of the latissimus dorsi muscle are bluntly separated in the direction of their course, without cutting. The iliohypogastric nerve is sought for and drawn to one side or the other, out of the way of harm. Division of the transversalis fascia exposes the perirenal fat. This is divided over the convexity of the kidney until the capsule proper is reached. The fatty capsule is now bluntly separated everywhere from the capsule proper, the dissection advancing on either aspect and around both poles of the kidney until the pelvis of the kidney is reached. Now and then the fatty capsule may be found so thickened and adherent, as the result of chronic perinephritis, that the scissors or knife may be required to separate it from the capsule proper. The kidney, with its capsule proper, is next lifted from its fatty capsule bed and, if possible, delivered through the wound. The capsule proper is divided on a director along the entire length of the convex external border of the kidney and clean around the extremity of either pole. Each half of the capsule proper is in turn stripped from the kidney and reflected toward the pelvis until the entire surface of the kidney lies raw and denuded before the operator. In separating the capsule proper from the kidney, care must be exercised not to break or tear away parts of the kidney, which is often both very friable and very firmly connected with its capsule proper. The stripped-off capsule proper is next cut away entirely, close to its junction with the pelvis of the kidney, and removed. Delivery of the kidney makes this otherwise difficult work easy. If the kidney cannot be delivered, the capsule proper must be entirely peeled off the kidney by the fingers in the bottom of the wound, and excised as far as possible, any remaining portions being simply reflected backward around the root of the kidney, where it will curl up and stay. The kidney is dropped back into its fatty bed and the external incision is closed. Drainage, except when the parts are extremely edematous, is dispensed with. After both kidneys have been thus operated upon, the dressings are applied and the patient is put to bed.

Edebohls believes that the increased and adequately maintained blood supply to the kidney, established by his operation, probably leads to a gradual absorption of the interstitial or intertubular inflammatory products and exudates, thus freeing the tubules and glomeruli from constriction and distortion and permitting the establishment in them of a normal circulation. This improved circulation is supposed to result in the regeneration of new epithelium capable of carrying on the secretory function and initiating the cure of the chronic

inflammatory process. He does not believe that it is a "question of the simple relief of renal tension, the beneficial effects of which in acute condition of the kidney, described by Harrison in 1896, have since been noted by an increasing number of surgeons. In these acute cases the tight fit of the capsule proper is manifest and the kidney bulges at once through an incision or puncture made through the capsule. In chronic Bright's disease, on the contrary, the capsule proper, although it may be abnormally adherent to the kidney, never compresses the latter, and may even sit loosely upon it. Moreover on cutting the capsule proper, the edges of the incision do not gape."

In concluding this paper, Edebohls says: "As a result of my experience thus far, and from my present standpoint, I am prepared to operate upon any patient with chronic Bright's disease who has no incurable complication, or one absolutely forbidding the administration of an anesthetic and whose probable expectation of life without operation is not less than one month."

Before stating Edebohls' final results as given in his recent work,¹³ it may be pertinent to consider a number of theoretic objections to renal decapsulation. The well-known experiments of Johnson¹⁴ have been widely quoted. He decapsulated the kidneys of 10 dogs, subsequently examined them at varying periods of time, and never found any considerable anastomosis between the renal and perirenal vessels. Van Cott's¹⁵ experiments upon cats led to similar findings and he stated emphatically that an increased blood supply could not be secured, that, even were it possible, such an increased blood supply would not restore the integrity of the cortex, and also made this plausible assertion: "It is inconceivable that any radical gain could come from increasing the flow of blood to the kidney, the very toxicity of which is assumed to be the cause of structural changes in the organ." Fabris¹⁶ also failed to find an increased blood supply after decapsulation in rabbits. Other observers, on the contrary, do find new vessels; Ferrarini,¹⁷ Gayet and Bassan,¹⁸ in rabbits, and Claude,¹⁹ and Anzilotti,²⁰ in both dogs and rabbits. Most of these experiments were upon healthy kidneys, but in some instances (Fabris, Ferrarini, Anzilotti) acute inflammations were previously produced by the injection of diphtheria toxin or cantharides.

In a recent article Edebohls²¹ aptly remarks "The effects of renal decapsulation in animals suffering from chronic nephritis, the thing we should like to know about, have not been studied, owing to the difficulty of producing chronic nephritis in animals." In the same article is published a plate of Ferrarini's demonstrating the formation on a liberal scale of new bloodvessels in the new capsule after decapsulation in a rabbit, and also a plate of Larkin's exhibiting a section through a well-vascularized new capsule proper from a woman who died of pneumonia four months after decapsulation of the kidneys for chronic Bright's disease. The latter case seems to be the only careful and complete post-mortem examination of two human kidneys from the same subject, which had undergone decapsulation. At the present time we may look forward to a report by Dr. Larkin in reference to two other kidneys obtained from a patient of Edebohls, who died 15 months after decapsulation.

In all instances of renal decapsulation in animals, a new capsule proper has replaced the one removed at operation. In one autopsy by Jewett, in one by Cutler, and in the two by Larkin (4 months and 15 months after decapsulation by Edebohls) the same condition obtained in the human subject. Edebohls states that the new capsule becomes distinctly organized in from three weeks to three months after operation, being sometimes thicker, sometimes thinner, but always more succulent than the original capsule, and always vascular.

In reference to the danger of compression of the kidney by contraction of the new capsule, Anzilotti²¹

observed no such tendency in dogs 150 days after renal decapsulation. Rose completely decapsulates every kidney upon which he performs fixation, and upon examination of 20 of his patients so operated upon from 3 years to 14 years previously, he found the urine absolutely normal in every instance. Edebohls also reports three patients whose kidneys were completely denuded 10 years previously, who have perfect health and whose urine shows no deviation from the normal.

The possibility of the regeneration of renal epithelium destroyed by inflammation has, according to Edebohls, been abundantly confirmed by the experimental work of Thorel.²²

Let the pathology be what it will, we can form a most practical conclusion from the results obtained by Edebohls, as given in his recent work,¹³ in which he analyzes 72 cases in which he personally operated. Of these 72 cases, 7 patients died within two weeks of operation; 13 finally died of chronic nephritis, the operation benefiting 7 more or less, and certainly doing no harm in the remaining 6; 9 finally died of other causes; 3 were unimproved; 20 were improved; in 3 the result was unknown; and 17 were cured. To be classed as a cure Edebohls requires the fulfilment of the following conditions: "The urine must remain free from albumin and casts, and the daily urea output be normal, or approximately so, for a period of at least six months following the verification of the disappearance of albumin and casts, and the patient must be free from the symptoms of chronic Bright's disease from which he or she formerly suffered." The subject of Edebohls' first cure has now remained well for 11 years and 8 months; his seventeenth and most recent cure has lasted one year and four months. In reference to the 20 cases reported as improved, he states that "the majority of the 20 appeared to be on the high road to complete health, and bid fair to figure among the cures of my next report." He also says, "even the three patients classified as unimproved have experienced such marked benefits in general health that, personally, each of the three is abundantly satisfied with the results of the operation." None of the 22 remote deaths were due to the operation, and the total duration of improvement in 16 of these cases amounted to 16 years. Allow me again to quote Edebohls, verbatim:

Renal decapsulation for chronic Bright's disease may be charged with seven deaths, following upon the heels of operation. Let us admit, for the sake of argument, that these seven deaths were all due to operation—a matter by no means settled, as practically every one of the seven patients was within a few weeks, if not days, of the natural termination of life by the disease. These seven deaths, as a result of operation, are fully offset by an equal or larger number of patients snatched from impending death by operation. At least nine other of my patients, who were considered at death's door when I operated, have had months and years added to their lives by the operation, and a number of the nine are alive and well today. The sum total of life added as a result of operation in these nine patients, very far exceeds the curtailment of life which the operation may have caused in the seven patients who died soon after, let us say, as the result of operation. The added years of life in addition were, for the greater part, years of comparative health, comfort and usefulness, as compared with the days or weeks of suffering which, had operation not been performed, would have been the lot of the seven unfortunates who died. To put it in another way: Of 16 sufferers from chronic nephritis who came to me for operation, and whose deaths were immediately imminent by virtue of the disease, nine were saved by operation, while in seven, the attempt to save life failed. Of the entire number of 72 patients, therefore, 13 received no benefit from operation, while 59 patients experienced amelioration, varying all the way from slight and temporary improvement to complete cure. In nine cases, the operation proved directly life-saving by rescuing the patient from immediately impending death. In judging the results recorded, the fact should be borne in mind that the immense majority of my patients came for operation only after all other measures and treatment had failed to arrest the unrelenting deathward progress of their chronic nephritis.

Of 31 cases of chronic interstitial nephritis, 10 patients (32.2%) were cured and 4 (12.7%) died within two weeks; of 12 cases of chronic parenchymatous nephritis, 3 patients (25%) were cured and 1 (8.3%) died within two weeks; of 25 cases of chronic diffuse

nephritis 3 patients (12%) were cured and 2 (8%) died within two weeks. The anesthetic was nitrous oxid and ether in 42 cases, ether alone in 17 cases, nitrous oxid and oxygen in 8 cases, chloroform alone in 2 cases, nitrous oxid and chloroform in 1 case, nitrous oxid, ether, and chloroform in 1 case, and nitrous oxid, oxygen, ether, and chloroform, in 1 case.

Edebohls²¹ believes renal decapsulation to be indicated in every case of chronic Bright's disease in which the patient has a reasonable expectation of not less than a month of life without operation, provided: 1. That the diagnosis of chronic Bright's disease is unequivocally established. 2. That in any given case there exists no absolute counterindication to any operation. 3. That the services of an operator can be secured who is reasonably familiar, from practical experience, with the surgery of the kidney. He regards the anesthetic as the chief danger of the operation and looks upon age, cardiac involvement, and vascular derangements as relative counterindications. If the enlargement of the heart is mainly hypertrophic and not due to dilation he believes an anesthetic may be administered with a reasonable degree of safety. If dilation predominates over hypertrophy, Edebohls believes that no general anesthetic should ever be administered, and states that an intermittent aortic regurgital murmur with every third, fourth, or fifth beat which cannot be removed by suitable medication, is a sign of impending death. True retinitis albuminuria is an absolute counterindication²³ although it is barely possible that it may be a relative counterindication in a young patient. In 67% of the cases of chronic Bright's disease, death occurs within a year of the development of the eye affection and none of them survive two years. Of the 72 patients operated upon by Edebohls up to the end of 1903, nine had retinitis albuminuria at the time of operation; only two experienced decided benefit, and not one is alive today. Edebohls has also performed renal decapsulation for puerperal eclampsia,²⁵ complete anuria,²⁶ acute right pyelonephritis with miliary abscesses, acute hemorrhagic nephritis, intermittent right hydronephrosis associated with chronic Bright's disease, intermittent right pyonephrosis and chronic interstitial nephritis, and polycystic degeneration of the kidney, and chronic diffuse nephritis. He believes his results to be sufficiently good to warrant a continuation of the practice.³⁰

R. Guiteras²⁷ in his first paper, May 17, 1902, arrived at the following conclusions: 1. Nephropexy is always a beneficial procedure in a movable kidney in a patient suffering from chronic nephritis. 2. Nephrotomy has proved a valuable operation in unilateral nephritis associated with hematuria and nephralgia. 3. The value of a complete decapsulation of the kidney as a therapeutic measure in chronic Bright's disease has not as yet been determined, as the procedure has not been employed extensively enough to warrant positive conclusions. In his second paper,²⁸ November 14, 1903, the author, as a result of increasing experience and from a study of 120 patients operated upon by various surgeons, expresses himself as follows: 1. Chronic nephritis should not be operated upon until medical treatment has proved of no avail. 2. The time for operation is when it is noticed that the process is advancing rapidly and we fear the heart will soon be overtaxed. 3. The operation for chronic Bright's disease which has proved least dangerous and which has shown the best result is nephropexy performed on a single movable kidney. 4. The most unfavorable cases for operation are those of diffuse nephritis. 5. Patients with general anasarca and bad heart action should not be operated upon; if the heart action is good, an operation performed as a last resort may give the patient a few extra years of life, provided he survive it. 6. When there has been a marked destructive process in the kidneys as a result of a nephritis, the operation may give relief for a number of weeks or months, but the patients generally fail again and die

when the new capsule begins to contract. Of the total of 120 cases collected by Guiteras, in 16% cures were established, 40% showed improvement, 11% unimproved and in 33½% death occurred. The mortality in chronic interstitial nephritis was 26%, in chronic parenchymatous nephritis 25%, and in chronic diffuse nephritis 75%.

Tyson²⁹ believes that "the operation has come to stay." He agrees with Guiteras in that the operation should not be done until the usual medical measures have been applied, but states that the operation should not be deferred until the patient is moribund and that the chances of recovery must be greatly increased when the disease has not been allowed to go too far. He considers parenchymatous nephritis more favorable for operation than those of the interstitial variety, and says that it is not reasonable to expect results as satisfactory in cases of extensive cardiovascular changes as in cases in which such complications are absent. He does not regard edema as a counterindication.

In concluding my paper I would call attention to the fact pointed out by Edebohls, that with the exception of nephrotomy for renal calculi and the drainage of abscess, and nephrectomy for the excision of renal tumors, renal decapsulation is to be preferred to all other surgical procedures upon the kidney, for the following reasons: 1. No damage whatsoever is done to important secreting structures. 2. It involves less danger from hemorrhage. 3. Other things being equal, it is to be preferred on account of the greater simplicity of wound treatment. It should also be noted that renal decapsulation has now been employed between 200 and 300 times, and that so distinguished a surgeon as Roswell Park advises decapsulation of every kidney operated upon for any reason.

Although this paper was practically written before the quite recent appearance of Edebohls' admirable and complete work upon "The Surgical Treatment of Bright's Disease," the writer desires to express his obligation not only to this book itself, but particularly to its most excellent bibliography, which has enabled him to refer to a number of additional articles, especially in reference to the experimental work upon the subject.

BIBLIOGRAPHY.

- ¹ Harrison: British Medical Journal, October 19, 1901, 1125-1129.
- ² Israel: Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, 1899, 471-510.
- ³ Israel: "Nierenkolik, Nierenblutung, und Nephritis," Deutsche medizinische Wochenschrift, February 27, 1902, 145-150.
- ⁴ Pousson: "De la néphrotomie dans les néphrites médicales chroniques," Journal de Médecine de Bordeaux, February 2, 1902, 75.
- ⁵ Pousson: "Discussion sur la néphrotomie dans les néphrites médicales," Gazette hebdomadaire des sciences médicales de Bordeaux, March 16, 1902, 127.
- ⁶ Rovsing: Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, 1902, x, 283-342.
- ⁷ Maragliano: Gazzetta degli ospedali e delle cliniche, 1903, xxiv, 521.
- ⁸ Edebohls: Centralblatt für Chirurgie, 1904, xxxi, 189-192.
- ⁹ Rovsing: Centralblatt für Chirurgie, 1904, xxxi, 513-518.
- ¹⁰ Edebohls: Medical News, April 22, 1899, 481-483.
- ¹¹ Edebohls: Medical Record, May 4, 1901, 690-692.
- ¹² Edebohls: Medical Record, December 21, 1901, 961-970.
- ¹³ Edebohls: The Surgical Treatment of Bright's Disease, published by Frank F. Lister, New York, 1904.
- ¹⁴ Johnson: Annals of Surgery, April, 1903, 592-601.
- ¹⁵ Van Cott: Medical News, May 21, 1904, 970.
- ¹⁶ Fabris: Clinica chirurgica, Milano, 1903, xi, 779-791.
- ¹⁷ Ferrarini: Clinica chirurgica, Milano, 1903, xi, 811-841.
- ¹⁸ Gayet and Bassan: Lyon Médical, 1903, c, 655-659.
- ¹⁹ Claude: Bull. et mém. Soc. Méd. d. hôp. de Paris, 1903, xx, 478-483.
- ²⁰ Anziotti: Clinica moderna, 1903, ix, 486-493.
- ²¹ Edebohls: The Surgery of Nephritis, New York Med. Jour. and Phila. Med. Jour., May 21 and 28, 1904, 961-1032.
- ²² Thorel: Deutsches Archiv für klin. Medizin, 1903, lxxvii, 29, 395, 470.
- ²³ Suker: Jour. Amer. Med. Assoc., 1904, xlii, 580-583.
- ²⁴ Edebohls: Medical Record, March 28, 1903.
- ²⁵ Edebohls: New York Med. Journal, June 6, 1903.
- ²⁶ Edebohls: Medical Record, May 21, 1904.
- ²⁷ R. Guiteras: New York Medical Journal, 1902, lxxv, 847-854.
- ²⁸ R. Guiteras: New York Medical Journal, 1903, lxxviii, 881-933.
- ²⁹ Tyson: N. Y. Med. Jour. and Phila. Med. Jour., October 10, 1903.
- ³⁰ Edebohls: British Medical Journal, 1902, ii, 1507-1510.

Students Vote Down Hazing.—The undergraduates of Williams College, Massachusetts, recently voted to abolish all kinds of hazing for the remainder of the college year. The vote means that every kind of hazing or "horse play" must be done away with, and that the students are now on their honor to see that the sentiment of the meeting is carried out. Hazing at Williams of late years has been of the mildest sort.

ETIOLOGY AND PATHOLOGY OF BRIGHT'S DISEASE.

BY

W. E. ROBERTSON, M.D.,
of Philadelphia.

As is general with eponymic designations, the appellation "Bright's disease," carries with it no direct knowledge as to its meaning. It is only by association that we come to understand the nature of the conditions thus styled. In the present instance, however, the name of him who first gave us a connected description of renal diseases, and showed beyond cavil their dependence upon certain morbid changes in these organs, has become so indissolubly associated with that group of lesions, that it would seem little short of heretical to propose a change, but even here, unless one is more or less familiar with the literature, he has no precise conception of the fundamentals upon which our modern superstructure has been reared. It behooves us then to inquire definitely as to what condition Richard Bright had in mind when he prepared his paper, and whether his description was sufficiently elastic to cover all morbid changes in the kidney.

Since remote times urine has been submitted to examination, and long before the time of Bright, it had been shown that cirrhosis of the kidneys was often accompanied by dropsy. It was not until 1770, however, that Cotugno pointed out for the first time that the urine of certain dropsic individuals, though free from blood, might contain a substance which, like the white of egg, was coagulable by heat. He found a similar substance in the exudate of inflamed lymph sacs. He thought it merely some reparative process designed by nature for the removal of pathologic products. The direct result of this observation was, the division of dropsic subjects into two groups, those with and those without albuminuria.

Scattered contributions are to be found in the literature antedating Bright, dealing with this subject, but as Christison says: "Neither a few chance observations nor some still rarer, obscure, and in themselves incomplete deductions, can be considered of sufficient importance to deprive this first discovery of the value which it has proved in medicine."

Bright's special claim to recognition lies in the fact that he appreciated the frequency of structural changes in the kidney, and their causal relationship with dropsy, left ventricular hypertrophy, certain nervous phenomena, and albuminuria. In his "Report on Medical Cases," published in 1827, he cites 23 cases associated with dropsy and albuminuria, of which 17 came to autopsy. He said he believed that pathologic changes were to be found in the kidneys far more commonly than had been supposed, that dropsy was caused thereby, differing from the dropsy due to liver changes in that the urine in the former cases was coagulable by heat.

As causes of these structural changes and their sequels, he gave certain baleful influences which acted on the stomach or skin, thus perverting the renal function either by producing inflammation of the kidneys or by interfering with the circulation of the blood through them.

He described three forms of structural change: 1. A kidney of about normal size, less firm than normal, of yellowish speckled color, this latter shown throughout the cortex on section, while the pyramids are pale. The organ later becomes firmer and presents small prominences upon the surface, which are somewhat paler than the neighboring tissue. This kidney he found in the various cachexias, in the tuberculous for example. 2. The second variety is characterized by the granular condition of the cortical portion with an opaque, interstitial exudation. On removing the capsule, the organ looks as though fine grains of sand had been sprinkled over it. These latter become more marked with the progress of the disease, and the surface

becomes rough, even nodular like the late stage of the first form. The kidney may be smaller or larger than normal. 3. In the third form the surface of the kidney is everywhere rough and uneven, being more or less completely covered with pinhead-sized nodules, yellow, red, or purple in color. The organ is very hard, often lobulated, cuts with some difficulty; the pyramids are nearer the surface than normally, and every part of the organ is contracted. Bright did not wish it understood that these varieties were separate and distinct entities; in fact, he states that the late stage of his first variety might, in fact, be closely related to the second, and that his last two forms were likely to be modifications of the same condition, merely different stages.

Beside these wellmarked forms, in which the urine was more or less constantly albuminous, and often highly so, he mentioned others with fugitive albuminuria, often insignificant in amount, and said that we should very likely find, as more careful observation was directed toward the kidneys, that many other changes than those described by him were capable of giving rise to albuminuria. Thus we see that while the cases particularly detailed were of an advanced, chronic type, especially the interstitial contracted kidney, he prophesied the finding of a group of kidney lesions capable of giving rise to albuminuria. This view has been abundantly confirmed, as we shall see. Bright's contribution was soon followed by others, notably by Sir Robert Christison, Dr. James Gregory and Dr. Osborn, who agreed with him in the main, but dissenters were not wanting, among the chief of these being Elliotson, Graves and Prout. Elliotson did not deny the findings of Bright, but he considered the albuminuria and dropsy as due rather to general systemic disturbances than to the renal changes. Graves, too, admitted the possibility of the simultaneous occurrence of albuminuria and morbid renal changes, but he argued that the albumin blocked up and distended the fine tubules of the kidney and thus acted as the cause rather than the result of the kidney changes. He said in one of his clinical lectures, "We may have Bright's kidney without albuminous urine," and "albuminous urine without Bright's kidney; facts which, coupled together, militate strongly against the hypothesis that the change in the structure of the kidney is connected with the appearance of albumin in the urine." Prout and a few other observers regarded the blood changes as primary and said that whenever the albuminous constituents of the blood were unfit for assimilation, they would be excreted by the kidneys.

About ten years after Bright's original communication, Valentin published a report on the result of microscopic study of diseased kidneys, he being the first to pursue work along those lines. In 1840 Rayer issued a work on diseases of the kidney. To him belongs the credit of being the first to insist on the inflammatory nature of Bright's disease. He describes acute, chronic, febrile and afebrile varieties of albuminous nephritis, as he termed it. Reinhardt, writing in 1850, also argued for their inflammatory nature. He was the first to employ the term "diffuse nephritis," meaning to convey thereby that all parts of the kidney become involved. According to him, Bright's disease represents a group of diseases of different etiology and pathology. Frerichs, in an excellent treatise, issued in 1851, agreed with Reinhardt and Rayer as to the lesion being inflammatory, but differed from the former in that he expressed his belief in the identity of the lesions; though of different origin, he believed that the various lesions were but gradient links in a chain of changes. He described three stages: (1) Hyperemia; (2) exudation and fatty degeneration of the epithelium; (3) overgrowth of the connective-tissue elements with atrophy as a final change.

Dr. George Johnson, in 1852, was among the first to show that Bright's disease occurred in several forms and

actually the first to call especial attention to the vascular changes and to the changes in the epithelial cells of the tubules. He described an acute and chronic desquamative nephritis, nondesquamative nephritis, fatty degeneration, granular fatty degeneration and waxy kidney, this last having been first discovered by Rokitsansky in 1842, which he constituted his eighth variety of Bright's disease.

From this date on, differences of opinion were common as to just what was meant by the term Bright's disease, and whether it was justifiable to retain it. For instance, Virchow, in an article on parenchymatous inflammation issued in 1852, agrees as to the inflammatory nature of the structural kidney changes described by Bright, but he says that under the caption Bright's disease it has become customary to include all the changes which lead finally to the development of granular kidneys, even those of chronic course, unaccompanied by dropsy and albuminuria, also the more trifling renal changes which beget albuminuria, but without dropsy or final granular change. He speaks of mild forms of inflammation as catarrhal and croupous, and reserves the term Bright's disease, if it is justifiable to use it at all, for his third variety which he calls "parenchymatous inflammation." Traube, in 1860, likewise urged that the term be dropped, for he said it represents a variety of conditions. He described four: 1. Venous congestion. 2. Amyloid degeneration. 3. Circumcapsular or periglomerular inflammation. 4. Intertubular inflammation. He regarded epithelial changes as secondary and, therefore, looked upon the term parenchymatous inflammation as untenable.

As has been stated, Dr. George Johnson was the first to describe vascular lesions in connection with renal disease, but he regarded the condition as secondary to antecedent kidney changes, and spoke of it as hypertrophy of the muscular coat of the arterioles and capillaries.

Gull and Sutton, on the other hand, regarded the vascular lesion as primary involving especially the adventitia, often indeed occurring independently of renal disease, and that "the renal change in chronic Bright's disease with contracted kidney, when present, is but a part of a general morbid condition." In a later article published in the same year, 1872, they say, "Bright's disease is however, but a generic expression, and appertains to many affections of the kidney which, though more or less allied by the character of their morbid anatomy, so far as the kidneys themselves are concerned, are probably distinct in their cause and clinical history. It has long been felt that the term Bright's disease must either be discontinued, or be more strictly limited to one given pathologic state." Bright, himself, never expressed a positive opinion as to the nature of the process.

For many years the Germans regarded the process as a single one with various stages. In England, however, following Johnson, the general belief favored dual or even multiple lesions. Johnson described a chronic desquamative nephritis, primary in origin, independent of any other lesion, which terminated in contracted kidney. Most other English authors differed from him in regarding the contracted kidney as primarily of interstitial origin, not dependent upon preceding tubular change. They also excluded congestion of the kidney and amyloid kidney from the conditions embraced by the term Bright's disease.

Prior to this time the contracted kidney had been looked upon as the third and last stage of Bright's disease. Weigert once more argued in favor of a single process, stating that no such thing existed as a parenchymatous nephritis without a coincident interstitial change and more or less contraction, and that the interstitial changes in the different forms of Bright's disease were merely quantitative. The red, white, and mottled kidney, according to him, depended on vascular and fatty changes. The connective-tissue changes, in his judg-

ment, were secondary to degeneration of the epithelial cells of the tubules or of the glomeruli. Ziegler strongly dissented, believing that the epithelium was not necessarily the point of origin of the process, that interstitial changes might occur either as a direct result of morbid irritation or in consequence of arteriosclerosis.

Kelsch recognizes both parenchymatous and interstitial forms of structural change, but regards the latter only as a true nephritis. With Klebs, he regards the former as a degenerative process. Kelsch says the parenchymatous form is noninflammatory. He speaks of it as "anemic necrosis," in which the vessels and interstitial tissue play no part.

Cornil and Brault at one time separated renal lesions into diffuse and systematic nephritis, the former implying involvement of all parts of the organ, the latter, especially one portion, as the tubules or the vessels. Later, however, the tendency began to manifest itself of considering the character of the etiologic factor, the duration and degree of action of the same. A severe infectious process, for instance, may cause death before any other change than more or less complete destruction of the epithelial elements has taken place, while a less severe infection will cause parenchymatous with some interstitial change, and a very mild infection, acting for some time, will result, especially in interstitial change. Hence the designation, acute, subacute, and chronic nephritis.

From this brief summary, we see how diverse the views have been, and to a less extent still are, as to the nature and exact comprehension of Bright's disease. During the earlier years succeeding Bright's original communication, all classifications were based solely on the gross morbid anatomic appearances of the kidneys. Then, when the finer, microscopic changes began to be closely studied by Valentin, Gluge, Henle, Johnson, Toynbee, Rokitsansky, Virchow and others, the anatomic classification was still employed, but the lines of differentiation were more closely drawn. Quite early the character of onset and course of the malady were employed as bases of classification. Adumbrated by Rayer, who called Bright's disease "albuminous nephritis," which he divided into six varieties, two acute, with fever, and four chronic, many other observers have since based their description solely on the mode of onset and the duration of the clinical course.

Defining Bright's disease as a nonpurulent, inflammatory disease of the kidney, due to some morbid blood state, characterized clinically by albuminuria and often by dropsy, with later cardiac hypertrophy and certain nervous phenomena, we have practically the definition submitted by Bright. We now know, however, that both albuminuria and dropsy may be absent, though except in very acute cases, cardiovascular changes are always present. It has been shown further that the process is certainly not a single one with several stages, as Frerichs taught and Bright was prone to think, though he did not state so unequivocally, nor are epithelial changes always and necessarily primary as championed by Johnson and Dickinson, nor must the process be diffuse, as Reinhard taught. Though admitting the fact that Bright's disease varies as to its cause, mode of onset, course, symptomatology and pathology, there is sufficient to constitute a clinical group, and this because the end-results are similar, being due to altered composition of the blood and retention of waste products.

Since we cannot by any stretch of the imagination include suppurative nephritis under the generic heading Bright's disease, it only remains to consider whether the other conditions embraced by that term are necessarily inflammatory. As has been stated, Kelsch and Klebs regard parenchymatous changes as noninflammatory. To those who believe with them, then, these changes are degenerative, the term nephritis being reserved for those cases only in which interstitial changes are unquestionable.

While I cannot attempt to deal with the subject of inflammation in such a paper as the present, suffice it to say that, if the accumulation of leukocytes and wandering cells is necessarily a feature of all inflammatory processes in the higher vertebrates, then the form of kidney change under consideration is not an inflammation. Certain it is that in pure parenchymatous renal changes, none of the changes which characterize inflammation occurs. If it is argued that death of the parts occurs too soon, then degeneration palpably has occurred, but I have carefully studied many sections of subacute cases due to various toxic processes, in which absolutely no histologic evidence of inflammation was to be seen. I cannot help feeling that the most acute parenchymatous processes are degenerative, not inflammatory, that all strictly tubular changes are degenerative, in fact, though I have acknowledged that the change depends on the virulence of the infecting agent and the duration of its activity, hence a mild insult operating over some time will usually cause undoubted nephritis. I think enough has been said to make it evident that, while for public reasons we cannot discard the term Bright's disease, on morbid anatomic grounds it is no longer of use.

Renal lesions may be classified (1) according to their cause; (2) to the part of the organ involved; and (3) their morbid anatomy.

1. Etiologic classification is unsatisfactory, as different causes may produce the same lesion or various types may result from a single cause.

2. As to the part of the organ involved, tubular, glomerular, interstitial and arteriosclerotic changes, these cannot always, nor as a rule, be differentiated clinically with precision.

3. As to the morbid anatomy, this furnishes the most satisfactory classification if coupled with it we consider the mode of onset and course of the disease. According to this plan then, we have:

1. Parenchymatous degeneration.

- | | | |
|--------------|---------|--|
| 2. Nephritis | Acute | <ul style="list-style-type: none"> a. Acute glomerular b. Acute nonsuppurative interstitial c. Acute diffuse |
| | Chronic | <ul style="list-style-type: none"> a. Chronic diffuse without induration b. Chronic diffuse with induration (chronic interstitial nephritis) c. Arteriosclerotic d. Amyloid kidney |

Acute parenchymatous degeneration. (Synonyms: Acute nephritis, acute tubular, desquamative, parenchymatous or catarrhal nephritis, acute Bright's disease.) As has been said, this is not an inflammation in the strict sense.

Etiology.—The most potent provocative factor is infection. Any of the infectious diseases, high-grade jaundice, or certain poisons give rise to it. This also is the form of renal change met in the so-called "kidney of pregnancy."

Morbid Anatomy.—The organ is usually somewhat enlarged, having a rotund appearance, pale or at times mottled. On section the capsule strips easily, the cut halves of the organ bulge out beyond their edges, the cortex is widened and not sharply delimited from the medulla. The cut surface has a peculiar, finely ground glassy appearance. Microscopically, the degenerative change is found especially, in some cases solely, in the epithelial cells of the convoluted tubules; in many cases, however, there is a granular exudate within Bowman's capsule and the cells of the straight tubules may show some change. These cellular changes are as follows: The cells are swollen, often filling the tubule and obliterating the lumen. They often take eosin with avidity,

but at times stain very poorly. They are finely granular and their inner edges are often broken down. Many cells more or less advanced in degeneration may become detached and lie free within the tubules. These go to form epithelial casts.

Nephritis, acute: Acute glomerular nephritis and acute diffuse nephritis may be conveniently considered together. The diffuse form of acute nephritis in which both the parenchyma and stroma are involved, is undoubtedly the form of acute nephritis most frequently encountered.

Etiology.—Any of the infectious diseases, certain vegetable, metallic and animal poisons as turpentine, carbolic acid, potassium chlorate, arsenic, corrosive sublimate, sulfuric acid, cantharides, etc., and faulty metabolic products—leukomains or ptomains. It must not be forgotten that some of the by-products of microorganismal activity are ptomains, as the typhotoxin of Brieger, for instance. It is this form of nephritis which is particularly apt to arise during an infectious process, in addition to the more serious infections as scarlet fever, diphtheria, smallpox, typhus and typhoid, septic arthritis or so-called acute, articular rheumatism, the milder infections as chickenpox, mumps, measles and follicular tonsillitis may cause it.

Attention has already been drawn to the fact that the degree of infection and the duration of its action, and probably too the resistance of the host, are factors which modify the character of the changes. During a more or less prolonged infection of moderate severity, time is given, when renal changes occur, for these latter to become diffuse. The direct causative factor in most cases is a toxin or even a ptomain, but as we so often see in typhoid fever, for instance, the kidneys also allow microorganisms to filter through with the urine, and thus a double source of harm arises.

As Senator states, the function of the glomerulus is to filter out the watery constituents of the urine. In this manner the infection is apt to become more concentrated at this point, and the invading germ lodged in the vascular coils.

Now the vascular supply of the cortical portion of the kidney is almost wholly provided with blood which flows through the glomeruli, and having parted with some of its fluid, is correspondingly concentrated. Hence the action on the cells of the cortical tubes especially. Further, the separated watery portion is carried away from the glomeruli by the tubules and containing as it doubtless does, some of the noxious material, both particulate and in solution, opportunity is thus given for an attack upon the parenchymatous cells, both within and without the tubules. Then too, the secondary toxic substances which arise incidentally, still further increase the harm being done. Some poisons, especially affect the glomeruli as scarlet fever and cantharidin, while the incidence of others is upon the tubules, as chromic acid.

It will be noticed that I have thus far said nothing about cold as an etiologic factor. I cannot believe that cold *per se* really is. With me it is an open question, but I do not believe we are justified as many do, in dogmatically citing it as a cause. Rather confess our ignorance than foster false beliefs.

Morbid Anatomy.—The organ is generally enlarged, often materially so, and varies with each case according, as has been said, to the virulence and duration of the infection. It may be mottled or pale. On section the capsule strips well, possibly a slight adhesion, but without tearing the kidney substance. The cut surface bulges forward, presenting a swollen appearance, and is broader than normal. The malpighian bodies may in some cases be seen as minute, reddish, sand-like particles. The entire surface may be pale, mottled here and there, or the pyramids may be red and stand out in relief against the paler background. The organ is soft or firmer in proportion to the duration of the attack.

Microscopic Examination.—When the glomeruli show the most marked change, we have the type spoken of as glomerulitis, but in every case diffuse changes are also present. The nuclei of the capillary tufts proliferate, as do the cells lining the capsule of Bowman, and these latter desquamate. A granular exudate is to be seen within the tuft. In some cases fibrin forms in the capsule. The tubular changes are similar to those described in the degenerative variety. As is the case in the large, white kidney, so here, too, the stroma is often edematous; young connective-tissue cells are to be seen, small round cells, erythrocytes, often scattered leukocytes and plasma cells. Of course, in the more acute cases the glomerular and tubular changes prevail, while in the less rapid forms more or less proliferative interstitial change takes place.

Acute, nonsuppurative interstitial nephritis:

Etiology.—This is due to infectious diseases, especially diphtheria, but may also be due to measles, pneumonia, cerebrospinal meningitis, even whoopingcough and chickenpox. In consequence, therefore, it is more often met in children than in adults.

Morbid Anatomy.—The kidneys are rarely very much enlarged. In fact, in some cases, practically no gross change is to be seen. The organ as a rule, however, is more rounded than normal, having a swollen appearance, the capsule strips easily, leaving a pale, slightly mottled surface. On section, the cortex and medulla are not sharply delimited. The former is wider than normal, and the whole surface is mottled, and the substance is soft and quite friable.

Microscopic Examination.—Sections stained with thionin or Unna's polychrome methylene-blue, show aggregations of plasma cells, small round-cells, and often some polynuclear leukocytes, with or without erythrocytes. These cells are apt to be found especially beneath the capsule and about the glomeruli. While this is the most striking feature, and serves to differentiate this form of nephritis, as would be expected in acute infectious conditions, degenerative changes similar to those already described under the parenchymatous variety, are met in the cells of the tubules. These latter changes vary from swelling and desquamation to complete necrosis.

Nephritis, chronic: Chronic diffuse nephritis, without induration. (Synonyms: Chronic parenchymatous nephritis, chronic tubular, or desquamative, or catarrhal nephritis, large, white kidney.) In its most pure form, this is typified by the large, white kidney. This, however, is much less frequently met than cases in which induration has occurred. That is to say, while interstitial inflammation occurs in all cases of chronic nephritis, in the so-called nonindurative variety, the parenchymatous, degenerative changes preponderate, whereas, in the indurative variety, parenchymatous changes may be very slight; but whether slight or severe, the productive, interstitial changes are so pronounced as to cause marked firmness of the organ, often with contraction and consequent deformity. These two types depend on the nature of the poison, its intensity, and the duration of its action. It does not seem justifiable, therefore, to speak of a chronic parenchymatous inflammation, a name often used for the nonindurative variety, (1) because the parenchymatous changes are not in themselves inflammatory, but rather degenerative, as already stated, and (2) because the process is always a diffuse one. The term "large white kidney," however, is a most apt one, being merely descriptive.

Etiology.—It may follow directly upon an acute process, or may be due to faulty metabolism, either autogenous or engendered by alcohol or excessive feeding, or may be due to syphilis, tuberculosis, or malaria, or chronic suppurative processes elsewhere in the body may excite it. No direct cause can be discovered in many instances. These are of gradual onset and course, and are probably examples of perverted metabolism.

Morbid Anatomy.—The organ is more or less enlarged, often considerably so, usually paler than normal, but varying in color and consistency according to the quantitative vascular and tissue changes. It has a swollen appearance, and on section the substance of the organ bulges forward beyond the capsule. This latter can be removed with ease as a rule, possibly being slightly adherent at a few points. The cut surface is smooth, pale, whitish, or yellowish, or even mottled when congested. The cortex is abnormally wide. The pyramids as a rule are somewhat darker than the cortical portion. The organ is soft and friable.

Microscopic Examination.—The chief changes will be met in the cortex, especially in the convoluted tubules and glomeruli. The cells of the tubules are the seat of a fatty, degenerative change, they may be greatly swollen, obstructing the lumen, or may be more or less broken and desquamating.

Not seldom these changes take on a focal character, islets of healthy tissue alternating with more or less degenerated areas. The tubules may contain blood. The glomeruli present the changes already described under glomerulonephritis. The glomeruli may be for the most part uninvolved, in other cases the cells lining Bowman's capsule will be more or less distorted, often lying loose within the capsule in a granular exudate and nuclear proliferation, and swelling of the vascular tufts is apparent. In more advanced stages the vascular tufts are shrunken, often the seat of hyaline or amyloid change, and their capsules are composed of thick, fibrous tissue. In addition, the interstitial elements show active participation in various degrees. When this is comparatively recent, the affected part is swollen, edematous and rich in connective-tissue cells, while in older portions the tissue is fibrous and poor in cells.

Chronic diffuse nephritis with induration: Chronic interstitial nephritis, as it is called, following in the wake of the nonindurative variety, is the most common type of chronic nephritis. Since the intensity of the provocative factor and the duration of its action are responsible for all renal changes, it follows, as has been said, that no sharp line of differentiation can be drawn between the various pathologic forms, although well-marked types of each class present striking differences. While admitting then the relationship between the non-indurative and indurative varieties, there is a vast difference between the large white kidney on the one hand, and the granular contracted kidney on the other. As the nonindurative form was said to be a more advanced form of kidney change which might follow upon an acute process, so this indurative or interstitial nephritis is often an advanced stage of the nonindurative form in many cases, though not necessarily so, as will be seen.

Etiology.—Often an advanced form of the nonindurative variety. In the most marked sclerotic kidneys, however, this has not been the case. In these latter, gouty, contracted, red granular or granular kidneys, no such history is obtainable, as would lead one to suspect the previous existence of a nephritis of any character. Such cases are often of very obscure origin, probably metabolic in many cases, with a tendency to appear in several members of a family. Lead-poisoning, syphilis and gout are potent factors in the production of renal sclerosis.

Morbid Anatomy.—In all these cases, the chief characteristics are undue firmness of the organ and narrowing of the cortex. In the milder grades the organ may be of normal size or even somewhat larger, the capsule often strips readily, or is but slightly adherent, leaving a smooth or somewhat granular surface. The color is usually dark red or purplish. Cysts are met in some cases, either on the surface or in the parenchyma of the organ. On section, in the cases of mild grade, the cortex is not unusually narrow, but the added consistency of the organ is at once apparent in handling it. In the case of the granular contracted type, the organ is small, often

about a third or a fourth normal size. It is very dense, the capsule tightly adherent, tearing the substance everywhere, the cortex is narrow, almost entirely gone in some cases, cysts containing urine or a glairy, greenish colloid material are commonly met with. The organ is reddish or dark mottled, and the bloodvessels usually "gape" when cut.

Microscopic Examination.—In the milder grades the changes are chiefly cortical—tubular and glomerular degeneration, with hyaline degeneration of the tufts and periglomerular and intertubular proliferation of connective tissue. More or less complete destruction of tubules with atrophy or cystic dilation, are often seen. In the markedly granular forms all these changes are more striking. The tufts may be completely degenerated in some instances, while others will be large, apparently compensatorily hypertrophied. The tubules vary in size, some being very small, others dilated, and some are compressed to a mere slit, or even obliterated. The cells are flattened in proportion to the degree of compression. Hyaline casts more or less completely fill the lumen of some of the tubules. The vessels are also thickened.

Arteriosclerotic nephritis: This is the type described by Gull and Sutton, being a part of a general arterio-capillary fibrosis. While occasionally met in early adult life, it is most commonly seen in the aged.

Morbid Anatomy.—The organ resembles the more advanced forms of interstitial nephritis. It is smaller than normal, very firm, the capsule more or less adherent, cortex narrow. The organ is dark in color, and wherever vessels are to be seen they stand rigidly open.

Microscopic Examination.—While the thickening of the vessel walls is the chief characteristic, the interstitial tissue is usually increased also, especially about the glomeruli. These latter, too, show hyaline change.

Amyloid disease: By common consent, this condition is grouped with nephritis, but it is very rarely met as the sole change. As a rule, the kidney is of the non-indurative variety, the large white kidney, but amyloid change in the bloodvessels within the capsules and between the tubules is a common concomitant of all forms of chronic nephritis.

From the preceding review it will be seen that though Bright mentioned the possibility of a large number of renal lesions as being capable of giving rise to clinical phenomena, the description of the cases portrayed by him deals solely with the chronic productive and non-productive varieties. It would seem then, that the term toxic parenchymatous degeneration, running an acute course, does not justify the appellation Bright's disease, and that this term should be reserved, if used at all, for the chronic cases.

POSTOPERATIVE NASAL HEMORRHAGE; CALCIUM CHLORID; SECONDARY ANEMIA: RAPID RECOVERY.

BY

REYNOLD WEBB WILCOX, M.D., LL.D.,
of New York.

Professor of Medicine at the New York Postgraduate Medical School and Hospital; Physician to St. Mark's Hospital.

W. S., aged 25, was under my professional care during the winter of 1904, suffering from catarrhal colitis, of moderate severity. He was somewhat irregular in his attendance, but had improved. At no time had he been prevented from attending to his duties as salesman. During the previous 15 years he had not suffered from any important illness.

On July 8, 1904, he was successfully operated upon by Dr. Frank E. Miller. The operation consisted of the removal of the inferior half of the middle turbinate and a small spur, on the right side, under cocaine and adrenalin chlorid, by means of snare and saw. The nostril was then insufflated with tetraiodophenolphthalein and subsequently for three days, washed with Dobell's solution and insufflated with tetraiodophenolphthalein. The progress of healing was uneventful until the evening of

July 12, when, engaged in gymnastic exercise while in bed, he was surprised by a profuse hemorrhage from his right nostril. This was checked by Drs. Frank Hartley and Miller by tamponing the anterior and posterior nares with styptic cotton. He passed a restless night, but without recurrence of the hemorrhage. At 7 a.m., on the morning of July 13, there was some oozing from the posterior nares, and he received hypodermatically, morphin sulfate, .02 gm. ($\frac{1}{2}$ gr.), with atropin sulfate, .4 mg. ($\frac{1}{100}$ gr.) from Dr. A. P. Coll, who also ordered a high intestinal irrigation of normal saline solution, temperature 106° F., 2 gallons, every four hours. Later in the morning he vomited some blood. During the day there was vomiting and in the afternoon slight bleeding from the posterior nares; the hypodermatic injection was repeated. The temperature now was 101.4° F., respiration 18, and pulse 84. The night was fairly comfortable and there was but slight oozing from the packing.

On the morning of July 14 at 8 o'clock the rectal temperature was 104.4° F., respiration 20, and pulse 100. Dr. Miller discontinued the irrigations and the subcutaneous injections. During the day the temperature gradually fell to 102.6° F., and in the afternoon Dr. Coll removed some of the packing from the posterior nares. At 8.45 p.m. there was a profuse hemorrhage from the nose. The packing was removed and replaced by Dr. Miller and his associate, Dr. Coll. The high saline enema was given. The pulse was 100 and intermittent. During the evening my associate, Dr. H. H. Pelton, saw the patient with Dr. Miller.

At 6 a.m. of July 15 there was another hemorrhage, but slight. Calcium chlorid, 2.6 gm. (40 gr.), was now given. Adrenalin chlorid, 1.25 cc. (20 m.), was added to the high saline enema, and at 8.30, .3 cc. (5 m.) were given hypodermatically. At 9.45 I saw the patient with Dr. Miller, and at two-day intervals, with him, until convalescence. He was exsanguinated, pulse 110, intermittent and narrow. Anemic murmurs were distinct in right supraclavicular fossa, third left intercostal space, and at apex. Slight raising of head or arms caused syncope. Temperature 100.4° F. The anterior naris was dry; the posterior on rhinoscopic examination showed very faint oozing. The blood taken from right middle finger, on examination at 12.30, showed: Hemoglobin, 40%; red corpuscles, 1,950,000; white, 7,730; wellmarked increase of fibrin formation; no malarial parasites; negative Widal reaction. At 3 p.m., because of hemorrhage, which had persisted for about three hours, the packing was removed and replaced by Dr. Miller. As the patient was much exhausted, strychnin, 2 mg. ($\frac{1}{50}$ gr.), was given, and repeated every three hours. At 9 p.m. 7 ounces of dark red blood was vomited; 2.6 gm. (40 gr.) of calcium chlorid was given. The temperature varied from 102.4° F. to 101.8° F. and the pulse from 110 to 106. The patient was very restless.

On July 16, 6 ounces of dark red fluid were vomited at 2 a.m.; at 9.45 a.m. there was a slight bleeding, which persisted at intervals during the day, in spite of ergotin, .02 gm. ($\frac{1}{2}$ gr.) and sprays of alum solution into the left nostril. The temperature at 6.30 p.m. was 102.4° F., the respiration 18, and pulse 124. The urine was of sp. gr. 1.025, strongly acid, contained 3.03% of urea, 0.43% of chlorids, many leukocytes, moderately large amount of mucus, many bacteria, but no albumin, sugar or casts. The noteworthy feature of this specimen was the presence of acetone. The calcium chlorid was repeated. At 11 p.m. a clot was removed from the pharynx, immediately after the patient vomited 5 ounces of clotted blood.

At 1 a.m., July 17, hemorrhage still persisting from the posterior naris, Drs. Miller and Coll changed the posterior plug, Dr. Hartley being present. The patient being thoroughly exhausted, strychnin sulfate, 2 mg. ($\frac{1}{50}$ gr.) and digitalin, .6 mg. ($\frac{1}{100}$ gr.) were given hypodermatically. As the respirations were rapid (air hunger), oxygen was administered. The day was free from bleeding until midnight, when there was slight hemorrhage from the anterior naris, which was checked by plugging by Dr. Coll.

In the early morning of July 18, the temperature remained 102.2° F., to 103° F., the pulse 122 to 124. There was no change except that 10 drops of adrenalin chlorid solution were instilled into each nostril at two or three-hour intervals. In the evening the daily dose of calcium chlorid was given, but today for the first time by the rectum.

July 19 passed uneventfully, so far as concerned bleeding, the temperature remaining about 101.8° F., respiration 20, and pulse 16. Calcium chlorid was given by the rectum. In the afternoon delirium supervened and lasted for several hours.

On July 20 the bleeding was slight. The temperature ranged from 102.6° F. to 103.6° F., the pulse from 112 to 116. Calcium chlorid again was given by the rectum. The foregoing physical signs are even more marked. The patient is of an ashy-gray color. At 4 p.m. blood from the left middle finger showed hemoglobin, 25%, red corpuscles, 840,000, white, 6,625, wellmarked increase of fibrin formation, and cells poorly formed, with variation in shape and size. The anterior packing is now removed.

On July 21 it was decided by Dr. Miller and myself that all hemorrhage having been checked, the posterior plug should be removed, and that only 1.3 gm. (20 gr.) of calcium chlorid should be given by the rectum each day. In addition 7.5 cc. (2 dr.) of solution of iron vitellin should be given four times daily.

On July 25 the hemoglobin had risen to 32%. On July 30 it was 55%, and the red corpuscles 3,262,000, and convalescence was thoroughly established.

On August 6 the urinary examination showed nothing abnormal, and on August 10 the red cells numbered 3,899,000. From this time improvement was rapid, but the day upon which the hemoglobin and red blood-corpuscle count reached the normal cannot be given, as the patient was not under observation in this country. The physical signs of secondary anemia disappeared, and by September 1 the patient had gained 18 pounds in weight, and all medication was stopped.

The successful issue, in this instance, was very largely due to the unselfish devotion and surgical skill of Dr. Miller and his associate. The case is reported to emphasize the importance of the administration of calcium chlorid, either by mouth or rectum, coincidentally with the surgical methods of controlling hemorrhage. Since 1894, when A. E. Wright showed that the coagulability of the blood could be increased by the addition of calcium chlorid, as the blood reports quoted show I have had abundant opportunities, in consultation with various surgeons and specialists, for verifying his statement, that this drug acts as a physiologic styptic. Wright demonstrated that (1) the addition of calcium chlorid to extra-vascular blood causes it to coagulate more rapidly; (2) the internal administration of calcium chlorid often causes an arrest of hemorrhage, and (3) the continued administration of large doses of calcium chlorid is not effectual in keeping up a permanent condition of increased blood coagulability. For adults I have found that 2.6 gm. (40 gr.) either by mouth or rectum, in 59.2 cc. (2 oz.) of water, once daily, will accomplish what is desired under (2) and avoid any possibility of failure under (3).

This case also illustrates the brilliant results, which are now being so frequently reported that they cease to attract our attention, of the administration of solution of iron vitellin. Certainly the increase of hemoglobin percentage and the upbuilding of red blood cells is accomplished with very great rapidity, if we use the results of former methods of iron administration as standards for comparison.

Young Medical Men Not Properly Equipped for the Navy.—The Secretary of the Navy, in his annual report to the President, has this to say in reference to the medical corps: The medical corps is the only branch of the service in which vacancies at the foot of the list have long existed and still remain unfilled. Of the 97 applicants who sought admission to the corps during the past year, 23 only were found to be qualified for appointment and were commissioned as assistant surgeons. The requirements for graduation at the leading medical colleges of the United States include four years' study, and in addition, in order to enter examinations for admission to the medical corps of the navy, candidates must have had clinical and practical training involving at least one year of professional work. Those who successfully pass the examinations after such preparation are well equipped to enter upon the practice of medicine under ordinary circumstances, but they have, as a rule, no knowledge of the special problems that they may be called upon to meet as assistant surgeons in dealing with conditions peculiar to the navy. They have not specially studied the methods of combating tropic and subtropic diseases, and they are, in general, without acquaintance with the laws, regulations, customs, and traditions of the service, and the obligations and duties immediately devolving upon them when they take place and station as component parts of the personnel of the navy. Some training in these lines, so essential to success in a naval career, is now given in a thoughtfully outlined course of six months' duration at the naval medical school, established by the present surgeon-general, and just entering upon its third year. From this institution there were graduated last March, 30 officers, who have since entered active service. Twenty-four more have been enrolled and are under instruction. In addition to their ordinary duties in the care of the sick of the service, ashore and afloat, the medical corps during the past year has performed in naval hospitals a total of 753 important operations, and in several instances has been called upon to combat threatened epidemics. The manner in which the latter work was done shows that the best service of the profession in military, as in civil surroundings, is rendered by the medical advisor in his capacity as a sanitarian. Diseases wholly excluded from the service during the past year were bubonic plague, cholera, and yellow fever. Among those incidentally occurring, or isolated and controlled, were smallpox, cerebrospinal meningitis, and diphtheria. Eleven cases of the latter disease having developed among the apprentices on board the training ships Mohican and Adams, antitoxin was used and all recovered.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 11, 1905. [Vol. XLIV, No. 10.]

1. The Use of Food Preservatives. VICTOR C. VAUGHAN.
2. The Effects of Gonorrhea on the Female Generative Organs. JOSEPH TABER JOHNSON.
3. Purulent Conjunctivitis and Blindness. EDWARD JACKSON.
4. Birthrate and Decrease in Population as Affected by Syphilis and Gonorrhea. HENRY D. HOLTON.
5. Suggestions Concerning the Administrative Control of Venereal Diseases. GEORGE M. KOBER.
6. A Study of Metabolism in a Case Conjoining Myxedema and Diabetes Mellitus. AUGUST ADRIAN STRASSER.
7. The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve. A Report of Twenty Cases of Operation on the Gasserian Ganglion, with Anatomic and Physiologic Notes on the Consequences of Its Removal. (Continued.) HARVEY CUSHING.
8. Points in the Technic of Aseptic Operating. HENRY T. BYFORD.
9. Obstruction in the Retinal Arteries. ALLEN GREENWOOD.
10. A Case of Brain Tumor with Progressive Blindness. W. C. KENDIG and D. I. WOLFSTEIN.
11. A Case of a Very Large Tumor of the Frontal Lobe. Operation: Death. PHILIP KING BROWN and W. W. KEEN.

1.—Food Preservatives.—V. C. Vaughan states that before a substance receives legal sanction as a preservative it should be proved that it is a real preservative, not merely retaining an appearance of freshness while bacterial changes continue. In the largest quantities used it must not materially impair any of the digestive processes. It must not be a cell poison, or if so in any amount, it must be added to foods only by persons specially qualified and authorized, and foods containing these substances must be plainly labeled and the kind and amount of the preservative used must be made known not only to the buyer, but to each consumer. Not only the healthy but the diseased must be protected, the young and the old as well as those in the prime of life. Formaldehyd just sufficient to prevent the formation of lactic acid has little effect on the multiplication of colon and typhoid bacilli and its use in milk should be prohibited, whether in itself harmful or not in the quantities used. It seems established, however, that it interferes with the digestive enzymes. Whatever may be said of small quantities of each taken singly, if a man has sodium sulfite in his meat, alum in his bread, and formaldehyd in his milk, it may be questioned if his gastric juice, or what little he has left of it, will suffice to convert the proteids of his food into peptones. When poisons are to be given as medicine the statutes specify the necessary qualifications of physician and pharmacist. Is it not of more importance that the addition of poisons to our daily food be conducted under similar safeguards? [H.M.]

2.—See *American Medicine*, Vol. VII, No. 24, p. 930.

3.—See *American Medicine*, Vol. VII, No. 26, p. 1013.

4.—Birthrate and Population as Affected by Syphilis and Gonorrhea.—H. D. Holton thinks that to insure consideration of this subject by individuals of the profession a personal appeal should be made through the various State Boards of Health. A circular letter with a leaflet for the physician to hand to his patient containing precautions to be observed to avoid communicating disease to others might prove an educational force sufficient to set in motion a revolution regarding this question. Questions could accompany this by means of which the number of cases and other facts could be secured which would be of value in attempts to stay this plague. The letter and leaflet approved by the committee appointed by the American Medical Association to prepare them are presented by the writer. [H.M.]

5.—See *American Medicine*, Vol. VIII, No. 2, p. 51.

6.—See *American Medicine*, Vol. VIII, No. 1, p. 9.

8.—See *American Medicine*, Vol. IX, No. 3, p. 93.

9.—See *American Medicine*, Vol. VIII, No. 5, p. 184.

10.—See *American Medicine*, Vol. VII, No. 25, p. 973.

11.—Brain Tumor with Progressive Blindness.—P. K. Brown and W. W. Keen report the clinical history and surgical treatment of a case in which there developed an enormous angiosarcoma in the left frontal lobe. The special features medically were the insidious onset and painless development to its great size particularly as the bone was extensively involved. Vomiting was a late symptom and quite insignificant. The patient lived six weeks after operation, death being the result of infection, the wound cavity communicating with the frontal sinus and nasal cavity. [H.M.]

Boston Medical and Surgical Journal.

March 11, 1905. [Vol. CLII, No. 10.]

1. A Clinical Report of 75 Cases of Arthritis Deformans (Chronic, Non-tuberculous Arthritis). F. L. RICHARDSON.
2. The Complementary Relations of Glycuronic and Ethereal Sulfuric Acids and Their Pairings in Autointoxication, Typhoid Fever, and Cancer. A. E. AUSTIN and E. W. BARRON.
3. Dangers from the "Röntgen-ray Atmosphere" to the Operator: Their Prevention. H. W. VAN ALLEN.

1.—Arthritis Deformans.—F. L. Richardson divides cases into 2 groups. In the first the joint is tender and fusiform, with effusion in some cases. A certain amount of deformity remains and exacerbations occur at intervals from a few weeks to two years. After numerous attacks the joint appears to diminish in size frequently. In the second group there is marked deformity, with new bone formation, subluxation or dislocation or immobilization. In those cases with marked new formation of bone, there is the most calcification of the arteries. Why in one case there is new formation of bone and in another absorption is at present as much unknown as are the varied conditions that give rise to the disease. The most important treatment is hygienic. It does not seem advisable to cut off any particular foodstuffs. Dampness and trauma are said to predispose to it. Drugs have little or no effect on it; occasionally salicylates lessen pain. In acute cases rest is often advisable. Massage is good if the joint is not too tender. Next to this baking with hot sand or hot air is beneficial. Dry cuppings sometimes relieve pain. Counterirritants occasionally act well. Cases of spondylitis deformans are the best treated with plastic or leather jackets giving slight correction with fixation till pain has disappeared. [H.M.]

2.—Glycuronic and Ethereal Sulfuric Acids.—A. E. Austin and E. W. Barron state glycuronic acid occurs in conjunction with the ingestion of some aromatic substance which by pairing with it prevents further oxidation, or in conjunction with the ordinary aromatic bodies produced in the intestines, as indoxyl, skatoxyl, phenol, etc. The place in which the acid is formed is still in doubt. It has been attributed to the oxidation of dextrose which is not carried to its farthest limit, and, on the other hand, it may be produced from the glycoprotein, or even from ordinary serum albumin. Sulfuric acid is paired with as many aromatic bodies as glycuronic acid. They both have the power apparently of rendering innocuous many poisonous substances, such as phenol, morphin, etc. A study of these substances in the urine of cases of autointoxication, typhoid fever and cancer shows that aromatic bodies unite both with ethereal sulfuric acid and glycuronic acid, which apparently have a complementary relation to each other, but the former is always saturated before union commences with the latter. The glycuronic acid apparently varies very decidedly in amount, due to unknown causes, but not necessarily associated with increase of the pairing body, nor with the diminution of oxidation. Furthermore, there is always present an excess of sulfuric acid beyond the demands of the pairing body. [H.M.]

3.—Dangers from the Röntgen-ray Atmosphere to the Operator.—H. W. Van Allen reports seven selected cases rayed sometime ago in the genital region, more or less dermatitis being produced. None of these were malignant, all are in good general health now, and subjectively they are sexually normal. In four of these spermatozoa are absent. In these the dermatitis was not marked, and they were the longest treated. It is long-continued exposure which stops cell proliferation. Certain other symptoms have been found to be almost universally present in röntgen-ray workers. The nails and hair are brittle and of slow growth, the skin dry, there is indigestion, lack of concentration, drowsiness, insomnia, irritability, unnatural sensation of cold, premature sclerosis of the arteries. In the future, arrangements should be such that the tube and couch for the patient can be in a different room from the operator. The wall should be covered with sheet lead, having a peep hole filled with glass containing 20% of lead, or angled mirrors which prevent the nonreflectible ray from striking the operator. Many have rooms already in which the patient and machine must be together. The writer has obviated the difficulty by removing switches, rheostats, interrupters, and ammeter from the operating-room. The spark gaps are

worked by fish lines through screw eyes in the ceiling, and in the partition through glass tubing bent down at right angles on the operator's side of the wall. The above plan does away with fluoroscopy, but this is of value only in the movable organs, and its field of usefulness is small. [H.M.]

Medical Record.

March 11, 1905. [Vol. 67, No. 10.]

1. The Treatment of Epidemic Cerebrospinal Meningitis by Diphtheria Antitoxin. EDWARD WAITZFELDER.
2. Chronic Myositis Rheumatica and Its Treatment by Massage. GUSTAF NÖRSTROM.
3. Radical Operation for the Removal of a Bullet Weighing 70 Grains, Embedded in the Internal Wall of the Middle-ear, with Decided Improvement in the Subjective Symptoms. M. D. LEDERMAN.
4. Aortic Regurgitation with Chronic Miliary Tuberculosis in a Man of 22. MEDWIN LEALE.
5. A Case of Cicatricial Stricture of the Esophagus. A. B. ATHERTON.

1.—The Treatment of Epidemic Cerebrospinal Meningitis by Diphtheria Antitoxin.—E. Waitzfelder reports the results following the treatment of 17 cases of epidemic cerebrospinal meningitis by the injection of large doses of diphtheria antitoxin, according to the suggestion of A. J. Wolf. Five of the patients recovered completely; 3 died, of whom 2 were adults, and 9 patients are still under treatment. Of these, 5 show such marked improvement as to indicate probable recovery, 4 being convalescent. Of the remaining 4 patients, all are in a serious condition, and prognosis is impossible at the present time. Most of the cases were severe in their onset, with wellmarked evidence of profound constitutional infection, as is to be expected in the early periods of an epidemic. The doses of antitoxin given were 6,000 units to children less than 5 years of age; 8,000 units to those between 5 and 12, and 10,000 units to adults. This amount was injected under the scapulas on alternate days. In some severe cases it was given daily. Usually the injection was followed by a fall of temperature and pulse, and great improvement in the general symptoms. No bad effects developed as the result of the administration of the antitoxin. Should the results in these cases prove to be consistently repeated in others, the author believes that to Dr. Wolf belongs the credit of having discovered the remedy for one of the most fatal diseases, and of having evolved a plan of treatment not second in its effects to the antitoxin treatment of diphtheria.

2.—Chronic Myositis Rheumatica and Its Treatment by Massage.—G. Nörstrom discusses this condition, which he says is not, as it is generally believed, a rare disease, but is, on the contrary, one of the most frequent affections of the human body, though as it is seldom diagnosed, it is but little known. The principal features of the malady are inflammatory deposits in the substance of the muscle, which may vary greatly in size and may become as hard as cartilage, and pain, mostly resembling that of chronic rheumatism. The errors in diagnosis to which the condition may give rise are very numerous, and illustrative cases are described in which what had been considered to be rheumatism, renal calculus, growing pains, Bright's disease, torticollis, migraine, neuralgia, crystalgia, writer's cramp, sciatica, tarsalgia, etc., proved to be chronic myositis. The treatment consists in massage, more or less energetic, according to the consistency or age of the deposit. Great patience is necessary on the part of the patient and operator, as long-standing cases in old people may require several months of energetic friction. In order to prevent relapses the treatment should be continued until palpable changes are completely removed, although in young people one may leave a small residue, which by the treatment has been reduced to a soft condition, in the hope that nature will remove it.

3.—Radical Operation for the Removal of a Bullet Weighing 70 Grains, Embedded in the Internal Wall of the Middle-ear, with Decided Improvement in the Subjective Symptoms.—M. D. Lederman describes a case which illustrates the remarkable resisting powers of the negro skull. The patient was a colored woman, who presented herself with the statement that three years before she had been shot in the left side of the head with a 32-caliber revolver, held six inches from the skull. The bullet entered immediately above the tragus. Following the injury she was unconscious for three or

four weeks and since that time she suffered from deafness, vertigo and facial palsy. Examination after removal of a meatal polyp, revealed the bullet so firmly embedded in the internal wall of the middle-ear that it could not be stirred. On performing the radical mastoid operation, it was found impossible to lift the bullet from its bed, and it had to be chiselled away in shavings. The patient made a good recovery, attended by great improvement in the vertigo, deafness and facial palsy.

4.—Aortic Regurgitation with Chronic Miliary Tuberculosis in a Man Aged 22.—M. Leale reports this case, which seems of special interest, on account of the infrequent association of these two lesions. It is also unusual to see well-developed aortic regurgitation in so young a subject.

5.—A Case of Cicatricial Stricture of the Esophagus.—A. B. Atherton describes a case of obstinate cicatricial stricture of the lower end of the esophagus which when first seen admitted only an olivary French bougie two millimeters in diameter. By gradual dilation it became possible to introduce an instrument of twice this size, but after this no further stretching could be effected. The stomach was therefore opened and the stricture softened by the use of the string and bougie procedure of Abbe, after which gradual dilation became possible so that a short red rubber bougie one centimeter in diameter could be permanently worn. The upper end of the bougie lay at the junction of the pharynx and esophagus and was secured by a silk thread fastened to a tooth or to one ear. When last heard from, a year after the operation, the patient was still obliged to continue the daily use of the bougie, otherwise the stricture soon contracted.

New York Medical Journal.

March 4, 1905. [Vol. LXXXI, No. 9.]

1. The Surgical Treatment of Hemorrhoids. CHARLES MCBURNEY.
2. High-frequency, High-potential Currents, and X Radiations in the Treatment of Epilepsy. SAMUEL G. TRACY.
3. The Open-air Treatment at Home for Tuberculous Patients, with a Description of a Window Tent and a Half Tent. S. A. KNOPF and W. B. McLAUGHLIN.
4. Resection of Gangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis: Intestinal Obstruction Caused by Unoperated Appendicitis. CLARENCE A. McWILLIAMS.
5. Retarded Development of Speech in Young Children. G. HUDSON-MAKUN.
6. Active and Passive Exercise in the Treatment of Syphilis. NATHAN T. BEERS.
7. Reports of Two Cases of Cured Graves' Disease. GERALD BERTRAM WEBB.
8. Uremia with Pericarditis: Clinical and Pathologic Reports. HENRY S. WIEDER and HAROLD L. SPRINGER.

1.—Surgical Treatment of Hemorrhoids.—Charles McBurney reviews the different methods of treatment in this condition and describes in detail an operation which he believes possesses decided advantages over the others. He urges great care in preparation of the patient and in securing asepsis. The hemorrhoid to be operated upon is grasped with a tight clamp from side to side, lifted gently from its attached aspect by an assistant, while the operator with a knife makes an incision on either side of the tumor, parallel with its long axis, through the mucous membrane above, and the skin below. The two incisions should meet at a very acute angle below, and should invade the skin only enough to make this angle and avoid producing an awkward fold or tag. The tumor with the surface included by the incisions is now to be dissected up with the knife or with straight sharp scissors. This dissection must include the vessels of the hemorrhoid, but no more surrounding tissue than is necessary. The incisions can now be continued upward on either side, always converging to a point just above the hemorrhoid. The small pedicle will be found to contain the principal artery of supply and emergent veins. This should be tied at the highest point, but the hemorrhoid should not yet be cut away. Every bleeding vessel in the wound should be tied or twisted, and the wound closed by continuous suture up to the base of the pedicle, when it is cut away. A second or third hemorrhoid may be removed in a similar manner. A suppository containing opium should be introduced and opium given internally at intervals so as not to allow the bowels to move until the sixth or seventh day. The dressing is very important if edema of the lower angle of the wounds, pain and delay in healing are to be avoided. It is

claimed for this operation that it is absolutely safe; that it is radical; that neither ulceration nor stenosis ever result from it; that convalescence is painless; and that cure is obtained with a minimum loss of time. [C.A.O.]

2.—Treatment of Epilepsy.—S. G. Tracy says that in using high-frequency, high-potential currents, we need not refrain from employing any or all old-time remedies which we have found to afford even temporary relief. By the use of high-frequency, high-potential electric currents, we have a therapeutic agent which (1) acts as a nerve sedative, (2) controls local congestion, and (3) promotes the normal functional activity of the nerve centers. In addition to this it is not unlikely, in those patients who take the bromids, that this electric modality sets free a larger amount of bromin in those areas of the brain where the lesion of epilepsy is likely to be located. He says that by this means, possibly in some way as yet unknown to us, it exhibits its remedial influence by controlling the seizures or ameliorating the condition to such an extent that the patient feels warranted in calling himself practically cured. [C.A.O.]

3.—The open-air treatment at home for tuberculous patients is taken up by S. A. Knopf and W. B. McLaughlin. They describe and give figures showing a half tent and a window tent which they find give great satisfaction. The half tent is composed of a frame of steel tubing, which can be folded together when not in use. Over this frame strong sail duck is stretched and secured by snap-buttons on the inside, so as to completely protect the patient against wind and sun. The reclining chair may be placed in this half tent. The window tent is an awning which, instead of being placed outside of the window is attached to the inside of the room. It is so constructed that air from the room cannot enter nor mix with the air in the tent. The patient lying on the bed, which is placed parallel with the window, has his head and shoulders resting in the tent. [C.A.O.]

4.—Intestinal Obstruction.—C. A. McWilliams reports 33 cases of intestinal obstruction following unoperated appendicitis. Volvuli occurred in 6 patients, of whom 4 died, and 2 recovered; there were kinks in 4, of whom 3 died and 1 recovered; bands occurred in 23, of whom 8 died and 15 recovered. Of 7 operated upon within 3 days, 2 died, while 12 were operated on after 4 days, with a mortality of 8. Seven patients had gangrenous intestine, 4 of whom died and 3 recovered. The appendix itself acted as an obstructing band in 11 cases. He says that prophylaxis consists in carefully regulating the diet of every patient for several months after an attack of appendicitis. Constipation and attacks of colic should be promptly and vigorously treated and anxiously watched. Abdominal massage may be used to release adhesions, due to the antecedent periappendicular inflammation. Symptoms due to chronic obstruction should be distinguished from intestinal indigestion and treated accordingly. He urges that operation be performed earlier on these patients, and says that the burden of responsibility rests with the general practitioner who always sees these patients first, to summon at once a surgeon, when, after a short trial, medical measures fail to relieve. [C.A.O.]

5.—See *American Medicine*, Vol. VIII, p. 625.

6.—Treatment of Syphilis.—N. T. Beers urges active and passive exercise in the eradication of this disease. If the patient cannot or will not take active exercise in the open air, massage should be given. A cold dip in the tub, a brisk rub down with a rough towel, and an hour of thorough massage with Swedish movements administered by a man who understands his work, if taken regularly and for even a short period, will prove very valuable in handling these cases. Special attention should be given to the dissemination of the mercury throughout the tissues and to its thorough and final elimination. For the first year or more, he believes the mercury is best introduced by means of inunctions. The entire body, including the head, hands and feet, is divided into sections and each section rubbed consecutively daily until the "gums are touched" or the patient's bowels, becoming irritable, give hint of saturation. He prefers an ointment composed of very pure oil of sweet almonds, wax, gelatin, soap, and water, containing 50% of mercury. [C.A.O.]

Medical News.

March 11, 1905. [Vol. 86, No. 10.]

1. Uric Acid: Its Influence in Gout. CHARLES C. RANSOM.
2. Objective and Subjective Symptoms in Kidney Disease. C. L. GIBSON.
3. Laboratory Findings in Surgical Diseases of the Kidney. FREDERIC E. SONDERN.
4. The Röntgen Ray in Kidney Disease. LEWIS GREGORY COLE.
5. The Cystoscope and Ureter Catheter in the Diagnosis of Surgical Disease of the Kidney and Ureter. F. TILDEN BROWN.
6. Exploratory Operations Relating to the Kidney. HOWARD LILIENTHAL.

1.—Uric Acid: Its Influence in Gout.—C. C. Ransom notes the great variability in the amount excreted in different individuals and in the same individual under different conditions of diet, exercise and disease. Uric acid in the urine may be exogenous, from foodstuffs, or endogenous, from the destruction of the body cell. It may exist in the blood from increased production, or from deficient elimination and oxidation. Deficient elimination is due to kidney disease, deficient oxidation to disturbance of liver, kidneys, or other glandular organs, or from lack of muscular activity. Garrod's claim of an excess in the blood during a gouty attack, has been proved erroneous. If uric acid were toxic, we would expect to find symptoms from it in conditions in which it is known to be excessive, as in leukemia, pneumonia, chronic nephritis, etc., and in which no symptoms referable to it are ever seen. The same is true of cases in which nuclein holding food was fed in excess, and the uric acid output largely increased. Under no circumstances have uric acid crystals ever been found postmortem in the tissues. The blood is never saturated. It has been proved that it is always capable of taking up large quantities. There is no evidence at all that it causes gout or any other disease. [H.M.]

2.—Objective and Subjective Symptoms of Surgical Diseases of the Kidney.—C. L. Gibson gives in succinct tabulated form the chief diagnostic factors of the important surgical diseases of the kidney in order of their importance. He says: The chief symptoms of surgical diseases of the kidney are: (1) Pain—direct or indirect, or pain and tenderness; (2) variations from the normal on voiding urine and the appearance of the urine; (3) the presence of a tumor; (4) constitutional disturbances, such as fever and abnormal cardiovascular action, and the constitutional condition peculiar to disease of the kidney, uremia. The chief physical signs are the direct, showing anomalies of position, size and shape of the kidney. In addition, we may recognize abnormal mobility or fixation, tenderness to pressure and to some extent the consistency of the kidney. With the exception of congenital anomalies, increased size is for the most part due to distention of the pelvis. Tumors and polycystic kidney are the noteworthy exception, the kidney retaining its general shape, while distention of the pelvis gives a more globular surface. The larger kidneys will generally be sarcomas in children or hydronephrosis, simple or infected. Calculus of the kidney, unless complicated with suppuration or obstruction, generally causes no appreciable enlargement. Tuberculosis with inconsiderable infection of the pelvis produces little or even no enlargement. Tenderness of the kidney to the touch generally means suppuration of the acute type. Fixation of an enlarged kidney generally implies active suppuration, tuberculosis or malignant disease. An easily perceptible fluctuation generally means a simple hydronephrosis, purulent collections seldom are so manifest. Irregularity of surface is fairly frequent in tuberculosis, it may be marked in malignant disease and polycystic kidney. [A.B.C.]

3.—Laboratory Findings in Surgical Diseases of the Kidney.—Frederic E. Sondern, of New York, contributes an interesting article which, however, covers such a broad field that it cannot be summed up in brief abstract. He rehearses the laboratory findings in the urine in a series of surgical conditions. Concerning the daily output of urea, the author says the belief has long been abandoned that 6 gm. or 8 gm. means impending uremia or that 40 gm. necessarily means healthy kidneys. On the contrary, Cabot's statement that a knowledge of the daily output of urea is not of the slightest use, is the other extreme. The usual statement that from 25 gm. to 40 gm. of urea is the average daily output is erroneous; from 16 gm. to 28 gm. is much nearer the truth. While valuing highly the information obtained from laboratory investigation he says the

man who makes every diagnosis in the laboratory is as short-sighted and liable to grave error as the man who ignores microscope and test-tube. [A.B.C.]

4.—Röntgen Rays in Kidney Disease.—Lewis G. Cole, of New York, states that within the last year or so there have been improvements in the apparatus and technic which enable us to make skiagraphs of moderate-sized subjects, by which either negative or positive diagnosis may be made, regardless of signs or symptoms. In order to make positive as well as negative diagnoses of renal and ureteral stones, the ray of selective absorption is absolutely necessary. For all patients weighing 150 pounds or less, his time of exposure is from 5 to 20 seconds. In 179 cases, he has failed once to show a renal calculus when it was present; this failure was due to the plate not extending high enough to cover the kidney region, and twice he has made a diagnosis of a possible renal calculus where it did not exist. One of these was in a case of a man weighing 217 pounds, and the mass was found to be feces; the other, a woman weighing over 200 pounds, and the shadow was covered by gallstones and carcinomas of the head of the pancreas. In neither of these cases was he able to detect the size or shape of the supposed calculus. [A.B.C.]

5.—Value of the Cystoscope and Ureter Catheter in Surgical Affections of the Kidney.—F. Tilden Brown, of New York, recounts the various advantages of the cystoscope. Of the ureter catheter he says: As a means of diagnosis the ureter catheter is valuable (1) by reason of what comes through it; (2) by reason of its contemporaneous service as a sound; and (3) by its use as a röntgen-ray landmark, with which to compare other questionable röntgen-ray shadows, or questionable and palpable tumors. Of all bilateral catheterization tests those which demonstrated a unilateral renal tuberculosis were probably as a class more gratifying than any on account of the accurate and early diagnosis, together with the practical results attending nephrectomy, which substantiated the preoperative estimate as to adequacy of the other kidney. In three of the renal tuberculous cases no abnormality was noticeable in the condition of the corresponding ureter mouth, while on the other hand, the catheter secured urine containing tubercle bacilli, and the removed kidney showed the lesions. Among the least satisfactory results from catheterization were those in cases of renal hematuria, although the doubtful source of bleeding was determined in all; the etiologic factor in more than 50% was not made out, despite that in a number of the cases a reinforcement of the usual urinary tests was sought by inoculation, cultural, and röntgen-ray tests. Such negative results naturally supported the inference of neoplasm, and this tentative diagnosis was verified in 80% by operation or necropsy. [A.B.C.]

6.—Exploratory Operations Relating to the Kidney.—Howard Lilienthal sums up the situation as follows: (a) Exploratory operation is probably the surest method of diagnosis in suspected surgical disease of the kidney. (b) The indications for its performance are: (1) In hemorrhage from one or both kidneys when other measures have failed to check the bleeding, and the danger signals appear; (2) in palpable tumor with symptoms pointing to renal disease. Sometimes even to establish whether the tumor is kidney, gallbladder, or some other organ; (3) without palpable tumor, when there is reason to suspect surgical renal disease, and when medical, hygienic, and local treatment fails to give relief. (c) Exploratory incision may be necessary to demonstrate the condition of solitary kidney. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

General Gonococcal Infection.—W. H. Winn¹ states that the lesions and symptoms of the general infection depend upon three factors: (1) Direct infection with the gonococcus itself; (2) an absorption of a toxin (gonotoxin), and (3) mixed infection with other germs. There is now definite proof that the gonococcus circulates in the blood and produces lesions found in the various organs. This is true infection by the organism.

¹The Lancet, February 11, 1905.

Cases of gonorrheal pyemia and septicemia are rarely diagnosed during life. This is partly due to the fact that little attention is paid to the possible gonorrheal origin of pyemia, but also because these cases do not often occur in connection with an active gonorrhea, but from secondary foci in the prostate or seminal vesicles. Ullmann reported five cases of fatal gonorrheal pyemia, in four of which the necropsy showed the point of origin to be a prostatic abscess. In three of the cases the clinical diagnoses were typhoid fever, malignant tumor of the prostate, and purulent cystitis and septicemia of doubtful origin. Gonorrheal infection has no special clinical features which differentiate it from other pyemias, and a positive diagnosis can only be made by bacteriologic examination of the blood, or of any accessible lesion. If ordinary blood-examination fails to show the germ in obscure cases, the author suggests that the blood from the heart be examined after death. [A.B.C.]

Suggestive "Injection Fever" in Pulmonary Tuberculosis.—It has been recognized that many cases of sudden rise in temperature are attributable to psychic causes. F. Köhler and M. Behr¹ have investigated the question as to whether a suggestive influence might not be responsible for a part, or all, of the febrile reaction following tuberculin injections in pulmonary tuberculosis. They took a series of tuberculous patients and gave them the impression that they were about to receive injections of tuberculin, at the same time telling them what symptoms were expected to follow. Instead of injecting the serum, however, the operation consisted of a mere insertion of the hypodermic needle or an injection of sterile water. In over 20% of the cases a rise of temperature followed, which was sufficiently marked to be distinguished from any change that might have occurred under normal conditions. It is to be noted that only 4 of the 40 patients were of neurasthenic nature. It is therefore evident that the assumption of a positive tuberculin reaction must rest not wholly on a rise in temperature, but also on the presence of the accompanying symptoms (depression, headache, etc.), which were almost invariably absent in the test cases of these experiments. It is also of importance in making the tuberculin test to avoid all psychic suggestions that might influence the temperature. [B.K.]

The Pseudomalarial Types of Infective Endocarditis.—W. Coleman² classifies these types of endocarditis, which he says have not been accorded sufficient recognition. Clinically, they fall into two groups, the acute, measured by weeks, and the chronic, which lasts for months. Seven types have been reported, double quotidian, quotidian, tertian, quartan, septan, mixed types, irregular. A single case may present during its course several of these types, each in its turn distinct; in fact, it is characteristic of the affection that it changes in type. Yet it seems advisable to speak of general types as though they were continuous. Cases of each type are given as illustrations. The red cells and hemoglobin show much the same changes as in malaria. In infective endocarditis there is generally, but not always, leukocytosis, with increase of polynuclears; in malaria, leukopenia, with relative lymphocytosis, is the rule. One of the remarkable features of these forms of endocarditis is the strength of the patient between the paroxysms. Until the disease is advanced, he may feel quite well, and the classic picture of sepsis be lacking. In pathologic anatomy and histology, the two diseases may simulate each other in the presence of pigment in the organs. Microscopic examination of the tissues should not be considered final in the diagnosis. The only positive sign is the presence or absence of malaria parasites. [A.G.E.]

Tuberculosis and Mortality in Childhood.—William P. S. Bransom³ publishes an article to show the extent to which tuberculosis scourges the ranks of childhood in a populous quarter of the east of London. In addition are some facts concerning the frequency of primary abdominal tuberculosis. The pathologic facts are based upon 343 consecutive autopsies in a children's hospital, where patients are admitted to the age of 14. His conclusions are: (1) Among the children of the poor in East London tuberculosis is absolutely most fatal

during the first two years of life, and relatively to all other causes, death becomes progressively more fatal until the fourth year. (2) There is no specific relationship between measles and whoopingcough on the one hand, and tuberculosis on the other. (3) Catarrhal lesions of mucous membranes are the preeminent predisposing causes of tuberculosis in early life. Measles and whoopingcough are potent in this regard only through the catarrhs accompanying them. (4) About 50% of children dying of tuberculosis in childhood have had neither measles nor whoopingcough. (5) While the infection of tuberculosis in childhood is mostly air-borne, primary infection of the abdomen is by no means a rarity. [A.B.C.]

Acute Tuberculous Pneumonia.—William Osler¹ speaks of the pneumonic form of acute pulmonary tuberculosis. Both lungs are rarely involved; usually there is an old focus of disease in the apex or bronchial lymph-nodes. It is a rare form of tuberculosis, Osler having notes of 15 cases. The clinical features are remarkable. There are two types, one resembling typhoid fever, the other ordinary lobar pneumonia. The sputum may give the first sign that the disease is not lobar pneumonia, by becoming green. Routine examination of the sputum for tubercle bacilli is the only way to avoid error in diagnosis. Leukocytosis usually adds to the confusion by suggesting pneumonia; in one patient the count was 74,000. Physical signs are quite definite. Friction rub and pain correspond. Early consolidation is the rule, 36 or 48 hours. Tubular breathing is often intense. Rales are present, and the signs of apex cavity may appear and become the first sign of tuberculosis. There are three groups of cases: 1. The fulminant, death occurring as early as the fourteenth day. 2. Acute cases, in which death occurs in 10 to 12 weeks, galloping consumption. 3. The patients improve, and even get well enough to leave the hospital. There is no differential criteria between this disease and croupous pneumonia at the onset and during the first week. There is also great difficulty in differentiating from an unresolved pneumonia. The treatment is that of pulmonary tuberculosis. Osler says the treatment of tuberculosis has been hammered into physicians *ad nauseam* of late, but still the general practitioner does not treat the disease without drugs; he often does treat it without rest, fresh air, and proper diet. [A.G.E.]

Cutaneous Complications of Acute Articular Rheumatism.—G. Riebold² describes a number of cases illustrating the more unusual cutaneous complications of acute rheumatism. A common cutaneous lesion is sudamina, resulting from the profuse sweating that accompanies the disease. Not so readily explained are the erythemas and cutaneous hemorrhages that are often seen. Among the more rare lesions are peculiar, large, symmetric, inflammatory infiltrates; noninflammatory, symmetric cutaneous edema; and multiple, decubital ulcerations. All of these lesions are supposedly due to general disturbances of nutrition of toxic origin. [B.K.]

The Tonsils as Portals of Infection.—The tonsils referred to by M.W. Fredrick³ include the collection of lymphoid tissue in the upper respiratory tract spoken of collectively as Waldeyer's ring; it includes the nasal, pharyngeal, faucial, lingual and laryngeal tonsils, and the patches of lymphoid tissue scattered over the posterior pharyngeal wall. They all have the same anatomic structure, consisting of crypt-like invaginations of the epithelium, surrounded by aggregations of lymphoid cells. Concerning their function, he inclines to the view that for a short time they are mildly protective, by elaborating young leukocytes; this property is soon overwhelmed by the bacteria of any infection, they then forming an excellent culture medium for the last comers. Toxemia, the result of the absorptive function of the tonsil, then comes into play. Tonsillitis precedes and is associated with many of the infections, and, according to the author, the tonsils are the portals of entrance for many of the pathogenic bacteria. Articular rheumatism, endocarditis, pleurisy, chorea, peritonitis, orchitis, hydrocele, mumps, affections of the spinal cord, gastrointestinal disturbances, appendicitis, nephritis, phlebitis and hepatic disturbances have been traced to tonsillitic diseases.

¹ Deut. Archiv f. klin. Med., Bd. lxxii, p. 340.

² American Journal of the Medical Sciences, March, 1905.

³ British Medical Journal.

¹ Brooklyn Medical Journal, February, 1905.

² Deut. Archiv f. klin. Med., Bd. lxxii, p. 273.

³ California State Journal of Medicine, 1905, iii, 43, No. 2.

In how far these diseases are bacterial or toxic, he is not certain, but he inclines rather to their being toxemias than bacteremias. The symptoms of adenoids, in his opinion, are not due wholly to deficient oxygenation of the blood, but to a large degree to a chronic toxemia. [E.L.]

Long-standing Constipation.—Harry Gray¹ reports that a youth, aged 13½, came under his observation, having suffered for 11 years from constipation. On one occasion two months elapsed between evacuations of the bowel. The patient appeared to suffer, but little inconvenience, aside from occasional colic and vomiting, faintness, and headaches. Severe damage had been done, however, to his mental and physical development, both were below par. The appearance of the abdomen was like that of a pregnant woman at term. The patient was placed in the hospital and treatment instituted; in all 29½ pounds of retained feces were passed in 9 days. Early rectal examination disclosed a sphincter tightly contracted. Cocain suppositories, with ½ gr. of cocain each, were used at first, until the sensitive condition was overcome, then suppositories containing ½ gr. morphin each were used 3 or 4 times a day, and enemas of hot olive oil, 30 oz., were given twice daily. These were continued for 9 days and the color of the fecal matter began to change to normal. Thereafter a suitable diet, with a pill of aloes and iron, massage, and gymnastics, were ordered. This treatment was continued for 3 months, and during the past 2 months no medication has been given. The youth has gained 24 pounds since treatment was instituted and the bowels move regularly daily. Eustace Smith records a case in which 3 months elapsed between evacuations. [A.B.C.]

Decline of Leprosy in Norway.—G. A. Hansen² gives statistics to show that leprosy has declined in Norway, not because the Norwegians have learned to cure their fish better but because of isolation. He gives a table showing the steady decrease from 1856 to 1900. If Hutchinson's theory were correct, we must assume that fish-curing improved suddenly in 1857, for there are grounds for believing that leprosy was increasing up to that year. It can be definitely stated there was no improvement in the curing of fish even in 1870-71. In 1857 the first large asylum was opened in Bergen, and in 1861 two others elsewhere. The diminution varies much in different districts, and is greater the more patients are isolated, as other tables demonstrate. The number of lepers has so decreased that two asylums were closed in 1894. [H.M.]

Bactericidal Reaction of the Blood-serum in Typhoid Fever.—According to the investigations of Körte and Steinberg,³ the bactericidal action of the blood-serum of typhoid fever patients toward the typhoid bacilli can be demonstrated in dilutions that run up into the millions. Toward the end of the disease and in convalescence, this reaction rapidly grows weaker; and after the lapse of some time it is present only in comparatively low dilutions. No relation could be demonstrated between the intensity of the reaction and the severity of the disease, and relapses were observed even in patients with a high bactericidal power. Agglutination and the bactericidal reaction are two entirely independent processes. The diagnostic value of this reaction is analogous to that of the agglutination; the probability of a typhoid infection increases with the intensity of the reaction. Its clinical value is more limited than that of the agglutination test, as the technic is complicated. It may be employed in those cases where the other test gives doubtful results. [B.K.]

Modified Widal.—Bellei and Collina⁴ report a convenient method of obtaining this serum test. They refer to Proescher's technic, modifying it to permit the use of a bacterial solution to which has been added a proportion of formalin of 1 to 50. By this, the test is rendered possible for the smaller or more distant laboratories for which fresh cultures are not always within reach. [T.H.E.]

Incidence of Gastric and Duodenal Ulcer in Philadelphia.—A. P. Francine⁵ states that the medical admissions to the Philadelphia Hospital during the 10 years from 1893 to

1902 were 39,542. The total number of autopsies was 2,830. The number of cases of ulcer was 42, of which 2 were purely duodenal; 2 of the 40 were both gastric and duodenal. The patients as to sex were equally divided, 21 of each. The average for each sex was 43 years. Adding 107 autopsies at the Phipps Institute, and including the statistics of other hospitals reported recently by Dr. C. P. Howard, the statistics for Philadelphia are 3,763 autopsies and 51 ulcers, a percentage of 3.15. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

Hemophilia is a subject of considerable interest to the surgeon, not so much from the standpoint of treatment, but because the possibility of a tendency to bleed profusely should always be kept in mind before undertaking any operation, no matter how slight. Neglect of the precaution of inquiring into this history has led some surgeons of our acquaintance into very serious difficulty, and, as the condition is so seldom met, most of us need to be occasionally reminded of the possibility of trouble from this source. It has long been well known that this tendency is inherited and frequent cases have been reported in which a number of members of a family have been affected for several generations. Possibly the best example of this kind is the German family descended from Johann Peter Mampel, who have for over 100 years lived in the little hamlet of Kirchheim near Heidelberg. The first report of this family to the medical profession was made by Chelius in 1827, and three later reports have been published of this remarkable family, the last of which was by Lossen.¹ Accurate records of this family now cover four generations, and include 212 immediate descendants of this one man; 111 males, 96 females, and five prematurely born before sex could be determined. Of the 207 who have lived, 37 were bleeders, all of these males making exactly 33½% of the entire number. Lossen goes into quite a full discussion of the peculiarities of the disease as presented by different members of the family. Most of the deaths occurred during childhood, seven up to the third year and six between the third and tenth years. After the fourth decade of life the tendency to bleed seemed to cease. None of the female members of the family were bleeders, but the tendency to bleed was transmitted through the female descendants, who themselves were not bleeders to the male descendants. When male members of the family married healthy women, the tendency to bleed was not transmitted. From a somewhat careful study of the morphology and chemistry of the blood of this family, Lossen has been unable to arrive at any definite conclusions with regard to the origin of this disease. His observations seem to be of unusual value, however, for all of these patients were observed either by him personally or by other competent medical advisers who attended the early generations and recorded the results of their studies; they were not taken from the statements of members of the family or others, or from the register of deaths. No difference in the morphology of the blood from that of healthy persons could be observed, and Lossen believes that the cause of this peculiar condition is to be sought by a thorough investigation of the chemie constituents of the blood. He sees no reason to believe that the condition is allied to scorbutus or purpura hæmorrhagica. He obtained best success in arresting the bleeding by the use of the actual cautery where it was possible to apply this; however, the use of compresses saturated with ferric chlorid solution was quite effectual. After a clot was formed, a compress bandage was applied, if this was possible, to prevent it from being rubbed off.

¹ Deutsche Zeitschrift für Chirurgie, January, 1905, Vol. lxxvi, p. 1.

¹ British Medical Journal, February 18, 1905.

² Scottish Medical and Surgical Journal, January, 1905.

³ Deut. Archiv f. klin. Med., Bd. lxxxi, p. 321.

⁴ Il Policlinico (Rome), No. 69, 1905.

⁵ American Journal of the Medical Sciences, March, 1905.

The study of this family is, no doubt, the most thorough and complete of any yet recorded and will prove interesting reading for any who may have had experience in dealing with this interesting condition. The subject seems worthy of more thorough investigation by those specially interested in the study of the blood.

REVIEW OF LITERATURE

A Case of Bone Transference.—Thomas W. Huntington¹ makes reference to the paper of Nichols, of Boston, which appeared in February, 1904, in which that author reported 12 cases of bone transference, showing that in many instances, particularly where the defects were of minor dimension, by preserving the periosteum there was complete reproduction of bone, with the attainment of satisfactory results, so far as weight-bearing and function are concerned. Huntington reports a case as follows: The patient was a lad of 7, who sustained an injury to the left leg below the knee. He developed acute osteomyelitis of the tibia, with marked destruction of the bone. Six months after the acute process had subsided it was observed that an interval of five inches separated the upper and lower fragments of the tibia. On January 27, 1903, operation was performed, and the fibula was sawed through at a point opposite the lower end of the upper tibial fragment and the fibular end attached to the tibial fragment. Union took place, solidification being noted six months later, and the boy was up and about, but the weight-bearing condition was not satisfactory, an eversion of the foot was taking place. Consequently, in October, 1903, the lower portion of the fibula was transferred to the lower fragment of the tibia, and union took place satisfactorily. The limb now, though three fourths of an inch shorter than its fellow, is assuming the dimension and in a general way the contour of the normal member. Careful measurement of the transferred portion of the fibula shows its diameter practically the same as the opposite tibia. In a similar case, Huntington would insist upon the affected member being kept at rest until the second transposition could be effected, thereby avoiding a slight deformity, which is the only defect in the present case. [A.B.C.]

Tear-fracture of the Tubercle of the Tibia.—G. A. Wollenberg² reports a case of forcible separation of the tubercle of the tibia, and insists on a distinction between this type of injury which occurs at a time when ossification is already complete and separation of the epiphysis of the tubercle. His patient, a cadet of 17, met with the accident while exercising in the gymnasium; sudden pain was associated with displacement of the patella upward; he found himself unable to walk, but under appropriate treatment recovered completely, experiencing no discomfort for six years, when weakness, pain, and inability to raise the extended leg manifested themselves. Röntgen examination of the parts showed a normal patella displaced upward and a very much enlarged tibial tubercle attached from a point above its normal position to a point 1 cm. below the patella. On account of the marked development of the quadriceps muscle, the author believes the fracture to have been due to muscular contraction. Why in some such cases the patellar tendon ruptures, in others the patella fractures, and in still others the tubercle of the tibia breaks off, the author is unable to explain. [E.L.]

Total Extirpation of the Scapula on Account of Osteomyelitis.—Hahn³ found that the patient had sustained an injury during gymnastic exercise, and when he saw the patient there was fluctuation in this region and the skin was reddened. Hahn made several incisions, and evacuated a large quantity of pus. The scapula was found diseased, but on account of the condition of the patient he was forced to abandon the idea of continuing the operation. Later, a decided swelling occurred over the deltoid, so a second incision was made which extended from the coracoid process toward the anterior axillary fold, where considerable pus was found. This wound healed rapidly, but several fistulas remained. By means of a röntgen-ray picture, it was found that the scapula was greatly changed; the spine was scarcely visible, the coracoid process a mere shadow. He then

decided to do a subperiosteal extirpation of the scapula. Accordingly, an I-shaped incision was made, the vertical cut running parallel with the median line of the body. Hahn found the acromion intact, so that structure was chiseled from the remaining bone and left in place; the glenoid epiphysis showed spontaneous separation and its cartilage had undergone mucoid degeneration. Along the outer border of the scapula a sequestrum 6 cm. by 2 cm. was found, which was covered with small plates of newly-formed bone; the spine was regenerated to a marked degree, and the body of the scapula showed marked bone degeneration. Three weeks after the operation, the röntgen ray revealed that the scapula had largely regenerated, that the spine was clearly visible and that bone had formed at the neck of this structure. Six weeks after the operation, the patient could raise his hand upon his head; he could blacken shoes and could bowl. [J.F.]

The Rational Treatment of Fractures.—J. Stafford Mellish¹ describes his method of treating fractures wherever situated, which includes rubbing, and as much freedom and movement as can be permitted in each individual case. If a splint has to be used, as in fracture of the humerus or femur, rubbing must be practised and the patient induced to move his joints voluntarily every day, the splint being taken off for this purpose and then replaced. The rubbing must be commenced at the proximal end of the swelling in the region of the fracture and be directed toward the body, gradually working down to the distal portion of the swelling. This is practised to give the joints free play where possible, and in this manner to prevent weight and stiffness by encouraging the patient to move the joints while supporting the bones. The patient must be persuaded to flex, extend, and make rotation, and execute all the movements that the joints are in the habit of performing voluntarily. This method of treatment is efficacious and more rational than waiting a specified time after the occurrence of the accident, as is generally done, and then beginning so-called passive movement to be performed by the surgeon, for in the voluntary movement the nervous stimuli are called into use, while in the passive they are not. [A.B.C.]

Ureteral Catheterization and Endovesical Separation.—Paul Denis² believes that catheterization of the ureters is superior to endovesical separation, because it permits at the same time a complete cystoscopic examination. For example, in a case of hematuria due to a small tumor situated in the lateral walls of the bladder, the endovesical separation would determine from which side the bloody urine came, but it would not determine whether the hematuria was of vesical or renal origin. On the contrary, with the cystoscope the situation of the tumor could at once be determined, and the cause of the hematuria be discovered at the same time. The caliber and permeability of the ureter may also be learned by catheterization. Moreover, the nature of renal retentions may be determined with more accuracy. Finally, in exceptional cases, it is possible to determine a calculus in the pelvis or in the ureter, which frequently may exist without sensations. In those cases in which endovesical separation seems desirable, the instrument designed by Luys is recommended. [J.H.W.R.]

The Expectant Treatment of Appendicitis.—A. C. Bernays,³ in what he calls "an excursion into the field between medicine and surgery," takes exception to the principles of the Ochsner method of treating appendicitis. He says the ideal method of treatment is operation, performed in the beginning of the attack. If for some cause this time has been allowed to pass, then the expectant treatment may come into consideration, the best time for operation having passed, the purgation treatment will give the best results; the so-called Ochsner method looks like ignoring recent advances in the art of medical practice, and returning to a time now 20 years past. Cathartics and enemas should be administered. Bernays would substitute for Ochsner's statement regarding the use of purgatives, the following: "All practitioners of medicine and the public, if you like, should know that the proper treatment of acute appendicitis is by the regular use of cathartics and copious warm enemas and the restriction of food by mouth to a

¹ Annals of Surgery, February, 1905.

² Deutsche medicinische Wochenschrift, 1904, xxx, 1566, No. 43.

³ Arch. f. klin. Chirg., 1904, Bd. xlv, Heft 2.

¹ The Lancet, February 11, 1905.

² Jour. Méd. de Brux., February 9, 1905, p. 86.

³ St. Louis Medical Review, February 11, 1905.

minimum of liquid nourishment, and rest in bed with large, moist, warm antiseptic poultices over the belly." He puts but little dependence upon statistics, hence does not give the percentage of cures by the method advocated. [A.G.E.]

Excision and Erasion in Tuberculosis of the Knee.—Sir William Thompson¹ considers this subject at length and sums up the merits of erasion and those of excision. He is an advocate of excision as opposed to erasion, because it enables us to remove disease in soft and hard parts and to reach at once what might not otherwise be discovered. It gives us speedily a usable leg, free from any serious recurrence or flexion. On the other hand, with erasion we have a long precarious period after operation, in which union is fibrous and flexion, often to a considerable degree, is fairly common and always a danger. To sum up in a few words, excision is definite, comparatively short in treatment, very free from after complications, and quickly restores a patient to active life. Erasion is not definite, after-treatment is long, complications are always imminent and frequently develop, the patient is not speedily restored to active life, and, usually when the surgeon ceases to look for a movable joint, the whole position is surrendered to excision. [A.B.C.]

Operation on Horseshoe Kidney.—In his first attempt, Barth² failed to catheterize the ureters, but succeeded the second time, when he found the urine from both kidneys to contain albumin and bacteria, but the right was free from pus. Upon cystoscopic examination on the bladder mucosa he found many small ulcers around the opening of the left ureter, which were regarded as secondary. The onset of periodic attacks of colicky pain in the region of the left kidney, and the presence of blood in the urine at the same time, made him incline toward operation. He hesitated to operate because of the presence of albumin in the urine from both kidneys, but after the total output of urine reached 2,600 cm., and the freezing point of the urine varied from 0.98° to -1.62°, he decided to remove the left kidney. He found nothing abnormal about the vessels, but the left pelvis of the kidney was dilated. Barth incised the isthmus, which was composed of kidney structure and was 3.5 cm. in width, applied ligatures to the bleeding-points, and then sewed over the end of the right kidney to approximate the capsule. The tuberculous condition of the removed kidney was not nearly so extensive as the hydronephrosis, which produced marked atrophy of the cortical and medullary portions of the organ. Before the patient left the hospital the quantity of albumin was markedly reduced and the ulceration of the bladder mucosa had disappeared. The hydronephrosis was secondary to changes induced in the ureter by the bacillus tuberculosis. [J.F.]

Ethyl Chlorid as an Anesthetic in General Practice.—H. Hilliard³ finds ethyl chlorid a very satisfactory anesthetic. The main limitation is that it cannot be used for long operations where one man has to anesthetize and operate, as is sometimes the case in the country. A warning is made against the statements of agents that no preparation of the patient is required; if the stomach, bladder, or bowels are full they are apt to empty themselves at the time of administration. Almost any posture is safe so far as the anesthetic is concerned, but children are best anesthetized in the recumbent position. In 90% of cases the signs of deep anesthesia are stertor, fixity of the globes, and dilated pupils, with loss of ocular reflexes; these signs, however, must not be taken as invariable and one must always be on the watch for unusual symptoms. Never administer ethyl chlorid without first placing a wooden dental prop between the teeth. Hilliard finds no difficulty in securing complete muscular flaccidity, a point of objection mentioned by some anesthetists. Contraindications to the use of ethyl chlorid are: Diseases of the larynx; inflammatory lesions and tumors in, or adjacent to, the respiratory passages; goiter; all conditions giving rise to urgent dyspnea; and long operations. [A.G.E.]

Total Enucleation of the Prostate in Old Age.—P. J. Freyer,⁴ of London, in previous papers has discussed at length

total enucleation of the prostate, and the anatomic and pathologic considerations that render the operation feasible. In the present paper he discusses the operation in relation to octogenarians. He says one of the most remarkable features of this operation is the success that has attended its employment in patients of very advanced ages. Among 134 patients on whom he has performed the operation, there were seven octogenarians, with one bordering on this period of life, aged 79; seven of them are now alive, and most of them in excellent health, and all able to retain and pass urine normally. The remaining patient, one in whom the prostate was cancerous, after complete recovery from the operation, died from cardiac disease. He holds that from these facts it appears that age has little influence on the results of the operation, provided that the vital organs and part of the kidneys are unaffected or fairly sound. Nevertheless patients of this age cause much anxiety, and the operation should not be undertaken in such cases unless the most careful and tender nursing is available, as well as the constant supervision of the surgeon. Eight cases are reported in detail. [A.B.C.]

Treatment of Cancer.—A. W. M. Robson¹ states that in certain situations precancerous conditions can be readily recognized. Operation performed in this stage would save many lives. There is undoubted relationship between cholelithiasis and cancer of the gallbladder and ducts. Although the symptoms of gallstones can often be relieved for a time, their early removal is well because in a considerable percentage malignant disease will otherwise supervene. Precancerous conditions in the breast are eczema of the nipple, chronic inflammatory enlargement, cysts and adenomas, and indurations following injury. If the eczema does not speedily yield the nipple should be excised with the first portion of the primary ducts. In the other cases the involved lobules or the whole breast should be removed. Surgical treatment of rebellious gastric ulcers would prevent many cases of cancer and oral asepsis would prevent much stomach disease. Cancer of the cervix is infrequent except after lacerations. Cancer of the uterine body is equally frequent in those who have and have not borne children. Whenever a myoma begins to enlarge near the menopause removal is advisable. Ovarian cysts are apt to undergo malignant degeneration. In the rectum, hemorrhoids and ulcers should receive early treatment. The author gives most encouraging statistics of cure beyond the three-year limit in radical operation for cancer of the breast, stomach, tongue, larynx, rectum, gallbladder, etc. [H.M.]

Surgical Treatment of Intestinal Obstruction.—T. Carwardine² says no operation for intestinal obstruction can be considered adequate unless an immediate evacuation of the intestinal contents be assured. He proposes the principle that before dealing with the obstructing lesion, provisional enterostomy should be performed, and the intestinal contents be allowed to drain away during the whole time of operation. He has devised an enterostomy tube for this purpose, and has also extended its use to temporary and permanent enterostomy. The tube and method of employing it are described. The various procedures employed in intestinal surgery, and the conditions demanding each of them, are considered at length, the paper being a general review of the treatment of obstruction. The author employs for anastomosis, certain forceps which he has devised, but which he describes very briefly; they have the advantage of acting at the same time as intestinal clamps. He says Laplace's forceps lack simplicity and adaptability, and have not found general favor; O'Hara's forceps, though of value for the large intestine, are less so for the small bowel, on account of the considerable diaphragm which results and which in some recorded cases has caused death. [A.G.E.]

Colles' Fracture and Other Injuries in the Vicinity of the Wrist-joint.—Andrew Fullerton,³ of Belfast, states that the ordinary form of Colles' fracture is usually produced by falling on the hand in the three-quarter pronated position, and not, as is commonly stated, in the fully pronated position. It is usually stated that the accident is most common in women of an advanced age, but in a series of 69 cases studied, 54% occurred between the ages of 30 and 40, the largest number

¹ British Medical Journal, January 14, 1905.

² Arch. f. klin. Chirg., 1904, 8d. lxiv, Heft 2.

³ The Practitioner, February, 1905.

⁴ The Lancet, February 25, 1905.

¹ Medical Press and Circular, December 7, 1904.

² The Practitioner, January and February, 1905.

³ The Lancet, February 18, 1905.

occurring in any decade being between 30 and 40; of this number, 28 were males and 29 females; 50% of the women were over 50 years of age, while only 25% of the men were over that age. In most of the cases the injury was situated within the last inch of the bone; the ulna was implicated in 50% of the cases. Complete separation of the radius and ulna, with probable rupture of the triangular fibrocartilage takes place. In many cases, fracture of the styloid process of the ulna may occur alone, or any other injuries about the wrist-joint. Of 45 cases fully investigated, there were 12 with marked impaction. In regard to treatment, he states that in dorsal displacement, two splints should be applied, the anterior one not coming below the fracture, and the posterior one so padded that the hand is flexed at an angle of 45°. If there is impaction, it must in all cases be broken up and reduction effected before the splints are applied. The parts, however, should not be kept in splints longer than a fortnight, except in exceptional circumstances. [A.B.C.]

Effect upon Blood-pressure of Infusion of Sodium Bicarbonate.—P. M. Dawson¹ details the results of experiments made to determine the cardiovascular effects after severe hemorrhage, of intravenous infusion of solutions containing sodium bicarbonate. If sodium chlorid be infused after hemorrhage, the immediate effect is an increase of blood-pressure. If to the chlorid solution an increasing percentage of sodium bicarbonate be added, the rise in pressure is markedly increased. In their late effects the two solutions differ but little. The possibility of overworking the heart must not be overlooked; experiments of a series not yet completed show that very strong solutions of sodium carbonate and bicarbonate act as cardiac stimulants to an astounding degree. The physician must decide in each case if a cardiac stimulant is or is not contraindicated. In extreme cases of loss of blood, 0.5% to 1% of sodium bicarbonate to the usual 0.8% sodium chlorid may be of value in two respects: 1. The rise in pressure is more pronounced than when the latter is used alone. 2. A smaller quantity of fluid is required. Dawson believes a rational procedure is to begin infusion with the mixture and thus hurry the pressure upward in the beginning; when the pressure reaches considerable height, the sodium bicarbonate, if thought advisable, may readily be omitted from any subsequent fluid employed to maintain the pressure at the desired level. [A.G.E.]

Operation for Radical Cure of Varicocele.—Lieut.-Col. Augustine Aguirre,² of the Mexican Army, gives his method of procedure, which he states possesses the following advantages: 1. The resection of the scrotum gives for a result the formation of a real and natural suspensory which keeps the testicles in a good position and impedes a repetition of the disease. 2. The ample wound which results, once the resection of the scrotum is finished, brings to view the two testicles and the two cords, so that this incision alone suffices for an operation for double varicocele, cyst of the cords, gumma of the testicles, etc., as has sometimes happened. 3. The dissection of the bunch of varicose veins is made much more easy because one sees at a glance the component parts of the cords. Also when the posterior bunch of veins is varicose, it is easier to dissect and resect them. This method has been applied up to date in sixty cases. In all of them healing by first intention has resulted and the final result has invariably been satisfactory. In all cases the symptoms which induced this operation (such as neuralgia of the testicles, psychologic perturbation, etc.) have disappeared entirely and the cure has been complete. [A.B.C.]

Syphilitic Synovitis in Children.—G. H. M. Dunlop³ finds this affection not so rare as the textbooks would lead us to suppose. Probably many cases are treated as tuberculosis or as subacute rheumatism. When properly diagnosed, complete recovery is the rule. If rest and splints are applied, adhesions form and ankylosis may supervene. An acute synovitis is said sometimes to occur in infants before eruption. Sometimes synovitis is due to gumma of the tissues in and around the joint. The condition has been mistaken for a sarcomatous tumor, and the part has been amputated. The

elbows, wrists, knees, and ankles are the joints oftenest affected. When several joints are affected, owing to the great constitutional disturbance, the prognosis is not so good. The characteristic symptoms of true chronic syphilitic synovitis are its insidious development, chronic course, symmetric distribution, freedom from pain, association with other syphilitic stigmas, amenability to treatment, and tendency to relapse. It may be discovered accidentally. The swelling is due to synovial effusion. Occasionally the membrane feels thickened, there is flaccid fluctuation in the joint, but it is never tense. There is no heat, redness, creaking, or muscular atrophy, and no starting at night. Keratitis precedes or accompanies the synovitis in 75% of cases. Sometimes the effusion clears up spontaneously. Improvement is much more rapid on a combination of mercury and potassium iodid than upon mercury alone. Sometimes cases resist treatment for months and then suddenly recover. [H.M.]

Albuminuria in Appendicitis and Hernia.—F. E. Bunts¹ has studied albuminuria in 2 classes of cases in which the peritoneum was opened. For the inflammatory, 50 consecutive cases of appendicitis were taken; for noninflammatory, 50 cases of hernia. Of the former, 18 showed albumin previous to operation. In 5 it disappeared after operation and 20 new ones developed it, making 33 after operation to 18 before. In the hernia cases, the numbers were 20 after to 11 before, albumin disappearing in 2 after operation. These observations show that operations in inflammatory cases cause the development of albuminuria in 40% of new cases, and an improvement or disappearance of albumin in 10%; in non-inflammatory cases, operations are followed by albuminuria in but 18%, and by disappearance of albumin in 4%. It is somewhat startling that 66% of all inflammatory cases operated upon had albuminuria subsequently, and 60% of these did not have albumin previous to operation. These small series emphasize previous observations that albuminuria is found in a very large percentage of surgical cases; that it cannot be considered on any ground yet established that it is of itself a contraindication to operation. Among the 100 cases reported there were only 2 deaths, both acute suppurative appendicitis. One patient who recovered was a woman 7 months pregnant, with albumin and hyaline casts, who was subsequently delivered of a full-term healthy child. [A.G.E.]

Urethral Stricture Complicated with Prostatic False Route.—Reginald Harrison,² of London, cites the case of a sailor of 40, who had for many years suffered from stricture. While at sea he broke his small elastic catheter and a silver instrument of larger size was then passed for him by the captain of the ship, with much force, pain and bleeding. This process was subsequently repeated several times during the voyage. In the course of some weeks the man passed urine voluntarily in sufficient quantity to keep himself comfortable. His general health, however, failed, and renal disease became manifest. He died shortly after and autopsy showed a dense stricture in the deep urethra which would only admit a bristle, and beneath it was a false passage through the prostate, which was not enlarged, 1½ in. in length which opened into the bladder above the gland and had served the purpose of a prostatic urethra. In another instance, reported by Cadge, in a man with a chronic stricture and perineal fistula, a silver catheter had been forced by a surgeon, and the passage gradually dilated up to a number 12 (English). This served the purpose of the injured urethra and the patient died a few years later of renal disease. The condition was found postmortem. In still another instance a false passage was made through the prostate, and while the patient suffered some inconvenience for a fortnight, he was soon able to use a flexible catheter upon himself, and thereafter suffered no further trouble. Harrison then comments at length upon the subject under discussion, which these cases illustrate. [A.B.C.]

Treatment of Patella Dislocation.—Graser³ maintains that the external dislocation is most frequent because the patella normally lies more upon the external condyle than upon the internal and the slight physiologic valgus gives the vastus

¹ Journal of Experimental Medicine, February 25, 1905.

² Journal of the Association of Military Surgeons, January, 1905.

³ Edinburgh Medical Journal, December, 1904.

¹ American Journal of the Medical Sciences, March, 1905.

² The Lancet, February 18, 1905.

³ Arch. f. klin. Chirg., 1904, Bd. lxxiv, Heft. 2.

externus a better leverage than the vastus internus. The most important factor in determining the condition is the spheric shape of the internal condyle so that if the patella does slide over and upon the inner side of the internal condyle, there is nothing to prevent it from returning. Although the anterior surface of the external condyle is also spheric, it ends abruptly in the outer surface so that if once over, the patella cannot return. After reviewing the various methods employed to prevent this defect he describes a process by which he believes the difficulty can be overcome. His plan is to elevate the external condyle to the level of the internal condyle which he does by chiseling through the femur and rotating the condyles together with the tibia inward 30° by making strong extension of the leg. He has operated upon three patients with good results. [J.F.]

Traumatic Lumbago.—Frank Romer¹ defines the condition as pain and stiffness in the lumbar region, caused by injury, and which persists long after the immediate and acute effects have subsided. Many cases have shown good results from treatment based on the assumption that the condition is due to adhesions in the muscular or tendinous structures in the lumbar region. The history of the cases is usually one of definite, though frequently slight, sprains of the back, necessitating rest on the part of the patient. Perfect recovery is not attained; the condition persists. On examination, the lumbar muscles are generally found to be wasted; while on the affected side they are contracted. Treatment aims at stretching the contracted muscles and rupture of the adhesions, and an anesthetic is given, both for the prevention of pain and to insure complete muscular relaxation and absolute freedom in manipulation. The patient is placed on his back, the leg on the affected side flexed at the knee, and the thigh is flexed to the abdomen; the leg is then extended. The opposite leg is carried through the same motions, and comparison is made. Thus a series of gymnastics is carried out with the object in view, which is above denoted. [A.B.C.]

Cause and Treatment of Appendicitis.—Zwalenburg,² discussing appendicitis, says that obstruction and consequent distention and strangulation are the cause of appendicitis. The exact diagnosis can usually be made from a careful study of the history. The ideal treatment is removal of the appendix before the infection extends to the peritoneum. After this time no operation should be done during the acute stage. Fasting, avoidance of cathartics and absolute rest insure a very low percentage of mortality in appendicitis and peritonitis. [E.L.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Experiments Concerning the Spread of Tuberculosis along the Female Genital Tract.—P. Baumgarten³ reports concerning the experiments performed by Basso and himself to determine the direction in which the tuberculous process spreads. They injected *Perlsucht* bacilli into different portions of the genital tracts of female rabbits, and found that the diffusion of such tuberculosis, as has already been found to be the case, in the male, follows a definite direction, and is limited by definite anatomic boundaries. In the infection of the lower portion of the vagina, the tuberculosis was always limited to that part of the tract, never passing beyond the line separating the lower from the upper part of the vagina, but always spreading into the urethra as far as the vesical sphincter. The infection of the upper part of the vagina never spread either upward or downward, and an ascending genital tuberculosis was never observed during these experiments. In the case of infection of the upper part of the uterus or the tubes, however, the disease was always found to spread downward, following the direction that the ejected ova take in passing through the tubes into the uterus. In but few cases did the disease pass beyond the boundary separating it from the upper part of the vagina. In the case of the urinary apparatus, the diffusion of the tuberculous process was always found in the direction of the urinary

stream. In no instance did the disease spread from the bladder to the uterus, or vice versa. From a scrutiny of the literature of the subject, and from his own experience, Baumgarten deduces the opinion that the same laws are followed as govern cases of genitourinary tuberculosis in the human subject. [E.L.]

Extrauterine Pregnancy.—J. K. Kelly¹ defines an extrauterine pregnancy as one which results from the settlement of the pregnant ovum elsewhere than in the endometrium. The theory of the embedding of the ovum which is at present generally accepted, would almost indicate that the impregnated ovum can settle on any tissue in which it can obtain the blood supply necessary for its growth. We must look, however, for the cause of extrauterine pregnancy in the impregnated ovum itself, rather than in the canal through which it passes. By the time it has travelled to the uterus it has reached a stage in which it is fitted to attach itself to the maternal structures, and anything which retards its progress may cause extrauterine attachment, as tortuosity of the tube, or slowness of the ciliary stream from an antecedent salpingitis which has destroyed some of the cilia. Tubal pregnancy may be reversion to an earlier type. We may assert from the consideration of tubal pregnancy that a decidua is not a condition necessary to its occurrence. In the tube the ovum lies below the mucosa, enclosed in muscular tissue. The surface of the earliest human ovum yet observed is covered with a layer of cells, some of which, at least, form that peculiar substance called syncytium. This seems to have a destructive action, and burrows into the maternal tissues wherever it may be situated. If the ovum reaches the syncytium stage before leaving the tube, a tubal pregnancy necessarily results. When rupture occurs instead of abortion, it is probably due to erosion, and not to distention, that is, to the corrosive action of the syncytium. The author discusses the diagnosis and treatment of the condition before and after rupture or abortion. [H.M.]

Complete Inversion of the Uterus.—L. N. Warnek² reports a case of this kind following labor. The child was born rapidly and unexpectedly, while the mother was out in the yard. She was standing during the process and the entire contents of the uterus simply fell out. She soon discovered a tumor protruding from the vagina, a hemorrhage took place and she lost consciousness. After many futile attempts at reposition she was sent to the author, who treated her in accordance with a method described by Professor Kezmarszk in 1890. The uterus was first immobilized by means of packing the vaginal vault with iodoform gauze. Then a colpeurynter was introduced for 24 hours. Pains and contractions appeared during this time and when the bag was removed the uterus was found in its normal position. This method deserves notice and may be modified according to the case. In the original case described by Kezmarszk the vagina was packed in the knee chest portion. [L.J.]

Treatment of Cystic Tumors of the Ovaries, Complicating Pregnancy and Labor.—A. Duehrsen³ concludes his paper concerning the treatment of ovarian tumors complicating pregnancy and labor with the following dictum: In no case of incarcerated ovarian or parovarian tumor should attempts at reposition be made during pregnancy or parturition, with or without ether, because of the danger of lacerating the pedicle with consecutive internal hemorrhage. Such cases should be treated by vaginal ovariectomy, usually posterior colpoclelomy. If unsuccessful, abdominal ovariectomy may be resorted to without danger to the patient, especially if all preparations have been made for this eventuality. This is the operation of choice during parturition, if there is infection of the tumor contents or the genital tract. Tumors displacing the anterior or posterior vaginal vaults are to be removed during pregnancy by the vaginal route. Tumors situated so high as not to permit themselves of being pushed down should not be tampered with during pregnancy, if they are not increasing in size and the general health of the patient is good. This expectant treatment permits removal of these tumors by the vaginal route after delivery and complete retrogression of the uterus. Myomas obstructing the pelvic outlet

¹ The Lancet, February 18, 1905

² California State Journal of Medicine, 1905, III, 14.

³ Berl. klin. Woch., 1904, xII, 1067, No. 42.

¹ Glasgow Medical Journal, January, 1905.

² Medizinskoje Obosrenie, LXI, No. 22.

³ Deut. med. Woch., 1904, xxx, Nos. 42 and 43, 1521 and 1570.

and which cannot be drawn up out of the way should be removed by vaginal cesarean section by either anterior or posterior colpoceliotomy, after which the uterus can be carefully emptied and removed likewise through the vagina. If retention of the uterus seems desirable, all the myomas can be enucleated through the incisions already made and the points of attachment sutured. [E.L.]

Obstetric Views that Need Reviewing.—W. Stephenson,¹ in his first paper, "Concerning Uterine Structure," states that no layers such as are described in the ordinary textbooks can be made out; the appearance of outer longitudinal and inner circular fibers is illusive. Much that is connective tissue has been assumed to be muscle. The pregnant uterus, on section, presents throughout a close stratified appearance; the longitudinal and transverse sections are so much alike they cannot be distinguished. The muscle tissue is arranged in lamellas—not bundles. This lamellated structure admits of one stratum moving on another, or a number may participate in a sliding movement in the same direction. It is probable that several layers move in a spiral manner. The appearance of the lamellas on transverse or longitudinal section and their movements on each other may be illustrated by the cut edges of a book; tangential sections, by the surface of a page. During labor the inner lamellas retract more than the outer, being crumpled together into a confused mass, while the subperitoneal layer, which is prolonged into the vaginal wall, maintains fairly well its lamellate appearance. In the cervix the inner layers pass into a dense connective tissue of which this body is mainly composed. The function of the musculature is to expel, not to retain the ovum. The cavity is kept closed by the fibrous structure of the cervix. The resistance is weakened by the softening which precedes labor. The histologic changes which precede and culminate in labor are those of dehiscence. These processes may extend over days or weeks. [H.M.]

Symptomatology of Movable Retroflexion of the Uterus.—W. Naeke² has found that of 265 patients with retroflexion of the uterus, only 37 (14%) did not complain of symptoms of some kind. All the others presented symptoms of various sorts. In 62 of the patients these symptoms could be traced to causes other than the retroflexion. After discussing many of these symptoms and tracing them to their sources, the author states that retroflexion associated with normal size of the uterus, normal pelvic conditions, normal elasticity of the ligaments, and normal adnexa is in but few cases accompanied with symptoms; and that for these symptoms an indisputable explanation has not been discovered. He is of the opinion that they are due to fine changes in the tissues or the nervous apparatus connected with the uterus and its adnexa, and says that such changes are described by Freund in his paper entitled, "Hysteria Due to Atrophic Chronic Parametritis." [E.L.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

The Sodium Cinnamate Treatment of Tuberculosis.—O. Prym,³ of Moritz' clinic, has employed synthetic sodium cinnamate in 22 cases of tuberculosis in 19 of which the seat of lesion was in the lung, in 3 in the bladder. In 5 of these patients he noted improvement; in 9 neither the local nor general condition changed in the slightest, and in the remainder the patients became gradually worse. The agent was employed intravenously, a method which he found neither difficult nor dangerous. He is sure that the drug exerts a marked influence on tuberculous processes, but does not consider this exclusively favorable. In some cases it even impressed him as being dangerous. It should therefore never be used, if the patients cannot be placed under constant medical observation. The most suitable cases are those still in the initial stages. Of 13 patients beyond this stage not one of them had his condition bettered. Schrage's⁴ experiences have been more favorable.

He has employed it for five years and considers it an excellent remedial agent in early tuberculosis, that is, in cases without complication and fever; he has found it of value even in the presence of cavities, without febrile reaction. Patients with a tendency to hemoptysis and rapidly advancing cases must be treated by other means. He insists that the improvement felt by the patients is not due to subjective suggestions, but that the temperature rapidly approaches normal, night sweats cease, the bodily weight increases and the objective pulmonary signs improve. He describes a number of cases in detail, in all of which marked improvement was noted. [E.L.]

Serum Therapy in Lobar Pneumonia.—H. Pászler⁵ treated 24 patients having lobar pneumonia with antipneumococcal serum, with a mortality of 4 cases. No harmful result was observed from the serum. In almost all cases, general improvement followed the injections, even though no change in the course of the disease could be noted. In 6 cases the crisis followed a first injection, and in 4 cases a second injection. Fall in temperature often occurred, even in those cases in which crisis was not induced. In most cases the disease process was confined to the lobe in which it started. If pulmonary edema was present, it was apparently cleared up by the serum injection. Considerable improvement in the circulation also followed the injections, while meningeal symptoms vanished. The serum treatment seemed to be the turning point in some apparently hopeless cases. Out of 6 cases of pneumococcemia, 3 resulted in cure, an unusual result. In view of the uncertainty of its action, Pászler does not recommend the serum in every case of lobar pneumonia. He believes it to be especially indicated in cases of severe infection, notably those with pneumococci in the blood; also in cases with weakening of the circulation or with pulmonary edema. It should be given as early as possible, when diminished bodily resistance is expected, as in alcoholics or the aged. [B.K.]

Concerning the Use of Yohimbin.—E. Toff² has employed yohimbin with success, not only in neurasthenic, psychic, and toxic impotence of men, but also in anomalies of menstruation not resting upon an organic basis, but rather upon an insufficient supply of blood to the uterus. One of his patients found himself impotent in the course of syphilis; a second, as the result of sexual excesses; a third, as the result of the excessive use of alcohol. All three were cured with yohimbin, in doses of from 20 mg. to 30 mg. daily. In the second type of cases, arsenic and iron were usually associated with the yohimbin. [E.L.] [Cured is entirely too big a word—yohimbin in some cases causes priapism or apudism for the time being. s.s.c.]

Eliaterium in the Treatment of Edema.—H. Sewall³ says that elaterium has the power of causing absorption of dropsic effusion irrespective of the loss of watery fluid from the blood to the bowel. This must be done directly from the tissue spaces; how it occurs is a point for investigation. The action of elaterium is cumulative, one or two small doses daily producing finally physiologic effect or intolerance. The drug is irregular and unreliable unless administered until nausea or griping is induced. [A.G.E.]

Serum Therapy of Dysentery.—W. J. Kanel⁴ employed this method in 130 cases of dysentery. He is very well satisfied with the results, the mortality having been but 2½%. This figure is the lowest so far reported in epidemic dysentery. Kanel says that serum treatment is indicated in all cases, there being no contraindications. It has a favorable influence on all symptoms, and cure takes place in cases of medium severity, usually within two days. In severer cases the relapses are less frequent and fewer pass into the chronic form. [L.J.]

Epinephrin in Asthma.—R. L. Doig⁵ reports having employed epinephrin (Abel's active principle of adrenal gland) in two cases of paroxysmal asthma with the best results. He recommends the injection of from 10 to 12 drops of a 1 to 1,000 solution in equal parts of normal saline solution. The signs of asthma disappear within a few minutes after the injection; a

¹ Scottish Medical and Surgical Journal, January, 1905.

² Zent. f. Gynäkologie xxviii, 1428, No. 47.

³ Münchener medizinische Wochenschrift, 1904, li, 1950, No. 44.

⁴ Deut. Archiv f. klin. Med., Bd. lxxxi, p. 361.

⁵ Deut. med. Woch., 1904, xxx, p. 1577, No. 43.

⁶ Colorado Medicine, December, 1904.

⁷ Medizinskoe Obosrenie, lxii, No. 21.

⁸ California State Journal of Medicine, 1905, iii, 54.

general tremor which developed about 15 minutes after the injection he prevented by combining the epinephrin with atropin. [E.L.] [This is further confirmation of my published observations. S.S.C.]

Marmorek's Antituberculosis Serum.—H. Frey¹ has used Marmorek's serum in 12 cases of pulmonary tuberculosis, making about 350 injections. In several of the cases he produced considerable improvement, and therefore urges more extensive trials of the substance. He confirms the absolute harmlessness of the substance, and careful regulation of the doses obviates the possibility of toxic symptoms. Local reactions, such as urticaria, were noticed in a few of the cases, but the patients soon became accustomed to the injections. Preexisting fever was favorably influenced in most of the cases, the dyspnea and urinary excretion also improved considerably. The amount of sputum increased at first, to diminish later in all cases. Concerning his technic, he prefers the extensor surface of the arm for injection; he considers 10 cc. to 20 cc. an ordinary dose, and usually continues the injections for eight days, ceases them for eight days, then repeats the injections, etc. He begins with 3 cc., gradually leading up to the maximum dose. [E.L.]

DERMATOLOGY

M. B. HARTZELL.

EDITORIAL COMMENT

Cutaneous Eruptions Due to Pilocarpin.—In poisoning from pilocarpin, one finds tachycardia with a lowering of the blood-pressure, soon followed by cyanosis and collapse. Symptoms of acute pulmonary edema are produced on account of the mucus secreted by the lungs. Ocular disturbances, such as cataract, myosis or amblyopia are observed, while vertigo, ringing of the ears, vomiting and diarrhea may be encountered. Cutaneous eruptions from pilocarpin have not been reported until recently, but a case has been recorded by Hallopeau and Viellard.²

A man aged 52 developed an episcleritis with an increased ocular tension and acute glaucoma. The treatment consisted of instillations of a solution of pilocarpin at the strength of five centigrams in ten grams, and of hypodermic injections of the same substance at the dose of five milligrams and then one centigram; the patient took beside three grams of sodium salicylate in 24 hours. This treatment was kept up for 35 days, and the condition of the eyes markedly improved. Shortly after the last injection a peculiar form of dermatosis developed; on the face and limbs umbilicated papular elements were found, varying in size from that of a millet seed to a split pea. Some of these papules were surmounted by a hair, their consistency was firm and in color they were dark red. By pressure a serous fluid could be expressed in the first place, which later on became purulent. The eruption increased and became confluent while on the plantar regions firm and persistent papules appeared. The patient was extremely restless, got out of bed incessantly, urinated involuntarily and recognized nobody. The pulse was filiform, there was no sugar or albumen in the urine, but there was a decided diminution in the amount of chlorids. Death occurred shortly after. Histologic examination showed numbers of leukocytes agglomerated around the secretory tubes of the sudoriparous glands, but by careful staining of the sections no trace of bacteria could be found. The kidneys appeared normal while the liver and spleen were hypertrophied.

The poison had apparently exercised its action both on the sudoriparous glands, in which it had set up an inflammatory process, and in the encephalic and cardiac centers of innervation. The absolute absence of bacteria appreciable by the ordinary stains led Hallopeau and Viellard to consider that the poison had in all probability a direct pyogenic action. The symptomatic ensemble cannot be included in any of the clinical types which have been described up to the present time. The nature of the eruption, which in the first place was serous, differentiates it from all other purulent infections of the integuments. The case could not have been one of impetigo because the umbilicated firm and persistent papules of the plantar regions do not belong to

this dermatosis. The disease that it most closely resembled is the acne of chlorosis, but in this case the umbilication is absent, although the papules on the face and limbs rapidly arrive at suppuration, but the plantar and palmar surfaces are never involved in the processes. Then again in this form of acne, comedones are numerous, showing the sebaceous origin of the lesions. A case such as this should put the practitioner on his guard for death occurred after thirty-five hypodermic injections of pilocarpin and eighty instillations. The antidote of pilocarpin is as yet unknown, and there is no treatment of any value by which its elimination can be effected. For this reason one should be extremely prudent in the use of this substance, which should not be given subcutaneously for more than a few days at a time.

The Treatment of Ringworm of the Scalp by the Röntgen Ray.—Ringworm of the scalp has long been the opprobrium of the dermatologist. The treatment of ringworm of nonhairy parts is a very simple matter indeed since there is no lack of drugs which when brought into contact with the trichophyton fungus, will promptly destroy it; but when the fungus attacks the scalp the difficulty of reaching it in the deep hair follicles of this region with any parasiticide is so great as to make treatment up to the present, a matter of many months and even years. Every one knows with what great difficulty it is managed in institutions for children where it frequently proves a veritable pest year after year. It would appear, however, that an efficient remedy has at last been found in the röntgen rays. Unlike the remedies heretofore used, this agent cures, not by its germicidal powers, which are very feeble if they exist at all, but by its depilating properties. The complete alopecia produced by exposure of the diseased areas to the rays lasts a sufficient length of time to starve out, as it were, the trichophyton, so that the new hairs grow in free from infection. When properly carried out, this method of treatment seems to be certain, safe and effective within a short time, three months being usually sufficient to bring about a cure. In a recent paper Sabouraud and Noiré¹ relate in detail their method of conducting this form of treatment. As it is very necessary to measure accurately the amount of the rays employed in order to prevent dermatitis and other untoward results following a too long exposure, these authors employ a radiometer of their own devising which seems to be sufficiently accurate for the purpose. This radiometer consists of a sheet of paper coated with an emulsion of barium platinyocyanid in collodion made with amyl acetate which changes color under the influence of the röntgen rays. When the color of this radiometer reaches a certain standard tint it is an indication that a sufficient exposure has been made to produce fall of the hair without dermatitis. After such an exposure usually nothing is noticed for a week, then a faint erythema appears, which four days later becomes a slight pigmentation; at the end of two weeks the hair begins to fall, and complete alopecia soon results. Usually a single sitting is sufficient to produce complete baldness. The return of the hair in most cases begins two months later, and its restoration is complete at the end of three months. Should further experience with this plan of treatment confirm the extremely favorable reports of these authors, a long step forward will have been made in the management of this hitherto stubborn disease.

REVIEW OF LITERATURE

Subcutaneous Injections of Chaulmoogra Oil in Leprosy.—Tourtoulon Bey² believes chaulmoogra oil is the only internal remedy which produces satisfactory results in leprosy; but because of the long period over which it should be administered and the disturbance of the stomach which it is apt to

¹ Münchener med. Woch., 1904, II, 1960, No. 44.

² Annales de Dermat. et de Syphilis., March, 1904.

¹ La Presse Médicale, December 28, 1904.

² Monatshefte für Praktische Dermatologie, Bd. xl, No. 2.

cause, it is difficult to get patients to continue its use a sufficient time to obtain results. For this reason the author began in 1894 to employ it subcutaneously. His own experience and that of others, leads him to believe that chaulmoogra oil is most active when given subcutaneously, and that this mode of administering it is preferable to all others. The pain of such injections is no greater than that which follows injections of calomel and gray oil; and as to the danger of embolism of the lung which has been urged against the method, in more than 900 injections the author has seen this occur but four times. The treatment must be carried out for a long period if the patient is to be kept in good condition, and free from fresh outbreaks.

The Treatment of Lupus Vulgaris.—In an address delivered before the Fifth International Dermatological Congress, held at Berlin, September, 1904, Mr. Malcolm Morris¹ reviews the various methods of treatment employed in lupus vulgaris during the past 25 years and relates his own experience with them. In selecting a method of treatment the extent and situation of the disease must be considered. When it is situated upon the face or neck such treatment should be employed as is least likely to be followed by disfiguring scars. When the disease is of considerable extent and is upon the trunk or extremities, excision, which includes a margin of sound skin, is the method to be preferred. At the present time the author rarely uses chemic caustics, but believes the galvanocautery is still the best agent at our disposal in those cases in which the Finsen light or the röntgen rays cannot be applied. Scarification he has practically abandoned, but believes scraping with the Volkman spoon, followed by caustics, may give excellent results, although it is sometimes followed by bad scars. Excision is especially applicable to those cases in which speedy results are desired, but is only to be used when the disease is situated upon the limbs or trunk. The author's conclusion concerning phototherapy is, that while no more infallible than other methods, it gives, on the whole, more satisfactory results. In most of the cases treated by this method supplementary treatment by scraping, caustics, and the röntgen ray has been used. The röntgen rays are most useful in supplementing the deficiencies of the Finsen light, which is of little use in the treatment of ulcerated surfaces or in those attended by great thickening. Although the röntgen rays rapidly dry up discharge, heal ulceration, and disperse edema, they are less effective in eradicating the disease than the Finsen light. Morris' conclusions, based upon 1,000 cases, are as follows: After every kind of treatment, used alone or combined with others, recurrences are very common. Small, superficial, quiescent patches are curable. In disease of moderate extent, situated upon the face, the Finsen method, combined with the use of the röntgen rays and caustics, is the most efficient, both as regards cosmetic effects and permanency of results. When a rapid effect is desired, the cautery must be employed when the disease is upon the face, excision when it is upon the trunk. Extensive cases in which the general health is affected should be treated in the same manner as pulmonary tuberculosis.

Paget's Disease of the Umbilicus.—T. C. Fox and J. M. H. MacLeod² report the case of a man, 65 years old, who had a round, eczema-like patch, two inches in diameter, around the umbilicus, which had been forming for 11 years. The central part of the patch was a brilliant red, ulcerated and exuding, while here and there were small areas of epithelium. The ulcer was sharply circumscribed, its border being raised and prominent, with considerable infiltration. The adjoining skin seemed to be normal. As no form of treatment improved the disease, a small portion was excised and examined microscopically; it presented features typical of Paget's disease. Excision was performed, and there has been no recurrence. The histology of the excised piece is given in detail, together with a review of the literature of the affection.

A New Formula for the Preparation of Baths and Moist Dressings with Oil of Cade and Anthrasol.—Mibelli³ proposes the following formula as superior to those usually employed in the preparation of tar baths and moist dressings of the same medicament: R. Ol. cadini 67.00;

colophonil, 11.10; liq. sodæ, 20%, 2 L. 9. This forms a thick homogeneous mass which mixes readily in all proportions with water, 100 grams being sufficient in many cases to make an effective bath. The author has found this preparation especially useful in bullous dermatoses, such as dermatitis herpetiformis. Anthrasol may be employed in this mixture instead of the oil of cade when it seems desirable to use this remedy.

Formaldehyd in Favus.—P. A. Sharkevitch and S. Bogrow⁴ experimented with formaldehyd in favus and now report these results: 1. A 5% aqueous solution of formaldehyd kills the achorion of favus in 20 minutes in epilated hairs. 2. When the fungus is surrounded by foreign elements which render the access difficult, formaldehyd may have no effect whatever. 3. The portions of the hair within the skin are inaccessible to aqueous solutions of formaldehyd. 4. Hence alcoholic solutions and the vapor of formaldehyd ought to be tried more extensively. [L.J.]

Is Erythema Pernio a Tuberculous Disease?—G. E. Permin⁵ studied two series of individuals with the purpose of determining the possibility of erythema pernio (chilblain) being tuberculous. Of 90 patients suffering from pulmonary tuberculosis, 61, 68%, suffered from chilblain; 29 were free from the affection. Of 33 maidservants, 11 had chilblains, about 33%. In 15 of the 33 undoubted signs of early or more developed tuberculosis were present; of these 15, 9 suffered from chilblain, about 60%. To draw general conclusions the number is too small, but it can scarcely be accidental that the percentage in the tuberculous patients and servants should be approximately the same. In 9 of the 11 servants who suffered from chilblains, definite physical signs of pulmonary tuberculosis were present; the tenth, a girl of 17, had suffered from tuberculosis in some form; at the age of 14 she lived with a tuberculous mistress and after her death the girl wasted and became ill. She improved at the sanatorium. The eleventh servant showed doubtful physical signs also. From these two series the author concludes: That erythema pernio may be regarded as a tuberculous exanthem, requiring for its development a certain degree of warmth, which, by provoking dilation of vessels, favors the action of the toxins. If cyanosis be present a high degree of development of the lesion may be attained. The stage of the pulmonary disease does not seem to influence the frequency of the local condition; it may occur in any of the stages of the disease. The extension of the disease does not seem to influence the local lesion. [E.L.]

Pityriasis Rosea.—A. T. Lang⁶ reviews the present state of knowledge of this affection. Pityriasis rosea does not appear to be a very rare disease. It attacks principally persons between 20 years and 40 years of age. Children and old people suffer very rarely. Sex has no influence on the frequency. The majority of cases is met with during the first four months of the year and in autumn. The affection is not contagious. It is rather frequently associated with fresh syphilis and with psoriasis. The pathogenesis of pityriasis rosea remains obscure. In all probability the disease has a toxic origin, being analogous to the group of erythemas. Differential diagnosis must separate pityriasis rosea from syphilis, seborrheic eczema, psoriasis, and pityriasis lichenoides chronica. [L.J.]

Treatment of Multiple Warts by the Internal Use of Magnesium Salts.—A. Hall⁷ reports the case of a man whose scalp was covered with warts; they had also begun to spread over the forehead. Numerous treatments were tried, but without success. After two years of disfigurement he was ordered a mixture of

Magnesium sulfate	4 gm.	(1 dr.)
Magnesium carbonate	1 gm.	(15 gr.)
Spiritus chloroformi	2 gm.	($\frac{1}{2}$ dr.)
Aqua mentha piperit	8 gm.	(2 dr.)

This was given three times daily with such good results as not to have a wart left after two weeks' treatment. As warts spread readily and rapidly, and upon slight changes at times disappear, the author considers them a parasitic disease. [E.L.]

¹ The Lancet, October 22, 1904.

² British Journal of Dermatology, No. 2, 1904.

³ Monatshefte für Praktische Dermatologie, Band xl, No. 8.

⁴ Medizinske Obosrenie, lxi, No. 2.

⁵ Zeitschrift für Tuberculose und Heilstaettenwesen, 1904, v, No. 5.

⁶ Russki Vrach, February 21, 1904.

⁷ British Journal of Dermatology, 1904, xvi, 262, No. 7.

American Medicine ^{v63}

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 12.

MARCH 25, 1905.

\$5.00 YEARLY.

The Isthmian Circumlocution Office.—On January 7, in editorial comment on the Isthmian Canal project, *American Medicine* said that the news from Panama in the next few months might be uninteresting, and would not be sensational. It was a bad guess, for the news from Panama is interesting and, for medical men, highly sensational. Under date of March 2, Dr. C. A. L. Reed¹ reported to Hon. William H. Taft, Secretary of War, his observations on the Isthmus during February 7 and 22. The report treats especially, almost exclusively, the proceedings of the Canal Commission, and is a narrative of stupid inefficiency and murderous red tape. He would be a reckless man who should write such a report as this of Dr. Reed's unless able to substantiate unequivocally all its particulars, and and a prudent reader would withhold a measure of credence from such a report were it not made credible by the previous history of governmental blundering in like enterprises. The only point in the report found necessary of revision is that relating to the screening of the Colon and Ancon hospitals. This was found really to be in the report of the governor of the canal zone instead of emanating from the commission at Washington. Though the discrepancy between the statement and the fact still exists, as stated by Dr. Reed, the commission deserves an apology for attributing to it the statement; this Dr. Reed unhesitatingly makes in the *Journal* of March 18. In the editorial before referred to we said that until the sanitary difficulties were reduced to workable terms the project of an interoceanic waterway would be as idle as a proposition to send ships past the Isthmus by flying or diving. It is precisely this indispensable preliminary of sanitation which the commission has effectually estopped.

'Round Robin Hood's Barn and Back Again.

—The medical department is so far subordinated that its chief, Colonel Gorgas, is seven degrees removed from the original source of his authority. Every requisition of the medical department must go first to the governor of the zone; then to the disbursing chief; then to Committeeman Grunsky, who cuts the requisition to fit his notions of the actual needs; then bids are invited; awards are made; goods are inspected (or not) by a purchasing agent who knows nothing what-

ever about medical materials or supplies; then the goods are shipped, and when they arrive at Panama the medical department cannot have them except in such amounts and at such times as are approved by the Governor, the disbursing chief, the commission, and Mr. Grunsky. Supplies ordered last July, on account of yellow fever, have not yet reached the Isthmus. If, when they arrive, they prove unfit for use (and that occasionally happens), they may be returned with a new requisition on the grand tour of the circumlocution office. Dr. Reed's report is an ample bill of particulars, impossible to summarize. It shows that the sanitation of the Isthmus is persistently obstructed, not only by a stupid inertia of so-called system, but by active and insane opposition. It shows that Dr. Gorgas and his staff are nullified as completely as men of their mettle can be by ignorant officialism. It shows that for those who have engaged in extra hazardous service on the faith of their country's good will and ability to supply their wants liberally and at top speed, the known perils of that region are made vastly more formidable by subjection to a remote authority, ignorant and contemptuous of their needs.

The Penalties of Red-tapism.—What penalty may the country expect to pay for the continuation of this numskull policy? If the people of the United States do not find a convincing answer to this question in the history of the Isthmus since its human records began, they will not be convinced by current history, nor by rational prophecy. If the mortality experienced by the French company is approximated in our own effort, the admitted superiority of American engineering skill may be thirty-fold that of the French, and we may still divert the working population of the country to the Isthmus, until every railroad, mine, farm, mill and factory stands idle, without seeing the two oceans joined. There are only about 5,000 men at present exposed under the guardianship of the commission to the special dangers of that climate. These men have no advantage over those previously sacrificed at the Isthmus except that they know what dangers surround them and understand the methods of defense against the most formidable of these dangers. The French suffered no doubt from hookworm disease. The Panamanians are known to suffer from this infection, but to what extent

¹ *Journal American Medical Association*, March 11, 1905.

is unknown. Let us suppose that the recently determined prevalence of ankylostomiasis in Porto Rico is not much in excess of that suffered by the Panamanians. The Porto Rican jibaro is reduced by hookworm disease to an economic efficiency of but 10 on a scale of 100. Means to prevent the spread of hookworm disease have been asked for by Colonel Gorgas, but the requisition has been disallowed without comment, save that one member of the commission made the observation that, in the tropic countries known to him, hogs and buzzards may be relied on to remove human excrement.

Long Distance Debating Society Methods.—Malaria has no terror for a commission comfortably quartered in Washington, but on the Isthmus where malaria has alarming significance, it is already prevalent among the employes of the commission. In response to Dr. Gorgas' requisition for means to restrict malaria the commission has been guilty of extravagance in the most prodigal form, by supplying sufficient means to afford a pale shadow, but no substance whatever, of protection. Yellow fever has also quite a reputation as a spoiler of human enterprise in and about the Isthmus. In their long resistance to Spanish misrule, the Cuban insurgents for years relied less upon their own arms than upon the prowess of three mysterious chieftains upon whom the Spaniards were never able to make a reprisal. These were Generals "Junio," "Julio," and "Agosto." During the American intervention, Generals "Junio," "Julio," and "Agosto" retired from Cuba, and at the proper moment will undoubtedly appear at the isthmus, with a fair prospect of evening up the defeat which they sustained in Havana at the hands of Colonel Gorgas. "General Julio," it will be remembered, made a small demonstration last summer, and the news, though promptly transmitted to Washington, made no material impression on the grunskys. The fact that yellow fever inflicted but little damage in July, 1904, naturally means, to a crapulous grunsky, that June, July, and August will make no serious campaign in 1905, and grunsky subordinates will be governed accordingly. Possibly no harm may come of it, but the commission seems to have made very complete arrangements to deliver the whole Canal project with its personnel into the hands of Yellow Jack.

Reconstruction Necessary not Reorganization.

—It is said that Admiral Walker, chairman of the commission, is highly incensed by Dr. Reed's report, and that the commission will prepare a reply. This, however, will be unnecessary if the latest report from Washington, that President Roosevelt is to remove the entire commission, be true. Reed's report is indeed exasperating, and calls for drastic action. If every allegation but one in the report were disproved, and the only allegation established were the fact that the chief of the medical staff is subordinated as much as three degrees from the source of his authority, that circumstance alone calls for immediate reorganization of the commission. If a majority of the specifications in the report are true, then Dr. Reed has made a mistake in speaking for the retention of a single member of the commission. So gross

mismanagement could have been checked by a single voice, if charged with the intelligence and the energy essential in a public service of such importance. Dr. Reed is so well known to the American medical profession, that the judgment of the profession will be held but slightly in abeyance while the commission is preparing its answer. It may be confessed, however, that the medical mind was unprepared for such revelations as Dr. Reed has made, for we fondly believed that the people of the United States had been profoundly impressed by the ghastly lessons of the late war with Spain.

Medical Charity in Boston.—The physicians of Boston have awakened to the fact that, though *per capita* one of the richest cities in this country, her percentage of charity patients to the total population is apparently larger than in New York and Philadelphia. Having recognized the extent of the condition, they are inquiring into the cause and the remedy. The proceedings of a joint society meeting,¹ including an article by Dr. George W. Gay and several short papers in discussion, form an admirable presentation of the subject from the standpoint of practising physicians. All of them maintain that the Boston hospitals are treating free many patients who can afford to pay for medical attendance. A second grievance, causing considerable warmth of feeling, is against hospitals which maintain private rooms, but do not allow members of the staff to receive fees from persons therein treated; the Massachusetts General Hospital receives the greatest criticism in this respect. Discussion of ways and means for eradicating the evil brought out widely diverging opinions. Three factors are considered by Dr. Gay—the public, the trustees of hospitals, and the profession. The first element needs education regarding the real facts in the case, and what free treatment means to hospitals and to themselves. Trustees should (1) allow staff members to exact fees from patients in private rooms, and (2) inspect all outpatients to determine which are worthy objects of charity. For physicians, a fundamental rule should be to encourage no patient who can pay a fee to apply at a free clinic. At the suggestion of Dr. Gay a committee of seven was appointed to take such action as they deem necessary. The method adopted to settle this vexed question in Boston we await with interest. To our mind the gist of the matter was reached by Dr. Worcester, who said in discussion: "The reader made of too little account the professional advantage of a large hospital service. The experience and prestige so gained is of great value to physicians, and still greater to surgeons. No one is obliged to accept or retain hospital appointments." This is the colored individual in the kindling wood. Hospitals cannot be run without the active aid of physicians, yet who ever sees a staff position go begging for an occupant?

Politics in State Charitable Institutions.—No better evidence of the utter degradation of Ohio politics could be given, so far as relates to medicine and charity,

¹ Boston Medical and Surgical Journal, March 16, 1905.

than the dismissal of Dr. Ohlmacher of Gallipolis, Ohio, without a reason or a charge. With as little concern as in "Alice in Wonderland," the brutal, *Off with his Head!* comes from the official ringleaders, and the Governor obeys. Dr. Ohlmacher had made most definite charges of corruption against officials, and only demanded an investigation as to their truth. The sole answer is: "Resign! Resign yourself, and we will neither make any investigation of your charges, nor will we give you and the public and the medical profession any reason whatever for decapitating you." In civilized society and government no such performances are allowed, and the medical profession, not only of Ohio, but of the United States, should see to it that such opera bouffe topsy-turveyism should not be allowed even by the most debauched "gang" of politicians. We know little or nothing as to the administrative or personal ability of any special medical officer of our charitable institutions, but if in any way not up to the work, let the fact be squarely and frankly stated, and the public informed, with proper action of a judicial or administrative character. Every charity, every dependent in the United States, is threatened by the star-chamber methods so shamelessly illustrated by the politicians of Ohio.

A Notable Centenarian.—In London, on March 17, was held a celebration, which for several reasons was eminently notable. In the first place, the recipient of the honor had rounded out a century of existence, a circumstance rare enough always to be worthy of special mention. And his quite vigorous body and undimmed mind are telling arguments against the views of those who find neither ability nor power save in young men; second, the members of a profession to which he does not belong were those who paid him greatest honor; third, a man who first employed a certain instrument was finally honored, therefore, while still alive, though years ago two others were given the prize for its discovery. The object of the unique celebration is Manuel Garcia, one of the greatest musical experts, and the first to put in practise the laryngoscope. Hence the medical and musical world united to do him honor upon his one hundredth birthday. In addition to those from numerous musical organizations, addresses were presented from laryngologic societies of most countries of the world. Garcia, in his endeavor to place voice culture upon a physiologic basis, observed the vocal cords by means of a small mirror attached to a long stick which he chanced to find in a Parisian shop. And thus was laid the foundation of the laryngoscope, an instrument which has contributed not a little to the triumphs of modern medicine. Garcia's observations were presented to the Royal Society in 1855, but in 1861 the prize for inventing the laryngoscope was divided between two other quarrelling aspirants for the distinction. But honor is now given to whom honor is due, and although Garcia obtained but little, in a musical way, from his investigations, the result to medicine of his use of the little mirror must be to him a source of intense satisfaction. The celebration and presentation to him of his portrait by Sargent was a fitting tribute to an illustrious man, the sharing of which is an honor to the medical profession.

The supreme test in medical ethics is suggested by the following letter sent to manufacturing firms. We postpone comment to a later issue:

Telephone Connection.

NEW YORK MEDICAL JOURNAL
AND PHILADELPHIA MEDICAL JOURNAL
Consolidated.

A Weekly Review of Medicine. Established 1865.

A. R. ELLIOTT PUBLISHING COMPANY,

66 West Broadway, New York.

New York, Philadelphia, Chicago.

NEW YORK, March 14, 1905.

Gentlemen:—

Regarding the recent action of the American Medical Association we beg to say: Most sane persons are disposed to regard the personal property which their exertions have created as peculiarly their own; and any suggestion that they part with it would probably be treated with derision. This seems, in essence, to be what the American Medical Association demands in its new rules about proprietary preparations. To comply with the new requirements would be to make your products common property. By furnishing the information demanded you would enable pirates to affirm that their spurious imitations were made in accordance with the published formulas of the association. Refusal to be mandamus'd out of your property will result in the exclusion of your advertisement from the association's journal. Also it will exclude you from the proposed book of nonofficial remedies. Very many others will be excluded for the same reason, and the book consequently will be incomplete. We therefore offer you space in the New York Medical Journal for a brief expression of your views on this important matter, and shall be very glad to hear from you at your earliest convenience.

Very respectfully yours,

(Signed) A. R. ELLIOTT,

President.

Lightning-stroke followed by Recovery.—A very interesting and instructive report of "Two Cases of Lightning-stroke" has been published by I. Lynn Thomas, C.B., F.R.C.S., in the *British Medical Journal* of October 26, 1904. Two laborers were caught in "a severe thunder storm with torrential rain." They sat down under shelter of an elm tree. The tree was struck by lightning on the western aspect, the flash entering a branch near the top. After passing down the trunk, it emerged behind one of the men and passed into his clothes and body. This one was thrown in a northerly direction to a distance of about three feet; the other, in a southerly direction, about 11 feet; the former was found lying on his right side, groaning loudly; the latter, on his face with his legs raised in the air. Both were unconscious. In the case of the man who had been struck by the emerging flash, it had penetrated the brim of his cap, removed a half inch wide patch of hair from the back of the head in a vertical direction, without appearance of singeing, discolored an inch of the skin of the neck, then tore off the clothes of the back to shreds, also those of the right leg, and flung the fragments in the same direction in which the second man had been thrown. The skin of the right upper arm and that of the leg was extensively burned, mostly to the second or third degree. Severe scorched punctiform tears in the skin of the right ankle and sole of foot marked where the lightning current had emerged. The second, unburnt man, sustained a fracture of the base of the skull (through the petrous bone). Hemorrhage from the ears

occurred. The left tympanic membrane showed a rent, with some coagulated blood, near the periphery, in the upper half. There was no perforation on either side. There was no visible injury elsewhere to either the body or the clothes. After passing along the ground to a distance of 16 feet, the lightning entered the earth, forming a "trumpet-shaped hole" of two feet in diameter. "There was no evidence of intense heat in the soil." It is gratifying—indeed, suprisingly so—to find that both men recovered completely. The report of Dr. Thomas recalls to our memory one by Mr. Wilks,¹ of the case of a laborer, who was "hurled into the air" as he stood under a tree. The lightning singed his eyebrows and beard, and inflicted a long burn down each thigh. His clothing was torn to shreds, and nothing left on his person but a part of the left arm of a flannel vest. He was found lying (practically) naked two yards from where he had stood, with a compound fracture of the right leg and one of the os calcis, which was also comminuted. His watch had been burnt right through "as with a soldering iron," and the shirt presented burns where it had been in contact with it, and with the buckle of the waist belt. The man made a good recovery. He declared that he had never lost consciousness.

Pagan Superstitions Connected with Lightning.—As would naturally be anticipated, the popular superstitions and vagaries of imagination connected with death by lightning have assumed, in all primitive communities the most grotesque forms, of which traces have survived in more enlightened times. Everything connected with lightning was uncanny, and no result was too inconceivable for belief. In that vast encyclopedia of human error, the "Natural History" of the elder Pliny, we find this fact copiously illustrated. We are there informed—in the quaint old English of Philemon Holland—that:

Vessels are drawne drie, and their sides, hoops, and heads, neuer toucht therewith or hurt, nor any other shew and token thereof is left behinde. Gold, copper, and silver money is melted in the bags, and yet the very bags no whit scorched; no, nor the wax of the seale hurt and defaced, or put out of order. Martia, a noble Ladie of Rome, being great with childe, was strucke with lightning; the childe she went withall was killed within her, and she without any harme at all liued still. Among the Cataline prodigies it is found vpon Record, that M. Herennius (a Counsellor and Statesman of the incorporate towne Pompeianum) was in a faire and cleare day smitten with lightning.

We are informed by the same authority that the "ancient Tuscanes" held that there were nine gods who possessed the power of sending forth lightning—of no less than 11 different varieties. The Romans attributed the lightnings of the daytime to Jupiter; those of the night to Pluto. Some of the more expert professed to have reasons for their belief that the "burning lightning" came from the planet Mars and the other variety from Saturn. Numa, the original legislator of the Roman republic, was credited with having been able to control the lightning; and when Tullius Hostilius tried to imitate his performances in that direction he was himself killed by a lightning-stroke. Thunder and lightning were of course "auspicious" as all readers of

Virgil know. "Those lightnings that are on the left hand, he supposed to be luckie and prosperous, for that the east is the left side of the world, but the coming thereof is not so much regarded as the return, whether the fire leaped back after the stroke giuen." Of all specimens of the vegetable kingdom, "lightning blasteth not the laurel tree." (It is not without a special interest in the history of opinion and education to note the connections of this item of pagan superstitions: through the laurel wreath of the Cæsars, and the baccalaureatus of the Italian universities, with the bachelor—of university or of unmarried—life in our own scientific twentieth century). Of all the living inhabitants of the air, lightning never struck the eagle, on which account that bird was made the armor bearer of Jupiter; while among those of the sea, the seal (or sea-calf) enjoyed the privilege of corresponding immunity. The feelings with which some of the early Roman emperors regarded lightning have been placed on record by Luctorius. Of Augustus:

Thunder and lightning he was much afraid of; insomuch as alwaies and in every place hee carried about him for a preseruatiue remedy a seyles skinne; yea, and whensoever he suspected there would be any extraordinarie storm or tempest, he would retire himself into a close secret roome under ground, and vaulted aboue head, which hee did, because once in time past, hee had been frightened with a flash of lightning.

We must illustrate the wisdom of this latter step by mentioning that Pliny informs his readers that lightning never penetrates the earth beyond a depth of five feet. The bodies of persons who had been struck by lightning were believed to be incorruptible, and even those persons who had been scorched, but not killed, were supposed to be distinguishable after death by the fact that they continued proof against the ravages of decomposition. Plutarch informs his readers (Holland's version) that:

The dead bodies of those who have been killed by lightning continue above ground, and putrifie not; for many there be who will neither burn nor enterre such coorses, but cast a trench or bank about, and so let them lie as within a rampart; so as such dead bodies are to be seen always above ground incorrupt, convincing Clymene in Eurypides of untruth, who, speaking of Phaethan, said thus:

Beloved mine, but see where dead he lies,
In vale below, and therewith petrifies.

The Physics of Lightning—according to Aristotle and Franklin, Respectively.—Perhaps the most important—the most brilliant and the most fruitful—of the conquests associated with the records of what may be called the prenatal period of the history of this country, is that of the thundercloud, which was won by Benjamin Franklin on the banks of the Schuylkill, 152 years ago. Down to that date the production of thunder and lightning had been one of the special perquisites of the "Prince of the powers of the air." On the day on which the philosophic printer brought down the electric spark along his damp kite-string from the thundercloud, he inaugurated, with true electric velocity, a great revolution in human opinion. It was only then that the uses to which the knowledge of electricity might be turned began to dawn upon the mind. "Franklin's lightning rod" soon became utilized to confer "im-

¹ Clin. Soc. Trans., Vol. xiii.

munity" from the attack of the thundercloud upon very properly constructed human residence. Every member of the community—at least in the rising generation—has now fairly definite ideas of the more familiar electric phenomena and their general causation. A vast desert of pathless opinion had to be explored and mapped out since Plutarch collected the opinions of his philosophic predecessors regarding "thunders, lightnings, flashes, presters or fiery blasts, and tempestuous whirlwinds." Through that authority we learn—in the quaint old English of the famous "Translator-general," Philemon Holland—that :

Aristotle supposeth that all these Meteors come likewise of a dry exhalation, which having gotten enclosed within a moist cloud, seeketh means, and striveth forcibly to get forth ; now by attrition and breaking together, it causeth the clap of thunder ; by inflammation of the dry substance, a flashing beam ; but Presters, Typhons, that is to say, burning blasts and whirlwinds, according as the store of matter is, more or lesse, which the one and the other draweth to it ; but if the same be hotter you shall see Prester, if thicker, look for Typhon.

Death by Lightning—from "Return Shock."—

The terrific power of a lightning flash produced on a large scale can, of course, be even remotely conceived only by those who know something of the power of electric instruments ; it is only those who are familiar with the effects of sparks of eight or ten inches in length who can form any notion of the terrific power of a lightning flash which has a striking course of miles. Death by contact with such a flash may be instantaneous, and visible marks of injury would be found on the body, to some extent on the clothes, and even more definitely on articles of metal worn about the person, which, in the course of a powerful flash, must necessarily undergo partial or complete fusion. It is well known, too, that deaths attributable to lightning have occurred in which there were no marks of injury whatever discoverable on the body or clothes of the victim. The occurrence of such was long regarded as one of the mysterious manifestations of Nature's power, but the true explanation has of recent years become well known. Every substance capable of conducting electricity, when placed in the vicinity of a charged conductor—and not connected with the latter by any conducting medium—becomes charged with electricity of the opposite kind. When a man stands within a moderate distance of a thundercloud which holds an enormous charge of "positive" electricity, his body necessarily becomes charged with "negative" electricity, under the influence of what is known as "induction." When that cloud discharges its electricity in an opposite direction, his induced negative charge instantaneously disappears, and the resulting shock to the nervous system is so great that he drops dead—without a single trace of injury to be found on or around his person.

Postmortem Feature of Death from Lightning-stroke.—Of the distinctive features which have been presented by the autopsies of persons who were killed by lightning, the most frequently noticed—apart from the direct effects of burns—are the *noncoagulability of the blood*, and the *absence of rigor mortis*. The former seems to have been found by most observers, and is

generally admitted by "authorities," and "experts" as a distinctive result of fatal lightning-stroke. The latter condition remains, however, on the borderland of doubt. This would appear to be chiefly due to the fact that its presence has been reported after death by electrocution. The great authority of John Hunter conferred its then unassailable protection on the dogma of its absence after death by lightning-stroke. It is generally taught at present that the rigor may have come and gone so rapidly as to have passed unnoticed. This may be true of some cases, for we know that when death has been due to, or accompanied by extreme neuromuscular exhaustion, rigor arrives early and departs soon. So that the views may, we think, be all true—as in the case of the classic problem of the color of the chameleon. Death by electrocution and that produced by a lightning shock of corresponding, or slightly greater intensity, are likely to be followed by rigidity. In shocks of comparative strength, the exhaustion may have been followed by a very transient stage of rigor. In cases of lightning-stroke of superlative power, the neuromuscular exhaustion will be probably so complete—with pretty surely superadded chemic changes in the tissues, and fluids—as to render all attempts at coagulation of either myosin or fibrin utterly impossible. Such compounds will have probably ceased to exist as such.

Warning.—Information has been received concerning unauthorized transactions, promises, statements, etc., by one C. V. Griffen, representing himself as agent for this journal. The American-Medicine Publishing Company warns the public against paying him any sums of money on its behalf, or believing any of his statements with regard to it. Information leading to knowledge of his whereabouts, and affording further proof of such unauthorized acts, will confer an obligation.

Little Chance for Osteopaths.—There is little chance for osteopaths to gain the legal dignity possessed by regular medical practitioners. They protest "that New York now provides examiners for the allopath and the homeopath separately, so why not add another examining board for the osteopath."

"Wet Malt" and Milk.—The Bulletin of Chicago's Health Department says agitation for the modification of the milk ordinances of Chicago so as to permit of the feeding of milch cows on "wet malt" continues, and threatens to be carried into the City Council, notwithstanding that the recent Milk Producers' Convention unanimously indorsed the subjoined statement of the commissioner, read to the convention February 10. "Dairy chemists agree that milk from cows fed on 'wet malt,' brewery grains and slops, etc., while it may contain the normal amount of butter fat, is deficient in solids—not fat, the proteids, etc., which are essential nutritive constituents of whole and wholesome milk. Such material affects the health and vitality of the animal fed upon it, and makes it more susceptible to disease. Out of 61,030 milch cows inspected last year by the Department Dairy Inspectors every case of sickness—from anthrax, tuberculosis and actinomycosis or 'lumpy jaw,' to the milder affections—was found in herds fed upon 'wet malt.' No case of illness was found in herds which were not so fed. This fact, which was noted early in the inspection work, led to a series of bacteriologic examinations by the director of the Department Laboratory, the results of which showed an enormous preponderance of the peptonizing and putrefactive organisms in the milk of cows fed on such material. It is owing to the presence of these organisms that such milk does not sour, but putrefies in a short time, with a vile odor. No amount of pasteurizing will make such milk wholesome, because the toxins or poisons produced by these organisms are not affected by a pasteurizing temperature. When fed to the young this milk causes marasmus, or 'wasting,' infantile diarrhea, dysentery, and all the symptoms of chronic ptomain poisoning. Its use for human food should be positively prohibited." As a matter of record the milk from 544 dairies, where "wet malt" was being fed, was excluded from sale in Chicago last year and the prohibition is still being enforced.

AMERICAN NEWS AND NOTES

GENERAL.

New Hospital in the Philippines.—The Surgeon-General of the navy is advised of the completion of the new naval hospital at Canacao, P. I., and the opening of the institution for the reception of patients on March 14. This is the first naval hospital to be established in the Philippines, and as it has a capacity of 80 beds it will be of great value in that direction. It is admirably situated on high ground on a neck of land which juts out into the sea. The Spaniards formerly had a hospital there, but nothing save the site has been used by this government, the old hospital buildings having been removed.

Fumigation to Destroy Mosquitos at Panama.—The fumigation of premises in the city of Panama is now being done on a large scale. A large force is at work to systematically fumigate every house in Panama, and all that can be done to destroy breeding-places of mosquitos is being done. This is necessarily a difficult task, as at this season the supply of drinking water is scarce, and the poorer classes of people are compelled to hoard what they can procure in such receptacles as they possess. The work on the water mains from the Rio Grande to the city is being pushed forward as rapidly as possible. However, the sanitary department is confident that the different foci of infection will soon be wiped out, and it is expected that by April 1 the situation will be under perfect control.

Pure Food Fight.—It is reported that the National Liquor Dealers' Association has agreed to submit the controversy with the National Pure Food Association to a commission composed of the chief justice of the Supreme Court, the Secretary of Agriculture, and one other, to be named by the President. The Liquor Dealers' Association has opposed pure food bills, as they affected liquors, and was said to have been instrumental in the successive defeats of bills. It is also said the liquor interests are committed to willingness to have whiskies labeled as "blended" or "compounded," provided trade formulas are not exposed. If the liquor interests will agree to this, the fight is ended, as there is no law to require disclosure of the trade secrets. Such an agreement would remove opposition and facilitate the passage of pure food bills before the next Congress.

Health Inspection of Canal Zone Laborers.—Any laborers shipped from Barbados for the canal zone will have to undergo a thorough physical examination and a certificate will be issued by the medical officer of the port to each person before he is permitted to leave Barbados as a contract laborer. All will have to have certificates of vaccination and those specially deported for labor will have certificates of good physical condition as well to prevent the introduction into the canal zone of leprosy, dysentery, ankylostomiasis, and filariasis. Such examination by physicians who have no personal interest in the emigrants, and who are looking out only for the public health of the United States and its dependencies, will prevent positive danger in the importation of large bodies of men into the canal zone, notwithstanding the fact that the quarantinable diseases will be stopped at quarantine. This work unquestionably could best be done by the medical officers of the Public Health and Marine-Hospital Service stationed at ports where such contract labor is deported.

Miscellaneous.—Dr. J. George Adami, professor of pathology of the Medical Faculty of the McGill University, has been made Fellow of the Royal Society of England.—**Archives of Physiological Therapy** is to be the title of a journal to succeed the late "Archives of Electrology and Radiology." The initial number of the journal is at hand, published creditably under the editorship of Clarence Edward Skinner, of New Haven, Conn., and from the *Gorham Press*, of Boston, Mass.—**American Surgery and Gynecology** has been sold to Dr. J. McDonald, Jr., late of the *Internal Journal of Surgery*; Dr. Emory Lanphear is retiring after 25 years in the editorial field, to devote his time to practice.—**Harvard University** has received an anonymous gift of \$5,000, the income to be used for the assistance of meritorious students in the medical school.—**The Journal of Experimental Medicine**, established by Dr. W. H. Welch, of the Johns Hopkins University, will hereafter be published under the auspices of the Rockefeller Institute for Medical Research, and will be edited by Drs. Simon Flexner and Eugene L. Opie. The scope of the *Journal* will suffer no alteration by reason of the change of management, and it is hoped that it may continue to cover, as heretofore, the field of experimental medicine. It is proposed to issue numbers of the *Journal* at bimonthly intervals, six numbers to constitute a volume, which will contain not less than 600 pages.—**Columbia University** has received \$100,000 from Mr. Jacob H. Schiff, to endow a chair of social work, and the new professorship has been filled by the appointment of Dr. Edward T. Devine, general secretary of the Charity Organization Society, director of the School of Philanthropy, and editor of *Charities*. This endowment makes possible the close affiliation between the School of Philanthropy and Columbia University.—**Honored by Mikado:** Dr. James

C. Hepburn, formerly medical missionary to Japan, but now living at East Orange, N. J., on his ninetieth birthday received from the Mikado the decoration of the Imperial Order of the Rising Sun.—**J. Dundas Lippincott**, of Philadelphia, bequeathed to the Children's Hospital of Philadelphia, \$5,000, as a memorial to his mother, and to the Episcopal Hospital Colony Farm, \$5,000.—**The Peabody Home for Crippled Children**, in Hyde Park, Mass., receives \$5,000 by the will of the late W. H. Williams.

EASTERN STATES.

The Brigham Bequest for Hospital Upheld.—The United States Circuit Court of Appeals has denied the petition for a rehearing in the case of Herbert F. Brigham vs. The Peter Bent Brigham Hospital corporation, which involved the validity of a gift of about \$6,000,000 to found a hospital for indigents. This gift, which was made under the will of Peter B. Brigham, has been held valid by this Court, and also the State Supreme Court. It is probable that the matter will be fought out again before the United States Supreme Court.

Separate Institutions Favored for the Tuberculous.—The joint committee on hospitals of the Boston City government is giving a series of public hearings on the question of the city establishing a hospital for the care and treatment of tuberculosis. Many are in favor of establishing a separate institution and the petitioners urged action, looking toward the carrying out of previous plans. Three years ago the city government authorized the city to expend near \$150,000 for the founding of such a separate hospital, and petitioners wish trustees named to carry out these plans.

NEW YORK AND VICINITY.

New Manhattan Eye, Ear and Throat Hospital.—Ground has been broken for the new Manhattan Eye, Ear and Throat Hospital. The hospital will cost between \$450,000 and \$500,000, including the equipment. The building will be six stories high and will contain sun galleries, an advance step in hospital construction.

A training school for nurses has been started at the new French Hospital, No. 450 West Thirty-fourth Street, New York. The course is to be two years, including a two months' probationary term, and will include experience in obstetrics and diseases of children, as well as all branches of general medicine, surgery and gynecology. Applicants are not required to speak French, but will receive instruction in the language as a part of their course.

The State of Health in New York City.—The total of all diseases, except meningitis, decreased during the week ended March 18 as compared with the previous week. The deathrate for the city was 20.36 per 1,000 against 24.18 for the corresponding week of 1904. Meningitis showed an increase. There were 57 deaths from this cause last week against 49 for the previous week in Manhattan alone. In the whole city the number of deaths from meningitis last week was 78. There were 64 deaths last week from pneumonia in Manhattan against 174 for the corresponding week last year.

Filth of the Streets.—There is considerable complaint concerning the condition of the streets in New York City, this despite the \$5,000,000 embraced in the street-cleaning appropriation this year, and the many additional amounts obtained by Commissioner Woodbury. Fifth avenue and Broadway are sticky with mud during a rain, and clouded with dust when the sun is out, while the other thoroughfares are reeking with odors now that the warmth of spring has come. Physicians predict that a fever epidemic in the city was likely to follow. Conditions are especially bad on the cross streets, some of which are almost impassable.

Study of Cerebrospinal Meningitis.—The commission appointed in New York City to study the disease has held a consultation, and an appropriation of \$5,000 has been made for the use of the commission, to be increased if necessary. There is much concern over the epidemic. During the month there has been an average of five deaths a day from the disease. The average for the past few years has not been more than two a week. No less than 386 deaths have occurred, mostly on the East Side, from the disease since January 1. The personnel of the commission is as follows: William M. Polk, chairman, dean of Cornell Medical College; Walter B. James, professor in the College of Physicians and Surgeons; William P. Northrup, professor in children's diseases in Bellevue Hospital and at New York University; Simon Flexner, head of the Rockefeller Institute; Joshua M. Van Cott, pathologist at the Long Island College; E. K. Dunham, pathologist of Carnegie Laboratory; and William K. Draper, visiting physician at Bellevue and Minturn Hospitals, and a specialist in cerebrospinal meningitis. The commission will not do the active work. Other physicians who have cases of spinal meningitis will be asked to make experiments and tests, and to send them to the commission. The commission will pass on them and devise means, if possible, to alleviate the alarming spread of the disease.

A Physical Culture City.—It is reported that 1,900 acres of land have been sold for a physical culture city in Middlesex County, N. J. A contract has already been given out for the erection of a building 48 x 224, and an extensive printing plant will be moved to the new colony when completed. A monthly magazine will be published and the printing establishment will employ at the start at least 200 hands. A railroad depot and siding will be erected and the miniature city, which will be incorporated, will bear the name of "Physical Culture City." Sanitariums will also be erected.

PHILADELPHIA, PENNSYLVANIA, ETC.

Anthrax Patient Recovers.—Oliver Justice, of Swedesboro, N. J., who recently was taken to the Municipal Hospital, Philadelphia, suffering from anthrax, has been discharged as cured. This is reported to be the first cure recorded in the United States.

Appropriation for State Care of Tuberculous.—A measure appropriating \$400,000 for the care of those suffering from pulmonary tuberculosis has passed the House. The measure provides this sum for State sanatoriums on the State forest reservations and the appropriation is the largest thus far set apart by any State for this purpose.

Mount Sinai Hospital, Philadelphia, was dedicated recently, a charity having its inception among the more recent Jewish immigrants. The keys were purchased by about forty of those present, and realized about \$1,000. The privilege of endowing five memorial beds in the hospital was also disposed of, the sum of \$500 being realized from this source.

Large Verdict for Damages.—The Supreme Court has sustained the verdict of \$15,000 in favor of William Francis Wallace, of Philadelphia, a penniless workingman, whose back is broken and whose family has been in want by reason of his helplessness. It is probable that the money will be paid over by the contractors in whose service he was injured.

A convalescent farm for poor tuberculous patients has been offered to the Free Hospital at a nominal rental. General Louis Wagner has made the offer, the land in question lying between Philadelphia and Bethlehem. According to the report of President Flick 75% of the patients admitted to the hospital have been restored to health, and nearly 90% have been improved.

The Outbreak of Cerebrospinal Meningitis.—With the report of two additional deaths during the week ended March 21, a total of 28 cases has been reached in Philadelphia since January 21, these having been in one particular district bounded by Locust street, Washington avenue, Eighth and Broad streets. The small streets and alleys in that district are in a wretched condition. The filth that lay in those streets when snow first fell lies there yet.

Quarantined Doctor to Sue for Damages.—Dr. S. B. Swavely, of Pottstown, who was recently quarantined for alleged smallpox, threatens to bring suit against the borough on the grounds that he did not have the disease. Burgess Porter, before the Board of Health, said he reported the case promptly on the strength of Swavely's own statement that he had smallpox. The Board requested town council to appoint a committee to investigate the management of the smallpox epidemic.

Early Aid for Indigent Insane.—It has been decided that the Legislature shall give immediate relief to State institutions for the care of the indigent insane. This relief will be in the shape of a temporary increase of space for the accommodation of patients. None of the big insane institutions, such as those at Danville, Norristown and Warren, are to be permanently given an enlarged capacity. Temporary one-story structures are to be provided for these institutions. Bills appropriating the money required will be prepared and rushed through the Legislature.

State Department of Charities.—A bill creating a department of State charitable institutions is before the Pennsylvania Legislature. It provides for a "commissioner of State charitable institutions," who shall be appointed by the Governor for a term of four years, at an annual salary of \$6,000. It carries also a provision for a deputy at \$2,500, three clerks at \$1,400 each, and a messenger at \$900. The commissioner shall have power to appoint examiners to conduct the business of the department, who shall receive \$8 a day. The bill carries an appropriation of \$75,000.

Typhoid Fever and Filtered Water.—Between January 1 and February 17, 612 cases of typhoid fever occurred in Philadelphia. Of these, only 1 occurred in that part of West Philadelphia getting exclusively filtered water. From that part of West Philadelphia not supplied with filtered water 72 cases were reported in the same period of time. The averages of the weekly rates may be considered for the entire city as 5.87 per 100,000 of population; for Roxborough, where both filtered and unfiltered water are supplied, as 1.03 per 100,000 of population; and for filtered water district of West Philadelphia, 0.29 per 100,000 population.

The Parochial Schools and Vaccination.—As a result of a conference between the Bureau of Health and the Roman Catholic authorities in Philadelphia, the parochial schools of the city are to be placed under the jurisdiction of the Bureau of Health as regards vaccination. In future no child who has not been successfully vaccinated, will be admitted to the parochial schools, and all unprotected children found by the medical inspectors in those schools will be excluded until the operation has been performed. Since the beginning of the inspection of the parochial schools, 1,775 children have been discovered who either never have been vaccinated, or whose vaccination scars were of doubtful protective value. These children have all been vaccinated and permitted to return to school.

Castration of Imbeciles.—The Pennsylvania House has passed the Sproul bill, authorizing castration in cases of hopeless imbecility. This bill passed the Senate earlier in the session and now awaits the governor's signature. The bill provides that it shall be compulsory for institutions in the State intrusted exclusively or especially with the care of idiots and imbecile children to appoint upon its staff at least one skilled neurologist and one skilled surgeon of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of the inmates. If in their judgment deemed advisable, it shall be lawful for the surgeon to perform such operation as shall be decided safest and most effective, but the operation shall not be performed except in cases that have been pronounced nonimprovable after one year's test in the institution.

Smallpox and Statistics of Contagion.—About 1,000 medical students, 60 physicians, 100 nurses, and over 100 servants were freely exposed to smallpox in the wards of the Municipal Hospital during the past four years. Of this group, approximately 1,250 individuals, only one contracted smallpox. This individual, a medical student, descended from an anti-vaccination family, through purposeful deception, gained access to the smallpox wards, contracted the disease, and was so seriously ill that for a time his life was in extreme jeopardy. During 1904 the percentage of deaths in smallpox patients at the Municipal Hospital may be classified as follows: Unvaccinated cases, 32.73% died; vaccinated in infancy, with one good mark, 3.81% died; vaccinated in infancy, with one fair mark, 8.13% died; vaccinated in infancy, with one poor mark, 11.25% died. In general, the deathrate among all cases that had ever been vaccinated was 6.72%, while, as stated above, that for unvaccinated cases was 32.73%.

SOUTHERN STATES.

A Victim of Scientific Research.—In the new surgical building of the Johns Hopkins Hospital a tablet has been erected to the memory of Dr. Jesse Lazear, who died from an attack of yellow fever while investigating that disease in Cuba.

Dr. Osler's Successor.—A rumor that Dr. W. T. Councilman, of Boston, has been chosen to the professorship of medicine at Johns Hopkins Hospital has received wide circulation. Authoritative information shows that it is without foundation, and we are requested to state that at this writing no appointment has been made.

The Appendix in Tropic Dysentery.—To Dr. Wyeth and Major Borden is attributed a new cure for tropic dysentery through the utilization of the appendix for conveying medicines to the intestines, saving the stomach from the effect of drugs. The chief drug used in the experiments recently conducted at the Washington Barracks was quinin, and the results are said to have been most favorable.

WESTERN STATES.

Anatomy Act.—The State Legislature of North Dakota has just passed a third bill providing for a more thorough knowledge of anatomy, also to provide material for such study, as is done in other States.

Physician Sues for Damages.—Dr. W. B. Thewalt, of Poyssippi, Wis., has begun suit against the former postmaster and a grain merchant, asking damages of \$30,000. The complaint charges a conspiracy to drive Thewalt, who was a physician, out of the community, and that as a result he lost his practise and had to seek another field.

Forty-six Hospitals Founded by a Woman.—The Columbus Hospital at Chicago, formerly the North Shore Hotel, which was rebuilt in part and was entirely refitted at a cost of more than \$30,000, is the forty-sixth hospital founded by Mother Superior Frances Xavier Cabrini, head of the Order of the Missionary Sisters of the Sacred Heart.

Rheumatism and Hypnotism.—The usual newspaper excitement has been raised over a report that a medical student of the University of Chicago has demonstrated his ability to cure chronic rheumatism by hypnotic power. Much space has been devoted to the alleged result in the case of a helpless cripple, who was said to have been able to move his legs after having been hypnotized by the student.

State Hospital Overcrowded.—The State Hospital for the Insane, at Jamestown, N. D., is so overcrowded that wards ordinarily accommodating from 15 to 20 patients are made to hold 50, and rooms used as sitting rooms are turned into dormitories. The lavatory accommodations are insufficient and insanitary. The trustees have asked for an appropriation amounting to \$284,290 for necessary additions and repairs.

Knee-cap Worth \$15,000.—Mrs. Welling A. Wyckoff, of Pittsburg, has obtained a verdict for \$15,000 in the courts of Cincinnati for the breaking of her knee-cap in a trolley accident. At the first trial she gained a verdict of \$10,000; a new trial was granted, with the above result. A peculiar feature of the case is that Mrs. Wyckoff, between the trials, fell at her home and broke a second knee-cap, and had to be carried into court to testify.

Mortality of Michigan during February, 1905.—The total number of deaths returned to the Department of State for the month of February was 3,218, corresponding to a deathrate of 16.4 per 1,000 population. This is higher than the rate for the preceding month, 14.2 per 1,000, but slightly lower than the deathrate for February, 1904, which was 17.1 per 1,000. By ages there were 629 deaths of infants under 1 year, 165 deaths of children aged 1 to 4, and 1,089 deaths of elderly persons over 65. There is increased mortality at the extremes of life as compared with the preceding month. There was a slight increase in the mortality from typhoid fever and considerable increase in that from pneumonia, meningitis and influenza. Diphtheria and croup caused fewer deaths than usual. The largest number of deaths, namely 11, from smallpox of any month since registration began under the present law occurred.

FOREIGN NEWS AND NOTES

GENERAL.

Miscellaneous.—**Oxford University:** M. C. Whitley has given \$5,000 toward the endowment of the chair of pathology at Oxford.

Plague Spreads in Chile.—According to reports to the State Department at Washington, plague has appeared at Chanaral, Chile; suspected cases are occurring at Iquique. Pisagua is also affected.

Emile Zola's House for Nurses.—The wife of Emile Zola has given to the Assistance Publique, the great French charitable association, her late husband's favorite abode of Medan. The house and garden will be transformed into a convalescent home for the women nurses employed in the hospitals and other establishments under the jurisdiction of the Assistance Publique.

Visiting Army Schools.—The director general of the British Army Medical Service has requested that instructions may be given to medical officers to pay frequent visits to army schools, to ensure that due regard is given to ventilation, lighting and warming, as well as to the general sanitary conditions of the schoolrooms and their surroundings. The visits are to be made while the schools are assembled, in order that any conditions likely to have an adverse effect on the health of the children may be noted.

Centenarian Garcia Decorated by Three Kings on His One Hundredth Birthday.—Manuel Garcia, the inventor of the laryngoscope, celebrated his one hundredth birthday in London, on March 17, in excellent health. King Edward, Emperor William, and the King of Spain all decorated him. Later he attended a reception held under the auspices of the Laryngological Society. Professor Fränkel, of Berlin, presented to him the gold medal for science on behalf of Emperor William. Dr. Harmon Smith offered the congratulations of the New York Academy of Medicine, and a similar communication was read from McGill University, of Montreal.

Personal.—**Dr. Spottiswoode Cameron** has been appointed professor of Public Health at Leeds, Eng.—**Dr. A. R. Cushman**, of the University of Michigan, has been appointed professor of pharmacology and materia medica at the University College, at London.—**Dr. Victor Hensen**, professor of histology and embryology, at Kiel, celebrated his seventieth birthday on February 10.—**Dr. André Jousset** has been awarded the Lacaze prize of 10,000 francs, awarded every four years by the Paris Medical Faculty, to the author of the best work concerning tuberculosis.—**Honorary degrees** were awarded on the opening of the Public Health Laboratory of the Victoria University, at Manchester, England, to Professor Calmette, Lille University; Professor Perroncito, Turin University; Professor Salomonsen, Copenhagen University, and Captain R. F. Scott, R.N.—**Dr. K. Kaiserling**, docent and custodian of the Pathological Museum, at Berlin, since 1901, has been made professor.—**Dr. Ludwig Claisen**, professor of chemistry, at Kiel, has been called to Berlin.—**Dr. Franz Hofmann**, associate professor of physiology, at Leipzig, has been called to a professorship at Innsbruck.—**Professor Paul Ehrlich** has received an appointment as professor at Göttingen. For some

years past, Dr. Ehrlich has been director of the Institute for Experimental Therapeutics at Frankfurt.

OBITUARIES.

Edward D. L. Mueller, aged 72, March 9, at his home in Baltimore, Md. He was born in Germany and educated at the Universities of Würzburg, Leipzig and Kiel. At the outbreak of the Civil war he was appointed surgeon to the Twenty-seventh Pennsylvania Infantry. He was a member of the Medical Society of Hudson County, N. J., and the Medical Society of Queen's County, N. Y.

Henry F. Barnes, aged 76, of Indianapolis, Ind., March 2, at St. Vincent's Hospital, from injuries received in a street car accident. He was a graduate of Jefferson Medical College, Philadelphia, in 1854. He served as surgeon of the Eleventh Indiana Volunteer Infantry during the Civil war; assistant superintendent of the Central Hospital for Insane, Indianapolis.

Thomas Clement Kimball, aged 62, March 6, at Jacksonville, Fla. en route to his home in Marion, Ind. He was a graduate of Rush Medical College, Chicago, in 1863. He was a veteran of the Civil war, and served as surgeon of the 4th Indiana Infantry, U. S. V., during the Spanish-American war; member of the American Medical Association.

W. W. Meyers, aged 60, March 11, at his home in Philadelphia. He was a graduate of the Maryland University and Medical College. He served in the United States Navy during the Civil war; also was assistant surgeon in the Navy for twelve years, and was a medical inspector for the Board of Health of Philadelphia.

Horace Wardner, March 17, from blood-poisoning, at his home in Laporte, Ind. He was a graduate of Rush Medical College in 1856. He was president of the Southern Illinois Hospital for the Insane and of the Board of Health. He served on General Grant's staff during the Civil war.

David J. Swarts, aged 72, formerly of Auburn, Ind., March 3, at his home near Liberal, Kan. He was a graduate of the Medical College of Ohio, Cincinnati, in 1860. He served as assistant surgeon on the 100th Indiana Volunteer Infantry during the Civil war.

John W. Franklin, aged 85, February 28, at his home near Gallatin, Tenn. He was a graduate of the Transylvania University, medical department, Lexington, Ky., in 1841. He served as surgeon of the 7th Tennessee Infantry, C. S. A., during the Civil war.

George A. Bright, aged 67, March 12, at his home in Washington, D. C. He served with distinction during the Civil war; for several years he was in charge of the Naval Hospital in Washington, from which position he retired three years ago.

Lewis H. Viallon, of Bayou Goula, La., March 14, from tuberculosis, at the home of his brother at Whitecastle. He was a graduate of Tulane Medical College, New Orleans, in 1889. At the time of his death he was coroner of Iberville Parish.

John A. Gregg, aged 56, of Somerville, Mass., March 14, at the Massachusetts General Hospital, from heart disease. He was a graduate of Dartmouth Medical School in 1833, and had been in active practice for nearly thirty years.

Josiah Larendon, March 6, at his home in Houston, Tex. He was a graduate of the Medical College of the State of South Carolina, Charleston, in 1861, and had been in active practice for more than 40 years.

Mortimer C. Coon, aged 38, March 5, following an operation for appendicitis, at his home in Shelby Basin, Median, N. Y. He was a graduate of the University of Buffalo (N. Y.), medical department, in 1891.

James L. Gorse, aged 52, March 6, from pneumonia, at his home in Pine Bluff, Ark. He was a graduate of Louisville (Ky.) Medical College in 1876; member of the American Medical Association.

Nathan G. Macomber, aged 64, March 6, from acute interstitial nephritis, at his home in Central Village, Mass. He was a graduate of the University of Pennsylvania, medical department, in 1871.

Samuel McGill, aged 63, March 2, from nephritis, at his home in Schuyler, Va. He was a graduate of the University of Virginia, medical department, Charlottesville, in 1864.

William T. Edwards, March 2, from pneumonia, at his home in West Plains, Mo. He was a graduate of the medical department of the University of Tennessee, Nashville, in 1839.

George W. Rush, aged 42, March 4, from pneumonia, at his home in Savannah, Ga. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1894.

Andrew J. Weldon, aged 74, formerly of Paris Landing, Tenn., March 7, at his home in Paducah, Ky. He was a graduate of Jefferson Medical College in 1860.

Edward L. Mayo, aged 61, March 2, from nephritis, at his home in Dekalb, Ill. He was a graduate of Rush Medical College, Chicago, in 1868.

John D. Lane, aged 54, March 17, at his home in Providence, R. I. He was a graduate of Cleveland University School of Medicine in 1878.

Robert W. Avi, aged 85, March 14, of grip, at his home in Sunbury, Pa. He was a graduate of the Pennsylvania Medical College in 1842.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 17, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Dist. of Columbia:	Washington.....	Mar. 4-11.....	3	
Florida:	Jacksonville.....	Mar. 4-11.....	1	
Georgia:	Macon.....	Mar. 4-11.....	1	1
Illinois:	Chicago.....	Mar. 4-11.....	1	6
	Danville.....	Mar. 4-11.....	16	
Kentucky:	Louisville.....	Mar. 2-9.....	4	
Louisiana:	New Orleans.....	Mar. 4-11.....	17	
			Five Imported	
Michigan:	Detroit.....	Mar. 4-11.....	1	
	At 187 places.....	Feb. 18-25.....	Present	
Missouri:	St. Louis.....	Mar. 4-11.....	38	2
New York:	Mount Vernon.....	Mar. 4-11.....	1	
	New York.....	Mar. 4-11.....	1	
Ohio:	Zanesville.....	Jan. 28-Feb. 4.....	1	
South Carolina:	Charleston.....	Mar. 4-11.....	2	
	Greenville.....	Feb. 25-Mar. 11.....	7	8
Tennessee:	Memphis.....	Mar. 4-11.....	20	
	Nashville.....	Mar. 4-11.....	1	
West Virginia:	Wheeling.....	Feb. 25-Mar. 4.....	1	
Wisconsin:	Milwaukee.....	Feb. 25-Mar. 11.....	28	

SMALLPOX—FOREIGN.			Cases	Deaths
Brazil:	Bahia.....	Jan. 21-Feb. 16.....	27	2
	Para.....	Feb. 7.....	Present	
	Rio de Janeiro.....	Jan. 29-Feb. 12.....	47	22
China:	Shanghai.....	Jan. 22-Feb. 4.....	15 cases, foreigners; 35 deaths, natives	
Ecuador:	Guayaquil.....	Feb. 14-21.....	2	
	Porto Viejo.....	Feb. 23.....	Present	
France:	Paris.....	Feb. 18-25.....	23	
Great Britain:	Birmingham.....	Feb. 18-25.....	3	
	Glasgow.....	Feb. 27-Mar. 8.....	2	
	Hull.....	Feb. 4-11.....	2	
	Leeds.....	Feb. 18-25.....	4	
	Leith.....	Feb. 18-25.....	1	
	Newcastle-on-Tyne.....	Feb. 18-25.....	11	
	Nottingham.....	Feb. 18-25.....	1	
	South Shields.....	Feb. 18-25.....	5	
India:	Bombay.....	Feb. 7-14.....	124	
	Calcutta.....	Feb. 4-11.....	4	
	Karachi.....	Feb. 5-12.....	3	2
	Madras.....	Feb. 4-10.....	2	
Italy:	Catania.....	Feb. 18-25.....	1	
Norway:	Christiania.....	Feb. 11-25.....	3	
Russia:	Moscow.....	Feb. 4-18.....	13	4
	Odesa.....	Feb. 11-18.....	2	1
	St. Petersburg.....	Feb. 4-11.....	5	
Spain:	Barcelona.....	Feb. 10-20.....	20	
Turkey:	Constantinople.....	Feb. 12-19.....	4	
Uruguay:	Montevideo.....	Feb. 7.....	Epidemic	
West Indies:	Grenada.....	Feb. 9-23.....	10	

YELLOW FEVER.			Cases	Deaths
Brazil:	Rio de Janeiro.....	Jan. 29-Feb. 12.....	16	7
Ecuador:	Guayaquil.....	Feb. 14-21.....	4	
Panama:	Panama.....	Jan. 1-Feb. 4.....	33	14

PLAGUE—FOREIGN.			Cases	Deaths
Brazil:	Rio de Janeiro.....	Jan. 27-Feb. 12.....	20	6
India:	Bombay.....	Feb. 7-14.....	537	
	Calcutta.....	Feb. 4-11.....	106	
	Karachi.....	Feb. 5-12.....	54	52

Changes in the Medical Corps of the U. S. Army for the week ended March 18, 1905:

MORSE, First Lieutenant ARTHUR W., assistant surgeon, is granted leave for one month from about February 27.

ROEPKE, HENRY, sergeant first class, now at Berkeley, Cal., will report upon expiration of furlough granted him from the Philippines Division, to the commanding officer, the Presidio of San Francisco, Cal., who will send him to Fort Crook for duty at that post.

MURPHY, WILLIAM F., sergeant first class, transport Buford, San Francisco, Cal., upon the next arrival of that vessel at Manila, P. I., will report to the commanding general, Philippines Division, for assignment to duty.

SMELSEY, SAMUEL, sergeant first class, Philippine Islands, upon the next arrival of the transport Buford at Manila, will be assigned to duty aboard that vessel.

WILSON, Captain WILLIAM H., assistant surgeon, is granted leave for four months, to take effect upon being relieved from duty in the Philippines Division, and he is given permission to go beyond the sea.

WALL, FRANCIS M., contract surgeon, will proceed from Fort Oglethorpe to Fort Caswell to relieve First Lieutenant George H. R. Gosman, assistant surgeon.

PIERSON, First Lieutenant ROBERT H., assistant surgeon, leave granted March 9 is extended one month.

PORTER, Captain RALPH S., assistant surgeon, leave granted for ten days is extended ten days.

LEMMON, ROBERT, contract surgeon, now on temporary duty at Fort Wadsworth, will proceed to Fort Schuyler for temporary duty, upon completion of which he will return to his proper station, Fort McKinley.

O'REILLY, First Lieutenant JOHN J., assistant surgeon, is granted leave for six months on surgeon's certificate.

BOURKE, First Lieutenant JAMES, assistant surgeon, will proceed from Fort Sheridan to New York City and report to the officer in charge of the medical supply depot in that city for temporary duty.

SNYDER, Major HENRY D., surgeon, now at Fort Sam Houston, will proceed to Governor's Island, N. Y., and report to the president of the retiring board at that place as a witness in the case of Colonel Henry H. Adams, Fifth Infantry, and upon being excused by the board will return to his proper station.

FAIR, JOHN S., sergeant first class, now on furlough at Belton, S. C., will be discharged under the provisions of March 15, 1904.

FRESE, OTTO F., sergeant first class, will be relieved from further duty in the Philippines Division and sent to the depot of recruits and casuals, Fort Mcbowell, reporting by letter to the military secretary of the army for further orders.

SHELLENBERGER, JAMES E., contract surgeon, is relieved from further duty at Jackson Barracks to date March 18, and will return to his proper station, Fort Sam Houston.

Changes in the Medical Corps of the U. S. Navy for the week ended March 18, 1905:

ANDERSON, F., medical inspector, detached from the Brooklyn and ordered home to await orders—March 10.

NORTON, O. D., surgeon, ordered to the Olympia—March 10.

STEED, J. M., surgeon, detached from the Olympia and ordered to the Olympia and ordered to the Brooklyn—March 10.

BACKUS, J. W., assistant surgeon, detached from the Naval Hospital, Portsmouth, N. H., and ordered to continue duties on the Southern—March 11.

FOSTER, T. G., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—March 11.

BISHOP, L. W., assistant surgeon, detached from the Navy Yard, New York, N. Y., and ordered to the Naval Hospital, Portsmouth, N. H., with additional duties on the Southern—March 11.

SCHWERIN, L. H., acting assistant surgeon, ordered to the Hancock—March 11.

FURLONG, F. M., passed assistant surgeon, detached from the New York, when placed out of commission, and ordered home to wait orders—March 14.

SMITH, G. T., surgeon, detached from the Naval Hospital, Norfolk, Va., and directed to wait orders—March 16.

ROTHGANGER, G., surgeon, ordered to the Naval Hospital, Norfolk, Va.—March 16.

NASH, F. S., surgeon, appointed surgeon from February 23, 1905—March 16.

Changes in the Public Health and Marine-Hospital Service for the week ended March 15, 1905:

STONER, G. W., surgeon, granted three days' leave of absence under paragraph 191 of the regulations.

WICKES, H. W., passed assistant surgeon, to rejoin station at Reedy Island Quarantine—March 12, 1905.

MATHEWSON, H. S., passed assistant surgeon, granted leave of absence for five days from March 13—March 11, 1905.

BILLINGS, W. C., passed assistant surgeon, granted extension of leave of absence for five days from March 17—March 13, 1905.

WILSON, R. L., passed assistant surgeon, relieved from duty at the Hygienic Laboratory—March 15, 1905. Bureau letter of February 8, granting leave of absence for one month from March 1, 1905, amended so that said leave shall be for twenty-three days—March 15, 1905.

BERRY, T. D., assistant surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

MCLAUGHLIN, A. J., assistant surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

LONG, J. D., assistant surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

FRANCIS, EDW., assistant surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

BOGGESE, J. S., assistant surgeon, granted leave of absence for four days from March 21—March 15, 1905.

MCCOY, G. W., assistant surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

WARREN, B. S., assistant surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—March 9, 1905.

EBERSOLE, R. E., assistant surgeon, granted leave of absence for ten days from March 15—March 11, 1905.

BARNES, W., acting assistant surgeon, granted leave of absence for two days from March 15—March 14, 1905.

HAMMOND, A. P., acting assistant surgeon, granted leave of absence for five days from March 7, 1905, under paragraph 210 of the regulations.

WALKLEY, W. S., acting assistant surgeon, granted leave of absence for two days from March 16—March 14, 1905.

Boards Convened.

Board convened to meet at Washington, D. C., March 27, 1905, for the examinations of assistant surgeons. Detail for the board: Assistant Surgeon-General G. T. Vaughan, chairman; Surgeon D. A. Carmichael, Passed Assistant Surgeon Jos. Goldberger, recorder.

Board convened to meet at Manila, P. I., May 15, 1905, for the examination of assistant surgeons. Detail for the board: Passed Assistant Surgeon V. G. Heiser, chairman; Passed Assistant Surgeon Carroll Fox, Passed Assistant Surgeon C. W. Vogel, recorder.

Bureau letter of March 8, 1905, convening a board to meet at San Francisco, Cal., April 3, 1905, for the examination of assistant surgeons, revoked—March 13, 1905.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SOME RESULTS WITH THE HIGH-FREQUENCY CURRENT.¹

BY

CLARENCE E. COON, M.D.,
of Syracuse, N. Y.

A few years ago, when I first considered electricity in any form as a therapeutic measure, I had the impression, which is still prevalent among a great many physicians, that it was a remedy to be tried when all other methods failed, that its effects were more psychic than physical; in short, that its use was limited to its aid as an assistant in suggestive therapeutics. Later investigations have disproved this theory entirely, and the results obtained in some cases by means of one of the many methods of applied electricity, is the subject of this paper.

The particular current used in the following cases is known as the current of high frequency and high potential, and is usually spoken of as the high-frequency current. The apparatus used was a twelve-plate static machine to excite Leyden jars, the armatures of which cover much more surface than those furnished with a static outfit. In dry weather I used jars which had 70 square inches of foil on both outer and inner surfaces, and during humid weather this was increased to 130 square inches. The plates were run at 350 revolutions per minute. Attached to the outer coats of the jars was a solenoid of ten turns of number seven magnet wire, one meter in circumference, and continuous with this solenoid were 42 turns of number twelve magnet wire, and to the upper extremity of this resonator the electrodes were attached. This part of the apparatus, as well as the extra loaded jars can be constructed by anyone, and in comparison with expensive high-frequency outfits, I have found that it answers every purpose, and is cheap and portable.

The method of application in each case has been with the glass vacuum electrodes, applied locally.

CASE I.—The patient, a woman, referred by Dr. A. E. Larkin, had exceedingly painful neuritis of the left upper extremity with anesthesia of the index finger. For several weeks she had been unable to sleep without an opiate. There was no eruption upon the skin, she complained only of the severe pain and the clumsiness of the index finger. All the usual remedies had been tried with little or no relief, and the condition was such that the actual cautery was considered as a means of obtaining relief. I began the high-frequency treatment in the latter part of October, 1903. The first two or three applications seemed to intensify the pain, but following the fourth there was rapid improvement; and on November 20 recovery was complete, the numbness of the index finger being the last to clear up. I saw the patient about ten months after the final treatment, and was informed that there had never been any further trouble.

CASE II.—Woman, aged 64, for 15 years has had pain in right arm and shoulder, and for several months the same kind of pain in the left arm and shoulder. The pain was not severe, but was always present; in front of internal condyle of each arm were tumors about the size of a hen's egg, which felt soft and "crawley" on palpation, and pressure caused pain to radiate down the forearm. Near the middle of the anterior surface of each forearm were smaller, similar tumors. The patient said she had been treated for rheumatism by medication, hot air, etc., and never could see that there was a particle of relief. My diagnosis was chronic neuritis with neuromas. I was able to give her only five treatments because it was very difficult for her to come to my office, on account of the distance she had to travel. At the time of the last treatment she informed me that she was freer from pain than she had been in years, and examination showed the neuromas to be markedly reduced in size. She expected to continue electric treatment in a neighboring city.

CASE III.—Woman, aged 33, had disordered sensations in the lower cervical and upper dorsal region. For about five years she has had trouble in this region; at times, she said that this area felt as though it had been bruised, it was not distinctly painful, except on pressure; at other times she felt as though a cake of ice was laid against the skin. It was very annoying, and she had become very nervous worrying about it. Occasionally the arms and forearms would feel numb and prickly. Examination of the spine showed an area of tenderness on pressure, extending from the last cervical to the seventh dorsal

vertebra, and was most pronounced at second dorsal vertebra; surrounding this area for a distance of about two inches on either side was a slight erythema. She had tried a variety of treatments, including mild counterirritation, without relief. After receiving the second high-frequency treatment she felt much better, and 12 treatments at somewhat irregular intervals, extending over a period of eight weeks, accomplished a cure.

CASE IV.—Woman, aged about 25, for about six weeks had suffered with pains in various parts of the body; these were very severe. About 24 hours after the onset of the pain an eruption appeared on the skin over the painful area. During the past six weeks she had not been free from pain, various parts of the body being successively affected, including the buttocks, thighs, thorax, and upper extremities. When I first saw her on May 8, 1904, she complained of pain in the left shoulder and arm, which had been present for two days. Examination showed a herpetiform eruption most marked down the inner side of arm and forearm; bright red, macular, very slightly raised, discrete, and a little evidence of vesiculation; when the spots first appear there is considerable itching, which subsides when the eruption has reached its height. There were only a few macules on shoulder and above breast; the inner side of the arm was well covered and on the forearm five spots were arranged in a straight line, evidently following the course of a sensory nerve. A diagnosis of atypic herpes zoster seemed correct and high-frequency treatment was begun on May 8. On May 9 the patient said that following the treatment of yesterday she was free from pain for some hours. May 10, 11, same treatment. No new area developed. May 14 patient came to the office in agony from pain in the right shoulder and arm; it had persisted all day, in spite of hot applications, etc. Felt much easier after treatment. May 15 she has had no pain since treatment yesterday. The usual eruption has appeared on right arm and shoulder; not as much itching as usual. Five more treatments were given; no further return of pain.

CASE V.—Man, aged 65, who for the past 20 years has been troubled with itching over the entire body, except face and neck. At no time has there been any eruption, the skin always appearing smooth and soft until, as a result of the intolerable itching, he would dig it with his fingers and only obtain relief when he had dug deep enough to start the blood. For the past few months the condition has rapidly become more severe, and the only way he has been able to obtain any sleep was to saturate his night clothing with a sedative lotion, and this he has done nearly every hour of every night for several weeks. After receiving daily treatments for a month he was able to go to bed with dry clothes and sleep most of the night; the excoriated and infected areas had all healed and the patient presented a much more cheerful appearance. He received treatments for three months and remained very comfortable during that time. I was not able to accomplish a cure in that time.

In this group of cases we have in each some manifestation of disordered nerves, and in each case the high-frequency current has done more for the patient than all the other therapeutic measures had been able to accomplish. Gotthell says: "Zoster being a self-limited disease, we cannot influence its course; for the neuralgia we are sometimes compelled to have recourse to morphin." Case IV seems to show that the high-frequency current is just as prompt in its action and much more lasting in its effects, and instead of the depression following morphin administration, we have a decided tonic and stimulant effect. In a simple painful neuritis I have noticed on several occasions that the first two or three treatments have apparently made the pain more severe, and it is at this time that the patient is liable to quit treatment, but when they can be prevailed upon to continue, the current has not yet failed, in my experience, to give permanent relief. In the case of pruritus this treatment gave the patient some months of comparative freedom from aggravating symptoms, and it is to be regretted that it could not have been continued long enough to try and overcome a trouble of 20 years' standing.

I was led to try this current in chronic constipation by the remark of a patient whom I was treating for cervical adenitis. After he had been receiving treatments for a few weeks, he informed me that he believed that the electricity was relieving his constipation, which previous to that time had required the daily use of cathartics; his habits had not changed at all and he was sure that electricity was the cause of his relief. Acting upon this suggestion, I gave it a trial at the first favorable opportunity.

CASE VI.—Woman, aged 45, for several years had been troubled with obstinate constipation, requiring daily use of cathartics. Her condition presented the typical picture of a patient suffering from intestinal indigestion associated with a faulty secretion of bile; she was very nervous, hypochondriac at times, very restless at night, and had bad dreams, was slightly jaundiced at times, sallow complexion all the time, tongue coated, mouth dry and bad taste, sticky, clayey stools,

¹ Read before the Syracuse Academy of Medicine, December 6, 1904.

etc. Examination showed a markedly enlarged liver, extending two fingers' breadth below the free margin of the ribs, left lobe particularly prominent, margin feels smooth and even; slight tenderness on pressure in gallbladder region. High-frequency treatment was given every other day, beginning March 10, 1904. On March 23, she discontinued the daily use of cathartics, and it was necessary to take a laxative only twice that week. On April 2, examination showed that the whole right lobe of the liver had receded to normal size, left lobe being still somewhat large and slightly tender; cathartic necessary only once during the week. The change in appearance and actions of patient up to this time was very gratifying, her complexion had lost its dirty color, she felt bright and cheerful and slept well. Treatments continued at irregular intervals until June 1, when they were discontinued. A report from this patient on October 20, said that she had been unusually well all the summer and did not have any of the former distressing symptoms.

CASE VII.—Woman, aged 30, had suffered several years from chronic constipation with the usual symptoms. She has not been in the habit of taking cathartics regularly, rather she has neglected herself, often going a week without a stool; for the past two years she has had constant pain and soreness over the region of the gallbladder. For more than a year I tried with various remedies to relieve this condition and failed. I began the use of the high-frequency current on June 28, 1904, and there was improvement from the first. On September 28 she was in apparent perfect health, had had no soreness in the side for a month, a stool each day without catharsis, and was bright and lively instead of gloomy and despondent. On October 1 the patient moved to a neighboring city. I saw her on November 20, seven weeks after treatment was discontinued, and with all the extra work and worry of moving she had remained well, increased in weight, and the action of the bowels was very regular, a stool each day without catharsis.

In the treatment of tuberculous conditions I have, in most cases, combined the use of the röntgen ray and the high-frequency current; in the following two cases the röntgen ray was not used:

CASE VIII.—Boy, aged 7, no immediate tuberculous family history. The patient has always been very nervous and anemic and has required tonics most of the time, and these have included codliver oil in various emulsions and pure arsenic in large doses, iron, strychnin, etc. About April 1, 1904, swelling of both sides of the neck occurred and increased rapidly in size, his mother thought that it was mumps, and I did not see the patient until about three weeks later; I found the cervical glands of both sides much enlarged; the largest ones being along the anterior margin of the sternomastoid and deep seated; these were of sufficient size to simulate mumps, and I should say that the largest ones were fully an inch in diameter and quite tender on pressure; the chain of superficial glands along the posterior margin of the sternomastoid were all enlarged and scattered over both sides of the neck were many large and tender glands. Dr. Heffron examined this patient about May 1, and he reported finding, beside the cervical ones, enlarged glands in the groin and Scarpa's triangle; the right lung slightly high-pitched; a heart murmur, probably hemic. Blood-examination, hemoglobin 61%, white cells, 13,000; diagnosis, tuberculous condition, prognosis not good. In addition to the usual treatment, Dr. Heffron advised electricity, and I began the use of the high-frequency current on May 2, 1904. May 8, swelling in neck was reduced in size, general condition improved. May 13, improvement in patient's condition is quite marvelous. May 24, Dr. Heffron again examined the patient and reported that he was much gratified at the progress made. Treatments were continued every other day until July 7, when the patient went to the country. At this time the enlarged glands, except two of the very largest, had disappeared, the two remaining were much reduced in size and were difficult to locate on palpation. The cough had almost ceased and the patient now ate and slept well and had a healthy appearance. On August 23, treatments were resumed and continued at irregular intervals; there had been no retrograde changes during the summer. October 6 I was unable to discover any enlarged glands on the left side of the neck and only one very small, deep-seated one on the right side. Since July 1, the patient's general condition has been much better than at any previous time during his life: he has increased in stature, and many of the old nervous symptoms are entirely absent. Little change was made in the medicinal treatment.

CASE IX.—Recurrent tuberculous adenitis. The patient was a high-school girl. About four years ago she had had a radical operation for removal of cervical glands, since which time there have been frequent enlargements, which soon caseate and suppurate, and after opening, are very slow to heal, consequently there have been sinuses in the neck most of the time. On September 1, 1903, there was present a narrow sinus about an inch in depth in the right side of the neck; after four treatments, this had entirely healed. She continued treatments at irregular intervals during the winter, and until April 28, 1904. As soon as a gland became a little enlarged and tender, she would receive two or three treatments, and in this way she remained free from active trouble. I did not see her between April 28 and September 17, when she reported that she had

remained well during the entire summer for the first time in several years.

In chronic rheumatic affections, lumbago, sciatica, etc., this current has accomplished much, after all ordinary means have failed.

CASE X.—Woman has for several years been troubled with rheumatic attacks in various parts of the body; the most constant painful area has been in the lower lumbar and sacral region, with pain radiating down each sciatic nerve. She has taken all the antirheumatic remedies, salicylates, and other alkalies. On April 30, 1904, she had not been free from pain in her back and thighs for several weeks. High-frequency treatment begun on this date, and up to May 23, she had nine treatments; she was then free from trouble, and was doing more housework than she had been able to do for a long time. An occasional treatment was given between May 23 and July 27. On October 12 she reported that she had remained very well all summer, and had only had an occasional twinge of the old trouble.

Following injuries to ligaments and bones, as a means of relieving congestion and pain, hastening the healing of tissues, promoting absorption of the callus, etc., I have found the stimulation of this current of great value.

At St. Joseph Hospital, slow healing ulcers which do not yield to ordinary treatment, are stimulated by this current, and it is surprising how promptly most of them will heal.

In reporting these cases, I have tried to be conservative and report only actual progress made; but when one sees some stubborn diseases yield so easily, it is a little difficult not to become very enthusiastic. Those who are interested will find many reports during the past two years, and in looking over the list of many diseases treated and the results accomplished, one is forced to believe that in this current we have an extremely valuable addition to our methods of combating disease. In the course of time it will be definitely settled just what conditions are amenable to its influence.

I might cite from the experience of others, cures in a variety of diseases, including eczema, epitheliomas, acne, pruritus ani, etc., but I have purposely confined this paper to my personal experience, and to judge from results, it will be seen that the promptest to respond to treatment were the cases of neuritis. In these patients it succeeded in curing when other means failed to alleviate.

In tuberculous conditions, the outlook is very promising not only in enlarged glands, but in bone disease and in pulmonary tuberculosis; I have seen one patient with incipient pulmonary tuberculosis increase 12 pounds in weight in three weeks, the cough lessened, and the patient became well enough so that she was convinced that there was nothing the matter, and discontinued treatment. In Case VIII, tuberculous adenitis, I regard the result as exceptionally fine, and it certainly warrants the trial of this current in the early stages of this trouble.

In chronic constipation, results thus far have seemed to warrant the conclusion that we have in the high-frequency current a means of overcoming this exceedingly common complaint more rapidly and permanently than by other methods.

SIMPLE GOITER TREATED WITH BORIC ACID.

BY

F. W. BOCK, M.D.,

of Rochester, N. Y.

Because of the renewed interest in many localities in the treatment of goiter, I am prompted to give my experience with boric acid in the treatment of simple parenchymatous goiter.

During 1902, 10 patients were treated, of whom the four cases recorded are typical:

CASE I.—Male, aged 18. Mother has goiter. Brother choked to death with tumor in the neck like patient. Patient always well up to two months ago, when neck began to swell. Always able to wear 15½ inch collar with ease, but now neck measures 16½ inches. Boric acid, .65 gm. (10 gr.), given every three hours, well diluted with water. Between March 12 and March 18 tumor was reduced to 15½ inches, at which time medicine was reduced to .65 gm. (10 gr.) three times each day. On March 31 neck measured 15½ inches. Six months later tumor had not returned, and I have since learned that patient has suc-

cessfully passed the physical examination and entered the army.

CASE II.—A female, aged 34, has had goiter eight years. Tumor small, but within the past three months she has had very uncomfortable choking spells. Boric acid, in .65 gm. (10 gr.) doses, four times each day, speedily relieved symptoms and reduced tumor a half inch in 10 days.

CASE III.—Female, aged 32. She has had goiter for 18 years. Tumor not large, but has much choking and feeling of pressure. Boric acid, .65 gm. (10 gr.), four times each day, reduced tumor three-fourths inch in 20 days, and relieved symptoms, which have not returned six months after.

CASE IV.—Female, aged 45. She has had goiter about 30 years. Tumor small, but often has choking spells and always feeling of pressure. Boric acid, .65 gm. (10 gr.) three times each day, relieved symptoms quickly, but caused very little reduction in size of tumor.

In Cases III and IV the patients had been treated at various times with galvanism, with some relief, but with the boric acid treatment relief came quicker and lasted longer.

Apocryphos of the recent reports of the systemic effects of food preserved with boric acid, it might be asked what effect this large amount of boric acid would have upon the general health of the patients. In my cases, seemingly no ill-effect, but to the contrary, they seemed to feel better. This was probably due to the fact that elimination was stimulated by the large quantity of water taken; two glasses being taken with each .65 gm. (10 gr.) of acid. In one case, in which the patient was treated by one of my colleagues, the patient did not follow directions, but took the dose with only a swallow of water, a dermatitis was produced on about the third day, but this readily cleared up when the drug was withdrawn. Not more than an ounce of the drug was given continuously in any case without a rest of a few days. In no case was there a failure of good result. In none of the cases were there any degenerative changes in the tumor whatever.

A REMARKABLE RECOVERY, SHOWING THE VALUE OF OXYGEN IN BRONCHOPNEUMONIA.

BY

W. E. WRIGHT, M.D.,
of Middletown, Del.

The patient, a woman, just entering her seventy-ninth year, four years ago had suffered a severe attack of hemorrhagic hemiplegia with permanent disablement of the right side, was taken in March, 1904, with secondary bronchopneumonia. The onset was sudden, the antecedent bronchitis soon presenting the usual features of a typical case of bronchopneumonia—temperature in 24 hours rose to 104°; pulse, 120; respiration, 40; cough difficult and persistent, with dyspnea especially severe.

The patient's half-paralyzed throat made swallowing difficult at any time, regurgitation through the nasal passages sometimes occurring at meals, while expectoration of the accumulating secretions was with her simply impossible; these conditions so accentuated the dyspnea that for two weeks she was in hourly peril of strangulation. For these reasons the use of ammonium chlorid so invaluable in these cases was counter-indicated. It was also found necessary to disuse all hot milk preparations lest "the patient be drowned in her own secretions," and employ peptonized food liquids given cold. Auscultation on the tenth day showed the right lung entirely consolidated and the left partially involved. On the twelfth day with the temperature 104°+, respirations 45 to 50, pulse high, weak, and barely countable, the patient showed symptoms of collapse, sinking at last into a state of coma with marked cyanosis. The physician gave hypodermically the usual heart and respiratory stimulants, but with little effect. Meanwhile oxygen, unheated, was being freely given for periods of seven to ten minutes, alternating with rests of the same duration. The patient was now wholly unconscious, respiration shallow and scarcely perceptible; the eyes glazed, the jaw horribly fallen down, and the altered countenance wearing the ashen hue of a corpse. In administering the oxygen it was now necessary to support the jaw and to close the lips around the mouthpiece of the tube. A 200-gallon tank of oxygen manufactured by the G. B. Underwood Co., of New York City, was used, the gas at times being given under considerable pressure to supplement the feeble inspirations by forcing it into the lungs. The case seemed so hopeless that the friends of the dying woman begged that she be left to die in peace. Nevertheless the administration of the oxygen was continued, and after a total period of over two hours, resulted in restoring her to consciousness.

It was an interesting spectacle to watch the cyanotic pallor at last gradually receding as the better oxygenated blood purged of its carbon dioxide, slowly overspread face and neck with the hue of health, which grew to a pronounced flush as

the ingestion of the oxygen became more perfect. Two days afterward a similar collapse took place, and the oxygen was again exhibited with like happy result. Three weeks later the patient had made a complete recovery, and at this writing, eight months after, seems in better health than for years.

So hair-poised hung the scales of life and death in this case, a diluted article of oxygen, or its less persistent use, would have meant death—20% of dilution would, beyond doubt, have been fatal.

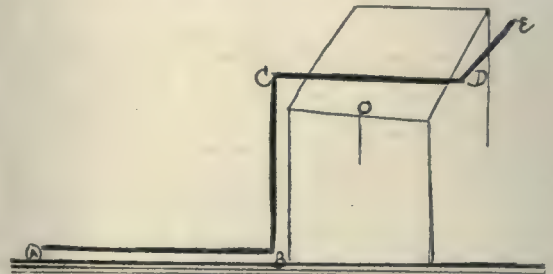
G. Burton Pearson, who was in charge of the case and skilfully exhibited the customary remedies during its course, pronounces the recovery, under all the adverse conditions attending it, the most remarkable that ever came under his notice.

A POSITION FOR CLINICAL EXAMINATION.

BY

CHARLES MINER COOPER, M.B., M.R.C.S.,
of San Francisco, Cal.

To the Editor of *American Medicine*:—I desire to draw attention to a position which I have never seen used, one however that is readily assumed and that will often be found of service. The simple diagram included is self-explanatory, where A B represents the body of the patient, B C the thighs, C D the legs, and D E the feet. O represents a stool or a chair of about the height of an ordinary person's thigh, and of a width a little shorter than the length of the leg so that the foot projects a little distance beyond the edge. In this position (1) the rotation of the pelvis on the spine at the sacroiliac synchondroses shortens the distance between the origin and insertion of the anterior abdominal wall muscles, thus tending to relax them; (2) the flexion of the thigh at the hip-joint shortens the distance between



the origin and insertion of the iliopsoas muscles, and as the legs are perfectly supported their relaxation is complete; (3) the abdominal vertebral column is unarched thus aiding in the relaxation, and the spines of the lumbar vertebrae are brought into direct contact with a röntgen-ray plate; (4) the perfect support to the legs insures spontaneous relaxation of the thigh and leg muscles.

In view of the foregoing, I beg to recommend strongly this position in the following procedures: 1. In palpating the abdomen its use will often do away with the necessity for administering an anesthetic and affords a better relaxation than immersion in the kind of hot bath that we usually find in our patients' homes. 2. In radiography of the abdomen it is a simple way of bringing the posterior abdominal wall in contact with the röntgen-ray plate. 3. In our endeavors to elicit a doubtful knee-jerk, the movement of the foot and the contraction of the extensor cruris both come into evidence. 4. In our endeavors to elicit a doubtful Babinski reflex.

WAS THE FEE EXCESSIVE?

To the Editor of *American Medicine*:—In the absence of further information than given by the letters on the above subject published March 18 in your columns the fee was excessive. The \$1,000 for "recognizing a dangerous condition" belonged to the attending physician, if to anyone. If an attending physician recognizes pneumonia or typhoid or tuberculosis or arteriosclerosis or nephritis or diabetes in time to institute measures that save life without surgical help can he or should he charge on that scale? If not, why not? \$1,000 seems to me a full—generous—fee for surgery in any case of appendicitis.

FAMILY PHYSICIAN.

ORIGINAL ARTICLES

IS THE COMMON HOUSE FLY A FACTOR IN THE SPREAD OF TUBERCULOSIS?¹

BY

J. O. COBB, M.D.,
of Los Angeles, Cal.Surgeon United States Public Health and Marine-Hospital Service,
Los Angeles, California.

The most fascinating study before the medical profession today is the method and manner by which the infectious and contagious diseases are carried from one person to another. Especially interesting is the study of the many (seemingly) possible methods by which tuberculosis may spread. To reach back into the past only a few years, certainly in the memory of most of us here, is to recall the various phases through which our minds have passed in this short time. Most of the ideas concerning tuberculosis 20 years ago were crude and ill-grounded. We were ready to believe anything from anybody, whether it bore the stamp of reason or absurdity. We clung to hereditary transmission—have not let go yet, for that matter—until the subject grew wearisome. Then it was that bad air was said to be all about us wafting the deadly bacillus to all alike, the rich, the poor. But that did not answer satisfactorily to those who thought, for they pointed the ever accusing finger to the homes of the poor, to the environment of squalor, and said: There is where most of your cases are. A generally infected atmosphere was untenable, but the lowered vitality man came forward to claim that it was poor food, poor housing, and such things that so lowered the standard of resistance in the poor that the infection being in the air generally, here, there, everywhere, that they were the ones therefore to succumb and contract the disease. Then somebody suggested that the disease was transferred from the cow to man by means of infected milk, and every one of us to a man believed it without question, and many still believe it. There were other theories brought forward from time to time—all to be held to firmly until the next came to view.

While we laugh at some of these notions, nevertheless the subtlety with which tuberculosis creeps upon its victims makes the average physician overanxious to know how to combat it, and too eager to accept mere conjectures and immature theories. And yet we must advance, certainly, when the old is found to be wrong, in part or in whole.

The old ideas respecting the methods of spread of tuberculosis were partly wrong, if not wholly so. Many of our present day theories are vitally wrong. For that reason I have turned about from time to time, first to one side, then to another, forward and backward, seeking to come face to face with some fact that would help me work out by pure reasoning from the intangible surrounding us, how the insidious tubercle bacillus changes its habitat from one man's lungs to another man's lungs. One theory after another has been gone over and discarded as unworthy of belief or of minor or remote importance.

Today most of the great investigators feel, without being able to prove it, that the infection gains the circulation from some portion of the alimentary tract, the bacillus being screened out in the lungs. Many of these men believe that the chief portal of entry is through the tonsil; but whether through the tonsil or intestinal tract, nearly all of them hold that the bacillus is brought to the gateways of our circulation by means of infected food.

In one respect all medical men agree, and that is that tuberculosis is a filth disease, most commonly found in filthy homes. Because of this fact many of us have been misled into attributing the cause of tuberculosis, or, to

put it in the language of today, the predisposition to tuberculosis, to bad air and all the bads that go with squalor and filth. Poverty and bad air are only incidents in the course of the disease and have nothing whatsoever to do with its transmission. In like manner, bad air and miasms have no importance from the standpoint of the transmission of typhoid fever, malaria, or cholera. Not one lays the importance of bad air to typhoid fever that he did 20 years ago. As for malaria, one can live indefinitely in good health in so-called miasmatic swamps if free from the mosquito. In fact, little attention is paid to bad air now except in a general sanitary way. Why? Simply because we have learned that in typhoid fever if the water-supply is kept sterile and the flies kept away from the dejecta the disease will not spread. It is a plain, simple, laboratory example of keeping the contagion away from the medium. Bad air has nothing to do with causing the disease whatsoever, only having remote bearing on its outcome when once it has gained a foothold.

Now, does any one believe that bad air and poor homes and worse food have anything whatsoever to do with causing tuberculosis? Yes, probably every one of you, without exception, hold it to be the chiefest cause. You will hold on to this foible just as we used to hold to that nonsense about sewer gas causing typhoid fever. Do you remember what a craze there was about sewer gas and how the faulty plumbing was being torn out to prevent the spread of the disease? I believe that this idea about bad air and tuberculosis is just as groundless of reason. It seems plain that the matter of dosage and the person being in the constant presence of the contagion are the essential questions for us to look to and work out.

Assuming the postulates that inhalation plays an unimportant role; that infected food is the prime medium; disregarding infected milk as a factor as I feel that we are justified in doing, causes the natural inquiry, what then is the medium of infection to man? And if it is infected food what is the process of infection, and how does the infection reach the vital portions of our bodies?

The mental steps in reasoning out the method of spread of tuberculosis are ever like the tides. By this method of investigation we have gained on the foe under conditions in which pure experimental investigations have failed. It is only by a trying out process that we can run down this disease, and I would revive a discarded theory by a backward swing of the pendulum.

Is the common house fly a factor in the spread of tuberculosis?

If the disease does gain entrance to our circulation through the intestinal tract then the fly is an important factor because this insect undoubtedly plants millions of bacteria and tubercle bacilli upon exposed food in the filthy portions of cities. I have demonstrated that the fly conveys the bacillus and Spillman and Haushalter called attention to this possibility several years ago. Hoffman fed flies with sputum and recovered the tubercle bacillus from their fecal matter. More recently Hayward of Detroit, reported a number of experiments which have covered more closely all that has previously been reported by Hoffman.

It is proved that the fly can convey tubercle bacilli on its feet and wings and that it feasts upon tuberculous sputum with the greatest avidity, strangely enough followed by diarrhea, as Hayward has observed. This investigator has also shown that smears from the stomachs of flies that have fed upon tuberculous sputum contain virulent bacilli. Both he and Hoffman have proved that the virulency of the bacillus is unaltered by passage through the intestinal tract of the fly. That a fly can carry large quantities of sputum to considerable distances upon its feet, wings and body all of us know to be possible, and I know to be true. We are positive that the fly carries sputum on its feet and wings and in its stomach to food, there to be deposited by actual con-

¹ Read before the Association of Military Surgeons of the United States, and the Los Angeles County Medical Society, annual meeting, October 5, 1904.

tact or by dejecta. Granting this, as I believe all of you must, brings us squarely to the question at issue.

Here you will ask me to explain how the bacillus reaches the lungs if taken in by way of the intestinal tract. And again, why is it that bacilli will pass the mucous membrane of the alimentary tract without lesion and apparently without detention? Both these questions can be answered simply and convincingly if you can rely upon an experiment said to have been made by Nicholas and Descas. These experimenters working in conjunction fed to fasting dogs, bouillon containing vast quantities of tubercle bacilli. In a very short time they found that smears from the thoracic duct showed tubercle bacilli. If this experiment is free from error, and so far as I know no one has disputed it, then it indicates how easily bacteria can and do enter our circulation. If a foreign body or a bacillus should gain the thoracic duct, it would be poured into the great veins, then into the right side of the heart, thence to the pulmonary circulation to be screened out and cared for in nature's way. If the conditions are unfavorable, the bacillus will succumb to the onslaught of phagocytes. If the conditions be favorable, then the bacillus gains a foothold and we have the formation of the classic tubercle. I have not the slightest doubt that bacilli and foreign bodies can be and are inhaled deep into the lungs. Neither do I doubt or question the possibility and the probability of infection in tuberculosis by this anatomic route. For me it has been one of the hardest things to give up the inhalation method as the most prominent route of infection, but slowly, reluctantly I have come to believe strongly that infection through the bronchi is of far less frequency than through the intestinal tract. If then this is so, and our picture is true, one must not lose sight of the fact that the bacillus has reached its lodgment in the lungs via the circulation and not by the way of the bronchia. It cuts out of consideration almost entirely direct pulmonary infection by inhalation, except inasmuch as infected dust may be breathed into the nose and pharynx and its contagion deposited upon the moistened pharyngeal walls, to be swallowed later. And all this looks reasonable and possible. It has the stamp of probability. To me it seems true.

Turning away from the speculative, I would invite your attention to the tangible, to something within our grasp, a thing which we can try out and run down. I am sure you are not blind to your environment, even in Los Angeles, in southern California. Each of you try and go out with me in his imagination to the streets and alleys and filth holes in this dirty but beautiful city. Turn about you, anywhere, everywhere, and it is flies in swarms upon decaying vegetable matter, and the sputum and spittle of the streets. As you walk along your streets, say Second, and Spring, look carefully (in fly season), and see the great number of flies actually contending over spit. And there certainly seems to be enough for them without fighting for it. If you will follow this gormand of a fly farther, watch the fruit stands, and see the grapes, the dates, and all fruits covered with flies. At one of the very best fruit stores in the city I have repeatedly seen the box of dates which has been broken open, swarming with flies, while within 100 feet there were, upon one occasion, as many as five cadaverous tuberculous patients, one of whom I positively know spat upon the street, and I watched the flies rush for this sputum like gulls after food thrown into the sea. Go on further, and look into the stores where bread and pastry are sold. Flies there, too, and on the bread you eat. The meat market must not be overlooked. Have any of you noticed how the meat of this city is handled? But it is cooked before using, you will say. Granted, but still, do not fail to look your butcher shop over well, and do not forget the sausages, and such other things, some of which are not cooked before eating. I will not suggest that you go into the cheap restaurant kitchens, as I have no desire to disgust

you utterly. Let us pass the restaurants by, and go on down to the small shops and homes in the poor sections of your city. Flies everywhere! In the children's mouths and noses; in the house, out of the house; on the food left upon the table, which is never cleared; on the food left over, and which the children eat at all times between meals—in the milk pitcher, in the soup, in the molasses, in and upon every conceivable thing. If this picture is not bad enough, watch the candy exposed for sale to your children by the street vender. Just take a good look at him when fly time comes again. And this is the exact, the literal truth of Los Angeles. It seems bad enough, certainly, but you of other cities, St. Louis, New York, New Orleans, are even greater in your filth, and thereby you have the fly in greater numbers. What is true of one city, is practically true of all others.

Bent upon seeing the fly in the environment of its greatest prosperity, where it has plenty to eat and drink, in common with man, I have peeped into the shops and homes of the poor in several large cities. In two things the poor, nearly universally, have a common habit, viz., leaving the table set with cold foods left over from the meals, upon which the flies in summer congregate in enormous numbers, and from which the children from time to time run in and help themselves. Now, then, if there is a tuberculous patient in that house or nearby who is careless with his sputum, is it unreasonable to believe that flies feeding upon this sputum may not in the course of the day deposit bacilli upon this food, so exposed? Not all bacilli gain a foothold, though taken into our bodies in enormous quantities. We cannot escape the fact that the majority of cases of tuberculosis can be traced to a previous close contact with some one suffering with the disease. If Pottenger and others are right, either wholly so or in part, that the disease is contracted in childhood, then we can understand how these children got their infections. Delayed manifestations of the disease can be explained by different causes, certainly to the natural immunity that certain ages have to certain diseases.

In the Philippines the army medical officers found that cholera was continually spread by street vendors and small shopkeepers, whose articles of food for sale were constantly exposed to contamination by flies. You medical officers of the army know how hard it is to guard against typhoid fever in a permanent camp simply because of the same pestiferous fly infecting the food from fecal matter. These are demonstrable facts, undisputable. Is the theory of the fly transmission in tuberculosis less reasonable?

Tuberculosis is conveyed from one person to another by means of infected sputum, and there is no intermediate host in whose body the bacillus multiplies. The bacillus that gains a lodgment in one man's lungs is the same bacillus that was given off from another man's lungs without any change whatsoever. By means of the fly this bacillus may reach the intestinal tract of some person in a very short time after it has been expectorated from another person's lungs, or it may be deposited upon the food which is not immediately eaten, and which may be sent out to localities far removed from close proximity of the tuberculous. Wherever the fly is there will be found tuberculosis. I have collected reliable data from all over the world on this point, and to put it another way, there is absolutely no question that where there is tuberculosis there is the fly also. On the northwest coast there are few flies, and in certain portions of Scotland the same is true. But flies do appear in these sections for a short time in the summer.

If the claims that have been made are true, it does not alter the practical question at all. The same grand fight for better housing of the poor must be kept up by such men as Otis, Bowditch, Knopf, Flick, and others too numerous to mention. The fight belongs essentially to the sanitarian. The old struggle is the right one. Every particle of sputum should be destroyed whether or not we believe in the fly theory or inhalation method;

failing that, as of course we shall, to a greater or lesser extent, then continue the fight for clean houses and clean backyards, and clean food without contamination by flies or by infected dust.

A CASE OF EXTENSIVE CARCINOMA OF TONGUE AND NECK, PRESENTING POINTS OF SPECIAL INTEREST.¹

BY

WILLIAM SEAMAN BAINBRIDGE, M.S., M.D.,
of New York.

Surgeon New York Skin and Cancer Hospital; Attending Surgeon New York Children's Hospitals and Schools; Adjunct Professor of Surgical Anatomy and Operative Surgery, New York Post-Graduate Medical School and Hospital; Consultant New York Home for Destitute Crippled Children.

The medical profession has seemed a great many times in recent years to be on the verge of discovering the real cause of cancer and of obtaining a new and better treatment for this disease than the knife. Today we are at one of these periods of expectancy, and, with the great number of competent clinicians and skilled laboratory workers in this field of research, it is devoutly hoped that we are not to be again disappointed.

Our present knowledge of cancer etiology we must frankly admit is very unsatisfactory. Serkowski and Maybaum only last September stated that we know today about as much concerning the real nature of cancer as did Hippocrates. The reports last month from the Gratwick Pathological Laboratory tend to prove the parasitic origin of malignant disease. In the same month we have, however, the conclusions of the Harvard Cancer Commission, appointed for the special study of this disease. It affirms positively that cancer is *not* of parasitic origin.

With these widely divergent opinions it is encouraging to find some practical facts, which are so far established as to be accepted by the profession. The more important are as follows:

1. All cancer begins as a benign growth.
2. There is, therefore, a true precancerous stage, in which removal is a sure means of relief.
3. The disease is absolutely local in its beginning, and if fully extirpated a cure should result.
4. Extension may take place by direct infection of the surrounding tissue, but it is usually through the lymphatic or blood channels.
5. There is a varying degree of malignancy, some growths tending to return much more readily than others.
6. The system is poisoned by the production of toxins.
7. General malnutrition, as well as diminished vitality of the noncancerous tissue in the neighborhood of malignant disease, as a rule, tends to increase the rapidity of the local extension and renders more likely the development of metastases.

Fortunately, more has been established as regards the treatment than the cause. Let us briefly epitomize:

I. *Non-operative Treatment*.—(1) Arsenic paste and other caustics, beside liquid air, may cure small superficial cancer; (2) Röntgen rays, Finsen light, Pifford lamp, and radium may cure superficial cancer in selected cases. Beside, these various forms of ray are often of distinct value to relieve suffering in inoperable cases; (3) harm may result from these agencies. Intractable burns, local relief but hastening of systemic cancerous infection, or, in some cases, marked increase of the growth follows their use; (4) chronic irritation and repeated injury apparently tend to produce a local cancerous condition in many instances; (5) bacteriotherapy—the use of the toxins of erysipelas and *Bacillus pro-*

digiosus—has proved of benefit in some rare types of sarcoma; (6) oophorectomy in hopeless mammary carcinoma has caused temporary retrograde changes in the growth and prolonged life in certain authenticated cases.

Serum therapy for cancer is as yet only in its experimental stage. It is to be hoped that some one of the serums now being tested in several medical centers may prove of definite use, and that they will not share the fate of those of Schmidt, Adamkiewicz and others.

II. *Operative Treatment*.—Here we have the real hope for the cancer sufferer. Professor von Bergmann, in urging surgical treatment, goes so far as to say that no inoperable cancer has ever been cured by Röntgen ray or other form of radioactivity.

The consensus of surgical opinion today is: (1) Removal, as far as possible, of all benign growths, especially those subject to chronic irritation or repeated trauma; (2) after malignancy is present, early removal of the cancer, with a margin of a quarter or a half inch of healthy tissue, is indicated, and the extirpation of lymphatic vessels and lymphatic nodes in close relation to the disease should invariably form a part of the operation; (3) in advanced cases as radical an operation as is



compatible with life; (4) when it is impossible to remove the disease, a palliative operation may often be done which will lengthen life, ameliorate suffering, and sometimes so far relieve the condition as to make the patient doubt for months the diagnosis of cancer. The ligation of arteries, as well as Dawbarn's method of arterial extirpation, may be done in selected cases with benefit.

The case which I now present illustrates many of the foregoing points:

CASE.—Thomas M., aged 49, occupation, theatrical.

Family History.—Mother died of cancer of the left breast at the age of 74.

Previous Personal History.—No specific disease. Always well and strong. Alcohol freely used. Smoked 20 cigars a day for over 20 years. The cigar was held in the left-side of the mouth, resting against that part of the tongue which ultimately became the seat of the disease.

Present History.—The trouble began in May, 1902, with the appearance of a small pimple, half-way back, on the dorsum of the left half of the tongue. This was treated with local applications of alum, and smoking was discontinued for a time. The pimple disappeared, only to return when smoking was resumed. This was repeated a number of times, after which the pimple persisted, growing at first slowly, and then much more rapidly. On December 26, 1903, the patient first came to

¹ Paper read in part at the ninety-ninth annual meeting of the Medical Society of the State of New York, held at Albany, February 2, 1905, and in full before the Kings County Medical Society, Brooklyn, March 21, 1905.

me, through the courtesy of Dr. R. W. Taylor and Dr. Antonio Fanoni, of New York. At this time he had lost considerable flesh and strength, and was somewhat cachectic. There was a hard, crater-like ulcer (3 by 2 by 4.5 cm.), involving the left anterior third of the tongue, except at the tip, which was covered by a brownish, fetid fur. There were no glands palpable at this time. A small piece of the ulcer was examined microscopically by two independent authorities, and the diagnosis of a very vascular epithelioma confirmed.

Immediate operation was urgently advised but the patient absolutely refused. The friends insisted that Röntgen ray be given a fair trial. Potassium iodid, a mouth wash and tonics were prescribed, and systematic Röntgen-ray treatment employed for nine weeks.

On March 1, the treatment was discontinued. The patient's local and general condition had been getting steadily worse,



until both the friends and the patient were finally convinced that operation offered the only possible relief from speedy and certain death. The growth by this time had extended on to the right side of the tongue and induration of the floor of the mouth was evident. Some cervical glands were distinctly palpable on both sides of the neck. Swallowing was almost impossible, because of the dysphagia.

Operation.—On March 11, operation at the New York Skin and Cancer Hospital. Chloroform and oxygen vapor anesthesia. First incision, across the neck practically from the tip of the left mastoid process to that of the right, and below as far as the thyroid cartilage. Second incision, along the anterior border of the left sterno-cleido-mastoid muscle to within an inch of the clavicle. The two lingual arteries were tied *in situ*, the submaxillary and sublingual glands on either side removed, the salivary ducts being extirpated clear into the mouth. The openings of communication thus left were closed by means of deep catgut stitches. Care was thus taken to prevent even a small amount of fluid infected with cancer cells from bathing the neck wound. Many cancerous glands were removed from the region of the tonsil on the left side to the dome of the pleura. In order to accomplish this the sterno-cleido-mastoid muscle was cut transversely below the point of entrance of the spinal accessory nerve. The glands on the right side which were involved were from the tonsil to just below the division of the carotid artery. The lymphatic glands with their vessels were removed as far as possible *en masse*, and with them the connective tissue and fascial of all the muscles in juxtaposition to these glands. Many were on the connective tissue covering the large bloodvessels and these were accordingly removed with the sheaths of these vessels. The bisected sterno-cleido-mastoid was sutured. After careful hemostasis the wound was completely closed, except for a small drain at the lower part. The mouth was next forced open and Paquelin cautery used to cut down part of the large cauliflower mass on the tongue. Whitehead's shellac was applied daily as a coating to the cauterized surface. For several days the patient was fed per rectum, the throat being given as much rest as possible. The wound healed by primary union.

On March 28, second operation. Chloroform, and oxygen vapor anesthesia. Left corner of the mouth was incised as far back as the edge of the masseter muscle. The mouth was now

forced open, the tongue drawn out, and an elliptical incision was made on the floor of the mouth, encircling the tongue in front and on each side. This organ was completely removed, taking with it a large part of the genio-hyo-glossi, as well as the hyo-glossi muscles, the inferior third of the pillars of the fauces on the left side and part of the anterior pillar of the fauces on the right side. A small flap of mucous membrane and muscle about three-quarters of an inch long, attached to the right glosso-epiglottic fold, was dissected away, except where it was attached to the epiglottis and the hyoid bone. This was twisted so that its left border was posterior and its anterior extremity faced toward the left. This was sutured in place, making a bridge of tissue across the fauces in front of the epiglottis. The gaping wound in the floor of the mouth was partially closed by chromicized catgut and covered with Whitehead's shellac. The wound in the cheek was sutured in the usual way, and shellac applied. Within a few hours the patient was able to swallow fluids.

April 21, patient was discharged, cured. He weighed at this time 139 pounds, a gain of 10 pounds since entering the hospital. He has steadily gained in flesh and today weighs 160 pounds. He is apparently perfectly well, is able to masticate even solid food, to taste, to talk intelligibly, and even to sing.

[The patient was present and at the completion of the reading of the paper spoke so that all in the large room could distinctly understand what was said. He answered questions and when requested to say "pituitary body," a word that he had never heard before, he was able to articulate it so clearly that he was easily under-



stood over a hundred feet away. The specimen of the tongue was also exhibited.]

For those who could not come in direct contact with the patient I have had three photographs taken—no retouching being done—which show the practical absence of deformity, and the very slight amount of scarring resulting from the extensive operation.

Adulteration of Candy and Food.—Chemic analysis of foodstuffs and confectionery purchased in New York just concluded by the State Board of Agriculture has led to the discovery, according to one of the chemists, that 90% contained adulterants, which in many cases were deleterious. The investigation has been carried on quietly since last June, with the object of prevailing upon the Legislature, if possible, to provide funds for the enforcement of the pure food laws. Two hundred samples of candy purchased in New York stores were found to contain paraffin, particularly caramels, chocolates and molasses candy. Glucose was found in nearly all cheap grades, while red and blue anilin had been used for coloring gumdrops and sticks of candy, and varnish to give a glossy coating for chocolates.

A DISSERTATION ON TEMPERAMENT, DIATHESIS, DYSCRASIA, PREDISPOSITION, CACHEXIA, SUSCEPTIBILITY, IDIOSYNCRASY AND HEREDITY.

Introducing, as a New Conception of the Involved Problems, a Definite and Orderly Biologic-retrogressive Series of Physical Manifestations, Constituting the Symptologic Expressions of the Phases and Stages of the Pathology of Katabolism, Including an Analysis of Etiologic Homogeneity.

BY

HOMER WAKEFIELD, M.D.,

of New York.

[Continued from page 441.]

The Contraction Stage.—The manifestations of this stage relate quite specifically to the reaction effect of subkatabolism upon muscle fiber, and moreover, to the contraction stage, with pain as the principal symptom. A certain degree of contraction, or normal equilibrium length, which we call tonic, is an expression of normal oxidation, well being, and in fact, health.* An expression of a more advanced degree of subkatabolism is, in terms which have been criticised: Hypertonicity, or in more common parlance, tonic contraction. Not all tonic contraction, however, is transmitted to the consciousness as pain, especially when of a very diffuse or general character, as in epilepsy, yet it may be said that when pronounced and limited to single muscles, or particular small groups, pain is quite typical of the condition. Cramps, paroxysmal or spasmodic contractions, are commonly identified by pain. Proof that painful contraction is an expression of this particular stage of a graded series of manifestations (degrees) of subkatabolism is not wanting. 1. It occurs as either a transient or a more definite stage of most all progressive diseases. 2. In alleviations, all diseases in which pain is the dominant symptom, must be and always are, either further subkatabolized, namely, extended to the succeeding stage of this biologic series, by virtue of one or more of the factors of subkatabolism, or are reverted (restored) to the preceding stage of the biologic series, thus approximating the normal condition. In therapeutics, the former method, that of increasing the katabolic stasis to the succeeding stage of relaxation, is the one which from the earliest times has been in vogue. Among the most common methods of procedure may be mentioned venesection (blood-letting), starvation (diet-produced anemia), narcotics, alcohols, and metals (counteroxidation), liquors, antimony, mercury, lead, etc., nitroglycerin, amyl nitrate, etc., which may be arterial or general relaxing agents, according to dosage; morphin, and the narcotic group, and the several local and general anesthetics, all of which are powerful inhibitors of katabolism, acting by the production either of suboxygenation, suboxidation, or other inhibitions of katabolism.†

The attainment of the same ends by cardiac depression, by coaltar derivatives, is in common use, and among

*A stage of still relaxation does not exist preceding, as it does succeeding the contracting stage. That physiologic absence of tension characterizing the normal tonic is not a state of sluggish relaxation or paralysis, but one of activity, as determined by studies of individual cells. A continual protoplasmic movement, termed the amoeboid movement, which is retarded and arrested as subkatabolic contraction is attained.

†A prime result of all active oxidation in the economy, whether normal or pathologic, is what we call stimulation. The most active oxidants produce the most active stimulation. For example let us consider alcohol and the nitrates, both of which are highly oxidizable, but the former in addition is highly diffusible. Owing to the latter property, when ingested in excess, notwithstanding that it is largely consumed in the glandular organs, it does not attain perfect combustion before it reaches the capillaries, where much of it is burnt, causing an accentuation of body temperature. Conversely, with the latter, the combustion occurs so completely before reaching the superficial arterioles, thus consuming the available oxygen, that suboxidation (subkatabolic) distention of the walls of the arterioles results. Both of these agents, owing to the stimulation of their oxidation, differ in physical manifestation from narcotic poisons, which directly inhibit katabolism.

the rarer remedies for the same purposes we find occasional reports of vinegar and other acids.

Conversely, to the therapy of accentuation of katabolic stasis and the advancement of the condition to a succeeding stage, we have at our disposal the opposite method, that of reversion or restoration to the preceding stage, or toward the normal state: A method which I predict will be the one of universal preference, in the medicine of the future. It must be admitted that while the first mentioned method is capable of empiric application, even when in ignorance of the diagnosis and etiology, and the latter makes necessary a knowledge of the status of the condition and its etiology for its successful application, yet it (the latter) is the only true therapeutic method. It is apparent that the therapy of restoration from subkatabolic states depends upon removing or neutralizing causes, which must first be identified to make possible a successful therapy. For example, autotoxins and heterotoxins must be removed, narcotic habits must be curtailed or discontinued.

If the subkatabolism be due to suboxidation, normal quality and quantity of atmospheric air must be assured, a free passage from the nostrils to the lungs must be provided, ample pulmonary capacity, normal blood elements, cardiac sufficiency, circulatory freedom and equilibrium of distribution of the blood, must be had to insure oxygenation, and moreover pathologic portal and other glandular excessive counteroxidations must be guarded against from depriving more dependent regions. In any of these the therapy is indicated by the identity of the defaulting factor. It is a simple case of widening the channel where it needs it and stop the leaks. But the removal of obstacles of oxygenation is not always sufficient, and the inhalation or local application of pure nascent oxygen gas may be necessary as a compensation for a reduced volume appropriated to the tissues. Suboxidation, however, may exist from other causes than lack of oxygen. It is to be observed that oxidation is dependent upon an alkaline medium, upon a certain degree of activity of the oxygen and upon a high molecular weight of the tissues. The first requisite is attained by combating hyperacidity of all origins, and by alkaline therapy. The second, by insuring against losses of the phosphatic elements (sexual excesses and vices) and by maintaining these phosphatic elements (nuclein and lecithin) by supplying phosphorus or phosphates; by insuring the integrity of either the thyroid gland, or supplying iodine artificially; or the suprarenal gland, or its active principle, or a substitute as ergot or bitter tonics, all of which in more or less degree promote the density of the tissues. (Also local astringents, desiccators, etc.)*

The role of the phosphorized elements in animal oxidation, is explained by the fact that phosphorus accelerates oxidation during its allotropic change from the yellow to the red form (in which it exhibits phosphorescence) by conversion of the oxygen molecules into active oxygen or ozone. But notwithstanding that phosphorus promotes oxidation in lieu of a much higher degree of heat, than otherwise necessary, it must be recognized that phosphorus requires, in air, for its allotropic change, 240° of heat, while human oxidation is attained at not much above 100°. This is explained by the fact that the allotropy of phosphorus may be produced in air at a temperature of only 200°, if an extremely small proportion of iodine is present. Another diffuse constituent of the animal body—arsenic—possesses powers similar to phosphorus. Then the alkaline medium, the density of the tissues and the high oxidizability of the supplied fuel, serve to bring about the physiologic oxidation at normal body temperature, which is somewhat above that clinically observed; some

*Owing to space limitations, the reader is urged to draw on the imagination for the opposites to the requirements of oxygenation and oxidation named. It is for such reasons that they are not included among the factors of subkatabolism, their importance as such, however, is no less valid.

of which is undetected owing to the resistance of the tissues to conduction.*

It has been observed that animal oxidation is promoted by the imparted radial energy of light, and that oxidation is more active in the light than in darkness. It is accelerated by electric currents, and most so by those of highest frequency. It has been found that the röntgen and becquerel rays, the latter in proportion to their energy from all radioactive substances, accentuate animal oxidation in the same manner as do the physiologic oxidases.

The most rational and successful therapy, it must be apparent, must be one which constitutes a supply of that which is deficient and removes or neutralizes malefactors, yet it must be admitted that a redundant supply of single factors, when not excessive, often compensates more or less for others otherwise unremedied. The following clinical results will illustrate the restorative therapy, mostly from that most expressive stage of the biologic series, namely, pain. G. L.-du Toit⁹⁵ has reported the alleviation of pain and throbbing among other symptoms of pneumonia by the inhalation of oxygen.

Corson¹⁸ reports a case of cancer in which

the simple opening of the abdominal cavity was followed by results that were remarkable. Great pain and dyspnea disappeared as by magic and infiltrated tissues were relieved almost as quickly.

In another case, simple opening of the abdominal cavity caused a spontaneous cure of tuberculous peritonitis. He justly comments that "if atmospheric air will accomplish so much, how much more will ozone do."

Castelvi,¹⁴ of Madrid, has reported the attainment of complete analgesia for from 24 to 48 hours by hypodermic injections of oxygen gas in doses of 100 cc. to 200 cc., and he obtained surprising results in the cure of sciatica, neuralgia of branches of the lumbar, cervical, and brachial plexuses, and in the pains of arthritis deformans.

Dr. Thiriar,⁸⁴ professor of surgery at Brussels, reports rapid cures of boils and carbuncles by hypodermic injections of oxygen, one injection being sufficient for an ordinary boil. Even anthrax (malignant pustules) becomes painless in a relatively short space of time and the inflammation disappears in a few days. Rogovin⁷⁰ reports good effects of oxygen inhalations in eclampsia.

Livingston⁵⁰ has well demonstrated the effect of restored oxygenation, and thus oxidation in relieving pain, as accomplished by restoration of the equilibrium of the blood by the hypodermic action of ergot. Dr. Livingston also has personally assured me of the success of same action and attained end in restoring physiologic activity and healing of wounds; and also of the obliteration of pronounced localized infections without the use of parasitocides.

Sir Lauder Brunton,¹¹ (b) after stating that the presence of acid in a carious tooth is a most potent cause of toothache, quotes Dyce Duckworth as having shown that

sodium bicarbonate applied on cotton will neutralize the acid, thus curing the toothache. He remarks:

When pain is felt in all the teeth it often depends on irritation on the roots at the edges of the gums, by acid fluid in the mouth, and is relieved by rinsing the mouth with a solution of sodium bicarbonate.

Brunton¹¹ (b) reports the cure of boils on his own person by sodium bicarbonate taken internally, thus increasing the alkalinity of the blood. The local pain of his boils, which he observed to be worse about three hours after meals, when his blood was least alkaline, was almost immediately relieved by local applications of sodium bicarbonate.

Brunton¹¹ (a) also has stated that the intense pain of duodenal ulcer can be stopped by sodium bicarbonate. He dissolves a heaping teaspoonful in a glass of lime water, which the patient sips until the pain is gone. He comments:

It acted like a charm so far as the pain was concerned. The lime water is added to prevent hemorrhage.

In cases of gastric or duodenal ulcer I think you will find that neutralizing the acid of the stomach and duodenum will relieve the pain, even when fairly large doses of morphin will fail to subdue it.

Mallet,⁶⁴ in advocating the use of sodium bicarbonate as a surgical dressing, says of it:

It retards suppuration, it diminishes odor, it soothes the pain, and by increasing the activity of the tissues, it hastens cicatrization of wounds.

Hearsey,⁹⁴ chief medical officer in British Central Africa, reports that the numerous cases of hemoglobinuric fever formerly treated with large doses of quinin, as much as 4 gm. (60 gr.) daily, he now treats by the antacid, diuretic, and disinfectant agents, sodium bicarbonate, mercuric chlorid solution, and ammonium chlorid, (.65 gm. [10 gr.] each to 1 pint of distilled water), in doses of .65 gm. (10 gr.) of the former to 1.9 cc. (30 m.) of the latter. He reports 18 cases, without a death. No suppression or other ill-effect noted. The remarkable effect of ordinary sodium bicarbonate in burns of all degrees, both in alleviating the most excruciating pain and in tissue restitution, is well known, and it is deservedly a popular remedy among firemen.

The effects of radioactive energies as röntgen rays, ultraviolet light, radium, etc., in relieving the most agonizing pain of malignant neoplasms and many other painful affections, are too familiar to demand detailed description here. These agents act by radiointensification of normal oxidation (catalysis).

The effect upon painful affections, of the administrations of oxidases (promoters of oxidation), as phosphorus and iodine preparations, is also well marked when the subkatabolism is due to suboxidation of oxidase deficiency, though they are necessarily slower in action than oxygen and the alkalis. The reports of remarkable relief of painful and other subkatabolic conditions by phosphorus and phosphates are too profuse in medical literature to attempt to quote. The same may be said of iodine and the iodids, yet it is of especial interest that Thompson⁸⁶ has reported remarkable success in painful states, as neuralgia, migraine, sciatica and cancer pain, as well as in nervous exhaustion, hysteria and epilepsy, by internal administration of free phosphorus. Altshul³ has recently reported noteworthy results in the treatment of pneumonia by potassium iodid.

To prevent confusion, it should be added here that often during periods when subkatabolism is well marked, tissues of congested areas, previously in the flaccid state, become painful, apparently disproving my hypothesis; but the appreciation that a passive hyperemia temporarily enhances oxygenation, will serve to explain the apparent paradox.

Conditions of Painful Contraction.—The attainment of painful contraction must necessarily depend upon the acuteness or chronicity of the subkatabolic cause. In

*The evidence of the nature of the conditions for the accomplishment of oxidation at low temperature, and that they are as perfectly fulfilled within the scope of our present knowledge of combustion, is as apparent as is the process itself. 1. Requisite of the electro-chemical accentuation (which is one of increase of radial rate, as much as an intensification of slower rates) is accomplished by phosphorus, without the presence of which animal oxidation is impossible. 2. The allotropism of phosphorus is accomplished by the presence of minute quantities of iodine (without which animal oxidation is also prevented) in the presence of carbon dioxide, which effects the necessary restraint to the modification of the phosphorus. 3. The reversion of the phosphorus would naturally be accomplished by any complete oxidative process, and thus perpetual oxidation would be attained by a continuous succession of alternate exaltations of radial rate and intensity, by virtue of the decadent allotropy, and the reversion of the allotropic phosphorus by the culminating acme of oxidation energy. The universal diffusion of arsenic through animal economies, considered jointly with its remarkable similarity to phosphorus, chemically, suggests that it plays a part in the promotion of oxidation. The attainment of oxidation at reduced temperatures, also undoubtedly depends somewhat on the high oxidizability of partially oxidized tissues, waste products and possibly of a radical cyanogen.

other words, it depends upon the existing integrity of the muscle; long-continued subkatabolism may at no one time be expressed by more than dull and vague pains, up to the time that they attain a condition of flaccidity. Conversely acute and pronounced subkatabolism affecting previously sound muscles, is manifested by well-defined painful contractions, which increase with the accumulation of fatigue (metabolic) products. Muscles in a condition of hypersensibility from preaccumulated excess of metabolic products, naturally respond more forcibly and more quickly than normal muscle to a given influence, but they also pass more quickly into the flaccid state, in which other factors being equal, both contraction and pain are absent. A suddenly produced katabolic stasis in previously normal muscle will, by virtue of an energetic reaction to the accumulated metabolic products, be expressed by cramp-like, painful contractions. It should be remarked here, however, that it is possible to produce instantaneous flaccidity by absolutely instantaneous and complete cell asphyxia and anesthesia. The production of flaccidity is thus so sudden that cramp does not have time to develop.*

Conditions of contraction are well illustrated on autopsy. Under ordinary conditions, rigor mortis comes on slowly after the blood has come to a standstill, and as the oxygen is exhausted, or as oxidation comes to nil; conversely, however, when antemortem cell asphyxia has been developed to an extreme degree, as occurs when a deer or hare is "run down" by hounds, the postmortem rigidity does not occur, but much earlier putrefaction is observed.

In support of the intermediate place of spontaneous contraction in the graded course of subkatabolism, and that a certain limited supply of oxidation is necessary to sustain the tissue reaction involved, it is of interest that Fletcher²⁷ has shown that the introductory processes of rigor, which are marked by a steady output of carbonic acid, are partially incomplete in the absence of oxygen. It has also been found by him that the normal rate of carbonic acid discharge during the rigor period, for a muscle in air, is always largely increased in an atmosphere of oxygen, the increment ranging from 80% to 300%.

In reviewing painful affections, neuralgias, rheumatism and gout naturally present themselves for analysis. The effect of any of the local factors of subkatabolism, cold, congestion, strain, concussion, fatigue, pressure, irritation, injury, etc., of motor or sensory nerves, brain or spinal centers, or sensory peripheral endings, is commonly expressed by tetany of muscles, supplied by the motor peripheral endings. Be these actions reflex or direct, acute or chronic, their end manifestations are more or less typical of those classic to the biologic series. After the transmission of these effects and the production of tetany, the manifestation is largely resolved into a muscular one, though it must be admitted that the perpetuation of the manifestations is often dependent upon the formation of lesions at the seat of original cause.

If we study carefully the expression of the degrees of these tetanies, we observe: First, one of irritability, twitching, or jerking, as the fatigue products accumulate and add to the primary effect. Then aching and hyper-

*It should be explained here that the production of a painful contraction depends more or less upon its suddenness, for example a prolonged subkatabolic effect, of a unit degree, produces a lower grade, slower contraction of smooth muscle fiber, than in striped fiber. Pre-subkatabolic muscle in the first stage, exhibiting hyperesthesia, is especially prone to contraction and painful tetany, reacting to toxins, etc., augmenting the subkatabolism, and thus such toxins may be said to be selective for such tissues. Conversely, subkatabolic muscle, in degree bordering between the contraction and the flaccid stages, owing to its hyperesthesia, reacts to a unit dose of a toning agent, which would be insufficient to so affect normal muscle. Thus such toning agents are said to possess selective action for relaxed fiber. Toxic substances, as suprarenal extract, ergot, etc., which combine powerful constricting (condensing) actions upon parenchyma, are selective for and most effective in action upon relaxed fiber in their toning effects. If, for example, a maximum dose of ergot be injected into a given muscle, a tetanic (painful) contraction of that muscle will be combined with a systemic tonic effect as it is otherwise distributed through the circulation.

esthesia are exhibited, and developed into a more pronounced pain and of greater severity as the fatigue products increase and the contraction tightens. These symptoms in ordinary neuralgias alternate with periods of freedom from symptoms, which are only to be returned by the exacerbation of subkatabolism, as by chance, caused by fatigue, gastric, or intestinal hyperacidity, sexual depletion of oxidase function, or other factors causing it; again, to be relieved by a subsidence of the cause, or an autoinduced improvement in the local oxidation, thus constituting a periodic neuralgia. Instead, however, of the periodic type, we often find the effects continuously progressive, and instead of abatement of the process, we observe a gradual progression from the stage of painful contraction and hyperesthesia to one of flaccidity, extension, dilation, anesthesia, weakness, and even paralysis: the "flaccid paralysis" of Eichhorst,²⁸ following which are occasionally observed the later stages of capillary hemorrhages, fatty colloid and purulent or gangrenous degenerations. Other than the cases of nerve injury, the nerves degenerate secondary to the involved muscles. Vicious cycles of infections of the very susceptible degenerate tissues must be reckoned in all cases. I regret that space in this communication will not permit a more extended consideration of this interesting group, but we must now pass on to touch upon other syndromes.

Rheumatism and gout are known to us, both as diatheses and as disease entities. Haig²⁹ has pronounced these two diseases as different manifestations of the one basic condition, which he thought to be uric acid toxemia. That they are both diseases of subkatabolism is susceptible of proof, yet much is required in the way of differentiation and individual analysis. Perhaps the most fundamental difference between them is that primarily one (rheumatism) is a herbivorous disease, while the other (gout) is a carnivorous one. In man herbivorous diet disposes to one, and a carnivorous diet to the other. Rheumatism is marked by anemia and gout by plethora (not an excess of blood, but of the suspended albumins). The former is characteristic of the underfed, the latter of the overfed. In the former, suboxidized acids being otherwise unneutralized, decalcify bone, and produce pronounced subkatabolic degenerations of the tissues. In the latter, the great excess of subkatabolized nitrogenous food detritus in the blood, by virtue of the incidental ammonia formation, neutralizes the acids, thus maintaining the alkalinity of the blood, and the bones, cartilage and tissues from many degenerations, which are common to rheumatism.

In both rheumatism and gout, the seats of the typical lesions and manifestations, muscles or articulations, are determined by the cooperation of additional factors of subkatabolism and by natural predisposition of anatomic formation. Of the former class may be mentioned, to local accentuation of subkatabolism by cold, strain, traumatism, etc. Of the latter class may be mentioned the proneness of the knee, ankle, and the metatarsophalangeal joints to strain and the fact that all joints, notwithstanding that they are well supplied with arterial blood, are not possessed of the vital means of promotion of oxidation as are the muscles and glands. Thus oxidation is low in these places until it is augmented by the great affinity developed in the suboxidized tissue detritus, exhibiting inflammatory manifestations during the period of combustion.

I never could understand why bacteriologists have singled out the joints of acute rheumatism, more than the inflammatory joints of gout, as of probable parasitic origin. Both are equally prone to infection, at least in certain stages of the subkatabolic degeneration, and one simulates a parasitic caused inflammation, no more than the other. While we have abundant evidence of uratic and uric acid irritation in gout, we have as abundant evidence of acid action upon the bone and synovial membranes in rheumatism.

Undoubtedly, parasitic organisms, capable of independently setting up inflammation, have been found in rheumatic joints, and moreover they may have intensified the inflammation, yet it must be admitted that different observers have found different varieties of organisms, that no one variety is pathognomonic; and, moreover, that in a large percentage of cases, with the entire inflammatory syndrome present, the joints have been found entirely sterile. Michaels⁶⁷ has opened a number of rheumatic joints and found no microorganisms whatever. McCrae⁶⁸ has reported, of 294 patients with acute rheumatism, treated at the Johns Hopkins Hospital in Baltimore, that cultures from the joints, blood and urine, were practically negative, especially with reference to the absence of streptococci and staphylococci from the cultures.

A difference in the pathologic anatomy of the joint, between the acute and chronic forms of rheumatism is observed and should be expected, for fibrosis or sclerosis attends all exhibitions of hyperoxidation, as observed in the acute form, and not the direct inhibition of katabolism, as in the chronic form. Even those who admit the acid etiology of the chronic forms, but cannot accept that analysis of the acute ones, may be convinced by the admission of Walker,⁹¹ that the diplococcus of Poynton, recognized by Walker and Beaton as pathognomonic of acute rheumatism, generates a considerable amount of acid. Moreover, those who are believers in the pneumococcal origin of the disease will be interested to learn of the experimental findings of Rosenow,⁷¹ who determined that the pneumococci are active producers of lactic and perhaps other acids, which rise rapidly in direct proportion to the rapidity of growth; the results having been obtained in pneumonic serum and other febrile diseases, especially scarlet fever. See Cole¹⁶ on pneumococcus arthritis.

Tuberculous and gonococcal arthritis are examples of opposite types of articular infection, the former being a low dry form, while the latter is highly inflammatory and suppurative. Either of these forms may infect susceptible joints, though the former is disposed to lower oxygenation than the latter. The chemistry of microorganisms, now but barely begun, will throw much light upon their pathogenic actions, especially in relation to subkatabolism; however, we know now that most parasites amplify the subkatabolism which characterizes the state of susceptibility.

Analogous and related to the foregoing relations of oxygenations to degrees or types of inflammation of infectious arthritis is to be considered the fact that the inflammatory types of arthritis are quite limited to early and middle life, while the low forms as arthritis deformans are mostly observed in old age. Similarly diabetes in which an excess of sugar and acids is consumed, thus depriving the tissues of the available oxygen, and constituting a vicious cycle of progressive extension of the syndrome, is a much more serious, rapid and fatal disease in the young and middle-aged than in the aged; owing to the more active oxidase and oxygenation functions of the former, though in cases of diabetes, I am convinced that this same oxidase action in the pancreas, spleen, ductless and mesenteric glands, or in the liver *per se*, has been inhibited or destroyed in ratio to the original suboxidation of carbohydrates. Still it must be admitted that the degree of carbohydrate and proteid tissue elements in the blood, after the establishment of the vicious cycle, is far in excess of even the normal capacity to oxidate. The acids also in excess, from accumulation, owing to suboxidation, both of the tissues and those of general metabolic products, combine to extend the vicious cycle of subkatabolism, and thus the disease. Arteriosclerosis is the anatomic expression of the excessive combustion within the arterial walls, in gout, diabetes and other manifestations and forms of these subkatabolisms of oxidative deprivation.

Uric acid excess, especially in gout, though it has

been proved to be nontoxic and not to be an etiologic factor, is significant of the subkatabolic dissolution of nucleins, as I have expressed in a previous paper⁹⁰ (c):

When colloid degeneration is active, uric acid as well as other suboxidation tissue products will be excessive, and at such times the portal oxidation of nitrogenous foods may be subnormal, and uric acid may also appear from the nuclein elements of meats ingested. In event of such experiences, patients should be warned against Haig's methods of discontinuing red meats, veal, etc., which are of great nutritive value. Bear in mind, that if the oxidative processes are ample for body tissue katabolism, they will be sufficient for proteid food. If carbohydrates and proteids cannot be eaten together, drop the former rather than the latter.

The foregoing should be qualified by directing attention to the fact that proteid, being a highly concentrated food, a less volume than that of carbohydrates is demanded to maintain a given grade of nutrition. Those who eat a high percentage of proteid food are undoubtedly more prone to overeating.

Subjects of chronic rheumatism are prone to suffer exacerbations of irritability, aching or real pain, with the rise of atmospheric humidity preceding a rain storm thus actually becoming "human barometers." Interesting examples of this kind are cases of prolonged tissue inclusions of foreign bodies, as bullets, which do not produce perceptible irritation, except when, from the added suboxidation incident to suboxygenation of humid atmospheres or other factors, the metabolic (same as fatigue) products become sufficiently augmented to produce perceptible sensory impressions upon the consciousness.

Subkatabolic articular processes may be briefly described as follows: One of the essential early changes is a gelatiniform degeneration, involving a flaccid spongy expansion of tissue, characteristic of its incomplete or partial oxidation. This degenerate state is characterized by three cardinal proclivities, namely, toward hyperoxidation, calcification, and infection. A salient feature of the flaccid expansion of tissue is a concomitant dilation of the component bloodvessels. This, especially when favored by a delayed calcification, and moreover by an infection, is prone to lead to a hyperoxidation of the partially oxidated tissues, constituting inflammation and a sclerotic after-effect. Conversely, should the primary causative factor preclude this effect, the inevitable process is one of decalcification of bone and of chaotic impregnation of the gelatiniform tissues with calcareous or uratic deposits. Gouty tophi are always impregnations of colloidal detritus within the synovial cavity. The analysis of the primary etiology of arthritic processes, leading to and modifying subkatabolism, will be elucidated in the latter part of this paper, where these factors are explained.

In a previous paper,⁹⁰ (a) I have directed attention to the relation of the distribution of the blood to rheumatic disease, and how attacks of both acute and chronic rheumatism are incidentally precipitated at Bad Nauheim, by sudden determinations of blood to the peripheral circulation. In the light of recent developments in the pathology of katabolism, it would appear that sudden restoration of blood and pressure, to these vulnerable regions, so long suboxygenated, and so prone to calcification, by virtue of both flaccid expansion of the tissues and the liberated bases of decalcified bone, had precipitated the free bases to the spongy tissues, and moreover the restoration of oxidation to the parts generally suffices to revert the subkatabolic state from the flaccid stage to that of painful contraction; in the case of acute rheumatism, arises concomitantly, the inflammatory process of the superinduced hyperoxidation of the suboxidated tissues and their detritus. Gout also, it is well known, is prone to sudden attacks at night, when a new flush of blood reaches the extremities, after the favoring influences of warmth in bed and the circulatory acceleration incident to the recumbent position is attained.

The weight of evidence supports the view that muscular rheumatism results from an association of the accumulation of both sarcolactic acid and toxic fatigue (metabolic) products; whatever the primary factor of katabolic stases, both of these factors, as hereinafter explained serve to further inhibit katabolism, always with additional metabolic products and acid formation involved.

Having already referred to the predisposition of subkatabolism for certain joints, it only remains to explain here why gout predisposes to the metatarsophalangeal articulation, and analyze the attack: 1. The great toe is the one of greatest strain in walking, and being the farthest removed from the heart, and hence most affected by splanchnic venous stasis, as well as all of the vascular obstructions, arterial and venous, of the intermediate tissues, the oxygenation is poorest. 2. The involved areas, by flaccid expansion and gelatinous spongy consistency becomes extremely prone to impregnation with liberated bases. 3. During the period of greatest subkatabolism in the 24 hours; during the highest acid tide and equilibrium of blood distribution, namely, the very early morning hours, uric acid salts are taken into solution by the blood and are carried to the seat of greatest subkatabolism, there to be englobed by jellified tissue. The fact that throughout the vascular system the urates are colloided so completely with colloid food and tissue detritus floating in the blood current, suggests a possible affinity between the two.

When one observes the common factors of origin, the interrelation of manifestations and the cooperation of one with the intensification of the other, we can appreciate what led our old-time predecessors to the malarial theory of rheumatism. When we take into account the true relation of tetanics transmitted directly, or through reflex action, from distant processes to certain nerve distributions, we can understand why J. K. Mitchell, the elder, was led to propose the spinal or nerve theory of rheumatism. When we learn of the recent discoveries of acid production by these microorganisms which have been identified with acute arthritis, we can appreciate the sincerity of the adherents of the infectious theory of rheumatism. When we consider the great amount of tissue destruction and the extent of suboxidation of foods prevalent, we can realize the significance of the suboxidation of nucleins, of cases of uric acid excess, and what led Garrod, Roberts,⁶⁸ and Haig,³⁷ to the uric acid theory.

The large percentage of cases in which the subkatabolism is due to sarcolactic acid, or fermentation lactic acid, causes us no surprise at the lactic acid theory; and finally, the wider investigation and "higher criticism" of all the etiologic factors, and the characteristic and cooperating manifestations, in the light of modern knowledge, brings us back to the original, vague idea of a fundamental diathesis, which I trust this paper will prove to be subkatabolism. It, and it alone, fulfils the demands of the etiology, pathology, and therapy. Subkatabolism is incompatible with none of the recorded causes, pathology, or treatments. Additional comments on these diseases will be introduced in connection with the analyses of the etiologic factors.

The demarcation between the several etiologic factors are often so indefinite that they are with difficulty made out. For example, the tetanus of pregnancy is expressive of the fact that some local cause of subkatabolism is augmented by the general oxidase depression of that state, to a perceptible degree, as expressed by tetany of opposite nerve endings, or to still more remote situations—by reflex action.

It is pertinent here that contraction and pain, being intermediate manifestations of the biologic series, their development must be the expression of an intermediate degree of oxidation, and such proves to be the case, for it is observed that only when oxidation is partial, but deficient, that we find these reactions, in which event there is a subkatabolic accumulation of metabolic

products, and a sufficient, even a hyperesthetic reaction to the irritation of the said products. In those cases of hypercombustion of subkatabolic products in situ, whether circumscribed in narrow or wide areas, which we term inflammation, we observe pain and a well-distributed contraction of the milder sort.

It may be stated that, in general, the more a given irritation or hyperstimulation is confined to a single muscle or small group of muscles, in fact, the more limited the effect of the etiologic factor, the more pronounced is the contraction and pain, and conversely, the more distributed and widespread the effect, the more diffuse and attenuated is the contraction and the incidental pain. In addition to the distribution of effect, it is evident that a small area would naturally receive a better oxygenation from its margins than a wider one. The significance of this is that a subkatabolic initial event of considerable magnitude may be transmitted and secondarily expressed in the narrow distribution of a single motor nerve, as a tetanic painful contraction. Thus causative factors sufficient in degree to produce flaccidity at the seat of origin, often find expression in the circumscribed areas at the distal distributions of connecting nerves, in cramp or paroxysmal pain.

Other manifestations of the contraction stage will be discussed in a general review of the biologic series, to follow, also in connection with the consideration of the etiologic factors. The approach of the flaccid stage, as characterizing the entity of diseases, naturally suggests paralysis, flabby muscular states, organal atonies, ptoses, dilations, etc. This stage is a manifestation, into which all preceding ones, if progressive, sooner or later merge; some ultimately, others only intermediately, in passing on to stages beyond. All sufficiently pronounced subkatabolisms, whether the intermediate stages of contraction and pain have found expression or not, progress to this stage. Whether localized or general, the outcome is the same. With the attainment of the flaccid stage there is more or less softening, expansion and liquefaction of the involved tissues; with the so-called loss of normal tone there is a diminution of the density and solidity of the protoplasm, which intensifies with the advance of the subkatabolism. Parallel with the augmentation of bulk, which is magnified by decreased katabolism and by water absorption or retention, varying in different cases, there is observed a longitudinal extension of muscles, cords, tendons, ligaments, and a general stretching out of aponeurotic structures and supporting membranes. The consequence of this is only too vividly portrayed in the various visceral ptoses of sedentation, splanchnic venous stases, thrombi, emboli, gastrointestinal hyperacidity, strain, etc., the atony, dilation intussusception and prolapse of hollow viscera by hyperacidity, etc., prolapse of the female reproductive organs, during, or beginning with periods of oxidase failure, hernias of undue strain, etc., following previous subkatabolisms, bronchiectasis following bronchitis and other pulmonary diseases, vascular dilations and varicosities. All paroxysmal, cramp, tetanic, convulsive and painful affections find their alleviations with the relaxation of the flaccid stage, when progressive.

As mentioned before, we abort such conditions by artificially augmenting the katabolism. The extension of equilibrium length of muscle of this stage implies a weakness or paralysis, according to the degree attained. Such conditions pathogenically induced have, unfortunately been termed innervations too often when the supplying nerves are innocent enough, except in abetting the cause by their functions as transmitters. All of these several varieties of conditions of the flaccid stage are so familiar to all clinicians I hardly need add that it is experimentally producible by any of the factors of subkatabolism.

Before leaving this stage I feel constrained to direct attention to a type exhibiting the extreme manifestations of the flaccid syndrome, namely, that in which the

extremities are principally involved and both motor and sensory functions are nearly or quite *nil*. I refer to manifestations which have not only been thought to be entirely of "nervous" origin, but have been named in accordance with that view. In multiple or peripheral neuritis, as caused by syphilis, alcohol, lead, mercury, arsenic, or other metals, or as developed with or following diabetes, tuberculosis, leprosy, malaria, locomotor ataxia, rheumatism, diphtheria, typhoid, measles, smallpox or scarlatina, and as intensified by cold, wet, fatigue, rapid childbearing, underfeeding, and other causes of anemia, we have exhibited a graphic illustration of the progressive retrograde course of a graded subkatabolism of the parenchyma. A continued irritation of hyperacidities and other excess (waste) products of metabolic metamorphosis not only produces local lesions, but through direct or reflex action the perturbations are transmitted to large or small muscular areas, constituting the peripheral distribution of the connecting motor nerves. Whether the irritation be imparted to the nerves through their central endings directly, or by reflex transmissions, or through the sheath, intermediate of its course, the effect is the same. The muscles of the peripheral distribution first exhibit contraction, pain, tetany or cramps, succeeded by tingling, numbness (paresthesia), and finally, anesthesia and paralysis, as the muscles traverse the biologic retrogressive course, terminating in the flaccid extension of equilibrium length of striped muscle, thus producing the typic gait, etc. The manifestations in general are certainly due to the muscle changes and in the cases in which the irritation is imparted at the central end, directly or reflexly, the nerve degeneration is secondary to the muscle changes. We have a disease degeneration of the nerve and atrophy of the terminal muscles. The contractures frequently observed in these cases but exemplify the pronounced subkatabolic degeneration of the muscles as characterized by the simultaneous fibrosis of the stroma and the atrophy. The perpetuation of the contracted muscles, as is well known, is produced by the thickening (and shortening) of the connective tissue. Thus it is to be observed that the syndrome termed multiple neuritis is essentially a muscular phenomenon and manifestation, the nerve role being an incidental one as a medium of conduction, and secondary to the muscle in yielding to fatigue subkatabolism.

In a previous paper⁹⁰ (d) I directed attention to lues and leprosy as subkatabolic diseases; I pointed out the clinical course of anesthetic leprosy as practically identical, in its salient features, with those described, and I explained the fact that the anesthesia of the extremities is an expression of extreme suboxygenation of the parts from vascular obstruction, and it might be added, carbon dioxid retention; the condition being artificially producible in circumscribed areas by water anesthesia, by virtue of which, by distending the tissues by parenchymatous injections of sterile water, to the point of blanching the parts, complete anesthesia is attained.

In tabes, so largely a terminal degeneration of syphilis, a strikingly similar clinical course is observed. The dictum of Mobins,⁸⁸ that "tabes and general paralysis are metasyphilis, or metasyphilitic nerve atrophy," may not be controvertible, yet I think it must be admitted that the nerve atrophy is secondary and not primary to the retrogressive muscular metamorphosis, which is practically parallel to that of multiple neuritis. The neuritis of pregnancy, malaria, diabetes, gout, alcohol, lead, arsenic, etc., and chronic myelitis are more or less closely related.

Hemorrhagic Stage.—Passing from the stage just described, by imperceptible gradations we observe the effect of a further loss of integrity of tissues, by the inability of vascular walls to restrain the transudation of the fluid contents. An intermediate condition preceding the present one is observed in the serous exudations of venous stases, producing anasarca. However,

in the present one, the spongy gelatiniform degeneration of the soft tissues has extended so far as to permit profuse capillary hemorrhages into contiguous tissues. This stage is producible by the operation and cooperation of any of the established factors of subkatabolism, and is thus known as the scorbutic or hemorrhagic diathesis, and we will dub it the hemorrhagic stage of the biologic series. The chief forms of hemorrhagic diseases, which we will take as types, are scurvy, purpura simplex, purpura hemorrhagica, purpura rheumatica and hemophilia.

Perhaps no disease offers a better example of its pernicious effects and of pronounced subkatabolism than the cooperation of the groups of etiologic factors producing scurvy; and owing to the fact that scurvy is not typical of any particular single group of factors, the writers on the subject are far from being agreed as to its true etiology and nature. W. Johnson Smith briefly describes scurvy as follows:

Scurvy is a general apyretic and noncontagious disorder consisting of mental depression, extreme debility, a tendency to syncope, and special lesions of the mouth, skin and muscular system. Of these lesions the most frequent and most marked are swollen, deeply congested and softened gums, petechias and diffused livid patches on the surface of the skin, and swelling and rigidity of the bams.

In severe and advanced cases there may be bleeding from the mouth and nose and from internal organs, and rapid breaking down of ulcerated or scarred skin. (Scurvy, Allbutt's Practice, Vol. vi, page 586.)

On shipboard, among causative factors may be mentioned inadequate, poor quality and decomposed food, salt meats, etc., producing anemia (suboxygenation) prolonged and exhausting muscular exercise, loss of sleep, cold, anxiety, mental depression, poor ventilation below decks, constipation from absence of green vegetables, followed by diarrhea or dysentery. Land scurvy mostly occurs from famine and anxiety of armies in the field, besieged towns during wars, from improper food and vitiated air of overcrowded institutions and conditions described as etiologic of malaria⁹⁰ (f) are as pathognomonic of this affliction.

The most significant pathologic findings in the scorbutic blood are excess of sodium chlorid, deficiency of potassium salts, decreased alkalinity, common to anemia in general, and an increased amount of fibrin. There occurs considerable decrease of the hemoglobin, exceeding that of the red cells. Leukocytosis ranges from 15,000 to 40,000. It is interesting that the site of hemorrhagic extravasations is frequently determined by pressure, contusions, etc., which add to the subkatabolism of the part. When fatigue plays an important etiologic role, hemorrhages into the muscles *per se* are observed. The swelling of the gums is observed to be present, or greatest about the necks of carious and broken-down teeth. The symptoms of dyspnea and palpitation so indicative of suboxygenation, are frequent as the disease progresses. Muscular stiffness and pains in the back and legs, and pain in the joints, especially of the knee and ankle are common features. Edema of the ankles and feet is frequently observed, and thus evince the tendency of the disease to edema as well as to hemorrhagicas. Alimentary causes of anemia produce suboxygenation secondarily, by decreasing the oxygen-carrying elements of the blood, the other factors of subkatabolism cooperating to develop the required degree.

Most closely allied to scurvy and among the most typic expressions of the hemorrhagic diatheses, are the purpuras, simplex, hemorrhagica and rheumatica. Under the first group are included the small petechias so frequently found in those subject to cardiac and circulatory suboxygenation, and the "black and blue" spots, simulating bruises, which are so much observed upon sedentary women, the aged, insane and ill-developed and anemic individuals generally. Purpura hemorrhagica is characterized by spontaneous hemorrhages

affecting the skin, and in addition the mucous membranes of the internal surfaces. Exposure to cold, damp houses, improper diet, and bad air and poor sanitation are the most commonly observed factors, while typhoid and scarlet fevers, malaria, syphilis, and tuberculosis are the disease processes accredited as disposing to it. The onset of symptoms is clinically observed, and may be experimentally produced, in aeronauts, who ascend to great heights and suffer from suboxygenation in the highly rarefied air. The proof of the cause of the condition is found in the prophylaxis and specific remedy for it by oxygen inhalations; and the efficiency of the same remedy in pulmonary hemorrhages in cardiac insufficiencies, as I have previously clinically observed and duly reported.⁹⁰ (a)

In purpura hemorrhagica the mucous membranes are generally involved, and the gums and other parts of the mucosa, as in scurvy, are more or less "infiltrated." The spleen and lymph-glands are often enlarged, which suggests the relation to malaria and scrofula, respectively. Catarrhal conditions and petechial ecchymoses of the serous surfaces are not uncommon. Like scurvy, the site of extravasations is often determined by traumatism, pressure, etc. Even suppuration of the extravasated blood, or gangrene, or other necrosis of the skin, may complete the retrogressive course. Very frequently certain joints become painful and swollen, hemorrhages in the conjunctiva, choroid and retina may be observed. Under purpura rheumatica is differentiated a group of symptoms and conditions in which the larger extravasations are not observed, but small hemorrhages are found in the muscles, and the synovial membranes are infiltrated or congested with extravasated blood. The onset of the disease is marked by muscular and articular pain and stiffness, the knee and ankle being most commonly affected. The scurvy of infancy, due to the malnutrition of improper food, may be mentioned in presenting the hemorrhagic features of purpura simplex, combined with peculiar pyriform swellings of the epiphyseal ends of bones, the contraction of the limbs, followed by so-called pseudoparalysis, the edema of the eyelids and the boggy nature of the swellings.

Hemophilia is a condition of constant proclivity to hemorrhage, on slight or no perceptible provocation, by virtue of the persistence of the gelatiniform, rudimentary type of tissue, or in other words, owing to its inability to attain to the density and integrity which we term the maturity or adulthood of the protoplasm, a condition to which the preceding hemorrhagic diseases approach to in divers degrees. Hemophilia is a gross exaggeration of the physiologic immaturity of the tissues of infancy and childhood, and is largely overcome with the attainment of maturity. The disease is attributed to be due largely to hereditary characters. My own studies have, however, convinced me that consanguinity, or alcoholism, tuberculosis, gout, rheumatism, etc., in the parents at the time of conception or during pregnancy, diminish the oxygenation and oxidation capacity of the offspring, as it does in the parents. An analogous congenital condition is cleft palate and harelip of the offspring of alcoholic parents.

The joints in hemophilia become painful and swollen, and muscular cramp and pain coexist. The progressive nature is promoted by the added suboxygenation following each successive hemorrhage, owing to the anemia thus produced. Grandidier⁹⁶ points out that the second dentition, puberty, and in females, also the menopause, are especially critical periods for subjects of hemophilia. Otherwise, with the advance of age, there is a steady decline of the disease.

Now, in support of my contention that even hemophilia is due to an extreme tissue rarefaction, I can do no better than quote from Immerman:⁴¹

On inspection of the bleeding part, it has only rarely been possible to distinguish any particular vessels from which the blood was escaping in a jet or stream; on the contrary, the

extravasation has almost always been found to take place after the manner of the so-called parenchymatous bleedings, from a great number of minute openings, as if from the pores of a compact sponge saturated with fluid. (Wachsmuth, Grandidier, Vieli, Virchow and others.) The pale color and watery consistency of the effused blood, mentioned by almost all writers as noticeable during the latter stages of the hemorrhage, it should be premised, are by no means regarded as characteristic of the disease, for the same qualities are found also in the blood of nonbleeders as a result of the extreme anemia following protracted hemorrhages. The blood maintains completely its coagulability for a long time during the hemorrhage, and does not acquire the above-mentioned watery quality until late in the attack. (Buel, Stoeher, Wachsmuth, Meinel, Assman, and others.)

It should be mentioned here that Halliburton⁹² has recently determined that the hyperdestruction of the brain and nerve structures is productive of an excess of cholin in the blood, and that a certain percentage of it inhibits the coagulation of the blood, while a great excess promotes spontaneous general coagulation. The dilated state of the vascular walls is thus described by Immerman:⁴¹

Both the older and more recent writers speak of the striking superficiality and abnormal distribution of the cutaneous and subcutaneous veins and arteries, and especially of the abnormal structure and width of the arteries. (Blagden, Schoenlein, Schliemann, Liston, Wilson, Hooper, Fischer, Virchow, Grandidier, Gavoy, Vhden, Schuenemann, 11 co.) Very generally, also, when the autopsy was carefully made, the intima of both the large and the small arteries was distinctly seen to have undergone a partial fatty degeneration, quite analogous, as regards its locality and other characters, to the degenerative changes of the inner coat of the vessels in anemia and chlorosis.

Hemorrhage in newborn children, in whom there is no particular hemorrhagic diathesis, is significant of the general rudimentary condition of the tissues at that period of life, and the disposition of such tissues to hemorrhage on slight provocation, also of the near approach of the physiologic type of that period, to that which is incapable of restraining the transudation of the circulatory fluids of the body. Landau⁴⁸ has reported observations showing that premature and weakly infants in whom the function of respiration is established with some difficulty and delay, readily become hemorrhagic. He accounts for this by the assumption that the delayed inspiration favors stagnation and clotting of the blood in the umbilical vein. In one case of gastric hemorrhage he was able to satisfy himself that the artery supplying the area from which the blood came, contained a clot. This is extremely important as illustrating the cause of circumscribed hemorrhages.

Of the foregoing classified manifestations of the several stages of katabolism, in their retrogressive order, we have reviewed many pathologic conditions that may vary in different regions of the economy, accordingly as they are subject to varying degrees of subkatabolism. For example, at a given time, one part may exhibit contraction and pain; another flaccid paralysis and anesthesia; another, edema, hemorrhagic extravasations, etc., as varied by chance influence factors.

Cancerous, or Stage of Cachexia.—The next and last division, unlike the three preceding ones, but not unlike the first one, is a general or constitutional state; yet while the manifestations classified under the former represent an initial stage of the biologic retrogressive series, those of the latter express those of the final one. Malaria, in its pernicious progressive form, may extend through to the end manifestation—cachexia, which is a recognized condition of extreme degradation of the entire economy, though it is not infrequently associated with more circumscribed degenerations, as the malignant.

Cachexia is often alluded to by writers as an extreme degradation of nutrition, this is true enough, but it is primarily and essentially an ultimate manifestation of subkatabolic retrogressive metamorphosis. It is in this stage that the patients mostly die. Most of the diseases of subkatabolism, when they attain a profound degree of retrogression, may instigate a general cachexia.

Those which attain to the most pronounced degeneration, exhibit the highest percentage of cachexia, and I believe the statement is warranted that the cachexia develops and exists in direct ratio to the index of detritus in the blood.

I have adopted both of the terms cancerous and cachexia, not that they best express the final degeneration classified under these headings, but because they have so long borne to the medical mind a picture of ultimate degenerative states, local and constitutional. I have in previous writings⁹⁰ (b) defined in detail my own conception of what constitutes these conditions, therefore in the present paper I will confine my remarks to the application of their present usages. When any circumscribed area has progressed through the several stages of the series, and beyond the stage of flaccidity, some form of degeneration to a point of disintegration is an inevitable ultimatum. It may be expressed as a boil, carbuncle or abscess; ulcer, cancer, sloughing or gangrene; as necrosis is approached or attained, tissue disorganization and disintegration is the inevitable result. Perhaps after all, cancer best embraces all of the several processes mentioned, though in an advanced stage. Not unlike the scope of the term cancer, which occurs as an ultimate process of several different diseases, we have in the term cachexia, one representing a commonly expressed general condition, of the ultimate stage of processes proving fatal, *i. e.*, those cases which have progressed by chronic retrogressive stages through the biologic series, and have produced their cardinal classic manifestations, ending in the cachexia of unfavorable prognosis.

[To be concluded.]

METHODS EMPLOYED IN THE EXAMINATION OF MILK BY CITY HEALTH AUTHORITIES.

BY

A. H. STEWART, M.D.,
of Philadelphia.

The Bacteriologic Laboratory of the Bureau of Health, Philadelphia.

Within the last year health authorities in our large cities have become convinced that in order to prevent the spread of milk-borne diseases steps should be immediately taken for the proper control of the milk supply and for its systematic examination. In the different cities such control has been properly delegated to the various Boards of Health. Thus far, in cities of the second class little or nothing has been done, and in cities of the first class, because of the great difficulty of procuring a sufficient supply and on account of the distance the milk is hauled, this problem is very difficult to solve successfully.

In Philadelphia, which draws its milk supply from five different States and from thousands of sources, the supervision of the milk delivery and the prevention of adulteration and the destruction of milk from diseased cows, has been deemed a matter of supreme importance for the last 15 years and has caused almost constant friction between milk dealers and health authorities. This supervision has now passed beyond the stage of the occasional chemic examination of milk for the detection of added water or preservatives, of a few samples each year, with resulting drawn out prosecution and in many cases failure to procure conviction of the offender. In 1904 only .82% of watered samples were found in the samples collected and examined in the Philadelphia Bureau of Health laboratories.

The enforcement of the law concerning the amount of butter fat and the percent of solids not fat that milk should contain, has led milk producers to believe that if the milk contained the required amount of fat and of the solids not fat, that their duty to the consumer and their legal responsibility ended. But the epidemics of various kinds—typhoid fever, measles, scarlatina, etc.—which have occurred almost every year in this country and abroad, and which have been spread by in-

fect milk, have taught us that more care must be employed in the supervision of the milk traffic.

The destruction of tuberculous cattle, which has been carried out during the last 15 years, has been a step in the right direction, and the prevention of the sale of milk from cows suffering from mammitis is also of great importance. We have come to realize the greatest problem in sanitation of the present day is the production of clean milk, and with these points always in view, our campaign has been conducted during the last eight years, advancing step by step.

The following statement of the methods employed by us during that period is worthy of consideration:

Since 1897 samples of milk have been collected by milk inspectors and sent to the laboratory for examination to detect, if possible, the presence of pus, blood and disease-producing germs. For purposes of examination, we used the ordinary urinary centrifuge to obtain the sediment. Two specimens of 10 cc. each were sedimented at the same time and it required 10 minutes to complete the procedure. The supernatant fluid was poured off and a small loop of indefinite size was taken from the sediment in the bottom of the tube and spread upon a glass slide over an indefinite area. This slide was then stained with methylene-blue and examined with a Leitz $\frac{1}{2}$ oil immersion lens and a No. 3 eye-piece.

When pus-producing organisms and a large number of pus cells were present, indicating inflammation in the udder of the cow, the milk was deemed unfit for use and was ordered condemned. Unfortunately, however, our force was so limited that but few examinations could be made daily, and as a consequence, very little impression was made on the vast milk supply obtained from so many different sources. Even the mere counting of bacteria in each sample proved unsatisfactory owing to the slowness of the process, and the result was that the milk was used by the people before it was possible to arrive at any conclusion as to its purity. These unsatisfactory results induced me to institute a persistent search for an apparatus that would enable us to make quick determinations as to the cleanliness of the milk, and at the same time to exclude the milk from diseased cattle, but I could find nothing practical. Finally I was successful in devising a machine (Fig. 1) which could accomplish the rapid sedimentation of a comparatively large number of specimens of milk at the same time. This apparatus consists of a circular pan about 12 inches in diameter, and three-fourths inches deep, containing 20 small glass tubes. The tubes contain 1 cc. of milk and are filled by means of a small bulb similar to that ordinarily used on medicine droppers. The end of the tube is closed by a small rubber stopper, and the tubes are held in the pan by spring clamps. This pan is fitted upon the ordinary Boekel water centrifuge and covered with a lid which is held down by a thumb-screw. The pan covered in this way furnishes a surface of very slight resistance to the atmosphere during its revolution, somewhat on the principle of a child's top.

By the old method the arms of the centrifuge containing the milk encountered so much resistance in their revolution that the speed with 15 pounds water pressure was not more than 1,200 revolutions per minute, while the speed obtained with the new apparatus is from 2,500 revolutions to 3,000 revolutions per minute with 15 pounds pressure. This rapid speed causes sedimentation to occur in less than five minutes. When this is completed the centrifuge pan can be lifted from the motor and the percent of cream measured by a graduated scale, marked upon the tube. The heavier matter, as the insoluble dirt, pus cells, and bacteria, is thrown to the peripheral end of the tube, where it adheres to the rubber cork in the lumen of the tube. To examine this sediment, the cork is carefully removed and a spread made by rubbing the cork containing the sediment over an area of a square centimeter on a three-inch by six-inch glass slide. The proper area of the

smear is obtained by placing underneath the slide a scale of circles having an area of a square centimeter. After the smears are dried in air without fixation by heat, the preparation is stained with the Jenner blood stain for two minutes, keeping the stain in constant motion. The excess of stain is washed off in water, and the preparation is dried in air. By this blood-staining method, the pus and blood cells are stained perfectly, and the ordinary microorganisms take the blue stain well.

The stained specimens are examined with a $\frac{1}{2}$ Leitz objective and a No. 3 eye-piece. The character of the bacteria is noted, and the average number of pus cells per field is counted. This average number is multiplied by 4,400, since there are about 4,400 fields to a square centimeter, as estimated by the stage micrometer. This result is approximately the number of pus cells per cubic centimeter of milk.

During the last year we have been ordering the inspection of herds, when the milk shows 100,000 or more cells per cubic centimeter, or in other words, 22 pus cells per field. The milk is examined as quickly as possible after being collected, as the fresh pus cells and blood cells stain much more readily before the milk has developed a high acidity.

We have found the presence of large numbers of blood and pus cells is a sure indication of inflammatory trouble in the udder of the cow; that milk from healthy cattle shows very few pus cells in a cubic centimeter of milk.

Orders for the inspection of herds are issued in all cases in which streptococci and the ordinary pus producing organisms are found, with or without the presence of an excessive number of pus cells. When *B. subtilis* is found in the milk in large numbers, we have found it has been occasioned by carelessness in collecting the milk or in its handling. The presence of filth and particles of dirt on the slides made from this sediment also indicates filthy methods of milking or handling of the milk.

By the foregoing method of examining milk, we are enabled to find in a very few minutes the percent of cream, the number of pus cells, and the blood cells and their character, whether old or partially decomposed and streptococci and staphylococci which are very frequently found in sedimented milk.

In every sample of milk sent to this laboratory with a complaint that the milk had caused sickness, we found streptococci present, and in many samples in almost pure cultures. Recently a prominent milk dealer sent to this laboratory 40 samples of milk from as many different dairy farms in the State of New York. On examination, 12 of these samples showed either pus or streptococci present. Later, on inspection of the dairies by a competent veterinarian, the infected cows in 11 out of 12 dairies were found without any difficulty and their milk excluded.

It is now generally understood that a cow should not be returned or admitted to a herd until the milk from each quarter of the udder has been carefully examined and proved in good condition. To expedite this examination, I would emphasize the value of the method I have described, which makes it possible for a single operator to examine the milk from each quarter of the udder of all the cows in the herd supplying an ordinary dairy in a few hours.

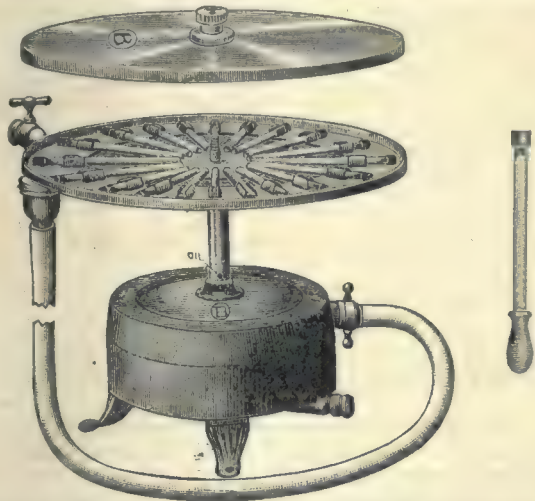
In many of the certified dairies, shipping milk into Philadelphia, this procedure is carefully carried out at regular intervals. Further, owing to the great rapidity of this method, the cream can be determined at more frequent intervals. The food for the cow can be changed or milk can be mixed in different proportions to meet the requirements for fat content. The city milk dealer can readily determine whether milk has been skimmed or watered, and whether the cream is below his standard.

Since this work has been carried on in our laboratory, large numbers of samples have been examined daily, and the condemnations of milks because they contain large numbers of pus cells, have been gradually dimin-

ishing in proportion to the number of samples examined; this improved condition, probably, being due to the fact that dairymen have learned that when a cow returned to the herd too soon after calving, or when milk from an inflamed udder was put in with the general supply, he receives a notice from the Board of Health to have his herd inspected by a veterinarian. The expense of the inspection and the exclusion of the milk from sale in this city, induce him to exercise more care in the milk production.

Recently a child was made sick by the use of milk; the sample, which was sent to the laboratory, was found to contain pus and streptococci in large numbers. The dairyman was notified, his herd inspected, and the infected cows excluded within six hours.

By the use of this method in hospitals and large institutions, examinations can also be made daily or as



often as required, and unclean or disease-producing milk easily detected and excluded, thus avoiding the numerous house epidemics and intestinal disturbances which have been frequently reported in the last few years as due to the use of infected milk.

The following tabulated reports are taken from the yearly report of the milk work done in the laboratory, showing the number of samples of milk examined bacteriologically and condemned during 1904:

Month	Number of samples	Number condemned	Pus	Pus and pus organisms	Pus organisms
January	580	151	53	56	42
February	590	187	36	69	32
March	861	177	25	34	118
April	868	135	48	72	15
May	719	77	15	57	5
June	763	36	11	24	1
July	818	196	14	164	18
August	833	102	6	91	5
September	741	72	28	38	6
October	1,028	46	23	22	1
November	1,161	41	27	6	8
December	819	49	6	40	3
Total	9,821	1,219	292	678	254

REPORTS OF THE VETERINARIANS SENT TO INSPECT THE HERDS.

Conditions and diseases reported.	Number of reports received from veterinarians.
-----------------------------------	--

Mammitis { Garget Inflamed nipples Edema of udder Bruised udder }	383
Septicemia	1
Pustular dermatitis	5
Cowpox	4
Parturient paresis	1
Milking too close to parturition	17
Out of condition	2
No disease could be detected	413
	108
	516

The later reports received by the chief milk inspector, Mr. Clegg, from the veterinarians, called to inspect the herds when milk has been condemned, are as follow :

Percent of inspection in which disease was found when milk was condemned because it contained pus, 97.1.

Percent of inspection in which disease was found when milk was condemned because it contained pus-producing organisms, 74.3.

Percent of inspections in which disease was found when milk contained both pus and pus-producing organisms, 90.3.

In conclusion I would say the gradual diminution in the number of condemnations shows the result of the application of this method of examination of milk. The notification of the dealer, the dairyman, and the farmer of the presence of disease in the cattle by the veterinarian who inspects the cattle, have produced better milk for Philadelphia. The exclusion of milk showing evidence of inflammatory disease of the udder of cows has been probably most potent in bringing about a more careful veterinary inspection of cattle than has ever been exercised in the districts sending milk to this city.

The cooperation of the milk dealers and the dairy-men in the work of eradicating impure milk on sale in this city since the value of this method of examination and condemnation of milk has been understood by them argues well for our future milk supply.

THE NONSEQUITUR IN MEDICINE.

BY

HENRY A. FAIRBAIRN, M.A., M.D.,

of Brooklyn, N. Y.

Attending Physician to the Brooklyn, St. John's, Bushwick and Swedish Hospitals; Consultant to the Long Island College and Long Island State Hospitals.

To the doctor of medicine entering the drug shops today, the statements printed on the labels of many bottles and packages, and the circulars accompanying them, are to say the least rather astonishing. They tally neither with what is known of disease nor with the experience gained in treating it. If curiosity leads to further investigation, the names of medical men of mark will be found in some cases as endorsement. Investigation carried further, as to the contents of the packages, will show the most powerful agents, I use the term advisedly, of the *materia medica* to be component parts. The various preparations of opium, belladonna, aconite, arsenic, strychnin, coca, bromin, iodine and other agents lurk within their borders to be used by skilful or unskilful hands as they may choose in the treatment of human beings. One is led to ask, What does all this mean?

Is there no judgment, no skill, no discrimination required in their use? Does not the indication for their administration have to be sought for carefully? Is there no penalty paid for a misapplication? for a too free or long use? The circulars, with names attached, would indicate no such dangers. The conditions for which these ready-made prescriptions are advertised on label and in the public press may be examined with interest: "Bright's disease," tuberculosis, pulmonary troubles of all variety and so on through a long list of disorders, are the results of such inquiry. Careful examination of medical literature, to discover the character of these diseases, shows that they are very complex in their nature, not easy of recognition, with manifestation varying under different influences; that the whole system is involved in many of them. It is an impossible conclusion, therefore, it is the result of fallacious reasoning to argue that one measure can meet any of them. But they must rest on some premise. There must be an explanation for their existence or they would have never sprung to life and remained with us.

If we read the history of medicine we find there recorded the use of measures which were based on all sorts of assumptions. Some strove to eliminate an imaginary poison, on all occasions, by the free use of lancet,

emesis and catharsis without regard to other issues, something called a poison was their bogie. Others assumed, and still assume, that remedies should be used which could reproduce the condition combated and thereby displace it and that their chief characteristic must be palatability. By degrees the demonstration came that such measures led to unsatisfactory results; that they were founded on mere assumptions. It became necessary to reexamine premises, argument and conclusion. The advances in the collateral sciences, and in anatomy, physiology and pathology have compelled such reexamination with great results but not with the abandonment entirely of the old methods.

The demonstration of facts, which has been going on under the new stimulus, has furnished a new and more firm basis for methods. But there remains a very large field to be covered. Now all these facts evolved from the exact investigations going on in chemist and biologic laboratory, in the clinic and postmortem room, it would seem, ought to form a definite and fixed system for dealing with pathologic conditions. Such is not the case, however, for speculation is still rife and in articulating, coordinating and expanding the data and adapting them to various conditions they have been put into such connection and relation that they have revealed much more than if standing alone. There is opportunity for large play of reason and conclusions are frequently reached which are not warranted. It is the experience in all departments of knowledge that human thought takes facts and places them in relation to other facts and produces inferences which are as sure as the premises. This process of reasoning has led to some of the greatest accomplishments in astronomy, mathematics, mechanics and medicine. It is a legitimate exercise of the reason. Much of the knowledge of the nature of the infectious diseases is inferential. The positive demonstration in many cases is yet to come. But the results reached in prophylaxis and therapeutics assure us that in time that will be produced. Clinical experience is the controlling factor in medicine. That is the bar before which all these questions must be tried.

As an illustration: Many evidences are produced by the investigator that the thyroid gland supplies a secretion which is essential to normal metabolism; that it acts as an antitoxin toward the toxic products of metabolism and the enterotoxins; that it possesses a specific action in enlarging the caliber of bloodvessels and is a powerful diuretic. The obstetrician studies these data and compares them with the conditions prevailing in the albuminuria and eclampsia of pregnancy, and concludes that its use is indicated in the disorder. He applies the remedy and his success is partial only. He thereupon questions the applicability of the remedy under these circumstances. Where is the fault in his conclusion?

Some observers have stated that the administration of the thyroid gland increases tissue oxidation and thereby decreases the deposit of fat, that it favorably influences certain disorders of the skin and other structures, arising from nutritional disturbances. Thereupon the use of it has become rather common among people outside of the profession who read these statements on labels and circulars. They know nothing of its method of action, its ill effects nor wide scope, but purchase and use it as any other article of commerce.

Again we are informed that diphtheria is the result of infection by the Klebs-Löffler bacillus, and that diphtheria antitoxin will put a stop to the process. A patient delays until a late day in the disease before he applies for the use of the remedy, and death results. His friends, and we regret to say, some medical practitioners, draw the conclusion that the statement as to the efficacy of antitoxin is incorrect. They do not stop to learn that diphtheria, in the inception, is a very different condition from that which has continued for some time. That in the beginning there is a toxemia principally, with little or no circumscribed tissue change; that as the

toxemia advances the tissue change becomes more marked and general. That the office of the antitoxin is to combat the toxemia, and that the changes in nervous, vascular, glandular, and other tissues, as a result of the long-continued action of the diphtheria poison, are important elements calling for medical attention. The case is the same with all long-continued infections of the system. There is a toxemia plus organic change in tissue. It is by no means a simple process. It is a very complex one, and not to be met by simple measures only.

When a remedy is produced for a disease, therefore, to be properly and successfully applied, its office must be well defined. That involves a knowledge of the disease in all its stages and phases. It is very manifest that a remedy applicable at one stage may be quite out of place at another. When we read such claims for a particular remedy, that it is specific or curative in typhoid fever, Bright's disease, pneumonia, etc., we are led to inquire, at what stage? as we are aware of the complexity and intricate nature of these conditions. Does it operate by removing the cause? By combating the immediate effects? And what is its influence on the remote effects? These are some of the questions naturally arising. They all show that a qualification must accompany statements as to therapeutic measures.

The medical world is justly astonished, therefore, by proposals on the part of the surgical brethren to cure intricate pathologic conditions by operation on some terminal organ which has undergone change. Temporary and partial relief there may be, but such expressions as "cure" appear out of place, as would the proposition to cure gout or rheumatism by operation on an affected joint.

Let us seek another example. The bacteriologist informs us that milk is a good culture medium for certain bacteria. He goes further and urges that strict cleanliness must surround the animals and the stable to prevent its contamination. Acting upon the first information that milk contains bacteria, the user sterilizes all the milk, but the infants which are fed upon it do not thrive, are attacked by disease and death in fact. Therefore the conclusion is drawn that bacteria are harmless and the old-fashioned milk is better. But investigation shows that the sterilization has injured the milk and the second admonition, to look to the condition of the cow and her surroundings, is followed. Here the results are better, but unhappy effects are at times observed. The consumer, in desperation, concludes that the premises given him are wrong, and abandons his efforts. Now the keeper informs him that the cow yielding the poor milk has been maltreated and too closely confined and this explains the difficulty, and the conclusion is forced upon him that there are a number of factors to be studied; that the problem is intricate and that there are certain elements in the secretion which require more extended study by the expert.

In all the instances of faulty conclusions cited, in the compounding and administering of fixed combinations for certain named diseases, in the search for an unchangeable principle by which to apply treatment, in the attempt to look at the conditions of the system from one standpoint alone, we are struck with one characteristic, the effort to view diseased conditions as simple entities. The indices of works on *materia medica* reflect that view in an amazing way. Instead of announcing the indications for the use of remedies they proceed to name alphabetically all diseases, with a list of drugs attached, to be used in treatment. It is quite unnecessary, to adduce examples. One may be cited, however. It has appended an index of 23 pages, each containing three columns, with abortion as an upper and yellow fever as an under crust, and all the other diseases with numerous remedies occupying the intervening space. The impression that the practice of medicine consists in first naming the condition and then applying a fixed set of remedies

to meet it is not surprising in view of such exhibits. The practitioner occasionally finds books of this kind in his patients' homes and learns that a long list of remedies culled from such indices has been tried before his visit. The lawyer in court uses similar exhibits to test the knowledge of the medical witness and demands testimony based upon them. Drug houses, following the example thus set, issue lists of ready-made formulas, antidotes for all diseases, and the customers make free use of them, without regard to contents, for their own ills and those of their neighbors. In this way the most powerful drugs produced find their way into the systems of the youngest as well as the oldest members of the community with no better indication than a layman's conjecture as to symptoms, and we see the results in conditions not easily accounted for unless the history given is complete. This is absent treatment to a nicety, an absurdity when you consider it.

The looking upon disease as a simple and not complex matter, with all of its consequences, is the non-sequitur of medicine today. Unwarranted assumption led to that in the early days of medicine. Unqualified claims for therapeutic measures have propagated it. Unscientific statements still keep it alive. Our clinical teachers and pathologists, and their carefully kept records, ring out the answer to it, diseases instead of being simple are the most intricate subjects presented to the student for consideration. So interdependent are the various structures of the body for their nutrition, function, growth, and welfare, and so intimately bound together by the sympathetic system, that when disorder is manifested by one it becomes necessary to define its relation to the rest of the economy. Satisfactory diagnosis and treatment cannot rest upon the examination of one organ alone.

The indiscriminate distribution and use of drugs, the origin of the various medical vagaries, can be traced to the fallacy named. We must look to the medical doctor for its correction. He cannot inculcate the fact too often that it requires a very thoroughly trained and careful mind not only to unravel this complex subject, disease, but to select and apply the appropriate remedies for its relief.

THE DELIRIUM AND HALLUCINATIONS OF DIGITALIS.

BY

H. O. HALL,

of Washington, D. C.

Library, Surgeon-General's Office, United States Army.

In June, 1901, a paper upon the above subject was published in *American Medicine*, in which I advanced the opinion, based upon observation and supported by reports of cases collected by a French writer, that digitalis, even in moderate doses, does frequently cause hallucinations and delirium, symptoms which, as a general rule, are mistakenly attributed by the attending physician, if noticed at all (occurring as they most frequently do in the night) to the disease from which the patient is suffering, when, in reality, the drug which is being administered is the real offender and the cause of the delirium.

When I first reached the foregoing conclusion I was not aware that any one else had observed this peculiar effect of digitalis, and so far as I had been able to ascertain by careful research on the subject, no American writer had ever referred to delirium or hallucination as a physiologic effect following the administration of digitalis, even in toxic doses. Duroziez, a French writer, whose cases I cited in my paper, is the only one who seems to have given the matter any thought, or to have observed this effect after giving the drug. It seems to have escaped the observation of the authors of works on *materia medica* and therapeutics altogether.

My principal object in writing the former paper, outside, of course, of a desire to render a service to the medical profession, was the hope that its publication would lead to closer observation in future of the symptoms attendant upon and following the administration of this most useful and valuable drug, and the making known of the experiences of others who had observed similar results. As I stated in my former article "it would be exceedingly interesting to have before us the clinical history of a large number of patients treated by digitalis in order that we might see what proportion of them were, during the administration of the drug, subject to hallucinations or delirium."

To what extent the publication of that paper has influenced practitioners in general to note more closely the symptoms accompanying the administration of digitalis I am, of course, unable to say. What has surprised me greatly is the fact that I have been unable to find among all the medical men with whom I have conversed on the subject, a single one who, prior to the calling of the matter to his attention, had ever observed or connected the symptoms of hallucination or delirium with the administration of digitalis. Since, however, attention has been directed to the matter, and these symptoms watched for as a possible result or accompaniment of the administration of the drug, it is equally surprising how many have observed these symptoms in patients to whom they were giving digitalis, and who have called my attention to the fact, supplementing the statement with the remark that after discontinuing the drug the delirium or hallucination disappeared.

One physician stated that in a hospital patient of his the delirium became so pronounced that he was about to commit the patient to the hospital for the insane, but the entire withdrawal of the digitalis relieved the symptoms and the delirium disappeared.

Among those who had not observed this effect of digitalis until his attention was called to it, and who subsequently noticed it in several cases, I may mention Dr. R. H. Babcock, one of the most eminent authorities on diseases of the heart in this country. In his new textbook on "Diseases of the Heart and Arterial System," under the subject of digitalis, he says:

Before concluding the subject of the administration of digitalis, I wish to direct attention to the possibility of its occasioning mental symptoms that may be misunderstood and attributed to the disease instead of to its right cause. These are hallucinations and delirium. H. O. Hall has recently contributed a paper on this peculiar action of the drug, and quotes from an article thereon by Duroziez, who reported 20 instances of the kind. In the present work I have referred to the fact that in two patients whom I attended, in connection with Dr. Houston, a peculiar mental and emotional state developed during the prolonged administration of digitalis, and disappeared after the discontinuance of the remedy. In Miss T., with mitral disease, there was a singular sort of sullen moroseness with taciturnity, while the other patient, a man with aortic insufficiency, manifested a mild delirium of a harmless kind. Hall suggests that this effect may follow the administration of even moderate doses for a considerable period, and very properly queries if it does not occur far oftener than is suspected. For my part I frankly confess that until my attention was directed to this singular effect of digitalis by Dr. Houston, I had no suspicion of its possibility. . . .

One particularly striking instance in which hallucinations and mental disturbance were no doubt due to digitalis, has come to my attention recently.

It was the case of a lady under treatment for nervous prostration and weakened heart action, and who, having a particular prejudice against digitalis, morphin and strychnin, and similar drugs, expressly cautioned her physician under no circumstances to give her digitalis, mentioning that drug in particular. Some little time after this request had been made, it was noticed that she was acting in a very peculiar manner, different from what she ever had before. She became very morose, exceedingly despondent, and imagined all sorts of strange things; felt as though she would "fly to pieces," etc. These symptoms continued to grow more and more pronounced, and getting no relief from the remedies administered, she suggested to her husband that she believed that it was the "medicine" that made her feel so, and mentioned particularly a dark-colored medicine that she thought was causing her the discom-

fort and producing the strange symptoms. Without saying anything to her physician about it, as he had made light of her suspicions regarding the medicine, she stopped taking it altogether. In a very short time her nervous symptoms abated, there was no recurrence of the strange hallucinations; she grew stronger and better in every way and became more hopeful and cheerful, and she was soon up and around again, and has since often spoken of that experience as an awful nightmare.

Now, for the sequel: Some months after recovery, while in social conversation with her physician, the subject of digitalis was mentioned, and she spoke of her aversion to it, and her inability to take it, when the doctor laughingly replied: "Oh, nonsense, madam, I gave you digitalis last winter for weeks, and you never knew you were taking it!" Here was the evidence from the doctor himself, that his patient's suspicions were well founded, and the mental symptoms from which she had suffered were indeed caused by digitalis and not by the disease for which she was being treated. She then told him that she had stopped taking the digitalis, and attributed the abatement of the strange feelings to that fact.

I might cite other instances which have come to my knowledge in which digitalis has caused mental disturbance, delirium, etc., but I forbear to trespass further. I will therefore conclude with the remark that physicians cannot observe too carefully the effect of the drugs they administer, always being on their guard for idiosyncrasies and unexpected symptoms which may be traceable to the medication. In all cases in which delirium occurs in patients suffering from heart disease it would be well, before positively deciding that the delirium was a direct result of the heart affection (the "delirium of heart disease"), to prove by elimination that it was not the result of medication—the toxic effect of digitalis or other heart stimulant that is being administered. First look for the cause of the delirium in the drugs used; not until several days have elapsed after the withdrawal of the suspected drug, without any diminution in the delirium, would it be justifiable to attribute the symptom directly to the heart affection. I venture the opinion that in a large number of cases the entire withdrawal of digitalis or other powerful heart stimulant will have the effect of abating the delirium or other mental disturbances. Of course, when delirium occurs in the absence of these drugs, there would be no hesitancy in attributing it to the right cause.

Reduction in Mortality from Tuberculosis in France and Germany.—According to *Public Health Reports*, Doctor Verhaeghe, of Lille, has recently published a study of the campaign in Germany against tuberculosis, in which some interesting statistics are given bearing on the efficacy of the measures so extensively adopted in that country to control the prevalence of the disease. During the period from 1887 to 1891, the number of deaths from tuberculosis per 100,000 inhabitants in all French cities of over 10,000 population was 351 per annum. In German cities of over 15,000 population the rate was 304. From 1897 to 1901, the deathrate from tuberculosis in France remained with slight variation at about 349.8. In Germany, on the other hand, there was a decrease to 218.7. These figures indicate that, in a lapse of 10 years, there was in France a diminution of mortality from tuberculosis of only 1.2 per 100,000 inhabitants, while in Germany the decrease was 85.3 per 100,000. The figures are particularly eloquent, when it is considered that crowding in habitations and general poverty and misery are about on a par in France and Germany.

Prolonged Uterogestation.—A correspondent writes to the *London Lancet* of December 3, as follows: Sirs:—I have been much interested in reading the letters in the *Lancet* of cases where pregnancy has been prolonged over the normal period. I send the following case from my notes of 1902. On May 21 I was called to see Mrs. A. who believing herself pregnant for the fifth time wanted me to attend her. She informed me that menstruation ceased on January 6. I examined her and found her about 4 months pregnant and informed her that about October 15 would be the date of delivery. She quickened on May 30. She had an attempt at labor that month—October—and in November but the pains were slight and passed off. They commenced again on December 9, going on fitfully till Thursday night, when they became stronger, and the baby, a male, was born, at 2 o'clock on Friday morning, December 13. The child was a quaint, monkey-like creature with thick eyebrows, looking like a miniature old man. If we take the cessation of her last period as a guide this gives a total of 340 days' gestation. I am, Sirs, yours faithfully.—JAMES DUNBAR BRUNTON, M.B., C.M., Edin.

SPECIAL ARTICLES

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,
of New York.

The tenth regular (second annual) meeting of the Society for Experimental Biology and Medicine was held in the Rockefeller Institute for Medical Research, Wednesday, February 15. The president, S. J. Meltzer, was in the chair.

MEMBERS PRESENT.—Atkinson, Auer, Burton-Opitz, Dunham, Ewing, Flexner, Gies, Jackson, Lee, Levene, Levin, Mandel, Meltzer, Noguchi, Norris, Oertel, Opie, Park, Richards, Sweet, Wadsworth, Wallace, Wolf, Yatsu.

MEMBERS ELECTED.—George W. Crile, Haven Emerson, Cyrus W. Field, Hideyo Noguchi, H. C. Sherman, J. Edwin Sweet, Victor C. Vaughan.

OFFICERS ELECTED.—President, Edmund B. Wilson; vice-president, Edward K. Dunham; librarian, Graham Lusk; treasurer, Gary N. Calkins; secretary, William J. Gies.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.¹

"Degrees of susceptibility to diphtheria toxin among guinea-pigs. Transmission from parents to offspring": THEOBALD SMITH. (Presented by William H. Park.)

Dr. Smith called attention to the usefulness of the antitoxin unit furnished by the Institute for Experimental Therapy under the direction of Professor Ehrlich in the routine testing of the strength of diphtheria antitoxin. The one uncertain element is the relative resistance of the guinea-pigs to diphtheria toxin.

In the course of the past nine years the writer has given considerable personal attention to this subject and found that different dealers furnished guinea-pigs of slightly different susceptibility. This difference was attributed to environment and care. The animals bred under the writer's supervision generally showed maximum resistance. Irregularities in the routine tests during the past year led the writer to look up the genealogy of the pigs used and he found that the different degrees of resistance belonged to certain families or litters and were constant for those families.

Thus one mother gave birth to young which did not react to what was the usual fatal dose. Four successive litters possessed the same resistance. As each pig could be tested but once the precise degree of resistance could not be measured, but it appeared probable that this family could stand 40% more toxin when mixed with the antitoxic unit than those of average susceptibility. Other mothers were traced whose offspring possessed less resistance than the ones described, but could still neutralize 20% more toxin when mixed with the antitoxic unit than the average.

It would seem from these observations that different degrees of susceptibility to toxin are to be found among guinea-pigs and that the special degree possessed by any one is not to be attributed to individual variation, but to a family trait or character. The resistance in the cases cited could not be attributed to any preliminary treatment with toxins and antitoxins.

Experiments are now under way to determine the part played by the male in the transmission of toxin resistance. In the case of the most resistant family, the four litters were the offspring of two males.

"The protective action of venom upon blood-corpuscles:" with demonstrations. HIDEYO NOGUCHI. (Presented by Simon Flexner.)

That concentrated solutions of venom fail to destroy and tend to preserve blood-corpuscles was noted by Mitchell and Stewart. Among the recent writers who have paid especial attention to the interpretation of this phenomenon are Kyes and Sachs. They ascribe it to deviation of the hemolytic complement through the excess of venom amboceptors. The study which forms the basis of this brief communication shows the

hypothesis of Kyes and Sachs to be untenable, since it could be demonstrated that (1) the protective action fails to occur with venom in which, through heating to from 95° to 100° C., the hemolytic principle has been preserved, but certain other constituents have been coagulated, and (2) the action extends to protection of the corpuscles from laking by water, ether, saponin, etc. The conclusion which has been reached by the author is that venom unites with the globulins and especially with the hemoglobin of the red corpuscles, yielding a water-insoluble compound to which the protection is due. Various substances, but only salts, acids and alkalies restore the hemolyzability of the corpuscles by dissolving the venom-hemoglobin compound. The permeability of the corpuscles is not markedly altered.

"The results of attempts to cultivate trypanosomes from frogs:" a preliminary report. JOSEPH LEWIS and HERBERT U. WILLIAMS. (Presented by Augustus B. Wadsworth.)

During the year 1904 an effort was made in the pathologic laboratory of the University of Buffalo to make studies on hematozoa in the lower animals. In a considerable number of normal cats, dogs, rabbits and guinea-pigs no hematozoa were found. The other examinations were as follows: 51 English sparrows (*Passer domesticus*), half in the winter, half in the spring, all negative; 27 mud puppies (*Necturus maculatus*) in March, all negative; 40 toads in the summer, all negative. In 140 frogs from the Niagara River, there occurred the following infections: 14 with *Trypanosoma*, 5 with *Drepanidium*, 1 with *Filaria*. *Drepanidium* was found both in the summer and fall. The infections with *Trypanosoma* were distributed as follows:

In July, of 15 frogs, 2 showed trypanosomes.

In August, of 26 frogs, 10 showed trypanosomes.

In September, of 14 frogs, 2 showed trypanosomes.

From October to December, of 85 frogs, none showed trypanosomes.

In one case *Trypanosoma* and *Drepanidium* occurred in the same blood. The trypanosomes had the usual characters of *Trypanosoma rotatorium* (*ranarum*). They were in no case numerous; two were rarely seen in one low power field. The frogs appeared healthy. Eight attempts to inoculate normal frogs by way of the peritoneum with the blood of infected frogs gave negative results.

Attempts at cultivation:—The blood of frogs and toads was taken to make blood-agar (used by Novy and MacNeal for the cultivation of trypanosomes). The blood was first examined carefully to see that it was free from parasites. The animal was etherized and placed in HgCl₂ solution 1 to 1,000 for 15 minutes, rinsed in distilled water, opened with all precautions, the blood from the heart taken with a sterile pipet, and mixed rapidly with the water of condensation on slanted agar tubes (made with meat extract and peptone, and slightly alkaline to litmus). Two or three drops of blood were used for each tube. The tubes were sealed with rubber stoppers and allowed to stand five or ten days so that contaminations with bacteria might be detected.

1. The blood of frogs infected with *Trypanosoma rotatorium*, collected in the same manner, was mixed with that in blood-agar tubes prepared and tested as just mentioned. The tubes were kept at the temperature of the room. Cultures made from two infected frogs showed, after two weeks, growths of flagellate protozoa (both on toad's blood-agar and frog's blood-agar). The organisms were of a very long oval form, the bodies of the largest being $2\mu \times 18\mu$. There was a single flagellum, which was often nearly as long as the body. Only the largest forms showed a trace of an undulating membrane, which never approached the development of this structure in *Tr. rotatorium*, and which did not appear in stained preparations. Motility was not very pronounced. Numerous small forms were seen evidently representing various developmental stages. In preparations stained according to Romanowsky, a blepharoplast (micronucleus, centrosome) was seen at the base of the flagellum and near the anterior end. The nucleus appeared to be represented by numerous chromatin granules in the posterior end. It may be noted that Smedley¹ found the centrosome at the anterior end in the cultural forms of the rat

¹ The authors of the reports have written the abstracts. The secretary has made a few abbreviations.

¹ Journal of Hygiene, January, 1905.

trypanosome. Numerous observers have seen trypanosomes lacking the undulating membrane under artificial conditions.

The growth in the tubes was never luxuriant. Arrangement in rosetts was not seen. One generation only of subcultures grew. All the cultures soon died. A single attempt to inoculate a normal frog gave a negative result. These experiments were interrupted, as both of us went out of town.

2. As is mentioned below, the blood of frogs infected with *Drepanidium* was added to frog's blood-agar tubes to see if *Drepanidium* could be made to live or undergo further development. Tubes thus inoculated, in one case, showed trypanosomes in about ten days. For the moment it appeared as though trypanosomes had developed from *Drepanidium*. Having some of the same blood-agar to which no *Drepanidium* blood had been added, this was examined again and found to contain the same trypanosomes. They must, of course, have been derived from the frog from which the blood-agar was made. This frog's blood was examined for parasites before using it to make the medium and just before inoculating it, so that trypanosomes must have been present in numbers too small to show in several large cover-glass preparations, or they existed in some developmental stage not recognized. Novy and MacNeal have also secured cultures of trypanosomes for birds, where none were found by direct examination of the blood with the microscope.

In some preparations from the blood-agar tubes as many as four trypanosomes appeared in one field (Zeiss, DD., No. 3 ocular), and there can hardly be any doubt of their having multiplied. The motion of the trypanosomes was active and characteristic. They were much smaller than *Tr. rotatorium*, with rare exceptions, the body being usually about $3\mu \times 16\mu$. The flagellum was hardly half as long as the body. On the small forms the undulating membrane was not distinct, but the flagellum was plainly marked. Large forms similar to *Tr. rotatorium*, except that the flagellum was lacking, occurred, but were rare. The nucleus and leishman body were placed as in *Tr. rotatorium* as far as could be determined, but the amount of material was so small that satisfactory stained preparations could not be secured.

With the trypanosomes there were associated spindle-shaped or crescentic bodies, about 12μ in length, looking much like the crescents of estivoautumnal malaria, except for lack of pigment. These bodies contained several (usually four) shining chromatin granules symmetrically placed in the middle. Motility was doubtful, and in any case slight. Flagella were not seen. The crescentic forms were probably some developmental stage. The crescentic bodies were observed for eight weeks. Motile trypanosomes were observed for five weeks. No growth occurred in subcultures. Two frogs were inoculated by way of the peritoneum from tubes containing the crescentic bodies, with negative results.

3. Attempts to produce development of *Drepanidium* were made from three frogs infected with this parasite, both on frog's and toad's blood-agar. The results were negative, although motile *Drepanidia* were discovered after 10 days, and the parasites remained for weeks apparently unaltered within the blood-corpuscles.

CONCLUSIONS.

Trypanosomes from the frog may be cultivated on blood-agar, but, in the authors' experience, with considerable difficulty.

From a frog infected with *Tr. rotatorium* a flagellate organism was cultivated, showing important points of difference from *Tr. rotatorium*. It is possible that, owing to the technical difficulties of the experiment, some other organism may have found its way into the tubes. This is improbable.

Undoubted trypanosomes developed in blood-agar prepared from a frog whose blood, during life, showed no trypanosomes. They resembled *Tr. rotatorium*, but were usually much smaller. As this blood-culture medium was inoculated with blood from another source containing *Drepanidium*, it nearly led to the conclusion that *Trypanosoma* might develop from *Drepanidium*. We have here an illustration of the ease with which mistakes may occur in the cultivation of hematozoa which are suspected of passing through cycles. Such a possibility had

been pointed out in advance by Novy and MacNeal before this society (October, 1904).

There was no evidence from our experiments to show that development of *Drepanidium* can occur on blood-agar.

It is unlikely that material with which further studies may be made can be secured before next summer. As trypanosomes are now exciting so much interest, and are being so widely studied, the authors deemed it best to report their results, although the work is incomplete.

"Experimental measles:" LUDWIG HEKTOEN. (Presented by Eugene L. Opie.)

The search for the cause of an infectious disease like measles becomes greatly simplified when we learn how to secure the unknown "virus" in relatively pure form unmixed with common microbes. Various methods may now be applied to the investigation of the virus. The transmission of measles from mother to fetus would seem to point to the presence of the cause of the disease in the blood. In the 20 cases of fetal measles collected by Ballantyne, it seemed that the infection of mother and fetus must have been simultaneous, because the eruption in both corresponded in character. In order to learn something further as to the presence in the blood of the cause of measles, inoculations of human beings would seem to be necessary; because, so far as we now know, this disease is probably not communicable to animals. Grünbaum's experiments with measles in the chimpanzee appear to have given negative results.

Critical review of the literature shows that almost without exception the recorded experiments in the inoculation of measles, for which positive results have been claimed, are without real significance. The claims that the experiments of Home, of Wachsel, of Speranza, of Katona, of McGirr, of Bufalini gave definitely positive results do not stand close scrutiny in the light of the evidence at hand: In many instances the rubeolous nature of the sickness, sometimes very mild, following the inoculation and regarded by the experimenters as measles, is not at all securely established, and in practically all cases the possibility of natural infection has not been excluded. These experiments, practically all of which were undertaken with the idea of producing a modified form of the disease, consequently permit no conclusion as to the infectiousness of the blood or other substances in measles. If we accept Mayr's results as they are given by him it may be concluded that in measles, nasal mucus and cutaneous scrapings (containing blood, epithelial debris, and tissue juices) may contain the cause of measles at or near the height of the eruption.

In the following experiments the author tried to determine whether or not in measles at the height of the attack the blood contains the cause of the disease. In these experiments special care was taken to exclude natural infection.

1. The blood injected was taken from a boy of 9, who, in the later stages of desquamation after an uncomplicated attack of scarlet fever, developed a rather mild but typical attack of measles. The first symptoms of measles appeared after he had been free from fever for about two weeks. There was headache, coryza, cough, running of the eyes, and mild febrile symptoms. Three days later a papular eruption was noted, and on the fourth day a typical rubeolous rash was present that soon began to fade, and was followed by typical branny desquamation.

On the fourth day 4 cc. of blood were withdrawn from the vein at the right elbow after carefully scrubbing the skin with soap and water, followed with alcohol. Two flasks with ascites broth 50 cc. (peptone broth 2 parts, ascitic fluid heated to 55° C. for 45 minutes 1 part) were inoculated¹ at once with 1 cc. and 3 cc. of blood, respectively, and placed in the incubator at 37° C. for 24 hours. At the end of this time both flasks appeared sterile, the corpuscles having settled, the supernatant fluid being clear. Subcultures made at this time upon ascites-agar, glycerin-agar, and Löffler's serum and kept under aerobic and anaerobic conditions remained sterile; and the contents of the flask of ascites broth containing 1 cc. of blood remained permanently sterile.

¹ In experiments 1 and 2 a few drops of blood were allowed to run out before inoculating the ascites broth, which was done without the needle of the syringe touching the culture fluid.

Four cubic centimeters of the flask of 50 cc. of ascites broth mixed with 3 cc. of blood and kept in the incubator at 36° C. for 24 hours were injected under the skin of the chest of a healthy medical student aged 24, just finishing desquamation after an uncomplicated attack of scarlet fever, and who readily gave his consent to the experiment. This man was not in the same hospital as the boy furnishing the blood for injection, but had been for 26 days in a different institution, at that time as well as before and afterward entirely free from measles.¹ So far as could be learned, and careful inquiry was made, the man injected had not had any disease at all resembling measles except scarlet fever. At no time did any local symptoms appear at the site of the injection. On the thirteenth day after injection the temperature was 101° F.; in the evening it rose to 103°. At 9 the following morning he was given a warm bath and immediately afterward a red, papular, blotchy eruption broke out on the forehead and spread quite rapidly to the face, neck, and chest. Dr. James B. Herrick, who saw him at this time, felt no hesitancy in making the diagnosis of measles. By 2 o'clock an unmistakably typical full-blown, rubeolous rash was present over the greater part of the body. The temperature remained above normal for two days, when it fell to normal about the same time that the eruption began to fade. An uneventful recovery followed without any complications whatsoever, the desquamation being branny. There was during the entire illness freedom from respiratory symptoms of all kinds. Even during the preeruptive period there were no special local symptoms (morbilli sine catarrho). The patient's subjective condition was not much changed, if at all, at any time during his illness. The appetite continued unimpaired.

2. In this case the blood was furnished by a well-developed Irish servant girl, 21 years old, who passed through an uncomplicated attack of typical measles. About 30 hours after the earliest appearance of the rash, which still was coming out upon the extremities, 10 cc. of blood were withdrawn from a vein at the elbow and distributed equally among 4 flasks each containing 50 cc. of broth and 25 cc. of ascites fluid. These flasks all remained perfectly sterile so far as bacteria demonstrable by the usual methods are concerned.

After 24 hours at 37° C. 5 cc. of the mixture of blood in ascites broth were injected subcutaneously in the back of M., aged 28, who had not had measles so far as he knew and who readily gave his consent to the experiment. This patient was also recovering from a mild attack of scarlet fever, and had been at the time of inoculation for 24 days the sole occupant of the isolation room of a general hospital in which at that time there were no other cases of measles. There were no local changes at the site of the injection. The temperature and general condition remained normal until the evening of the eleventh day, when the temperature rose to 99.8° F., and the next day a mild conjunctivitis already suspected a day or so previously became definitely apparent. On the thirteenth day there was some cough, the tonsils were bright red, and there was an increased amount of mucus in the throat. In the afternoon the temperature, which was rising, reached 103° F. During the next night a typical rubeolous eruption came out, the first spots being noticed on the nose, and then on the forehead, face, scalp, chest, back, and abdomen. The rash consisted of pink macules and papules, which disappeared readily on pressure, being largest and brightest red over the face. The forehead was quite uniformly red. The patient was not seriously ill; there was some loss of appetite, but he slept well during the night, having been somewhat restless the preceding night. Recovery was prompt.

Cultures of the blood on the thirteenth day (1 cc. of blood in each of 3 flasks each containing 50 cc. of broth and 25 cc. of ascites fluid) remained permanently sterile.

CONCLUSIONS.

The results of these two experiments permit the conclusion that the virus of measles is present in the blood of patients with

typical measles some time at least during the first 30 hours of the eruption; furthermore, that the virus retains its virulence for at least 24 hours when such blood is inoculated into ascites broth and kept at 37° C. This demonstration shows that it is not difficult to obtain the virus of measles unmixed with other microbes and in such form that it may be studied by various methods.

"The formation of the centrosome in enucleated egg fragments." NAOHIDÉ YATSU.

To test whether the centrosome is a permanent cell organ or not, E. B. Wilson (1901) made an experiment on the sea urchin egg by treating, with a salt solution, enucleated egg fragments obtained by shaking. He observed that asters containing centrioles and capable of division were produced in the enucleated fragments. He, therefore, came to the conclusion that at least some of the centrioles in the asters thus formed must have arisen *de novo*. Some writers criticised his results, saying that the formation of the centrioles in the enucleated fragments observed by him might have been due to the shaking-out of the nuclear fluid into the cytoplasm. Wilson, therefore, suggested to the author to repeat his experiment in a somewhat different manner; instead of shaking, to cut eggs singly and to treat the nucleated and enucleated pieces separately. The author tried this experiment on the egg of *Cerebratulus* in the summers of 1903 and 1904. Strict precautions were taken to prevent accidental fertilization, everything used for the experiment being sterilized. Individual eggs were cut into nucleated (i. e., containing the first maturation mitotic figure) and enucleated fragments. The latter were kept for an hour in a solution of calcium chlorid. Then they were transferred to sterilized sea water. Asters were produced in almost all enucleated fragments thus treated. What is more striking, all the asters had centrioles which were identical with those found in the whole eggs subjected to the same treatment. The nucleated half was stained and was shown to have had two original centrosomes intact. From these experiments no other conclusion can be drawn than that the centrosome, with centriole, of the enucleated fragment was formed *de novo*.

"Structure of vaccine bodies in isolated cells:" with demonstrations. JAMES EWING.

One of the few points on which all observers of vaccine bodies are agreed is that these structures are extremely susceptible to artificial changes. The author has for some years endeavored to find a method of examination of these bodies by which artificial changes could be avoided; and this object seems to have been accomplished by the very simple procedure of making Klatsch preparations of corneal vaccine ulcers.

A glass slide is cleaned with soap and water, and thoroughly heated in a Bunsen flame. It is then found to be unusually cohesive. The cornea of an anesthetized rat or rabbit, presenting a vaccine ulcer at any stage, is exposed by holding back the eyelids and protruding the eyeball. The cooled slide is then lightly applied to the ulcer and quickly withdrawn without lateral motion. The slide carries away with it an impression of the ulcer in the form of isolated cells or groups of cells loosened by edema. In this way 10 to 20 impressions may be taken in serial order and the minute ulcer may be completely excavated without sacrificing the animal. The isolated cells dry instantly and may be fixed by gentle heat, and afterward by methyl alcohol, and then stained by various methods, preferably by Nocht-Romanowsky for 10 minutes. The vaccine bodies are then presented with a clearness equal to that of the malarial parasites in blood spreads.

In the Klatsch preparations stained by Nocht's method the following features of the vaccine bodies appear to be demonstrated. The vaccine body is a portion of the cytotreticulum, its reticular structure being continuous on the one hand with the cytotreticulum and on the other usually with the nuclear reticulum. The clear zone surrounding the vaccine body in sections of tissue is an artifact. The reticulum of the vaccine body takes the chromatin stain indicating that it contains chromatin, and many of the bodies are so intimately connected with the nucleus, the meshes of one passing insensibly into the other, as to force the conclusion that these particular bodies have arisen by recent extrusion of nuclear chromatin into the cytotreticulum. Other bodies are disconnected from the nucleus and

¹In both experiments the injections were made by the author. At the time the injections were made he had not seen any cases of measles within 24 hours. When in the measles ward the usual precautions were used and, of course, similar precautions were followed when visiting the subjects of the experiments—clean, long gowns, caps, clean hands, etc. Freshly autoclaved syringes were used for the injections.

these may have arisen partly from the chromatin of the cytoplasm, a possibility which is furnished by Hertwig's theory of the constitution of cell protoplasm. Many of the vaccine bodies closely resemble the chromidial substance described by Hertwig in some lower animal cells. In the meshes of the reticulum the author has been unable to demonstrate any organized structure, but the meshes sometimes present nodal points of an underlying reticulum. In the fresh condition the meshes contain homogeneous refractive globules which disappear on drying.

Two series of changes may be followed in the vaccine bodies in Klatsch preparations. Many of them develop basic staining areas with loss of the central reticulum, and this process may continue until the entire body is transformed into a homogeneous globule resembling mucus or colloid. In others, the reticulum breaks up into granules, with or without the development of a central basic mass.

The author has been unable at any stage, or in any derivative of the vaccine body, to detect the slightest definite trace of a protozoan. Yet there are several hypotheses on which it may be claimed that this cytoplasmic and nuclear material harbors an organized virus of vaccinia: 1. The meshes of the reticulum may contain a submicroscopic organism, or one which disappears on drying. 2. The vaccine body may represent a fusion of the protoplasm of the host cell with that of the parasite, forming a mycoplasma, as is claimed to exist in some diseases of plants (wheat rust). 3. Some other method of fixation and staining of isolated cells may succeed in demonstrating in the meshes of the vaccine body an organized structure. In any event, it must be claimed that if the vaccine body contains a parasite, it is one quite different from any recognized type of protozoan, or from any interpretation which has yet been placed upon the structure of vaccine bodies in sections of tissue.

Besides vaccine bodies, there are other structures resembling protozoa to be seen in Klatsch preparations. One of these is $\frac{1}{2}$ to $1\frac{1}{2}$ μ in diameter, ring-shaped and containing a chromatin granule. Myriads of these bodies are sometimes visible on the flat corneal cells. They appear to be peculiar cell granules, and are present in normal animals.

"On the tetanic element in bile:" S. J. MELTZER and WILLIAM SALANT.

The toxic effects of bile are manifold, and have been the subject of numerous investigations. The authors referred only to the general effects: coma and convulsions. Of the early investigators of the effects of injection of bile into animals, some observed only coma, others convulsions, and still others stated that they observed both. The last work on this subject, the work which is now frequently quoted, was done by Rywosch about 14 years ago. Rywosch claims that coma is the only effect of the two which the injection of bile or bile salts produces.

In their extensive series of experiments on frogs the authors established the fact that the injection of bile can produce coma as well as tetanus. Coma is the frequent and the more reliable result. By a certain device, however, they were able to demonstrate the presence of the tetanic element even in bile which infallibly produced coma; it was by the addition of a subminimum dose of strychnin. A frog of medium size will not respond, even with the slightest hyperesthesia, to an injection of a hundredth of a milligram of strychnin. When such a small dose, however, is injected into a frog which has received a certain quantity of bile, the animal reacts, sooner or later, with a distinct tetanus. The effective dose of bile varies with the animal from which it is obtained. For instance, of ox bile hardly more than 0.3 cc. need be used, otherwise the coma will completely mask the tetanic element. Rabbit's bile, on the other hand, may be given, sometimes even in doses of 2 cc. or 3 cc., without suppressing any of the tetanic features. The setting in of complete coma usually masks the tetanic element, as already stated. A close observation, however, will reveal in many cases some distinct differences between the coma of animals which received a subminimum dose of strychnin and that of animals which had not received any strychnin.

The bile of rabbits, which thus far has been more extensively studied than that of other animals, produced in many instances distinctly convulsive effects, even without the addi-

tion of strychnin. From an analysis of their observations to the present time, the authors feel justified in making the following statements: The toxic effect of bile from normal rabbits shows an individual variation; the effect of the bile from some animals is predominantly coma, and from others tetanus. Heating the bile seems to reduce the stupefying, paralyzing effect, and to favor the appearance of the tetanic element. In the bile of nephrectomized rabbits the tetanic element was distinctly more pronounced than in the bile of normal rabbits.

The bearing which these observations might have upon the understanding of the complex symptoms of cholemia and uremia was not discussed.

"A preliminary communication on the pharmacology of thorium:" E. D. BROWN and TORALD SOLLMANN. (Presented by William J. Gies.)

Thorium nitrate precipitates proteids and is intensely astringent. Its intravenous injection is promptly fatal by embolism. Applied subcutaneously, it causes local necrosis. Administered by the stomach, even large doses have no appreciable effect.

Solutions in sodium citrate were found to be nonprecipitant and nonastringent. As much as 1 gm. of thorium nitrate, per kilogram of dog, injected subcutaneously and intravenously in citrate solution, had little acute action; however, the animals appeared depressed and became emaciated. The postmortem examination, made after several weeks, showed extensive and widespread calcification of tissues. Thorium could not be demonstrated in the calcified areas.

A method for the quantitative estimation of thorium was elaborated; this gave satisfactory results with urine, to which known quantities were added. But in actual experiments on animals, it was found inaccurate, a large proportion of the injected thorium escaping detection. However, it was found that on intravenous or subcutaneous injection, the thorium appeared in the urine, and not in the feces. When administered by mouth, it appeared in the urine, but not in the feces. The conclusion appears justified that absorbed thorium is excreted by the kidneys, but that the metal is neither absorbed nor excreted through the intestine.

"A preliminary study of the toxicologic action of thorium:" ARTHUR F. CHACE and WILLIAM J. GIES.

Our experiments comprised the third series in a study, still in progress, of the toxicology of rare elements.¹ They were 27 in number, and were performed on as many animals (frogs, mice, dogs). They were carried out before Baskerville's announcement of his discovery that thorium consists of two elements, named by him berzelium and carolinium. Publication of our results was deferred because of our desire and intention to complete the work with a study of the toxicologic effects of these two new elements, which Professor Baskerville has generously agreed to furnish at a later stage in his investigations. The foregoing communication by Professor Sollmann has induced us, however, to present our results as they stand.

In some of the early experiments (1900) it was found that thorium (nitrate) had a uniform precipitative effect on various connective tissue mucoids. In a study with Professor Loeb (1902), on the antitoxic influence of ions, thorium (nitrate) was used as a tetravalent element, and was found to exert only very slight, almost inappreciable antitoxic effects in $\frac{1}{2}$ mNaCl, with fertilized *Fundulus* eggs as the indicators. At that time we observed the strong precipitative effect of thorium on protoplasm, and the marked toxicity on various fishes, and on both fertilized and unfertilized *Fundulus* eggs in sea water, although these facts were not recorded in our paper.

In the experiments on frogs and warm-blooded animals the tetrachlorid was used exclusively. Of our results the following were in harmony with those reported by Brown and Sollmann: Thorium exerts marked astringent action. The chlorid is acid in reaction (in water). The aqueous solution of the chlorid blanched and hardened tissues, proteids were precipitated by it, and blood not only precipitated but blackened. Injected directly into the circulation even very small doses caused intravenous precipitation, and resulted fatally. Subcutaneous injection resulted in local necrosis. Thus far we have not had

¹ We have already reported our observations on the toxicology of tellurium (1900) and of selenium (1902).

any experiments with thorium in citrate solution or on the excretion of thorium.

The following results extend the observations reported by Brown and Sollmann:

1. In *frogs* weighing about 25 gm. no effect was observed after introduction per os, when less than 40 mg. was introduced. This amount caused only slight symptoms. Subcutaneous injection of 40 mg. caused death in about 60 hours. Injection of the same amount per rectum appeared to be more quickly followed by toxic results than when introduction occurred through either of the former channels. Introduction per os caused irritation of the throat, increased gastric secretion, ejection of gastric contents and increased peristalsis. It required per os approximately 1.5 gm. per kilo to produce general toxic results, among which were anhydrosis, twitching, and progressive weakening of the muscles, with paralysis of the fore-legs preceding paralysis of the hind ones. In fatal cases the reflexes were abolished in the usual order. The general toxic effects after introduction subcutaneously or per rectum were about the same as those following introduction by way of the stomach.

2. In *warm-blooded animals* (mice and dogs) relatively large doses administered subcutaneously caused restlessness, twitching of the muscles, progressive paralysis, labored breathing, stupor, death. Paralysis of fore-legs preceded loss of power in the hind legs. Injection of 5 gm. of the chlorid into a dog weighing 15 kilos failed to cause death. Ingestion of 2 gm. with 100 gm. of meat, by a dog weighing 6 kilos, was followed in two hours by vomiting. The ejected matter was gradually eaten during the next few hours with no other apparent effect thereafter than loss of appetite and increased desire for water.

3. The most constant and pronounced general effect of the tetrachlorid of thorium was a progressive weakening of all the voluntary muscles.

MISCELLANEOUS

THE IDEALS OF THE MEDICAL PROFESSION.

BY

P. MAXWELL FOSHAY, M.D.,

of Chicago.

[Introductory and closing remarks to a reading of "The Principles of Medical Ethics," at Rush Medical College, March 10, 1905.]

Every calling has some ideal. All labor is honorable, and those in any occupation who strive to do their duty, set for themselves some standard of attainment. Necessarily there is a sliding scale of standards proportionate to the variety of vocations. The ideal of the ditch digger is, perhaps, not apparent to many, while for generations that of the medical profession has never fallen short of the highest.

Nevertheless, despite our high aims, our freely acknowledged self-sacrifice, and our rather grudgingly-admitted but tremendous services to the Commonwealth, there have always been among us envy, malice, cupidity, and dissension, but to a degree not greater than can be accounted for by the recognized frailties of human character, yet sufficient to bring upon us unnecessary reproach and grave loss. To you, who are soon to enter the ranks of medicine, and who are well grounded in that knowledge of natural science and of normal and disordered function that is essential to the fulfilment of duty to the patients entrusted to your care, some knowledge of the principles by which your conduct in and toward your profession is to be guided is indispensable. Take the copy of the "Principles of Medical Ethics," which is presented to you by the American Medical Association, read it, and then for future frequent reference, put it where you can readily find it. This little booklet is no fetish to be worshiped, but none of you who steers his professional course by its teachings will ever regret its receipt. It contains no penal code. We do not presume that some of us will require punishment. It is more pleasant to regard ourselves as educated men, developed beyond the stage at which punishment is required to keep us moral, and

as eager to imitate the example and observe the precept of the best of our honored predecessors.

The "Principles of Medical Ethics" does not aim to cover the whole field of professional conduct by written precept, but rather by inculcating an honorable professional bearing that shall enable each one at the emergency to see the right, and that shall furnish the impulse to act in accord therewith. Gentlemen! Medical Ethics is not a subject far off in the clouds. It is the epitome of practical everyday decent conduct. Our ideals are not unattainable. Let us consider some of them in detail. The time required now to read through together at least certain attractive and noteworthy paragraphs of the "Principles of Ethics," will be well spent.

* * * * *

Having thus browsed through this unique and beautiful document that comes to you as the fruition of the ethical thought and practice of all the best physicians that have gone before, and having seen, I hope, how practical, needful, and helpful are its teachings, there remain just a few points to be emphasized. Life is not a bed of roses, nor is our profession at the millenium. Among your fellows you will find some pretense. Do not thereby be discouraged, and above all, do not imitate. Remember always that by far the greater majority of physicians are clean, upright men, endeavoring to live up, as best they may, to the highest standard of morals that human evolution has produced. No matter if a leading man is guilty of rebating in secret. For a time, it is true, he may seem to amass wealth, while losing the confidence of his peers. Unless you are foolish enough to try it, you can never know how bitterly empty is the heart of him who has besmirched his professional honor.

Like enough, when you have chosen your field of labor, you will find it occupied in part by some of the elders who have hardened their hearts to the finer aspects of their calling. Don't play baby, become pessimistic, and feel under instant necessity of emulating the vices of these of your colleagues. Wherever you settle, at once call upon those physicians who have preceded you in the neighborhood, and *join your county medical society*. Everywhere you are sure to find one or more of the elders honorable, fearless, helpful, and steady in good purpose. Affiliate with such, and ignore—not imitate—the occasional pirate.

Again I urge you, *join the county medical society*. Otherwise you will, of necessity, wither in dry rot. Progress is impossible if you remain isolated, for none of us is self-sufficient. In the medical society you will continue your education, sharpen your wits, multiply your resources, achieve both self-confidence and respect for others, aid in improving the profession, assist in securing to yourself better remuneration for your services, and increase public respect for the medical profession and for yourself.

No doubt you know that now, in practically every State, when you join a county medical society you become a member of the State Medical Association, and that in no other way can you become eligible to membership in the American Medical Association. Therefore, in your own interest, you cannot afford to remain outside the pale of the organized profession. No one now stays out, except those who can't get in, and the requirements are fully liberal. Remember that in this age large progress is quite impossible without organization. Organized, the medical profession is enhancing tenfold its service to the world, and immensely improving its own position.

Wherever you go, *start right*. Maintain your personal and professional honor, and study harder than you have in college. Then failure will be impossible, and you will be privileged to share a great task.

Don't go into "contract practice," giving your services cheaply to some corporation, lodge, or group of families. In preference, work for small but direct fees until you can command larger ones. Contract practice not alone demoralizes the profession as a whole, but it puts a terrible blight upon the personal career of him who yields to its seductions. Whoever succumbs to this temptation lives to regret it bitterly.

You already know that it is the height of professional

immorality and of personal dishonor on any pretext whatever secretly to divide your patient's fee with another physician. When you take a case to a consultant or to a specialist, your own services often warrant charging an extra fee. Charge it, and collect it squarely from the patient. You will thus maintain your own self-respect and stand clean in the eyes of your patient. Divide a fee secretly and in dishonor, and sooner or later a patient will find it out, tell it, and you will see yourself slipping away from association with your colleagues and losing public confidence. Shady practices, such as this, may seem temporarily remunerative; they entail ultimate disaster.

Lastly, in closing, let me repeat: *Join your county medical society at the first opportunity.* Cultivate the friendship of the good physicians about you. Keep your personal habits above reproach. Cherish in your heart a deep and constant love for your work. Avoid all devious methods—they lead to perdition. Never cease to study. Every few weeks read over your Principles of Ethics. Emulate, so far as you can, the lives of the really great men among your past teachers and present associates. Bear your fair share of general professional burdens through your society membership. *Love and honor your profession.* All these good things are attainable, and by them you will grasp real success in medicine.

THE HEROISM OF PHYSICIANS.

[Editorial from the Philadelphia North American.]

The tragic death of Dr. Albert B. Craig, eminent among the younger medical men of this city, who literally laid down his life in the effort to save that of a patient, recalls impressively a fact too often forgot or overlooked concerning the great measure of true heroism that exists in all the common walks of life, yet nowhere in such abundance as among physicians. The pitiful circumstances that surrounded his brief yet agonizing illness, the sudden breaking of that strongest of all human ties, in this case so lately bound; the awful certainty that love and skill were powerless to save him, and the parting with a life so full of promise in his chosen work, demanded almost without warning, together with the sublimely heroic manner in which he accepted the dread decree, cause his martyrdom to stand out as a forceful exemplification of the splendid heroism displayed at times by every one in his profession. It is one of those exceptional instances that open the eyes of men to a general condition not the less admirable and praiseworthy because a part temporarily outshines the whole. The sacrifice so nobly and willingly offered by Dr. Craig is as nobly and willingly faced by thousands of physicians every day. It may be truly said that no class of men risk death so frequently or so freely, and there is no gainsaying that the motives which impel them are of the highest and most unselfish sort. For they not only dare, in the cause of humanity, such swift and fatal torture as marked this case, but more terrible to contemplate, they unhesitatingly lay themselves open to long years of hopeless and helpless suffering. For the most part, the world knows little of this. The common tendency is to think of doctors as immune against those ailments and afflictions with which they must so often come in contact. The popular mind conceives them as charmed beings, forgetting for the while that suffering and death are no respecters of persons, and as a natural consequence, the thought of heroism is seldom coupled with that of healing. The facts in the case are directly opposed to the popular conception. Days of difficult and exacting work, hours of nerve straining operating, where the most sacred of all things—human life—is balanced on the keen blade of the surgeon, and where the least error in judgment or execution may mean death to the patient; meals and sleep, the two absolute physical necessities, deferred or wholly denied by urgent calls, and personal comfort and welfare always secondary to the needs of others—these frequently weaken the nerves and undermine the powers of resistance to such an extent that the doctor, instead of enjoying immunity from disease, must court it in all its varied and hideous forms. He himself will tell you that there is no preventive of disease so effective as a vigorous body; yet he himself, blessed with such knowledge and daily forced to enter places where it would serve as nothing else could, is

oftenest denied this armor by reason of the services he renders his fellow men. To work on in the face of such odds, not knowing when some germ of destruction will choose one for a victim, but knowing as none else can what must be endured and expected when it does, is heroism of the highest kind. Other men who are independent in business can select their own times for coming and going. The doctor cannot. They can cater to the class of trade they desire. The doctor cannot. They can, when they will, decline to dispense their wares and their services. The doctor cannot. However heavily the day's toil has weighed upon them, the evening and the night are theirs for recreation or rest. The doctor's are not. Beyond certain limits of special practice, which any emergency can shatter, he has neither choice of what or with whom he shall deal, and under any circumstances he can never call one hour, night or day, his own. His is a heroism of constant service—not the kind that does one flaring deed which makes men stare and shout, and then reposes peacefully on a bed of laurels, but the kind that is never wanting in the moment of need; the kind that is content to walk in the byways as well as the highways of life; the kind that knows no distinction between rich and poor, humble and proud; the kind that means comfort and relief to the body burning with fever, and, at the same time, to the watching heart near by, burning with the anxiety of love. True heroism—all the more so because it seldom has the encouragement of deserved praise—is the rule among physicians.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 18, 1905. [Vol. XLIV, No. 11.]

1. Clinical Examination of the Urine. A Critical Study of the Commoner Methods. (Continued.) RICHARD C. CABOT.
2. Models for Teaching the Anatomy and Operative Treatment of Inguinal Hernia. DANIEL N. EISENDRATH.
3. A System for the Surgical Correction of Hare-lip and Cleft Palate. GEORGE V. I. BROWN.
4. The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve. A Report of 20 Cases of Operation on the Gasserian Ganglion, with Anatomic and Physiologic Notes on the Consequences of Its Removal. (Continued.) HARVEY CUSHING.
5. Some Minor or Borderline Psychoses of Alcoholism. FRANK PARSONS NOBBURY.
6. Twist of the Pedicle of Ovarian Cysts Complicating Pregnancy: A Clinical Lecture. MILES F. PORTER.
7. The Blood in Lobar Pneumonia, with Remarks Concerning Treatment. EDWARD C. ROSENOW.

2.—See *American Medicine*, Vol. VIII, No. 2, p. 49.

3.—**Harelip and Cleft Palate.**—G. V. I. Brown, after a classification and description of the varieties of these defects, condemns the radical operation in the young infant on account of the high deathrate, the danger of meningitis, the unsatisfactory cosmetic results at that age, the risk of too great approximation of the turbinates, occluding the nasal passage and producing mouth breathing, etc. If conditions are favorable he would use adjusted strips to prevent the action of the lower jaw from forcing the maxillary bones apart and to cause an opposite effect when the child laughs or cries. The child should be mouth fed; the sucking habit should be overcome. The proper age is after the full eruption of the deciduous teeth and before the speech habit has been fully acquired. He would then use a screw appliance, which is illustrated, to approximate the bones and would also use proper treatment for the diseased oral surfaces. In young patients this will probably be sufficient, in older patients some crushing operation may be required. It is most desirable to bring the anterior portions into direct contact so as to allow freshening, not only of the soft borders, but the bony tissues as well, thus securing complete circulation to nourish the flaps when the final mucoperiosteal operation is performed. He emphasizes the importance of having needles selected with curves suiting each part of the operation. The importance of after-treatment is especially dwelt on, and he particularly mentions singing as one of the best practical aids to speech improvement. The patients are often neurotic and the complicating neuroses must be considered in the treatment. With this method he thinks the restoration of the palate in its nearly perfect form can be obtained.

5.—See *American Medicine*, Vol. VII, No. 25, p. 973.

7.—The Blood Changes in Pneumonia.—In blood cultures from 175 patients with lobar pneumonia, E. C. Rosenow found pneumococci in all but 15. In 11 of the 15 patients, the second culture was not possible. In the other 4, repeated cultures failed, though in one, careful search of the smears directly from the blood revealed pneumococci. Leukocytosis was high in all 4, and he was inclined at first to suspect a phagocytic action, but later research showed that the negative cultures were made later in the disease, thus indicating a diminution in number or viability, or both, of the pneumococci at the time of crisis. Rosenow does not seem to consider the blood cultures of great prognostic value in this disease, though he says other things being equal, a high leukocytosis appears to be a favorable sign, rather than otherwise. The agglutination test of the pneumococci he does not think of much practical value. The point he considers of most importance is the reaction changes; a well-marked acid reaction associated with a voluminous sediment appearing in cultures of pneumococci in pneumonic and not in normal serum. He asks, in view of this fact, whether some of the symptoms of pneumonia may not be due to an acid intoxication of the system, and in support of this theory, he adduces experiments which have been made with the alkaline treatment for a year past in Dr. Frank Billings' clinic, in the Presbyterian Hospital. From 2 gm. to 6 gm. (1 dr. to 3 dr.) of sodium bicarbonate in at least 125 cc. (4 oz. of water) were given by the mouth, or in still larger doses by the rectum. No other treatment was employed, except heart tonics, catharsis or venesection whenever required, which was seldom. Judging from the results, this alkaline treatment seems rational.

Boston Medical and Surgical Journal.

March 18, 1905. [Vol. CLII, No. 11.]

1. Medical Charity. GEORGE W. GAY.
2. Some Abuses of Medical Charity. HASKET DERBY.
3. Abuse of Medical Charity in Boston. J. W. ELLIOT.
4. The Private and Public Hospital. ALFRED WORCESTER.
5. The Regulation of Medical Charity. FARRAR COBB.
6. A Possible Remedy. JOHN C. MUNRO.
7. Medical Charity at the Massachusetts General Hospital. FREDERIC A. WASHBURN, JR.
8. The Physician and the Hospital Private Patient. E. W. CUSHING.
9. Certain Faults in Medical Charities. SAMUEL CROWELL.
10. Abuse of Medical Charity in the Suburban Districts. CHARLES H. COOK.

1.—Abuse of Medical Charity.—G. W. Gay discusses the enormous amount of gratuitous work being done by physicians, the ability of some so-called charity patients to pay, and the injustice of requiring physicians to treat the well-to-do and rich in hospitals for nothing. Boston treats a half, New York a fourth, and Philadelphia a fifth of its population practically free annually. This does not include the physician's private charity cases. In the Massachusetts General Hospital the staff are not allowed to collect fees even in the private rooms. To prevent abuse by outpatients, inspection is the most effectual method. In New York, to obtain medical aid at a licensed dispensary on false representations is punishable by fine and imprisonment. The public should be educated as to the object of a hospital. Paying taxes no more entitles to free medical treatment than to free water, gas, or any other commodity. Managers should require patients in private rooms to pay a fee unless excused for sufficient reasons. Hospital physicians should persuade patients, when possible, to return to the private physician whom they have left in order to get something for nothing or supposably more scientific treatment. [H.M.]

2.—Some Abuses of Medical Charity.—H. Derby thinks that discrimination between fit and unfit applicants for dispensary treatment requires a degree of tact, experience and knowledge of human nature rarely possessed by a superintendent's assistant. The casting vote should be thrown by the surgeon himself. [H.M.]

4.—The Private and Public Hospital.—A. Worcester thinks it no longer the proper function of large hospitals, supported by private charity or taxation, to compete with private hospitals by catering to the rich. If in large hospitals, like the Massachusetts General, the private rooms were used as they should be, only for patients whose critical condition demands the advantages of retirement and extra care, and never given

to patients simply because of their financial ability, there would be no danger of rich impostors upon medical charity. [H.M.]

5.—Regulation of Medical Charity.—F. Cobb believes that the system should be in the hands of a salaried officer of the board of trustees, and physicians should have nothing to do with it. Whoever investigates cases should always err on the side of leniency. A rigid system will bring hardship to those who have seen better days and who will choose suffering rather than present themselves as certified objects of charity. [H.M.]

6.—A Possible Remedy.—J. C. Munro thinks the remedy consists in reducing the size of the staff, in placing responsible heads in the departments, who shall be on duty throughout the year, and who shall not only be allowed to make a living from the wealth of material that flows through the larger hospitals, but who shall be aided by the trustees to that end. The trustees should investigate the financial condition of all patients. This plan would place a few in positions of great responsibility and would deprive undeserving men of their hospital prestige. It would encourage first-class work in young aspirants, who should be allowed a share in the legitimate proceeds coming through their hospital work. [H.M.]

7.—Medical Charity at the Massachusetts General Hospital.—F. A. Washburn, Jr., discusses four classes of patients: 1. Those sent by physicians in order to save a consultant's fee. The outpatient staff is not expected to furnish opinions to outside doctors. 2. Patients who apply for treatment, expecting to pay. These are referred to reputable doctors at their private offices. 3. Those needing a specialist's treatment, but who cannot pay the large fees ordinarily charged. These are referred to specialists, with a card stating that only a moderate fee can be paid. 4. People able to pay, but trying to get free treatment. These are required to bring a letter from a private physician saying they are unable to pay. [H.M.]

Medical Record.

March 18, 1905. [Vol. 67, No. 11.]

1. Results of 1,500 Operations for the Radical Cure of Hernia in Children, Performed at the Hospital for Ruptured and Crippled Between 1891 and 1904. WILLIAM T. BULL and WILLIAM B. COLEY.
2. Acne and Its Treatment. GEORGE T. JACKSON.
3. The Limitations of the Value of Nitroglycerin as a Therapeutic Agent. H. P. LOOMIS.
4. Psychologic Aids: Or the Practical Use of Wellknown Laws of the Mind. EUGENE COLEMAN SAVIDGE.
5. Report of a Case of Vaginal Cesarean Section with Recovery. SIMON STRAUSS.

1.—Results of 1,500 Operations for the Radical Cure of Hernia in Children, Performed at the Hospital for Ruptured and Crippled, Between 1891 and 1904.—W. T. Bull and W. B. Coley report in detail the results of 1,424 hernia operations, of which all but 20 were on children under the age of 14. It has been the custom of the authors to treat all their cases of hernia in children, with certain few exceptions, for a period—usually one or two years—with a truss before advising operation. If at the end of this time no improvement is observed, operation is advised. Under the age of 4 years a very considerable number of cases of inguinal hernia, and nearly all cases of umbilical hernia, can be cured by truss treatment. Of the 1,424 operations reported, 1,354 were for inguinal hernia, 35 for femoral, 10 for umbilical, 8 for ventral, 2 for congenital hernia of the umbilical cord, 2 for epigastric, and 1 for lumbar hernia. The great majority of the operations for inguinal hernia were performed according to Bassini's method, using chromicized kangaroo tendon for suture material. In most cases an extra suture was placed above the cord. Excision of the veins of the cord seems unnecessary, at least in children. Operation without transplantation of the cord appears to give less satisfactory results, though this is not yet certain, owing to the disparity in the numbers of the cases treated by the two methods. Twelve operations were performed for strangulated hernia, and the cases show that strangulation is more common during the first two years of life than during the next decade. The seat of strangulation in every instance was the result of constriction by the tight external ring. In all, 11 relapses were noted, and the authors conclude that the majority of recurrences take place during the first six months after operation,

and 90% occur during the first year. A comparison of cases operated with and without rubber gloves shows suppuration in 4.4% without gloves, and 2.3% with gloves. There were four deaths during the series.

2.—Acne and Its Treatment.—G. T. Jackson says that acne is even commoner than eczema, and that while it is true that the disease is often stubborn, the majority of cases can be greatly benefited in a short time, and very many of them cured promptly. The indications for treatment are as follows: 1. Improve the condition of the skin so that it will no longer be a suitable culture ground for the bacillus. 2. Empty the follicles of the skin of the colonies of bacilli. 3. Keep the skin constantly aseptic so that any bacilli that escape on it will be killed, and no new infection of the skin will be possible. The first indication is met by attention to the patient's general health by means of baths, diet, exercise, attention to hygiene, and lastly, drugs. The follicles are emptied by the use of the curet, the acne lancet, and the comedo expressor. The best local application is sulfur, preferably in the form of the old Lotio Alba, the formula for which is: Zinc sulfate and potassium sulfuret of each, 3i-ii ; rose water, q. s. ad. 3iv . This is to be shaken up before using. Resorcin is also useful, as well as sulfur soap. The use of the röntgen ray should be limited to intractable cases, and requires great caution to prevent doing harm.

3.—The Limitations of the Value of Nitroglycerin as a Therapeutic Agent.—H. P. Loomis has tested the effect of nitroglycerin on arterial pressure in patients by means of the sphygmomanometer, and also in animals, and finds that high arterial pressure in man is not perceptibly affected by it nor is dilation of the bloodvessels apparent. Some of the conclusions reached are as follows: The usual dose of nitroglycerin of $\frac{1}{100}$ gr. is too small to produce any effect in pathologic conditions; $\frac{1}{50}$ gr. is a minimum dose. It is a perfectly safe drug to use. Even in large and repeated doses the author has never seen any ill-effects. Its effects are very transient, as shown by the experiments on the dogs, and the ordinary dose of $\frac{1}{100}$ gr. every four hours could not possibly have any effect on the arteries. Nitroglycerin is said to increase the quantity of urine in chronic Bright's disease, but after keeping accurate records of the daily amount of urine passed, the author was never able to satisfy himself that any increase seen was due to this drug. In conditions due to arterial spasms, so-called, such as angina pectoris, migraine, asthma, nitroglycerin may be of benefit, in full doses often repeated, but not in arterial sclerosis, in which the arteries themselves are more or less changed.

4.—Physiologic Aids or the Practical Use of Well-known Laws of the Mind.—E. C. Savidge advocates paying more attention to the psychic factors concerned in healing disease, among which the personality of the physician has an important place, so that one man's digitalis and calomel may be better than another's. Enhancing the alertness of the nervous system increases vitality, and in change we have an almost weighable vitality to add to our patients. Change is the basis of consciousness, and consciousness increases vitality, but monotony, after a certain point, lessens vitality. The great laws of the nervous system may be said to be (a) the law of novelty, (b) the law of monotony, (c) the law of peripheral change, (d) the law of central stability. Surface impressions release tension on deep centers. They should be changed as often as reasonable for the designed purpose of getting the vitality hidden therein. Freshness, vividness, youth, effective longevity lie here. A man is old the moment he ceases to do new things, to diminish his mobility. The study of the vital conditions tending to the prolongation of the life of the individual the author terms synthetic medicine, and in this the laws of the mind are most important. The following is given as an example of the application of these principles to a case of supreme nerve prostration in which drugs fail: 1. Separate the patient from the scene of his troubles as far as possible—even to the extent of new temporary sleeping and business quarters. 2. Restrict all discussion of troubles to the morning hours. Absolutely forbid reference thereto at night. 3. Occupy him with his periphery, by ordering Turkish bath, massage, shave, hair-cut, manicure, and have him arrayed in his best garb, etc. 4. Interpose some one, disinterested in his sore thought, between him and his con-

jugal or business partner. 5. Seek gentle exercise for his atrophied auxiliary faculties. All the play impulses, such as sports and games, are of this class. 6. Apply the power in the law of central stability.

5.—Report of a Case of Vaginal Cesarean Section with Recovery.—S. Strauss outlines the technic of vaginal cesarean section, and describes a case in which he resorted to the procedure for dystocia due to cicatricial stenosis of the cervix. The author advocates vaginal cesarean section in cases such as those of eclampsia and placenta prævia in which rapid delivery is necessary, and gives the following general indications: (1) Abnormalities of the cervix uteri, as carcinoma, myoma, rigidity, and stenosis; (2) conditions in which the mother is in extremis; (3) conditions in which the mother has disease serious to life, as lung, heart, or kidney affections; (4) accidental hemorrhage with closed cervix. The third indication is operative only when the cervix is closed and not dilatable, and it does not appear wise to have the patient suffer from a long labor when there are severe heart or kidney lesions.

New York Medical Journal.

March 11, 1905. [Vol. LXXXI, No. 10.]

1. Subcutaneous Injuries of the Abdominal Walls and Viscera. DANIEL N. EISENDRATH.
2. An Unusually Severe Case of Acute Chorea Successfully Treated with Apomorphin. MONTROSE GRAHAM TULL.
3. The Examination of Feces. IRA S. WILE.
4. The So-called Atypic Forms of Gastric Ulcer. J. KAUFMANN.
5. Remarks on the Result of Röntgen-ray Treatment in Several Cases of Carcinoma of the Uterus. SINCLAIR TOUSEY.
6. A Unique Case of Appendicitis in a Child Aged 14 Months. LARKIN W. GLAZEBROOK.
7. A Classification for Cases of Pulmonary Tuberculosis and Phthisis. KARL VON RUCK.

2.—Apomorphin in Chorea.—M. G. Tull reports an unusually severe case of acute chorea successfully treated with apomorphin. The condition grew worse under treatment with the generally accepted remedies until the girl, aged 15, was entirely unable to stand or walk. An acute mania developed, with thickened tongue, guttural, and unintelligible articulation, the lips being covered with a thick tenacious mucus. A confluent morbilliform rash extended from head to foot. She was soon a mass of bruises and had to be surrounded with bolsters to prevent her seriously injuring herself by contact with bedstead and walls. Finally $\frac{1}{50}$ gr. of apomorphin was administered hypodermically. Within three minutes the incessant motion had ceased, the muscles were relaxed, and the child slept peacefully and quietly. He then ordered $\frac{1}{20}$ gr. by the mouth every three hours, with the arsenic continued as before. At no time was there sign of nausea or vomiting. An uneventful recovery followed. [C.A.O.]

4.—See *American Medicine*, Vol. VIII, p. 53.

6.—Unique Case of Appendicitis.—L. W. Glazebrook reports a case of appendicitis, due to a foreign body, in a child of 14 months. The child was apparently not sick until the last illness, which was of about three and a half hours' duration. The symptoms of this short illness were those usually met with in surgical shock. Autopsy showed the large omentum to be adherent to the vermiform appendix, midway between the cecum and its tip. This anastomosis was very firm, and appeared to be of several months' duration. The appendix had ruptured, and about 1 dr. of green pus was found. Upon opening the appendix, he found the round head of an ordinary black mourning pin about three-eighths of an inch from the tip. At the omental attachment, where the rupture had been noted, he found the point of the pin. In 1,000 autopsies, done during the last 12 years, the writer has found only two other cases of foreign body in the appendix (fecal concretions excepted). In neither of these two patients was death due to the foreign body, but to some other acute condition. In neither was there any apparent inflammatory condition of this part. [C.A.O.]

Medical News.

March 18, 1905. [Vol. 86, No. 11.]

1. The Fresh-air Treatment of Surgical Tuberculosis. LINSLEY R. WILLIAMS.
2. Aural Affections in Children: Necessity of Their Early Recognition by the Family Practitioner. HERMAN JARECKY.
3. The Widal Test for Practising Physicians. JOHN H. BORDEN.

4. The Technic of Perineal Prostatectomy. GEORGE RYERSON FOWLER.
5. Superficial Inguinal Hernia, with Report of a Case. ALBERT E. SELLENINGS.
6. The Importance of the Physical Examination of the Back in General Diagnosis. JOHN P. ARNOLD.
7. Local Anesthesia, by Cataphoresis and by Mechanical Pressure. WILLIAM JAMES MORTON.

1.—Fresh-air Treatment of Surgical Tuberculosis.—L. R. Williams reviews the work already done abroad to provide country or sea air for such cases and gives an account of the treatment as it is carried out on Coney Island by the Association for Improving the Condition of the Poor. The children during the summer live in tents, have daily sea baths and spend the entire day time out of doors, except for meals, and in the case of the older ones the two hours in school. If the child is unable to run about, he is kept on a sunny piazza. The children are taught to take strict care of the teeth, mouth, nose and skin. Their food is of the best and is varied. No special plan of medical treatment has been adopted. Absolute asepsis is insisted upon in dressing the smallest sinus to prevent infection with pyogenic organisms. Orthopedic treatment is carefully carried out. The results have been remarkable in far advanced as well as incipient cases. The daily per capita cost for 63 children, including construction, equipment and repairs, was \$2.44; excluding these, \$1.13. [H.M.]

2.—Aural Affections in Children.—H. Jarecky divides ear troubles into the inflammatory, accompanied by pain and fever, as in the exanthemas and intestinal and respiratory disturbances, and the noninflammatory, such as are caused by pathologic conditions in the nose, throat, and mouth. Prompt recognition admits of immediate relief. In purulent conditions if paracentesis is not promptly done, the meninges, the labyrinth, the jugular bulb, or the mastoid may become involved. A discharging ear should always be regarded as a menace to life and health. Decayed teeth, dentition, adenoids, and enlarged tonsils frequently cause recurrent earaches. Backward children should be examined for loss of hearing. In all inflammatory diseases children's ears should be repeatedly examined. [H.M.]

3.—Widal Test for Practising Physicians.—J. H. Borden describes methods of collection and dilution simpler and more rapid than those heretofore employed. To make a satisfactory suspension bacilli are grown on agar for 24 hours, washed from the medium with a mixture of salt solution, 450 parts, glycerin, 50 parts; carbolic acid (95%), 250 parts. This solution becomes translucent in a week and is permanent if kept in a cool, dark place; 50 cc. is sufficient to wash one large agar tube. Thirty cases and 27 controls were tested with it. Of the 30 cases 29 agglutinated the bacilli in an accurate dilution of 1 to 100. None of the controls reacted with the serum diluted only 1 to 40. Coincident examination with Ficker's diagnosticum and the microscopic method gave similar results. The writer describes a bulb for collecting the blood, and apparatus for diluting it. In from one-half to 20 hours, according to the dilution, a marked granularity of the fluid in the test-tube will be seen, the clumps gradually sinking to the bottom. In the tests made the result was considered negative if there was no clumping visible to the naked eye at the end of 3 hours. [H.M.]

4.—Technic of Perineal Prostatectomy.—G. R. Fowler believes the majority of cases are more easily and safely reached through the perineum. It is scarcely possible to save the ejaculatory ducts by the suprapubic method, desirable in younger subjects, and making earlier operation possible. By this route there is freedom from urinary extravasation and the urethra need not be entered. A gauze tampon enables the patient to sit upright in from 24 to 48 hours. Either general, spinal or local anesthesia may be employed. If resection is to be done, a soft rubber catheter, if enucleation, a lithotomy staff, is introduced. The incision is from the root of the scrotum to the external sphincter of the anus, with branching incisions to the tuber ischii if the prostate is deeply placed. In enucleation, the capsule is incised transversely adjacent to the membranous urethra and the finger entered for shelling out both lobes. In resection the perineal fascia is split and the posterior part of the gland exposed by blunt dissection. The capsule is incised 6 mm. from the median line on each side, in order to preserve the ejaculatory ducts, and guard against injury to the urethra. The separation of the capsule is stopped at the

proper distance from the urethra and long clamping forceps applied to the mass parallel with the latter. The loosened portion is then resected. No appliance to make traction from within the bladder is necessary. The lobe may be grasped through the opening in the capsule by tenaculum forceps, thus avoiding paralysis of the vesical sphincter. [H.M.]

5.—Superficial Inguinal Hernia.—A. E. Sellenings finds 27 cases recorded in literature, but believes more have been observed. The conditions leading to it are probably congenital. The cavity of the tunica vaginalis remains patent and communicates with the general peritoneal cavity. In this condition the hernia and testicle lie directly upon the aponeurosis of the external oblique, having a covering of only skin and superficial fascia. The infundibuliform fascia and the cremaster muscle are but little developed. Nearly all cases have some degree of cryptorchism. An abnormal development of the scrotal portion of the gubernaculum is probably a factor in the genesis of this type. The protruding mass, escaping through the external ring, finds its way into the scrotum blocked and goes in the plane of least resistance, dissecting between the skin and aponeurosis of the external oblique. If there is a much atrophied testicle with a shortened cord, firmly adherent to the sac the author believes the only treatment is orchidectomy. Some surgeons believe in the internal secretion of an atrophied testicle and never remove it. If replaced in the abdomen it may again find its way into the canal. If transplanted to the scrotum it may retract to just outside the ring or even within it. [H.M.]

6.—Examination of the Back in General Diagnosis.—J. P. Arnold states that in every case of acute or chronic disease, marked indications will be found in the region supplied by the posterior primary divisions of the spinal nerves corresponding to those segments of the spinal cord from which the affected parts derive their innervation. There are so few people in perfect health that one seldom sees a perfectly symmetric back, in which there is no tendency to abnormal separation of spinous processes due to relaxed ligaments or disturbances of the erector spinæ group of muscles. With the patient lying on one side, and the head slightly elevated, there will be found normally all along the other side of the spinous processes a well-developed group of muscles, absence of tenderness or contracted bundles of muscle fibers which roll under the palpating finger and vary in size from that of the diameter of a knitting needle to the thickness of a thumb. With the patient in the dorsal position, the muscles of the neck should be as elastic and painless as those of the spine. Acute and chronic diseases are marked by slight lateral deviations of the spinous processes, atrophied erector spinæ muscles, irregularly contracted bundles of muscle fiber, which are nearly always tender to the touch, and prominence or depression of one or more spinous processes in the region of the posterior primary divisions of the spinal nerves arising from the segment which supplies the affected part. All of the vasoconstrictor neural cells are between the second dorsal and second or third lumbar segments of the cord. The vasodilator cells, except those controlling the skin and trunk muscles, are chiefly in the nuclei of the cranial nerves, and in the sacral segments of the cord. [H.M.]

7.—Local Anesthesia by Cataphoresis and by Mechanical Pressure.—W. J. Morton states that cataphoric local anesthesia is simple and practicable. Both fluids and solids may be transported from the positive to the negative pole. Neutral molecules obey a different law from that of ions. The writer found that by adding guaiacol or carbolic acid to cocaine the time of administration on a skin surface is reduced to two minutes, whereas with an aqueous solution it formerly required 15 minutes, and the milliamperes necessary are equally lessened. He describes the technic in reporting a case of nevus operated on after anesthesia by this method. He finds that adrenalin chlorid with the cocaine is superior to the latter alone. He thinks this method would have come into more general use were it not for the necessity of a battery of 20 or 30 cells. "Pressure anesthesia" is a term invented by the writer in 1897. Medicaments may be forced in by the pressure of vapors or gases or by mechanical pressure. A tooth cavity may be benumbed by a pledget of cotton saturated with anesthetic solution introduced and sealed in with soft rubber

stopping. In minor surgery he frequently makes use of a cupping glass, watch glass, or test-tube, utilizing the pressure qualities of ether or alcohol vapors. The process is exactly the opposite to that of cupping. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

The Relation of Trichomonas Intestinalis (Flagellatae) in the Stomach and Intestines of Man to Disease.—A. Rosenfeld¹ has been able to find these organisms in the morning contents of the stomach in five cases of carcinoma. In two cases the tumor was of the small curvature; in one, of the cardiac region; in one, of the posterior wall. In the fifth instance, a perigastritis was supposed to exist; but some months later it became evident that a carcinoma near the cardiac orifice was the cause of the patient's disability. The author also found the organisms in a sixth patient, in whom for a year and a half after their discovery no mass was to be found. The patient, therefore, was believed to be afflicted with gastritis. The flagellatae thrived in the stomach contents of this person on account of their acidity. The author agrees with Cohnheim in thinking that patients whose stomach contents contain these organisms should be suspected of having carcinoma near the cardiac orifice, and that the other symptoms of this condition should be sought for in such cases. Cases in which the flagellatae are to be found in the stools do not deserve the same attention; and other factors should be sought for before making a diagnosis of carcinoma. [E.L.]

Chronic Tuberculosis of the Aorta, with Secondary Acute General Miliary Tuberculosis.—G. Forssner,² after referring to cases of tuberculosis of the aorta, reports the case of a woman of 40, who died as the result of a miliary tuberculosis. The lower part of the thoracic aorta was the seat of a yellowish-white focus, measuring almost two inches in length and two-fifths of an inch in breadth. Its surface was rough and covered with fibrin. In its center was to be found a cheesy nodule, partly liquefied. The aorta did not present any other lesion. The bronchial glands were tuberculous, but not adherent to the aorta; and the tissue surrounding the aorta at the seat of the disease seemed normal. The lower part of the ileum and the ascending colon presented several fresh tuberculous ulcerations, almost an inch in diameter. It is evident that the miliary tuberculosis in the case was secondary to the chronic tuberculosis of the aorta. This case differs from the other cases reported, in that the three layers of the wall were affected. The medium had probably been the first coat to become diseased. [E.L.]

Urine Changes in Hyperchlorhydria.—E. L. Whitney and C. A. Clapp³ have made a study of 64 cases, confirming the conclusions of Glucinski and others that no definite relation exists between hyperacidity of the stomach without dilation and stenosis and the acidity and chlorids of the urine. A diagnosis of alterations in the stomach acidity cannot be determined by urinary analysis. A stomach analysis should be insisted on. [H.M.]

Malachite Green against Nagana Trypanosomes of White Rats.—H. Wendelstadt, of Bonn,⁴ has infected a large number of white rats with nagana trypanosomes, and treated some of the rats with various substances to test their therapeutic activity. Control animals invariably died within from five to six days, while animals treated with malachite green lived for as long as 41 days. The trypanosomes disappeared from the blood of the infected animals within 48 hours after the injection, to reappear some days later; the disappearance and reappearance could be noted several times, but in the end the animals died suddenly, without much augmentation of the parasites at the time. The author believes the deaths to have been due to the malachite green and not to the trypanosomes.

The addition of sugar to the substance diminishes its toxicity. His next experiments will be with pure malachite, which is claimed to be nonpoisonous. [E.L.]

LEGAL MEDICINE

JOHN MARSHALL

J. H. W. RHEIN

EDITORIAL COMMENT

The Medicolegal Aspects of Traumatic Phthisis.

—A traumatism does not usually produce pulmonary tuberculosis and as a result will only aggravate the pre-existing lesions under two conditions, namely, by increasing the intensity of the existing tuberculous process, whether the latter has or has not diminished the working capacity of the subject, and second, a latent pulmonary tuberculosis, which has not prevented the individual from working up to the time of the injury, may become active. This question is well studied by Thoinot, in a recent work.¹ There is no difficulty relating to the first point because a tuberculosis existing before the date of the accident can readily be diagnosed, with all the problematic chances of survival resulting from the pulmonary lesion. It is quite evident that the traumatism may have hastened matters and aggravated the patient's situation and for this reason is partially responsible for this aggravation, but it should be recalled to mind that what the injury has done, some other fortuitous cause or the regular evolution of the disease itself, might result in the same end. It is consequently for the court to decide how much of an indemnity, if any, should be given the plaintiff. In the second condition of affairs the aspect of the case changes, because the liability of the traumatism becomes greater. It is in reality as if the injury had been the causative factor of the tuberculosis or practically so. The patient up to that time had appeared in good health and was able to make a living and then falls ill and is incapable of working after the receipt of the traumatism. Theoretically traumatic phthisis does not exist, or at least is very rare, but in practice it does exist. All that is required is to establish the traumatic origin of pulmonary tuberculosis. Several elements allow one to settle the problem: 1. The former state of health of the subject. Has he been subject to former attacks of hemoptysis, cough or repeated winter colds, and has his general health always been excellent? 2. The relationship between the time of the injury and the appearance of the symptoms of the pulmonary lesion. All instances where the interval is six months or more, should be regarded as more or less improbable. A later date of the appearance of the symptoms can only be accepted under one condition, namely, one premonitory symptom arising which calls the patient's attention to his condition, such for example as a single or repeated hemoptysis, which is simply an index of the evolution of tuberculous lesions in the pulmonary parenchyma. 3. The relationship between the spot of the thoracic contusion and the point at which the tuberculosis develops in the lung. The contusion which is accused of producing the tuberculosis must have been inflicted on the thorax and is an imperative condition, which also applies to traumatic pneumonia. In all reported cases the injury was received by the lung, which was the exclusive or predominating site of the tuberculous process and the maximum lesions usually correspond exactly with the spot of lung receiving the traumatism. 4. The presence of, or certain particular symptoms, as would indicate a traumatic wound of the lung, such as hemoptysis or pneumonia. The latter is, however, only exceptionally a link between a thoracic traumatism and pulmonary phthisis. One more point remains to be enlightened, namely, the relation between pulmonary tuberculosis and an effort.

¹ Les Accidents de Travail et les Affections médicales d'Origine Traumatique.

¹ Deutsche medizinische Wochenschrift, xxx, 1717, No. 47, 1904.

² Centralblatt für Allgemeine Pathologie, 1905, xvi, 7.

³ Medical Digest, January, 1905.

⁴ Deutsche medizinische Wochenschrift, 1904, xxx, 1710, No. 47.

During an effort a workman is taken with a hemoptysis and this is followed by pulmonary tuberculosis. Two explanations can be upheld: 1. The individual had a hemoptysis during his work because he had pulmonary tuberculosis and the hemorrhage was symptomatic of the preexisting lesions. The work is consequently not responsible for the hemoptysis nor for the consequences that may result in the health of the plaintiff. 2. The subject who is assuredly tuberculous has lacerated his diseased lung during his work from the efforts he used and the hemoptysis is followed by evident signs of phthisis. Here the effort is responsible for the resulting condition but it must have been a very violent one to be attributed the cause of the pulmonary hemorrhage and its effects. It is proper to be more reserved in this appreciation, and one should not at once conclude that a hemoptysis, which may so readily occur in phthisis, even when latent, is due to the patient's occupation.

REVIEW OF LITERATURE

Burden of Proof in Insanity.—The Supreme Court of Washington, in the case of *State vs. Clark*,¹ charged the jury that every man is considered to be sane until the contrary is proved, and that the burden of proving insanity is upon the defendant to establish by preponderance of evidence, and the presumption of sanity must prevail until this is done. The defendant, however, maintained that the jury must acquit if it entertains a reasonable doubt as to sanity. This rule is sustained by the Supreme Court of the United States, and by the highest courts of Florida, Illinois, Indiana, Kansas, Michigan, Mississippi, Nebraska, New York, New Hampshire, Vermont, Wisconsin, and Tennessee. Insanity must be established by a preponderance of evidence in Alabama, Arkansas, California, Connecticut, Pennsylvania, Delaware, Georgia, Idaho, Iowa, Kentucky, Maine, Massachusetts, Missouri, Minnesota, Texas, Nevada, New Mexico, Ohio, New Jersey, South Carolina, Utah, Virginia, West Virginia, and England. In the States of Oregon and Louisiana, insanity must be established beyond reasonable doubt. According to the Supreme Court of the State of Washington, when insanity exists it is easily and readily proved, and it is easy to feign, and difficult to disprove when it does not exist.

The Value of Death Certificates for Statistical Purposes.—Dr. J. J. Reincke,² the Health Officer of the City of Hamburg, Germany, has found in the course of his varied experience that death certificates so little state the real cause of death as to be practically valueless for statistical purposes. The following are his salient points of criticism: 1. Frequency of mistaken diagnosis, especially when patients have only shortly before death sought medical aid. 2. Intentional deception on the part of patients, or successful maneuver to elude medical treatment. 3. Incapacity of less experienced physicians. 4. Want of time and interest to arrive at a correct verdict. 5. Incomplete or inexact description, such as atrophy, marasmus, peritonitis, sepsis, etc., which do not show the original causative factor. 6. Differences in viewpoints; a coroner might certify as cause of death, "run over," while an anatomic pathologist might say: "Death due to compound fracture of the femur." 7. Unwillingness of the physician to admit a mistaken diagnosis arrived at during patient's lifetime. 8. Regard for the feeling of the family, as no physician would think of adding lues when assigning the cause of death to cirrhosis of the liver, arteriosclerosis, tabes or paralysis, although he knew full well that syphilis was the causative factor. 9. Similar considerations prevailing in the case of alcoholics, unless they are "vagabonds found drunk upon the street." 10. Most physicians in making out a certificate of death never give medical statistics a thought; hence inaccuracies which would otherwise be avoided. To overcome these and a number of minor shortcomings, Dr. Reincke admits that he has no practical suggestions to offer. To require the authorities to make out all death certificates would cause more and worse drawbacks than those

that it is intended to remedy, while the assistance of hospitals, life insurance companies and similar institutions would be confined to so narrow circles as to be devoid of practical significance. But as a step in the—in his opinion—right direction, the doctor starts from the fact that in 1818 the Hamburg Legislature demanded the registration of deaths under 91 distinct headings, which nomenclature lasted until 1872, when it was reduced to 46, with exceedingly beneficent results for statistical purposes. Dr. Reincke now suggests that these headings could advantageously be cut down again to about half their number, as this would facilitate a narrower and therefore more precise statement of the cause of death than is at present the rule.

The Bitzer Homicides.—George P. Twitchell³ related the history of the Bitzer homicides. Bitzer, a man of 36, a jeweler by trade, lived with his mother, his wife, and three children, at Turner's Falls. His home was a short distance from his shop, where he employed a girl of 17 as clerk or saleswoman. On one occasion, when this girl returned from an errand, Bitzer had two revolvers lying on a table in the room in which she was working, and as she was afraid of them, she requested him to put them away. While he was examining one of the revolvers, it went off accidentally, and shot Ida, the clerk. He at once wrote a statement of the accident, and then lost his memory for subsequent acts until some time later. He left the store, and shot his wife, two daughters, and his son, all of whom recovered excepting the boy. He stated to his mother that he had shot Ida, and at the station house gave to the officers his written statement, which read as follows:

"Starting in to work, Ida and myself, putting goods away which were left over from Christmas, I put away my revolver, which I had taken home with me nights to protect myself and Ida late at night. Looking it over and closing it up, it went off accidentally and killed the poor little girl. For Heaven's sake don't blame me about it. The moment it went off I thought by myself what will become of my dear wife and children, so I do not want to be looked upon as a man thinking that he committed a crime, so I will die for it, and I cannot die without having my poor children with me. Take us all to church and sing our last farewell, 'Nearer my God to thee.' Farewell to those who have loved us. Have John Gould take care of our bodies. My business affairs write to Mr. William S. Dana and J. Aschin, 43 Maiden Lane, and the two gentlemen will look after my business affairs. Everything I leave behind will be for my dear old mother and Martin. I for my last words sitting here and write this pitiful letter, wish you all good luck. This is a sorrowful thing but it must be done, and O my God, don't blame me for it. I wish my dear old mother and brothers goodby.

Your beloved LOUIS BITZER."

Bitzer was indicted for murder by the grand jury, but the case never came to trial, the government accepting the verdict of murder in the second degree. Edward B. Lane,⁴ superintendent of the Boston Insane Hospital, examined Louis Bitzer and failed to find any symptoms of melancholia, from which he thought Bitzer was suffering when he wrote the account of the homicides. The review of the case made by Lane and three other physicians, showed that Bitzer was a man who tended to lose his self-control easily. He was also a sleepwalker, and two weeks previous to the murders he was said to be morose by two of his intimate friends, who, upon entering his store were answered in monosyllables. Bitzer could not recall either this instance, or one occasion upon which he smashed some furniture and his own hat in anger. Lane concluded that Bitzer, previously shocked by the accident of killing his clerk, at once fell into an abnormal state analogous to postepileptic somnambulism, hypnotic, and hypnagogic states in which his actions were automatic, and his judgment suspended, and his reflection and will power in abeyance. He acted as an automaton, and therefore had no memory of the acts. Lane believed also that Bitzer was as irresponsible in this state as if he had been sleeping, and that if he were hypnotized he would probably be able to recall his actions.

Automatic Wandering.—W. S. Coleman⁵ described a case. A man of 37 suffered two prolonged attacks and several short ones, of which the first lasted 30 hours, coming and going suddenly. He awoke in a different town and discovered that he had spent several shillings, and as he was not hungry, the probability is that he had bought food. He returned to work

¹ Jour. Am. Med. Assoc., May 21, 1904.

² Deutsche Vierteljahrszeitschrift für Öffentliche Gesundheitspflege, October, 1904.

³ Boston Med. and Surg. Jour., December 31, 1903, p. 703.

⁴ Boston Med. and Surg. Jour., p. 728, December 31, 1903.

⁵ The Lancet, August 29, 1903, p. 595.

on the following morning. The second attack lasted five and a half days and he again awoke in a different town, and found the heels of his boots very much worn and the soles of his feet blistered. He suffered from headache but was not hungry, proving that he had probably bought food. There was nothing abnormal discovered in his nervous system, and Coleman could not trace any history of petit mal attacks. This case was similar to the cases of automatism described by Charcot and others.

Age of the Prematurely Born.—James Cameron¹ employed the röntgen rays in the diagnosis of the fetal age of prematurely born children. He was able to recognize the absence of the lower femoral, and the presence of ossification in the os calcis and astragalus. The sternal ossifications were so obscured by the heart that they could not be made out. The danger of over-exposure must be considered.

Suicide by Illuminating Gas.—F. Holyoke² published a case of attempted suicide by means of illuminating gas, occurring in a man of 44. The gas was composed of two parts coal gas and one part water gas. When found he was perspiring excessively, the pupils were dilated, the face cyanotic, he was generally relaxed and almost pulseless. The respirations were slow and gasping, the temperature was subnormal, the lungs contained large mucous rales. The temperature remained subnormal until the third day when it rose to 100°. There was some congestion of the lungs. There developed a thickened and brawny condition of the skin of the shoulders, sacrum and buttocks, at which places he was also tender. There was some weakness of the muscles of the left leg, lasting several weeks, and the vasomotor condition was poor.

Malpractice in Use of Röntgen Rays.—The Supreme Court of Minnesota, in the case of Henslin vs. Wheaton,³ held that one employing the röntgen ray for the purpose of locating a foreign body in the lung was not guilty of malpractice if he exercised that amount of reasonable skill employed by physicians and surgeons of good standing. The evidence of an expert witness, who was not a physician or surgeon, was admitted, the court holding that the röntgen rays were used for the purpose of locating a foreign body, and that this measure was generally used by physicians, skiagraphers, electricians, professors of physics, and others for the purpose of experimental demonstration. It further held that the röntgen ray may be employed by any one possessing a sufficient degree of knowledge of its properties, and that any one understanding it may explain its application.

Overlying.—William Westcott⁴ stated that in 10 years there were 1,509 cases in England and Wales, showing a larger proportion of deaths from this cause than in any other country in Europe. Most of these patients are under four months of age. Occasionally one child may overlay another, or a child may, by burying its mouth and nose in a pillow, cause its own death. In three instances a cat had overlain an infant. There are cases on record where a child nursing at the breast of a drunken mother has become semistuporous, and thus an easier victim to the overlying. In Germany and France, parents and infants rarely sleep in the same bed. The old penal code of Prussia prohibited mothers from sleeping in the same bed with children under two years.

Poisoning by Sulfonal.—Alfred Hand⁵ related the history of a case in a woman of 27, who was being treated for melancholia. She took 365 gr. at one time. The patient was found comatose and could not be aroused. She was pale, the pulses were equal and feeble, the respirations were 15, the temperature 98° F. The knee-jerks as well as the corneal and radial reflexes were absent. The pupils were moderately contracted, but reacted sluggishly. Two days later the respirations were 44, pulse 130, the temperature 103.8° F. The general condition remained about the same. Treatment consisted of lavage of the stomach, enemata, and the administration of strychnin.

Overdosage of Aspirin.—Erwin Thomson⁶ administered aspirin in 5-gr. doses three times a day in a patient with fol-

licular tonsillitis. There developed as a result, bullas of the cheeks and an alopecia of the scalp.

Veronal Poisoning.—Fernandez M. Clarke¹ described a case in a girl of 16, who took 16 gr. of veronal in one evening, and 24 gr. 24 hours later. Soon after the last dose she was found sleeping profoundly, although she could be aroused with effort. The breathing was weak and slightly stertorous, the pulse slow and regular, and the pupils reacted to light. Three days later there developed an erythematous rash over the whole body, and the face was swollen. Later the patient took 125 gr. in three days, resulting in the development of delirium, coma, scarlatiniform rash over the arms and face, and obstinate constipation. The patient recovered after the withdrawal of the drug. Gerhartz² cites a case in a hysteric woman of 31 who took 1 gm. of veronal in the morning and 3 gm. in the evening. She was seized with jactitations, the pulse became weak, but the respirations were quiet and the pupils reacted to external stimuli. Gerhartz believes that the amount of veronal taken was sufficient to cause death if active treatment had not been instituted.

Immediate Disability in Accident Insurance.—In the case of Brendon vs. Traveler's and Accident Insurance Company, of New York,³ the company attempted to evade the payment of the claim because the physician (the suing party) was not immediately disabled. The physician, while supporting himself by a strap in a crowded street car, twisted and strained his knee when the car suddenly turned a corner. There was some pain at the time of the accident, but he was afterward transferred to another car and returned to his home. The knee was swollen and painful the next morning, but he made a visit to a patient near by, and then returned home, where he remained. Two days later his knee was placed in a splint by a physician. The First Appellate Division of the Supreme Court, of New York, held that he was "immediately, continuously, and wholly disabled" within the fair intent and meaning of the insurance policy, and because his sense of duty induced him to make a professional visit while really disabled this was not sufficient to show that he was not actually, continuously disabled. A policy which did not cover these conditions was useless, and to allow an insurance company to escape payment under such circumstances, sanctioned the perpetration of a fraud.

Alcohol and Insane Criminals.—According to C. A. Drew,⁴ only 7% of the 154 patients admitted to the Massachusetts State Asylum for Insane Criminals, claimed not to have used alcohol. Of these 11 patients, 3 were epileptics, and 2 were imbeciles. Drew believed that the offspring of healthy, temperate parents are less prone to alcoholic insanity, even though they are excessive drinkers, and that the second generation, even though they may drink more moderately, being the children of inebriate parents, are always greatly handicapped.

Ricinus Poisoning.—W. J. Burroughs⁵ described a case of poisoning by the seeds of the castor-oil plant. A porter on a railroad car had eaten two seeds which he had picked up from the floor of a truck, and in half an hour he became giddy and was unable to stand. Shortly afterward, he vomited excessively, complained of severe pain in the head and stomach, and experienced a sensation of dryness and constriction of the throat. The pupils were dilated, the face was pale and covered with beads of sweat, and his respirations were increased.

Poisoning by Gases.—Croizet⁶ stated that ordinarily the three sources of poisoning by gases were carbon monoxid, illuminating gas, and carbon dioxid. Of these, the first is the most common source. Paraplegia, anesthesia and delirium are the most frequent sequela. In carbon monoxid poisoning, the paralysis is peripheral and symmetric. Paralysis, vertigo and anesthesia are caused by benzin. Croizet collected 13 cases of poisoning by carbon monoxid, and concluded that the prognosis was good when neuritis did not develop. The treatment consists of exposure to fresh air, the use of sulfur baths, good food, and the administration of quinin and nux vomica.

¹ British Medical Journal, 1903, p. 1204.

² Boston Med. and Surg. Jour., March 29, 1904.

³ Journal American Medical Association, Vol. XLII, 1904, p. 486.

⁴ Brit. Med. Jour., 1904, p. 209.

⁵ The Lancet, January 23, 1904.

⁶ Interstate Med. Jour., March, 1904.

¹ The Lancet, January 23, 1904.

² Berl. klin. Woch., October, 1903.

³ Jour. Am. Med. Ass., September 5, 1903.

⁴ Med. Rec., June 20, 1903.

⁵ Brit. Med. Jour., October 3, 1903.

⁶ The Lancet, July 11, 1903.

Chloroform liniment is of use for the pain, while massage and passive movements are very useful.

Sale of Cocain in Pennsylvania.—The Laws of Pennsylvania, No. 192¹ prohibit the selling or giving away of cocain or any remedy containing this drug, unless prescribed by a registered physician, dentist or veterinarian. Prescriptions containing this drug cannot be refilled, and physicians are prohibited from prescribing cocain to anyone known to be a habitue of the drug. A penalty of \$100 fine or less, or imprisonment for six months or less, both or either, may be imposed.

Hyoscin Hydrobromid.—J. C. M. Given² described a case of poisoning with hyoscin hydrobromid in a man of 69, who, after taking $\frac{1}{15}$ gr. of the drug, experienced dryness of the throat and thickness of speech. In a short time he was breathing very deeply, and could not be aroused by his wife. He became deeply comatose, the breathing was stertorous, the face flushed, and the pulse was 80 and regular. His pupils were dilated and equal, and the conjunctival reflex was slight. He could not be aroused by any measures, but finally under appropriate treatment he recovered.

Death by Strangulation.—Fritz Reuter,³ after fully reviewing the literature relating to the anatomic conditions present, concluded that this condition is best defined as one in which the respiration is mechanically interfered with. While an absolute diagnosis can be determined only by demonstrating the cause of the condition, intense cyanosis of the face, ecchymoses of the eyelids and of the connective tissue, fluid, dark blood, hyperemia of the internal organs, ecchymoses of the serous membranes, contractions of the kidneys and anemia are valuable aids in establishing the diagnosis.

Revocation of Physician's License.—The laws of Nebraska of 1903, chapter 61,⁴ provide that any physician guilty of fraud or deception in applying for license, or one convicted of crime involving moral turpitude, or one who is an habitual drunkard, or a drug habitue, or one guilty of an unprofessional or dishonorable act, that is to say, one who has assisted in inducing criminal abortion, or who has obtained fees for claiming to cure incurable diseases, or anyone who betrays a professional secret to the detriment of the patient, or anyone who advertises that he can establish the monthly periods of women, if suppressed, or publishes advertisements in which there is any reference to the diseases of the sexual organs, calculated to injure the public morals, shall not receive a license, or shall have his license revoked. According to Act 178 of the Acts of Arkansas,⁵ a physician, surgeon or person practising medicine shall have his license revoked if he should employ any solicitor, drummer, or who shall subsidize or employ any hotel or boarding house, or who shall send out circulars or cards, or who shall, under the guise of curing incurable diseases, obtain compensation, or who shall expose secrets obtained from his patients and detrimental to their character, or who shall practise medicine after he has become an habitual drunkard, or who shall prescribe while drunk. A fine of \$25 to \$200 is also imposed. His license shall be revoked if he shall be convicted of any deed involving moral turpitude, or shall commit criminal abortion. If the latter, he is liable to imprisonment for from 1 to 5 years. Any one whose license has been revoked may apply for a new one at the end of a year.

Strangulation by Lumbricoid Worms.—Negresco⁶ described the case of a child of 3, who, in apparently good health, suddenly became convulsed and died in the arms of her nurse. Suspicion falling upon the nurse, an investigation was made and the real cause of death was discovered to be a dead lumbricoid worm in the trachea, which resulted in the strangulation of the child.

Racial Differentiation of Blood.—J. W. Mallett⁷ came to the same conclusions as those reached by Dr. James Ewing, who, as a result of his experiments upon chickens in an effort to obtain an immunized antiserum for the purpose of identifying blood stains, obtained satisfactory results, but was unable

to obtain a reaction which would distinguish the blood of different races of men, although he obtained a precipitate from negro blood, which was more marked and from weaker dilutions than a sample of the blood of a white man. These conclusions he suggests should be accepted with caution.

Railroads and Sick Passengers.—The Supreme Court of Kansas, in *Atchison, Topeka and Santa Fe Railroad Company vs. Parry*¹ held that railroad companies should provide proper medical care and provision for a passenger who should become sick or unconscious, and that it is a question for the jury to decide whether or not the proper care has been exercised.

Action of Tobacco Smoke on Blood.—When two or three mouthfuls of tobacco smoke from a cigar were shaken up with a few drops of blood² diluted with water the blood immediately became rose-red, which is characteristic of blood containing carbon monoxid. The spectroscopic examination proved the presence of this gas. When mouthfuls of smoke from a pipe or cigaret were substituted the results were more marked. Since cigaret smoke is inhaled it is particularly harmful, as explained by this experiment.

Physician and Patient.—The Second Appellate Division of the Supreme Court of New York,³ held, in the case of *Duggan vs. Phelps*, that things observed by a physician looking at a patient are within his privilege. It is not essential that the physician should be employed by the patient, or that there should be a contract between them. A party suing may call his physician to testify without waiving his objections to the evidence of other medical attendants who may have treated him at other times. He does not waive the privilege relating to the physician, even although he gives evidence of his condition before entering and after leaving a hospital.

Damage Frauds against Railroads.—John Puntton⁴ described the case of the Freeman family which consisted of the parents and 8 children. Two of the girls entered 9 claims for damages against railroads in two years. The mother was slatternly and dirty, and had been arrested several times for theft, while one of the daughters, good-looking and gentle of manner received in less than two years over \$1,000 for alleged injuries. Another daughter was a thief and had received \$375 for damages resulting in alleged sensory and motor paralysis of the legs. Finally this fraud was discovered by the agents of the company who watched her through a hole in the ceiling. The case of Moffett is also quoted. This man obtained \$10,000 from insurance companies for more than 70 claims.

Railroads and Insane Persons.—The Supreme Court of Georgia,⁵ in the case of *Owens vs. Macon & Birmingham Railroad Company*, decided that a railroad cannot refuse to transport an insane person. It has the right, however, to insist that the patient shall be properly attended and securely restrained, and in case the patient is violent the company is not required to transport him in the same car with other passengers. Furthermore, in violent cases the company is entitled to a seasonable notice in order to make proper preparations.

Toxic Effect of Urotropin.—W. Coleman⁶ called attention to the fact that urotropin not infrequently caused toxic symptoms when given in daily doses of 15 gr. Gastrointestinal irritation is observed in some cases, and a measly rash followed its use in one case. Headache and ringing in the ears have also been observed, while hysteria following its application has been observed.

Damages against Magnetic Healers.—The Supreme Court of Missouri, in the case of *Longan vs. Weltmer*,⁷ affirmed the judgment for \$7,500 damages for injuries sustained by the plaintiff through the carelessness and unskilful treatment of one of the employes of the magnetic healers. The defendant claimed that it was necessary to show that the treatment was not the usual and proper one employed by magnetic healers, and as the plaintiff had failed to show this she was not entitled to recover damages. But the court claimed that as the magnetic healers claimed and pretended to heal and cure diseases through

¹ Jour. Am. Med. Assoc., December 2, 1903.

² The Lancet, January 2, 1904.

³ Wien. med. Woch., July 11, 1903, p. 1834.

⁴ Jour. Am. Med. Assoc., November 7, 1903.

⁵ Jour. Am. Med. Assoc., October 24, 1903.

⁶ Jour. de Med. de Paris, January 21, 1904.

⁷ Virginia Med. Semimonthly, September 25, 1903.

¹ Jour. Am. Med. Assoc., October 17, 1903.

² The Lancet, 1904, p. 43.

³ Jour. Am. Med. Assoc., July 11, 1903.

⁴ Kansas City Med. Index-Lancet, August, 1903, p. 273.

⁵ Jour. Am. Med. Assoc., February 6, 1904.

⁶ Clin. Rev., July, 1903, p. 289.

⁷ Journal American Medical Association, May 7, 1904.

a power which they possessed themselves, that action was not being prosecuted on the theory that they were physicians, or that their profession was a recognized one. The court held that physicians who did not claim to practise magnetic healing were competent to testify whether the treatment was a proper one in the condition of the plaintiff.

Suicide by Typhoid.—P. Dufloq and R. Voisin¹ reported a case of an attempt at suicide of a girl of 19, who took for this purpose a pure culture of typhoid bacilli. A typical attack of typhoid fever developed, the first symptoms beginning three days after the culture had been taken, and resulted in recovery. The Widal reaction was obtained, and other characteristic symptoms were present.

Loss of Hand.—The Court of Civil Appeals of Texas, in Texas & Fort Smith Railroad Company vs. Hartnett,² decided that a verdict of \$10,000 damages would compensate a locomotive engineer for the loss of his left hand. The jury had previously allowed \$15,000, but the court was unable to find any case in which the damages amounted to the sum allowed by the jury.

Spleen in Suffocation.—F. Reuter³ stated that anemia of the spleen is present in cases of death from suffocation in man, and experimentally in animals. This condition was present in 57.5% of cases of drowning, and a few cases of suffocation, due to other causes. Anemia of the spleen, while having no particular significance, is of some value in diagnosing suffocation.

Action of Anilin.—Wrzosek, Horoszkiewicz and Rzegocinski⁴ concluded, as a result of experiments, that (1) anilin is a blood poison and has a toxic action upon the central nervous system; (2) that poisoning by this drug can be accomplished through either the lungs, stomach or skin; (3) that it is eliminated in the urine in part unchanged and as paramidophenol; (4) the symptoms of poisoning are due largely to the changes in the nervous system. There is destruction of the red blood-corpuscles, methemoglobin is formed, and cyanosis, jaundice, hemoglobinuria and methemoglobinuria are produced; (5) that no characteristic anatomic changes of anilin poisoning are found; (6) that death is due to paralysis of the nervous system, at least in the animal.

Gaultheria Poisoning.—J. Woods Price and E. M. L'Engle⁵ reported a fatal case of oil of gaultheria poisoning in a child of 2, who took a dram of what proved to be commercial oil of wintergreen, which is really oil of birch. The symptoms consisted of vomiting, pain in the abdomen, rapid pulse, irregular respirations, hallucinations of vision, and finally general convulsions and death from respiratory failure, 10 hours after the ingestion of the drug. Salicylic acid was found in the urine three hours before the child's death. A review of the literature is appended.

Legal Use of Hospital Records.—The Supreme Court of Minnesota, in the case of Price vs. Standard Life and Accident Insurance Company,⁶ held that it was not admissible in evidence to quote from the register of patients kept at a hospital, naming or pretending to name the diseases of the patients. If this were permitted it would be to disregard the rule forbidding the introduction of hearsay evidence, as well as the statute prohibiting the examination of a physician without the consent of his patient. The register was made by the superintendent in charge of the hospital, from information received from the attending physician.

Legal Restraint of Hypnotism.—According to the laws of Kansas of 1903, chapter 219,⁷ anyone inducing a child under 18 years of age to practise, or assist in giving exhibitions of hypnotism, mesmerism, animal magnetism or so-called psychic forces, or who shall permit a child under 18 to become a subject, shall be guilty of a misdemeanor.

Misstatement of Insured.—The Court of Civil Appeals of Texas, in the Supreme ruling of the Fraternal Mystic Circle vs. Crawford,⁸ held that when an applicant for life insurance stated that he had had no serious illness, such statement being incor-

rect, it did not constitute ground for avoiding the policy, providing the applicant was not aware of the falsity of his statement. The answer should then be considered as a mere expression of opinion.

The Medicolegal Relations of Ocular Injuries, Pensions, and Insurance Rates, and a Scientific Plan for Estimation of the Loss of Earning Ability.—H. V. Würdeman¹ has attempted to simplify the theories and deductions of Magnus in order to render them more acceptable to the ordinary skilled practitioner of medicine or law. The present usages for the estimation of pensions, insurance, and damages at law for injury to vision are based wholly on precedent and are purely empiric. The relation of the visual act to the earning ability is susceptible of mathematic demonstration. The probable loss of wages may be determined by the particular injury to vision. Insurance contracts could be made subject to the amount of economic damage, a percentage being paid for partial losses. In case of one eye the rates should be modified to between 18% and 30% of the total disability. For the settlement of pensions and annuities the full annual economic damage should be paid. For claims at law the probable economic damage should be estimated and considered the principal element, subject to business discount and to additions for the actual expenses consequent to the accident and empiric amounts for the pain and anguish thereto incurred, contributory negligence and other legal factors being also considered in the verdict. [H.M.]

The Midwives Act of England.—The Midwives act of 1902 came into force on April 1, 1903.² The full force of the act, however, will not come into force until 1910. The object of this act was to provide for the registration and certification of midwives, and to bring them under the control of the local authorities and a new body called the Central Midwives' Board. The function of the board is to (among other things) issue certificates to midwives, to regulate the examinations, courses of training of midwives, to regulate the admission of those practising midwifery to the roll of midwives, and to regulate the general conduct and legal relations of midwives. Any woman practising midwifery for 2 years who may have received a certificate in midwifery from the Royal College of Physicians of Ireland, the Obstetrical Society of London, the Coombe Lying-in Hospital and Guinness Dispensary, the Rotunda Hospital, or any other certificate which the board may consider satisfactory, shall be granted a certificate. A guinea is charged for the certificate. This act does not give the privilege to midwives to take charge of abnormal or complicated cases, nor is she permitted to issue a certificate of death or of stillbirth. [J.H.W.R.]

May Use Notes When Testifying.—The United States Eighth Circuit Court of Appeals, in the case of Bailey vs. Warner,³ holds that a physician when testifying may with propriety refresh his memory by consulting notes made during the time of his visits to the patient. [J.H.W.R.]

Determinism, and the Relation of Medicine to Criminals and Their Restraint.—With the discoveries of Darwin, the cosmogenesis of Haeckel, the axioms of Lavoisier, and, in a word, all the science which goes to prove the principle of causality in the universe, from the celiac nebula of Laplace to the Salpêtrière neurotics of Charcot, we are brought face to face with the question of liberty of will and actual criminal responsibility. The question is one not of knowledge of consciousness, but of freedom to choose, and disregard or choose not. The injection of medicine into law makes these points of interest to us, says Ramon Pardo.⁴ [T.H.E.]

Damages for Loss of Sight.—The Supreme Court of Rhode Island, in the case of Cummings vs. the National and Provident Worsted Mills,⁵ did not believe that a verdict of \$12,500 was an excessive amount to be paid to a man of 51 who was earning \$1,000 a year at the time of an accident which resulted in the entire loss of vision in 1 eye, and partial loss of vision in the other eye, which probably in the near future would become total. [J.H.W.R.]

¹ Arch. gen. de Med., 1903, No. 35, p. 2197.

² Jour. Am. Med. Assoc., October 3, 1903.

³ Wien. med. Woch., May 28, 1904.

⁴ Wien. med. Woch., February 20, 1904.

⁵ Am. Jour. Med. Sciences, February, 1904.

⁶ Jour. Am. Med. Assoc., October 10, 1903.

⁷ Jour. Am. Med. Assoc., October 24, 1903.

¹ Ophthalmology, January, 1905.

² British Medical Journal, March 28, 1903.

³ Journal of American Medical Association, January 24, 1903.

⁴ Crónica Médica Mexicana, June 1, 1904.

⁵ Journal of American Medical Association, December 20, 1903.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology
WALTER L. PYLE

Dermatology
M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 13.

APRIL 1, 1905.

\$5.00 YEARLY.

At Panama as well as in Cuba there are more than rumors of bad conditions on the Isthmus and the reported presence of yellow fever in several localities, with the death of one naval surgeon, would seem to indicate the urgent need of some change in spite of what the commission may say in reply to Dr. Reed, particularly in view of what these same sanitarians were able to accomplish in Cuba. There is also no doubt that if they had been hampered in Havana as in Panama, the discovery of the method of the transmission of yellow fever would not have been made. This priceless advance in hygiene touches every American, and it is therefore of national and international importance to call attention to what can be accomplished by unhampered sanitary work. It is certainly gratifying that in municipal hygiene there is a growing tendency of the people to insist that their sanitary experts shall be supported and not hampered by the administration. The gradual awakening of the people to these facts is naturally leading to the establishment by wealthy philanthropists of vast institutions for the study of improved methods of prevention. The restriction placed upon the sanitarians of the Isthmus is therefore the more remarkable. The people, particularly those who lost their sons, are still thinking of the preventable camp diseases of a few years back, and want to know why the experts did not prevent them; and they will soon want to know why prevention cannot be carried out in Panama as was done in Cuba. There is therefore the more reason for astonishment at Dr. Reed's revelations. We must send there our most intelligent engineers and the nation's welfare demands that they receive every protection the most advanced sanitation can give them.

The Relation of Hospitals to Medical Schools.

—The financial relationship between medical schools and the hospitals connected therewith, is always a serious question for those entrusted with the management of such correlated institutions. This is particularly true when the hospital is the recipient of State aid, now so customary in this country. In some instances there are grounds for serious apprehension that contributions "for the relief of the sick poor" are partially used in defraying the expenses of supposedly healthy and prosperous colleges. Trustees of medical institutions in this country are not alone in facing this proposition. The

results of a painstaking effort to determine the financial relations between the 12 medical schools and their hospitals in London, are embodied in the report¹ of a committee appointed on the initiative of the Prince of Wales. They find the question exceedingly difficult to unravel, chiefly because many mutual benefits cannot be valued in money. Among these are the aid to the hospital of increased publicity, a staff of leading medical men, and a general stimulus to progress. To the school there is the incalculable, and withal most necessary, benefit derived from facilities for clinical instruction. The final opinion of the committee is, that the mutual benefits counteract each other, and that a school which in addition receives money from its hospital must, to that extent, remain a debtor to the sister institution. An appendix forming a part of the report gives the actual expenditures of the 12 hospitals upon their associated medical schools during 1903 and the return payments by the schools. With certainty, only two of the colleges received no aid from this source, though two more probably belong with them; the remaining eight received contributions from the hospital funds.

Are Hospital Expenditures upon Schools Justifiable?—One of the three points to be determined by the committee was whether any special considerations were advanced in justification of such uncompensated expenditures, or if in extenuation there are general considerations which will apply to all hospitals and schools. To both of these inquiries the committee replies in the negative. As a whole, then, the investigation, which appears to have been eminently impartial, shows that the large majority of the medical schools of London, instead of remunerating their hospitals for necessary clinical facilities, are at least partially dependent upon those hospitals for support. We fear many of the schools in this country are on a similar basis. This condition of affairs means one of two things: 1. There are too many medical schools, or, 2. They are giving too much for too little, in other words, selling their product below cost, and looking to the hospital fund to make good the deficiency. This is bad financial policy, but might be excused if the hospitals were self-supporting. When they are subsidized by the State the taxpayer should know what disposition is being made of the money thus

¹ British Medical Journal, February 25, 1905.

appropriated. To this end a suggestion of the committee is most pertinent. They believe a distinction between the hospital and school should be drawn so definitely and clearly that it may be understood by the general public, and thus prevent any question as to the destination of money in the control of the hospital, from whatsoever source it may be derived. The committee also suggests the advisability of teaching the branches of the first two or three years in one or two institutions, leaving to be spent in the regular medical schools only the years when hospital instruction is a necessity.

The physical endurance of the Japanese soldier in the present wonderful campaign in Manchuria is the one great revelation which has come out of the Orient. There have been no authentic reports upon which we can base estimates as to his immunity from disease or the protection from infection, so that it is entirely too soon to form any opinion as to the organization and work of the medical department of the army. We do not know definitely, indeed, whether it is true that the Japanese have escaped diseases in markedly greater proportion than the Russians or than other soldiers in similar campaigns, and if they have so escaped, whether it is due to racial immunity or watchful care of their officers. Of this much we are certain—the man carrying the gun on his shoulder has accomplished feats of physical endurance which were not thought possible by physiologists. The Russians could not estimate where the Japanese would be, and were therefore constantly surprised by tremendous forces at places 20 to 50 miles beyond the point where good strategy should have placed them. When Napoleon began to defeat the well-tried generals of Europe they complained that he was always far in advance of where he should have been by the rules, but it was all due to his better knowledge of how to get work from his soldiers. In the Orient there is a new art of war depending upon a new style of physique of a race which has never before been put to this work. Repeatedly the Russians have reported the Japanese to be so exhausted that they could not pursue, yet the pursuit kept up with no change of vigor.

The wonderful endurance of the Japanese native can only be realized by the traveler in Japan. He is short, stocky, and blessed with muscles big enough for a much taller man, and he is consequently able to do more work than a European of equal weight. Their rural letter carriers think nothing of distances for which we demand horses, and in exceptional cases, the rickshaw man has been known to trot 40 miles in a day dragging his passenger. The daily drills of the soldiers include athletic exercises too severe for the average European soldier, such as running up and down long flights of stairs. It is not surprising, then, that their troops should cover long distances and the reports of four successive days of 35, 25, 30, and 15 miles of marching are perfectly credible. They are reported to have marched 48 hours without food and with little rest, and then to have fought well, though captured men have dropped to sleep instantly. Americans opened up this land to western civilization, and in placing modern

weapons in the hands of 50,000,000 of such bodies, guided by such brains, we have supplied new problems for the *well politik* of the future to solve.

Cards and Notices in the Local Newspapers.—An inquiring subscriber writes as follows:

There is an inclination on the part of a great many otherwise good physicians to allow their names to appear in the daily newspapers in connection with cases, to put their "cards" in the paper, etc. In our city of 8,000 people some of our physicians insist that the old code of ethics was abrogated at the meeting of the American Medical Association, at New Orleans, thereby simply leaving it to the man whether he wanted to appear in print or not.

All "codes" and rules of ethics are, of course, based upon ethical instincts, feelings of honor and altruism, older, of course, than the Ten Commandments, or than any petty formulations or partial statements. The so-called "code" of medical ethics only tried to reduce to writing a few of these principles, establishing nothing new, and based solely upon the living instincts and past experiences of medical men in relation to each other. The fundamental assumption was that medical men are primarily working together for the good of their patients and of the whole community, not to outwit or get any advantage of each other. All "advertising," reports of cases, cards, etc., in the newspapers are, of course, based upon the attempt of the one advertiser to attract patients, and "beat the other fellows." In the quack and nostrum advertiser it is frank diabolism, the unblushing confession of fraud, competition, and selfishness. In the strabismic advertising of the physician it is simply added hypocrisy and squint. To the colleagues of our correspondent who think any license to unethical practice was authorized by the action of the American Medical Association, it should be suggested that neither the *Association* nor its action can make or unmake ethics. Every man should be a gentleman, whether the law commend, permit, or deny. Perhaps the best argument, at least *ad hominem*, against "cards" and reports of cases in the papers is that in reality it does not pay. The stupex wastes his money and ingenuity who attempts to beat his "rivals," or the public, in that way. Our American people are growing too genuinely sharp for such crude sharpness. They see that a man who is compelled to attract practice by such childish means must be pretty hard pushed, and really consents to go into competition with the *Golden Prescription* and *There is Hope* clowns. What a clientele he is trying to attract!

Typhoid Fever in United States Military Camps.—Surgeon-General O'Reilly has just issued a work destined to become a classic in the epidemiology of typhoid fever in armies. We refer to the report of the commission appointed to inquire into the "Origin and Spread of Typhoid Fever in United States Military Camps during the Spanish war of 1898." Lateness in appearing is due to the action of Congress in refusing earlier to grant the necessary appropriation. This is to be regretted, as the full account of such a calamity should have been circulated while the circumstances were still fresh in the minds of the people in order more fully to guard

against the possibility of its repetition. Dr. Victor C. Vaughan is the only surviving member of the board, Dr. E. O. Shakespeare and Major Walter Reed having died in the interim. The report is in two volumes. Volume I is a large quarto of 721 pages, containing a detailed account of the various regiments of the army in the several camps occupied during the time included in the report. Following this are the general statements and conclusions of the board, and three appendices dealing with the sanitary examination of drinking water, the chemie disinfection of drinking water, and typhoid bacilluria. The appendices represent work performed in the University of Michigan at the request of the board. Volume II is a massive folio of maps and charts presenting graphically what is stated in the text. The personnel of the board is sufficient guarantee of the high standard of every part of the report.

Conclusions Regarding Typhoid Fever in Army Camps.—The statements and conclusions of the Board are of exceeding value not only to army surgeons, but also to physicians in general. A fifth of the soldiers in the national encampments in 1898 developed typhoid fever. Of the 20,738 cases of the disease, army surgeons correctly diagnosed about half, most of the others being sent to hospitals under the diagnosis of malaria. Deaths numbered 1,580, a rate of 7.61%. This corresponds closely to the general hospital mortality of the disease in civil practice and under the circumstances may be considered a remarkable showing. The deaths from typhoid were 86% of the total deaths in the army, a blot on the history of the war that never will be effaced. One statement of the Board is that typhoid fever is so widely distributed in this country that one or more cases are likely to appear in any regiment within eight weeks after assembly. This, when considered in connection with facts regarding the gross pollution of many of the camps, is of the utmost significance. A soldier suffering from the disease, unsuspectedly, when he goes to camp, may, if the excreta are not properly disposed of, spread infection through the entire camp before his condition is recognized. The pollution of camps was due partly to neglect by the authorities to provide sufficient and proper means of prevention and partly to wilfulness of the soldiers. To this end the Board emphasizes the need for instructing line officers in hygiene, that they may assist the medical staff instead of failing to cooperate with them or even refusing their demands as was so often the case in 1898. This is a vital point. Proper arrangements for disposal of excreta should be provided and then the strictest discipline, court-martial if necessary, exercised to enforce sanitary regulations. The entire summary of the Board is filled with most practical suggestions which if carefully followed will surely prevent a similar useless loss of life in future encampments.

For the taxation and penalization of benevolence—that should be the title of the old laws which taxed testators in New York a twentieth of their gifts to charitable institutions. Thus, Mr. Huntington left \$80,000 to four worthy charities, and his estate had to

pay \$4,000 to the State on the legacies. The policy to exempt legacies to such institutions from such succession taxes has been adopted and is in force in Maine, Massachusetts, New Jersey, Virginia, Ohio, Illinois, California and other States. That the New York law is absurd is shown by a glance at its operation. A legacy to a tract society is exempt, a legacy to a hospital is subject to taxation; property left to a bishop—even for his own personal use—is exempt, to a charitable society is subject; a legacy of less than \$10,000 left to a relative is exempt, a like amount left to an educational institution is subject to the full tax. The United States government has also repealed the law taxing benevolent institutions, and refunds all taxes paid by them. A bill has been introduced in the New York Legislature which provides for similar action in that State, and if the political influences at work against its passage are not too powerful, it may become law. As has been well said:

The organized charities and benevolent agencies which actually relieve human misery, and labor in unselfish devotion to improve the moral and physical condition of mankind, are alike the fruits and aids of good government, and to exempt their property—usually the gifts of the benevolent—from the burdens of taxation is scarcely less the duty than the privilege of the enlightened legislator. Clearly this exemption should be placed upon broad, equitable grounds.

A Hint to the Medical Profession as to Politics.—Sir Michael Foster, the eminent professor of physiology at Cambridge University, will offer himself for reelection as a member of parliament for the University of London. If reelected, he will take his seat as a member of the Liberal party. *The Lancet* for February 18 adds: "A committee, with Sir Thomas Barlow as chairman, has been formed to promote his election. This committee comprises graduates belonging to different political parties who are supporting Sir Michael Foster on the ground of his many public services and in the belief that his special knowledge will continue to prove of great value to the House of Commons." Is not this plan of electing an eminent scientist and physician to a political position independently of his politics an improvement on our custom of appointing a man to a scientific and professional position because of his politics?

Organization and Reorganization in the Nursing Profession.—The temporary failure of the plans for the registration of the trained nurses has brought into view many criticisms, faults and excellencies which in the future will be extensively discussed. In a wise way the New England nurses, physicians and philanthropists came together recently in Boston for conference to consider the question of forming an association of all who are interested and actively engaged in advancing the profession of nursing. It is hoped to secure the cooperation of every training-school for nurses in New England, in order to make all more helpful to each other. All nurses will of course be welcomed as members. For, while the responsibility of determining the policy and the methods of training-schools still rests mainly upon the medical and lay managers of the schools and of the hospitals with which they are con-

nected, nevertheless the time is at hand when nurses themselves must be ready at least to share this responsibility. The circular of notification says that in no sense is it proposed to antagonize or to supplant existing associations of graduate nurses and of training-school superintendents, but rather to supplement their laudable efforts for the advancement of their profession by also enlisting for this purpose the medical and lay instructors, the managers and trustees, and all other benefactors of nurses' training-schools. It is confidently expected that such an association will bring about more uniform methods of training, higher standards of education, more effective cooperation between the medical and the nursing professions, and finally more serviceable relations between nurses and such institutions and families as need their services. According to the program Dr. Richard C. Cabot delivered an address upon "The Possible Uses and Benefits of the Proposed Association." Following this address, the question of organizing was discussed. Miss Linda Richards read a paper on "The Early History of Training-schools in America." The following topics were then discussed: 1. How can the larger training-schools help the smaller schools? 2. Shall New England have a weekly journal of nursing? 3. Comparative merits of different methods of training. 4. The possibility of interchanges between different schools of courses of instruction for student nurses.

The Periodic Theory Applied to Pathology.—

Not all may agree with the conclusions advanced by Dr. Wakefield in his article concluded in this issue, but attention will be attracted to the essential novelty of certain of his positions. He makes, in the graded arrangement of symptom manifestations, an application to pathology of the now accepted periodic arrangement of the elements, the series being intimately related to density. The disintegration of radium, for example, is a retrogressive disintegration from an atomic weight of 258 times that of hydrogen, to helium, of only twice that of hydrogen. Thus is exhibited a degeneration of density, or atomic weight, extending through practically the entire system or series. The physiologic integrity of the tissues is represented by the highest molecular weight of protoplasm (parenchyma) and according to Dr. Wakefield, its decadence, both symptologic and morphologic, is practically identified with progressively diminishing density, until disintegration, namely, putrefaction or liquefaction, obtains. There is a discussion of the relation of the long list of tonic, astringent, styptic, constrictor, inspissating and hemostatic agents, to tissue density, and the therapeutic significance of the density so produced. The theory of metabolism advanced is as follows: Accepting the prevalent divisions, anabolism and katabolism, the former including the constructive and maintaining elements, nutrition, and cell division, and the latter embracing the destructive elements, oxidation, and autolysis, he diverges from the older conceptions and claims that anabolism never becomes pathologically excessive, but that instead, as pathogenic sequences, katabolism is inhibited, and even anabolism, when affected at all, is also retarded. In many respects these conceptions are new interpretations

of old observations. It will be recalled that diathetic diseases are now frequently called metabolic diseases, after an intermediate period when they have been called "the uric acid group." The article at least affords basis for argument and further research for either confirmation or refutation.

Newnes' Nastiness.—The *Grand Magazine*, the thirteenth and latest periodical on the list of George Newnes, Limited, has appeared on American newsstands. Its second number contains a slander on the medical profession, so foul, so impossible to believe of medical men or medicine men of any age or country, that it may without hesitation be pronounced wilfully false. The anonymous writer says: "It may be said with perfect truth that the girls and young women who attend the public hospitals, gain the possible healing of their bodies at the expense of mortal injury to their souls;" and then he describes the physical examination of girls, "stripped naked to the waist and subjected to the salacious scrutiny of dozens of youths who lay hands on her and maul her about to their heart's content." The editor vouches for the unknown writer of this infamous falsehood. The grounds on which judgment on this performance can be so unhesitatingly pronounced by a distant commentator are exceedingly simple, and may easily be tested by both editor and contributor. That depravity which can experience salaciousness in the sight of a nude girl who is or believes herself sick is extremely rare, is in fact a gross psychopathy. Its existence could not possibly be concealed. Its results would inevitably scandalize every clinic where it appeared. If it were not extremely rare, chiefs of clinic would know something about it. Krafft-Ebing, if any one, should have recorded a note of such an aberration. If a layman may honestly conceive such a thing as easy or usual, it may be for such a man at least possible, though we are inclined to think that the writer under discussion can, by a psychologic experiment upon himself, learn how impossible a baseness he has imputed to medical students. We are inclined to think that the inventor of this nastiness is not a man. If he is, then he must be one of that pseudofeminine variety which delights in screaming its hatred of medicine and "vivisection." The more pliant feminine mind is but rarely wrung to such obliquity. Among writers of recent times a single example may be found, and one wonders whether the article now before us was not produced by the unfortunate woman, now dead, to whom the monstrous thought occurred that physiologic investigations upon animals are salacious diversions.

American Medical Representative Captured by Japanese.—The War Department has been officially advised of the capture at Mukden by the Japanese army of Colonel Valery Havard of the medical department, who was one of our military attaches with the Russian army in Manchuria. It is unfortunate that the career of this valuable observer representing this government should be thus unceremoniously terminated, but there appears to be nothing left save recall. Major Havard at last account was on his way to Tokio with the expectation that he would be returned as soon as practicable to this country. Of course he may not remain within the Japanese lines without raising a protest from the Russian government. It is particularly unfortunate that the medical officer must be recalled since there was much for him to observe in a professional way in Manchuria.—[*Army and Navy Register*.]

AMERICAN NEWS AND NOTES

GENERAL.

The Coffee Consumption in the United States.—The figures of the world's production of coffee in the year 1903-04 show that the coffee exported from the various producing countries of the world, and therefore the quantity entering the world's markets during that year was barely double the quantity brought into the United States for that period.

Suicide Clause Held Valid.—The Ohio Supreme Court has affirmed the validity of a suicide clause in an assessment insurance policy. The decision was given in the case of Perry P. Tisch, of Ashtabula county, against the Protected Home Circle, an assessment insurance society. Tisch had his wife's life insured for \$1,000, and a short time thereafter she died by her own hand.

Hospitals for the Canal Zone.—An arrangement is being made between the governments of Panama and the canal zone for the construction of three buildings for lepers, lunatics and incurable indigents. Panama contributes \$40,000 as its share of the cost. The sanitary department will control the management of the hospitals, and the running expenses will be divided proportionately between the two governments.

Charitable Bequests and Gifts.—Baltimore, Md.: The late William F. A. Hasson bequeathed \$500 to the Home for Incurables.—Philadelphia, Pa.: The late Ann M. Sharpless will contain the following bequests: To the Children's Seaside Home, Atlantic City, \$2,000; to the Mercer Memorial Home, Atlantic City, \$2,500. Mrs. George D. Widener gave to Hahnemann Hospital the Wm. L. Elkins Memorial Amphitheater at a cost of \$100,000.

The Dangers of Car Dust.—The Marine-Hospital Service has been investigating the subject of car sanitation and car ventilation for some time. It is held that there is much danger to the passengers of contracting contagious diseases from the fine dust arising from carpets and upholstery while the cars are in motion, and which passengers are compelled to inhale through imperfect ventilation. The popular interest displayed by the Boards of Health of large cities has effected some criticism of railroad companies for not giving more attention to a matter of such vital interest. The credit for inaugurating the movement is properly attributed to the State of Texas.

Physical Training of Midshipmen.—Surgeon-General Rixey concurs in the opinion of Surgeon Bogert that the best results may be expected from judicious prescription of athletic exercises of the individual, based on careful examination by and supervision of a trained physician or competent medical officer, individual exercises to be associated with and supplemented by class or general exercises or drills as deemed advisable or necessary. It is believed that the best interests of the academy will be also served by having a medical officer of the Navy—one of the medical staff of the institution—in general charge of the branch of physical training, such officer to be a subordinate in the medical department of the Naval Academy.

Anemia in Porto Rico.—The authorities in Porto Rico have made an appropriation of \$15,000 for the continuation of the investigation of anemia, and Captain B. K. Ashford, assistant surgeon, United States Army, will be continued in the work. He has made all his arrangements for continuing work for another year or two, and it is expected he will make further contributions to our knowledge of tropic diseases and their treatment. It will be of special value to have Porto Ricans who are immune to anemia and will then be available for uninterrupted service in connection with the canal construction. Captain Ashford plans to establish a central working party with a laboratory, to select 10 or 12 points on the island as substations, which will cover several afflicted districts, to circulate freely popular literature on the disease; and, at the end of six months, to make a redistricting of the work and continue until the entire island is covered.

Personal.—Dr. Henry P. Walcott has been reappointed a member of the Metropolitan Water and Sewerage Board of Boston.—Dr. F. W. Draper, who has served for 28 years as a medical examiner of Suffolk County, Mass., has resigned to take effect at the expiration of the current term. He was one of the original appointees under the Medical Examiner Law when it first went into operation.—Dr. Edward Hicks Hume has been appointed head of the new Yale College, in Chungsha, China. He studied medicine at Johns Hopkins and was graduated there in 1901. He then went to Liverpool as the John W. Garrett international fellow, remaining there one year.—The War Department has discharged from the service Lieutenant Wilfrid Turnbull, assistant surgeon of the army, who twice failed to pass his examination. His duties at Fort Strong, Mass., will be performed by Contract Surgeon E. S. Tenney, who was formerly in the service. It is said that Dr. Turnbull contemplates going to the Philippines and seeking an appointment with the Philippine constabulary.—Dr. Sophronia Fletcher, the first woman physician in Boston is 99 years old, but is still wonderfully active.—The retiring board in the case of Major George M. Wells of the medical department, who has

been on duty in the Philippines, reported Major Wells incapacitated for duty and has recommended his retirement. He is suffering from the effects of an accident at Fort Grant in 1904. He has been ordered home, and has just arrived.—Surgeon Samuel H. Griffith, of the Atlantic training squadron, lies in a critical condition, at the Naval Hospital, at Norfolk, Va. His illness is the result of long service in the tropics.—Dr. H. Tunstall Taylor, of Baltimore, has offered to treat free the children in the public schools of that city, whose parents are unable to have them treated. The school board has accepted the offer, and directed teachers to refer such pupils to him.

EASTERN STATES.

Osteopaths Defeated.—The bill to regulate osteopathy, which would have allowed 90 osteopaths now practising in Massachusetts to be registered without examination, was defeated in the House.

For Killing Sick Horses.—A bill is before the Massachusetts Legislative Ways and Means Committee giving the agents of the humane societies, or the police, the right to take possession of a sick or incapacitated horse, apply to a police court or trial justice for process to cause the animal to be humanely killed after 48 hours' notice, and allow the owner to collect from the State the equivalent in money of the animal's value, if any. The owner would have appeal from the decision of the lower tribunal on the question of value, but not on the question as to whether the animal should be killed. But the fact that a horse was suffering from infectious or contagious disease, or was in such a condition as to constitute a common nuisance, would be prima facie evidence that the animal had no value.

NEW YORK AND VICINITY.

Highwater Mark for Bellevue.—In 1,041 patients, March 20, Bellevue Hospital had the highest number in the history of the hospital. The record was 1,006 on March 14.

Radium Treatment Extraordinary.—"Drs." Kane and Hale, of New York City, have pleaded guilty to a charge of grand larceny in obtaining \$10,000 from a patient for treatment by radium without benefit. The defendants have returned the money.

Resign from Morgan Hospital.—A governor, a director, three deputy directors, five attending physicians, and two pathologists have resigned from the management of the Morgan Hospital, New York, as a result of dissatisfaction with the methods of the governor, who is most closely allied with J. Pierpont Morgan, who built and partly endowed the hospital. Several of the doctors connected with the hospital are said to have complained that his treatment of them was not such as was called for by professional etiquette.

The pure food amendment prepared by the Department of Agriculture and the Senate Health Committee of New York adds paraffin and shellac to the list of prohibited adulterants in candy, and contains a new section requiring foods sold in packages to be branded to show the nature of their constituents. Nothing in the bill, however, compels manufacturers of proprietary foods to reveal their nature, provided they contain nothing injurious to health.

May Abolish Coroners.—It is thought that the bill before the New York Legislature abolishing the coroner's office may pass. In the hearing, one of the reasons for abolishment was in order to do away with the wrangles they were continually having, either among themselves over the disposition of subordinates or with the district attorney. It was charged that the report of the Darlington apartment house disaster had been whitewashed. If medical inspectors had been in charge instead of coroners this would not have occurred.

For Investigation of Cerebrospinal Meningitis.—The commission of physicians asked by the New York Commission of Health to investigate meningitis has effected formal organization. The investigations of the commission will not be confined to researches into the conditions that obtain and have obtained here, but that it is the intention to cover the entire country and Europe as far as possible. To this end exhaustive lists of questions aimed to cover the entire ground will be forwarded to physicians in hospital and private practice throughout the country and Europe, asking them to forward whatever data they have at their disposal.

PHILADELPHIA, PENNSYLVANIA, ETC.

Aid for Insane Hospitals.—The House Appropriation Committee has insisted on the erection of temporary buildings where insane hospitals are overcrowded, and the committee reported bills appropriating \$70,000 to the Norristown Asylum, \$85,000 to the Danville Asylum, and \$35,000 to the asylum in Harrisburg. This money must be used in building one-story temporary structures, contracts for which shall be let within 30 days after the bills are approved.

Health Legislation.—The following bills are awaiting the Governor's signature: Giving the health authorities of Philadelphia full power to make rules and regulations governing the case and control of persons suffering from infectious or

contagious diseases and of all persons coming in contact with such sufferers. Giving the health authorities of Philadelphia power to vaccinate all persons when necessary and providing a fine of from \$5 to \$25. Further defining the duties and powers of the State Live Stock Sanitary Board to prevent the spread of diseases among domestic animals.

Typhoid Fever and Pneumonia Increase.—There has been during March an average daily increase of about 60 cases of typhoid fever in Philadelphia over the previous week's record, the total number of cases in the week ended March 25 being 307. There are nearly 2,000 cases now under treatment in the city. The cause of the outbreak has been traced in nearly every case to impure drinking water that was not boiled. Pneumonia is also increasing. There were 87 cases for seven days ending at noon March 25, an increase of 17 cases compared with last week. The health authorities have asked physicians to make complete reports on all pneumonia cases.

Appropriation Bills Passed by the Pennsylvania Legislature.—PHILADELPHIA, Woman's Medical College Hospital, \$100,000; St. Agnes' Hospital, \$100,000; Sanitarium Association, \$10,000; Hospital Department, Hahnemann Medical College, \$416,000; Philadelphia Orthopedic Hospital, \$35,000; German Hospital, \$110,000; St. Luke's Homeopathic Hospital, \$150,000; Philadelphia Home for Incurables, \$50,000; St. Mary's Hospital, \$37,000; Wills Eye Hospital, \$30,000; Philadelphia Lying-in Charity, \$20,000; Rush Hospital for Consumptives, \$210,000; Pennsylvania Sanitarium and Benevolent Association, \$20,000. OTHER APPROPRIATIONS FOR PENNSYLVANIA: Bedford County Hospital, \$21,000; Todd Sanitarium, Cambridge Springs, \$3,000; Easton Home for Friendless Children, \$6,000; Home for Aged and Infirm Women, Easton, \$3,000; Good Samaritan Hospital, Lebanon, \$31,500; York Hospital and Dispensary, \$30,000; Williamsport Hospital, \$50,000; Florence Crittendon Mission, Williamsport, \$5,000; Home for Friendless, Williamsport, \$15,000; Aged Colored Women's Home, Williamsport, \$1,000; Chester Hospital, \$30,000; Pottsville Hospital, \$60,000; Meadville City Hospital, \$14,000; Coatesville Hospital, \$15,000; Du Bois Hospital, \$6,000; Spencer Hospital, Meadville, \$20,000; Mary M. Packer Hospital, Sunbury, \$10,000; Chester County Hospital, West Chester, \$20,000; Pittsburg Hospital for Children, \$68,000; House bill to provide for a deficiency in the care of indigent insane, \$100,000; House bill for the care and treatment of the indigent insane for the next two years, \$2,000,000; Easton Hospital, \$70,000; State Hospital for Insane, at Norristown, \$223,000; to cover deficiency in the Pennsylvania Training-school for Feeble-minded Children, at Elwyn, \$36,874; State Hospital, Phillipsburg, \$22,195; Pennsylvania Reform School, Morgantown, \$117,588; for the erection of a State Hospital for the Criminal Insane, \$160,000; establishing an emergency fund for the suppression of epidemics, \$75,000; State Hospital for Insane, Danville, \$251,450; Titusville City Hospital, \$14,000; Miners' Hospital, at Spangler, Cambria county, \$15,000; Todd Hospital Carlisle, \$7,000; Shenango Valley Hospital, New Castle, \$41,000; State Hospital for Insane, Warren, \$196,500; Western Pennsylvania Colored Industrial School, Lawrence County, \$5,000; Valley Forge Park Commission, \$116,815; Medical and Surgical Department of the Western Hospital of Pittsburg, \$180,000; Allegheny County Association for the Prevention of Cruelty to Children, \$7,000; St. Joseph's Hospital and Dispensary, Pittsburg, \$75,000; Bradford City Hospital, \$87,000; Phoenixville Hospital, \$60,000; Mercy Hospital, Wilkesbarre, \$45,000; Lock Haven Hospital, \$25,000; Nason Hospital, Roaring Springs, \$85,000; Women's Homeopathic Association of Pennsylvania, \$15,000; Eagle Hospital for Consumptives at Summit Hill, Carbon County, \$3,000; Charity Hospital, Pittsburg, \$100,000; Children's Industrial Home, Harrisburg, \$9,000; Conemaugh Valley Memorial Hospital, Johnstown, \$45,000; Beaver County General Hospital, at Rochester, \$12,000; Benevolent Association's Home for Children, Pottsville, \$2,000; Children's Aid Society of Pennsylvania, \$30,000; Beaver Valley General Hospital, of Beaver County, \$37,000; Adrian Hospital, of Jefferson County, \$24,000; Clearfield Hospital, \$21,000; North Pennsylvania General Hospital, at Austin, \$10,000; Monongahela Memorial Hospital, \$20,000; Home for the Friendless, Harrisburg, \$5,000; Wilkesbarre City Hospital, \$70,000; Altoona Hospital, \$50,000; St. John's General Hospital, Allegheny, \$45,000; Sylvan Heights Home for Orphan Girls, Harrisburg, \$10,000; Messiah Home Orphanage, of Harrisburg, \$3,000; Johnstown City Hospital, \$5,000; McKeesport Hospital, \$80,000; St. Joseph's Hospital, Reading, \$30,000; Homeopathic Medical and Surgical Hospital, Reading, \$38,000; Reading Hospital, \$39,000; Lewistown Hospital, \$15,000; Allentown Hospital, \$30,000; St. Luke's Hospital, South Bethlehem, \$56,000; Home for Friendless Children, Reading, \$7,000; Children's Home, South Bethlehem, \$1,000; for two State institutions for the treatment of incipient tuberculosis, \$300,000.

SOUTHERN STATES.

Dr. Matas' Quarter-Centenary.—The local New Orleans profession made a most pleasant social occasion on March 19 of the twenty-fifth anniversary of Dr. Rudolph Matas' graduation into medicine. A beautiful silver service of 125 pieces and a large silver loving cup, appropriately inscribed, were presented to him by a body of physicians, professors, and students.

WESTERN STATES.

No State Charities for Nebraska.—Determined to make a record for economy, the Legislature has cut off State charities. The appropriation for the State Board of Charities was killed by the Senate, and no funds were allowed for the Board of Prison Inspectors.

The N. S. Davis Memorial.—The memorial tablet for the late N. S. Davis was unveiled last week at the Northwestern University Medical School, Chicago. Addresses were delivered by George W. Webster, E. Wyllis Andrews, E. C. Dudley, W. O. Krohn, and Dean Holgate of the university. The tablet was presented by the senior medical class of the school.

Health Officers Resign for Lack of Pay.—It is reported that many officers of the local health boards throughout Indiana are sending in their resignations because of the failure of the Legislature to fix remuneration for such officers, and many counties may be left without official representatives to fight infectious and other diseases. For years officers of health boards have served without pay and sought to have a new law passed, but failed.

Sanitary Hold-up.—One of the chief lines of the Cleveland, O., Electric Railroad Company was tied up for some hours one day last week because the crew attempted to take out a street car not up to the standard of cleanliness put in force by the health authorities. This standard demands that the cars be scrubbed at certain times, and be kept clean. An ordinance is under consideration in the city to limit the number of passengers each car should be permitted to carry.

Assumption of the Quarantine Function in Oregon by the Public Health and Marine-Hospital Service.—The Legislature of the State of Oregon having abolished the functions of the State quarantine service and passed a concurrent joint resolution asking that the Public Health and Marine-Hospital Service take charge of those functions in that State upon May 20, 1905, the Service has, under the provisions of the act of Congress, approved February 15, 1853, and with the approval of the honorable the Secretary of the Treasury, agreed to undertake the operation of the quarantine service in that State upon the date mentioned.

Smallpox in Chicago.—Eighteen cases of smallpox were removed to the Isolation Hospital during the week. Of this number 11 never had been vaccinated; 7 had old scars, said to be from vaccinations made in childhood; not one had ever been revaccinated. The ages of those with old scars were 32, 33, 34, 42, 43, 46, and 47 years respectively. Among the victims were 4 unvaccinated children under the school age, and 1 child in school with a false certificate of vaccination, signed by a doctor. Since the opening of the Isolation Hospital in 1896, up to the close of last year, 1,418 cases of smallpox had been received and treated in that institution, involving an expenditure of \$321,157.33. This sum does not include the \$137,241.36 expended for the purchase of ground and construction of the buildings, but includes 4% interest on that sum annually. The average cost per case is, therefore, \$226.48, and at this rate the 210 cases received since December 31, 1904, will swell the total to \$373,718.13 of wholly avoidable expenditure.

CANADA.

The new English hospital for contagious diseases in Montreal will be called the Alexandra Hospital. There will be nine separate buildings, and seven buildings constituting the hospital proper. Each pavilion will have its own nursing staff and each will be entirely isolated.

FOREIGN NEWS AND NOTES

GENERAL.

A fatal case of plague was found recently on a steamer arriving at Liverpool from eastern ports. There was no evidence of rat infection on board the vessel.

Horse Meat in Tuberculosis.—A great increase in the use of horse flesh in France is attributed to the fact that physicians are advising it in cases of pulmonary tuberculosis, claiming that it is better than beef in such cases.

Epidemic of Whoopingcough in Uberaba, Brazil.—A report states that a very severe epidemic of whoopingcough has occurred there. The attacks are of great severity, and during the week before the report was made there had been four deaths from this cause.

Hygienic Exhibition at Milan, 1906.—An international exhibit of hygiene will, by request of the Italian general health department, be added to the exhibition at Milan, 1906. Many countries will assist in the display, which will have for its object the presentation in a practical manner to the public of the advances made in the field of sanitation during recent years.

Malta Fever at Shanghai.—Doctor Bishop, surgeon of one of the English cruisers at Shanghai, claims to have identified as Malta fever some of the febrile diseases prevailing, and previously diagnosed as irregular types of enteric or malarial fever. It is stated that his claims have been verified by Professor Kitasato, of Tokio.

Trains Spread Influenza.—Professor Allbutt is quoted as saying that influenza was disseminated by express trains and steamships. He said north China is the cradle of the disease. The Transsiberian railway has greatly facilitated the spread of the disease. The misery and depression frequently following influenza can be shortened by a plain diet of milk and vegetables. Beef tea and other supposedly strengthening foods only delay recovery.

Sanitary Information from the Argentine Republic.—Bacteriologic examination is being made of the sputums of all persons incarcerated in the public prisons of Buenos Ayres who have been attacked with the disease now prevalent in these places. Examination shows the disease to be influenza; but notwithstanding this, many physicians contend that the disease in question is true bubonic plague. In this same laboratory will shortly be undertaken not only the examination of the sputums from such cases, but also the examination of blood taken from the more severe cases.

OBITUARIES.

William O. McPheeters, aged 89, March 15, from pneumonia, at his home in St. Louis, Mo.; a graduate of the University of Pennsylvania, medical department, in 1840. He was the oldest practitioner of St. Louis, and the oldest alumnus of the Pennsylvania University; member of the faculty of the Missouri and St. Louis Medical College; oldest member of the St. Louis Medical Society; editor of the *St. Louis Medical and Surgical Journal*. He served as division surgeon in the Confederate army during the Civil war.

George Frederick Keene, aged 51, March 13, from pneumonia complicated with nephritis, at his home in Howard, R. I.; a graduate of Harvard University Medical School, Boston, in 1879. Member of the American Academy of Medicine, American Medicopsychological Society, Providence Medical Association, Rhode Island Medicolegal Society, superintendent of the State Hospital for the Insane, and a member of the American Medical Association.

John Osocroft Tansley, aged 61, March 26, at his home in New York City; a graduate of the College of Physicians and Surgeons, New York, in 1877. He was an assistant surgeon in the Manhattan Eye and Ear Hospital; fellow of the New York Academy of Medicine; member of the Medical Society of New York, and other medical societies.

John P. Lombard, aged 44, March 21, from acute heart trouble, at his home in Dorchester, Mass. He was a graduate of the University of New York, medical department, in 1888; member of the Massachusetts Medical Society, American Medical Society, United States Military Surgeons' Association, and surgeon to the Ninth Regiment.

Amos Harrison Brundage, aged 76, March 19, at his home in Brooklyn, N. Y. He was a graduate of the New York University, medical department, in 1855. He was one of the founders of the New York State Medical Society. During the Civil war he served as acting surgeon to the Sixth New York Regiment of cavalry.

Charles Hamilton Losey, aged 41, March 13, at his home in Rochester, N. Y.; a graduate of the New York University, New York City, in 1889. He was a member of the board of managers of the State Industrial School; member of the Monroe County Medical Society and of the Central New York Medical Society.

Milton Marion Fenner, aged 67, March 14, at his home in Fredonia, N. Y.; a graduate of the Eclectic Medical Institute, Cincinnati, Ohio, in 1860. He served as assistant surgeon in the navy during the Civil war. He was representative in the State Assembly in 1879-1880.

Samuel B. Hopkin, aged 87, March 21, at his home in Philadelphia; a graduate of Jefferson Medical College in 1852. He served as surgeon in the navy during the Civil war, and for 30 years he has acted as registration physician in the prothonotary's office.

George W. Edison, aged 78, March 10, from cerebral hemorrhage, in the hospital of the Soldier's Home, Quincy, Ill.; a graduate of London University in 1842. During the Civil war he served as surgeon on the hospital boats of the Mississippi river.

George F. Corse, aged 65, March 23, at his home in Gardenville, Baltimore county, Md.; a graduate of the University of Maryland in 1884. He served as an assistant surgeon in the United States army during the Civil war.

H. C. Mooney, aged 51, March 24, from apoplexy, at his home in Wabash, Ind. He was a graduate of the Northwestern University Medical School in 1876, and was one of the leading physicians in Wabash county.

Lemuel Foley, aged 68, March 7, from influenza, at his home in Lebanon, Oregon; a graduate of the Willamette University, medical department, Salem, Oregon, in 1870. He was twice mayor of his home city.

William S. Hall, aged 44, of Rochester, N. Y., March 8, in the Rochester City Hospital, after an operation for septic peritonitis. He was a graduate of the New York University, New York City, in 1885; a member of the Monroe County Medical Society and the Rochester Pathological Society.

James Clinton Comstock, aged 46, March 8, from cerebral hemorrhage, at his home in Binghamton, N. Y. He was a graduate of the College of Physicians and Surgeons, New York City, in 1884.

Edward William Burk, aged 89, of Moberly, Mo., March 14, from heart disease, at his home in Keokuk, Iowa; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1890.

Hubbard Ellis, aged 27, March 11, after an operation for appendicitis, at the Good Samaritan Hospital, Cincinnati, Ohio. He was a graduate of the Medical College of Ohio in 1904.

Albert W. Scofield, aged 42, March 14, from cerebral hemorrhage, at his home in Cincinnati, Ohio; a graduate of the University of Buffalo (N. Y.), medical department, in 1883.

John H. Fleetwood, aged 75, March 7, from pneumonia, at his home in Thibodaux, La.; a graduate of the Tulane University, medical department, New Orleans, La., in 1872.

William C. Weymouth, aged 51, of Renovo, Pa., March 14, in the Lock Haven (Pa.) Hospital. A graduate of the University of Pennsylvania, medical department, in 1890.

E. J. Howe, aged 55, March 14, from apoplexy, at his home in Newark, N. J. He was a graduate of the College of Physicians and Surgeons, New York City, in 1873.

J. B. Whiting, March 26, at his home in Janesville, Wis. He was a graduate of the medical department of Williams College, Pittsfield, Mass., in 1848.

Russell Murdock, March 19, at his home in Baltimore, Md.; a graduate of the University of Virginia, medical department, Charlottesville, in 1861.

R. H. Thompson, aged 86, March 20, at his home in Washington, D. C.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 24, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Dist. of Columbia:	Washington.....Mar. 11-18.....	1	1
Florida:	Jacksonville.....Mar. 11-18.....	3	
Illinois:	Chicago.....Mar. 11-18.....	20	3
Kentucky:	Lexington.....Mar. 11-18.....	1	
	Louisville.....Mar. 8-16.....	4	
Louisiana:	New Orleans.....Mar. 11-18.....	11	
Michigan:	At 65 places.....Feb. 25-Mar. 4.....	Present	
Missouri:	St. Louis.....Mar. 11-18.....	43	2
Nebraska:	Omaha.....Mar. 11-18.....	2	
New York:	Mount Vernon.....Mar. 11-18.....	1	
	New York.....Mar. 11-18.....	1	1
Ohio:	Toledo.....Mar. 4-18.....	9	
Tennessee:	Memphis.....Mar. 11-18.....	10	
SMALLPOX—FOREIGN.		Cases	Deaths
Argentina:	Buenos Ayres.....Dec. 1-31.....	17	
Brazil:	Niteroy.....July 1-Jan. 1.....	248	
	Santos.....Jan. 15-22.....	1	
Ecuador:	Guayaquil.....Feb. 1-28.....	3	
France:	Paris.....Feb. 25-Mar. 4.....	22	1
Germany:	Bremen.....Feb. 18-25.....	2	
Great Britain:	Bradford.....Feb. 18-25.....	5	1
	Leeds.....Feb. 25-Mar. 4.....	1	1
	Leith.....Feb. 25-Mar. 4.....	2	
	London.....Feb. 18-Mar. 4.....	11	
	Newcastle-on-Tyne.....Feb. 25-Mar. 4.....	3	
India:	Bombay.....Feb. 14-21.....	164	
	Calcutta.....Feb. 11-18.....	3	
	Karachi.....Feb. 12-19.....	3	
	Madras.....Feb. 11-17.....	1	
Italy:	Lecce Province.....Jan. 16-23.....	6	
Russia:	Moscow.....Feb. 18-25.....	8	1
Spain:	Barcelona.....Feb. 21-28.....	5	
Uruguay:	Montevideo.....Feb. 10.....	34	7

YELLOW FEVER.		Cases	Deaths
Panama:	Panama.....Jan. 1-Mar. 7.....	36	14
CHOLERA.		Cases	Deaths
India:	Calcutta.....Feb. 11-18.....	24	
Turkey in Asia:	(General).....Jan. 14-21.....	40	12
	Van.....Jan. 14-21.....	34	7

PLAGUE.		Cases	Deaths
Africa (British):	Kisumu.....Jan. 5-12.....	Present	
Arabia:	Aden.....Feb. 11-18.....	374	342
Chile:	Chanaral.....Mar. 16.....	Present	
	Iquique.....Mar. 16.....	"	
	Pisagua.....Mar. 16.....	Epidemic	

Egypt:	Suez.....	Feb. 2-9.....	4	1
	Tokh.....	Feb. 4.....	1	
India:	Bombay.....	Feb. 14-21.....		666
	Calcutta.....	Feb. 11-18.....		88
	Karachi.....	Feb. 12-19.....	59	58
	Madras.....	Feb. 11-17.....		1
Russia:	Uralsk Territory.....	Nov. 1-Jan. 16.....		343

Changes in the Medical Corps of the U. S. Army for the week ended March 25, 1905:

WYTHE, STEPHEN, contract surgeon, is relieved from further duty at Fort Baker and will report at depot of recruits and casuals, Angel Island, Cal., for temporary duty at that station.

DEAN, Captain ELMER A., assistant surgeon, leave granted for ten days is extended ten days.

WELLS, FRANCIS M., contract surgeon, orders directing to proceed to Fort Caswell for duty are revoked.

HALLIDAY, FRANCIS A., contract surgeon, will proceed from Fort McPherson to Fort Caswell for duty to relieve First Lieutenant George H. R. Gosman, assistant surgeon.

DICKENSON, CLARENCE F., contract surgeon, now at San Francisco, Cal., is relieved from further duty in the Philippines Division, and will proceed to Fort Logan for duty.

HALL, Colonel JOHN D., assistant surgeon-general, having reported his arrival at San Francisco, Cal., in compliance with orders heretofore issued, will report to the commanding general, department of California, for duty as chief surgeon of that department.

MEARNS, Major EDGAR A., surgeon, is granted leave for three months on surgeon's certificate.

WINN, First Lieutenant ROBERT N., assistant surgeon, is granted leave for three months, to take effect June 1, or as soon thereafter as practicable.

The following changes in the stations and duties of assistant surgeons are ordered, to take effect upon the completion of the course of instruction at the Army Medical School: First Lieutenants Stanley G. Zinke, Henry L. Brown, and Harry G. Humphreys will proceed to Madison Barracks and report not later than April 14 to the commanding officer of the Ninth Infantry for duty to accompany that regiment to the Philippine Islands, where they will report to the commanding general, Philippines Division, for assignment to duty. First Lieutenant Laertus J. Owen will proceed to Fort Thomas and report not later than April 14 to the commanding officer of the detachment of the Ninth Infantry at that post to accompany that detachment to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty. First Lieutenant Paul L. Freeman will proceed to Manila, P. I., on the transport to sail from San Francisco, Cal., about May 1. He will proceed to San Francisco in time to report to the commanding general, department of California, not later than April 28. Upon arrival at Manila he will report to the commanding general, Philippines Division, for assignment to duty. First Lieutenant Robert M. Culler will proceed to Fort Oglethorpe and report not later than April 14 to the commanding officer of the Second Squadron, Seventh Cavalry, for duty to accompany that squadron to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty. First Lieutenants Frank W. Weed and William A. Wickline will proceed to Fort McPherson and report to the commanding officer, Sixteenth Infantry, for duty to accompany that regiment to the Philippine Islands, where they will report to the commanding general, Philippines Division for assignment to duty.

HALL, First Lieutenant JAMES F., assistant surgeon, is granted leave for one month and fifteen days, with permission to visit China and Japan, effective about April 15.

APPEL, Lieutenant Colonel DANIEL M., deputy surgeon-general, is relieved from temporary duty at headquarters, First Brigade and post of Manila, and will report to the commanding general, department of Luzon, for assignment to temporary duty as chief surgeon of that department.

WALES, Major PHILIP G., surgeon, is relieved from duty in the department of Mindanao and will proceed to Manila for assignment to duty as surgeon at Fort William McKinley.

PATTERSON, First Lieutenant ROBERT U., assistant surgeon, is granted leave for one month and fifteen days, with permission to visit China and Japan, effective about April 1.

TURNBULL, First Lieutenant WILFRED, assistant surgeon, is honorably discharged under the provisions of the act of Congress approved October 1, 1890, as amended by the act approved July 27, 1892, to take effect March 17, 1905.

STONE, FRANK P., dental surgeon, is granted leave for three months, to take effect when his services can be spared.

JENNINGS, HARRY M., sergeant first class, Army General Hospital, Washington Barracks, will be sent to the General Hospital, Fort Bayard, to relieve Sergeant First Class Charles W. Albright. Sergeant First Class Albright will be sent to Fort McIntosh for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended March 25, 1905:

DICKINSON, D., medical director, detached from the Naval Hospital, Chelsea, Mass., and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital, at that place, April 5—March 17.

WELLS, H., medical director, detached from the Naval Hospital, Newport, R. I., April 5, and ordered to duty in command of the Naval Hospital, Chelsea, Mass.—March 17.

FARWELL, W. G., medical director, detached from the Naval Hospital, Portsmouth, N. H., April 4, and ordered home—March 17.

DICKSON, S. H., medical inspector, detached from the Kearsarge and ordered to the Maine—March 17.

HENEBERGER, L. G., medical inspector, ordered to duty in command of the Naval Hospital, Newport, R. I., April 3—March 17.

JOHNSON, M. K., surgeon, detached from the Tacoma and ordered to the Maine—March 17.

GROW, E. J., GRUNWELL, A. G., LANGHORNE, C. D., surgeons, commissioned surgeons, with rank of lieutenant-commander, from March 8, 1903—March 17.

KITE, I. W., surgeon, detached from the Maine and ordered to the Kearsarge—March 17.

SNYDER, J. J., passed assistant surgeon, detached from the Kearsarge and ordered to the Tacoma—March 17.

SHIFFERT, H. O., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from December 25, 1903—March 17.

STUART, ALLAN, passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from June 7, 1904—March 17.

BISHOP, L. W., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from September 28, 1904—March 17.

TOLFREE, H. M., assistant surgeon, detached from the Hancock, April 18, and ordered to Washington, D. C., for examination for promotion, and then to wait orders—March 17.

BOGERT, E. S., surgeon, detached from the Naval Academy, March 25, and ordered to the West Virginia—March 20.

DRAKE, N. H., medical inspector, detached from the Hancock and ordered to the Navy Yard, Norfolk, Va.—March 21.

LUMSDEN, G. P., surgeon, detached from the Navy Yard, Norfolk, Va., and ordered to the Minneapolis—March 21.

CRANDALL, R. P., surgeon, ordered to the Hancock—March 21.

WINN, C. K., acting assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Caesar—March 21.

JANNEY, W. H., acting assistant surgeon, detached from the Caesar, and resignation accepted, to take effect March 22, 1905—March 21.

BLAKWELL, E. M., passed assistant surgeon, detached from the Castine and ordered to the Naval Station, San Juan, P. R.—March 22.

BUTLER, C. S., passed assistant surgeon, detached from the Naval Station, San Juan, P. R., and ordered to the Castine—March 22.

SHOOK, F. M., assistant surgeon, appointed assistant surgeon, with rank of lieutenant, junior grade, from March 15, 1905—March 22.

The following assistant surgeons were detached from duty at the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty as follows: R. B. Chapman, Mare Island, Cal. H. F. Hull, U. S. R. S. Franklin. G. L. Wickes, U. S. R. S. Lancaster. W. J. Zalesky, Naval Academy. H. T. Nelson, Naval Hospital, Washington, D. C. C. T. Grayson, Marine Barracks, Washington, D. C. W. N. McDonnell, Naval Station, P. R., and additional duty on the Alliance. E. A. Vickery, Navy Yard, Portsmouth, N. H., and additional duty on the Southerly. R. E. Stoops, Pensacola, and to additional duty at the Naval Training Station, San Francisco, Cal. R. G. Heiner, Navy Yard, Washington, D. C. H. A. May, U. S. R. S. Franklin. J. L. Belknap, Naval Hospital, Narragansett Bay, R. I. L. H. Wheeler, Naval Hospital, Narragansett Bay, R. I. W. D. Owens, Naval Hospital, Mare Island, Cal. W. A. Angwin, Naval Academy. O. J. Mink, Naval Hospital, New York, N. Y. N. T. McClean, Naval Hospital, Chelsea, Mass. W. G. Farwell, Naval Hospital, New York, N. Y. H. W. Cole, Jr., and C. E. Strite, Naval Hospital, Norfolk, Va. F. E. Porter, Norfolk Hospital—March 25.

SELLERS, F. E., acting assistant surgeon, detached from the Naval Station, Culebra, and ordered home to wait orders—March 25.

DABNEY, V., acting assistant surgeon detached from recruiting party No. 2, and ordered to the Culgoa—March 25.

BLACKBURN, T. C., acting assistant surgeon, detached from the Culgoa, and ordered to recruiting party No. 2, at Dallas, Texas—March 25.

Changes in the Public Health and Marine-Hospital Service for the week ended March 22, 1905:

GLENNAN, A. H., assistant surgeon-general, granted an extension of leave of absence for three days from March 21—March 20, 1905.

SAWTELLE, H. W., surgeon, granted leave of absence for two days from March 17—March 18, 1905.

MATHEWSON, H. S., passed assistant surgeon, bureau letter of March 11, granting Passed Assistant Surgeon Mathewson leave of absence for five days from March 13, amended to read six days from March 13, 1905.

FRICKS, L. D., passed assistant surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Castries, St. Lucia, W. I., for duty in the office of the American Consular Agent—March 17, 1905.

KERR, J. W., passed assistant surgeon, granted leave of absence for five days from March 14, 1905, under paragraph 191 of the regulations.

WILSON, R. L., passed assistant surgeon, to proceed to Vera Cruz, Mexico, for duty in the office of the American Consul—March 15, 1905.

MCLAUGHLIN, A. J., assistant surgeon, granted leave of absence for six days from March 20—March 18, 1905.

FRICK, JOHN, acting assistant surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Tampico, Mexico, for duty in office of American Consul—March 15, 1905.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for three days from March 23—March 22, 1905.

KURTZ, W. E., acting assistant surgeon, granted leave of absence for seven days from March 18, 1905, under paragraph 210 of the regulations.

MCLARTY, A. A., acting assistant surgeon, granted leave of absence for thirty days from April 1—March 21, 1905.

Board Convened.

Board convened to meet at Washington, D. C., March 18, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General H. D. Geddings, Assistant Surgeon A. J. McLaughlin, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE AMERICAN PHYSICIAN IN THE PHILIPPINE CIVIL SERVICE.

BY

LOUIS H. FALES, M.D.,

of Eureka, Cal.

In several American medical journals there have appeared from time to time announcements urging and recommending American physicians to consider the Philippine Civil Service as a future field for medical work. Certain statements made in these announcements are so erroneous and misleading that having spent nearly three years in the Philippine Civil Service, I feel it my duty to correct these errors and give a true statement of the medical conditions as I found them in the Islands. Before elaborating upon the Philippine Civil Service I will cite a few facts in regard to Manila as a field for private practice, as many who contemplate entering the civil service might hope to piece out their income by this means. The Philippine medical law requires that all who practise medicine in the islands must be graduates of reputable medical colleges and shall have passed a satisfactory examination before the Medical Examining Board.

Two years ago the conditions for private practice were much more favorable than they are at present, for during this time the American population in Manila has decreased from about 10,000 to a little over 4,000. This great migration from the islands has had a very depressing effect on all lines of business, and the practice of medicine has suffered in consequence.

Although the last census returns (1903) gave the population of Manila as 219,941, a population which in America would support hundreds of physicians, the conditions are very different.

The last census gave the division of population as follows:

Natives.....	169,782
Chinese.....	21,253
Americans.....	4,389
Spaniards.....	2,528
Europeans.....	1,117
All others.....	895
Total.....	219,941

The great majority of the native population is yet ignorant on medical matters. They are practically fatalists, and do not appreciate the necessity of employing a physician, and many who do are too poor to pay for one. To substantiate this statement we find that more than half the natives who die in Manila have had no medical attention, the family calling in the municipal physician to sign the death certificate. Those of the native population who do employ a physician almost invariably call in the "medico Filipino," for he can understand their language, and they consider him as good, if not superior to the American physician. It is well to say here that most of the Filipino doctors receive their education at the College of Santa Tomas in Manila. The course is elementary and superficial, and graduates of the college are very poorly equipped for the practice of medicine. A few who have been educated abroad make good physicians, but none (perhaps with the exception of the late Rizal) compare with the well-equipped American graduate.

Before the American occupation, it was considered impossible to do surgical work in Manila without infection. A few laparotomies had been attempted, but always with fatal results. It took but a short time for the American physician to demonstrate that with proper asepsis, surgery was as safe in the Philippines as in America. What had baffled the Filipino and Spanish physicians for years was solved almost at once by the American profession. The Chinese as well as the Filipinos do not appreciate the value of medical attention by those of American or European education, or, in fact, any attention by a physician. Most of the practice among them is done by a Chinese doctor, a graduate of the medical college at Hongkong. It will be a long time before a paying practice can be established

among them by legitimate methods. The Spanish people, as a rule, have their own Spanish doctors.

For the American physician, the American population should be the main source of his practice, but of the 4,398 Americans in Manila about 90% are civil government officials and employes and their families, and are entitled to free medical treatment. It is true that some prefer to employ their own physician, but they constitute a small minority, and many who do prefer other than the civil medical attendant feel they are not able to afford the expense. Why the government should furnish free medical service to the civil employes, and not free dentists, or free legal advice, is not clear. In the early days, when there were few and unknown members of the profession in Manila, there may have been some necessity for providing free medical attendance, but now, with Manila well supplied with physicians, such a policy is not only a great injustice to those of the profession who are trying to make a living by the practice of medicine in Manila, but it belittles the services of the qualified physician, and those receiving free treatment will ever after begrudge the payment of doctors' bills.

Of the one thousand or more Europeans in Manila, the majority are employed in firms or commercial houses. It is the custom of each of these houses to employ a physician who, for a certain consideration per year, agrees to attend all employes of the firm. This custom is so prevalent that there are very few Europeans who are not thus provided for.

It can readily be seen the foregoing conditions make the field for medical practice in Manila at the present time very limited. As years go by, such conditions may change, and the laws may be so modified that American capital will be attracted to the Philippines, and the natives may become enlightened and forget their prejudices.

The competition in Manila is heavy, when we consider the smallness of the field. Following is a list of physicians in private practice and having no government position:

Filipino, about.....	200
Spanish.....	6
English.....	4
German.....	1
American.....	6
Chinese.....	1

Beside these, there are in Manila 30 physicians connected with the civil government and about 15 army surgeons. The majority of these, beside their official duties, are also engaged in private practice to more or less extent. The fees, although higher than in some places in the States, are not enough to offset the high cost of living. Office calls or visits are \$2.50. For consultation, \$10. Confinements, \$35 to \$100. Surgery, according to the ability of the people to pay, and averaging about the same as in the large cities of the United States. One surgeon recently received \$3,000 for operating successfully on a patient with gangrene of the lung. Most of the doctors in Manila are in general practice. Only one devotes all his time to surgery, and there is one eye and ear specialist.

In the Philippines we find nearly all the diseases prevalent in the United States, with the addition of many of the diseases of the tropics. Pneumonia, rheumatism, tuberculosis, bronchitis, meningitis, and pleurisy are very prevalent. In Manila from 75 to 125 die every month from tuberculosis alone. There is some malaria, very little typhoid fever and less diphtheria, and no scarlet fever.

The infant mortality in Manila is very high. More than half the children born, die before they reach the age of one year, and during some months, of the total deaths in Manila, more than 50% are of infants of this age. The cause of death is almost invariably reported as infantile convulsions. This diagnosis is misleading, and no doubt erroneous in many cases, for when an infant dies of unknown causes, it is the custom of the Filipino physician to diagnose infantile convulsions, and in a large proportion of cases he does not see the child when alive, but the diagnosis is made according to the symptoms as described by the family. It is probable that tetanus is the cause of death in a certain proportion of these children, the infection, due to uncleanness, gaining entrance by way of the umbilical cord. Errors in diet and exposure during the chilly nights, are also important factors. The cause of infant mor-

tality in the Philippines and the remedy would be a productive field for future study.

The prevalent tropic diseases most frequently encountered are amebic dysentery (often followed or accompanied by abscess of the liver), beriberi, gastrointestinal troubles (often due to parasites), skin diseases, as ringworm, pemphigus contagiosus; fevers, as dengue, Malta, and others not well defined, and various nervous disorders, which may be grouped under the head of tropic neurasthenia. Smallpox, Asiatic cholera, and bubonic plague are at times epidemic. Leprosy is also frequently encountered, such patients being sent to San Lazaro Hospital, where there are already some 250 cases. At present the physician in private practice has little to do with such cases as smallpox, Asiatic cholera, etc., their treatment being provided for entirely by the Board of Health. Amebic dysentery was the scourge of the army of the Philippines, and at the present time it is very prevalent among the American population in Manila. It is only by exerting the utmost diligence in regard to food and drink that one may consider himself safe from this disease.

The majority of American women who have resided for some length of time in the Philippines suffer with what we call tropic neurasthenia. They become nervous, irritable, anemic, lose weight, suffer with neuralgia, spells of faintness, sleep poorly, and almost invariably are troubled with menorrhagia and dysmenorrhea. Venereal diseases, especially gonorrhea and chancroids, are very prevalent, and these cases comprise a large proportion of the work of nearly all physicians in private practice.

A few statistics in regard to the causes of death and the annual deathrate may be interesting. Taking from the Board of Health reports the average of three representative months in the year 1903, the monthly number of deaths from the most important diseases would be as follows:

Infantile convulsions.....	208
Pulmonary tuberculosis.....	87
Asiatic cholera.....	56
Eclampsia, nonpuerperal.....	46
Acute bronchitis.....	38
Diarrhea and enteritis.....	29
Chronic bronchitis.....	29
Meningitis.....	23
Congenital debility.....	20
Beriberi.....	23
Malarial fevers.....	20
Dysentery.....	19
Typhoid fever.....	10
Tetanus.....	7
Puerperal septicemia.....	5
Acute nephritis.....	4
Asthma.....	5
Pneumonia.....	4
Bubonic plague.....	23
Smallpox.....	1

Although the foregoing gives a general idea of the causes of death, it is far from being accurate, as many Filipino physicians are prone to diagnose their cases wrongly, not so much on account of ignorance, but because of not having seen the patient before death, they guess at the diagnosis. It is very doubtful if there were as many cases of acute bronchitis, malarial fever and typhoid fever as reported in the foregoing list. Many of the cases of acute bronchitis were no doubt acute or pernicious beriberi, and many unknown tropic fevers were designated as malarial or typhoid with little regard to the symptoms.

The annual deathrate in Manila per 1,000 of population for the year 1900 was 42.62; 1901, 38.32; 1902, 58.93; 1903 (January 1 to October 31), 38.85. This estimate is rather low as it was computed on a population of 244,732, instead of 219,941, the population according to the census of 1903. The high deathrate of 1902 was due to the prevalence of cholera.

We will now consider the prospects of the physician who comes to the Philippines as an employee of the civil government, the positions he may expect to fill, his prospects for advancement, the opportunities he will have for the study of tropic diseases, and finally, his ability to save money.

The present civil service positions with their salaries are as follows:¹

1. Attending physician and surgeon, Civil Hospital Manila.....	\$3,500
2. Attending physician, San Lazaro Hospital.....	3,500
3. Chief health inspector.....	3,500
4-7. Four medical inspectors.....	2,500
8-19. Twelve medical inspectors.....	2,000
20. Attending physician and surgeon Civil Sanatorium, Benguet.....	2,400
21. Resident physician, Bilibid Prison.....	2,000
22. Police surgeon.....	1,800
23, 24. Two resident physicians, Philippine Civil Hospital,.....	1,200

For the resident physician of Bilibid Prison and the attending physician and surgeon of the Civil Sanatorium, Benguet, quarters are provided in addition to the salary, and for the resident physician of the Civil Hospital board is also included. In Manila the furnishing of quarters is no small item, when we remember that the rent of a fairly good house is \$75 per month.

The attending physician and surgeon of the Civil Hospital is the medical attendant provided by the government to give free treatment to all civil officers and employees who may desire his services. The Civil Hospital, an institution of 80 beds, is directly under his management. This hospital was originally intended only for civil employes, but others are now admitted.

The attending physician of San Lazaro Hospital has charge of this institution, which comprises a department for those afflicted with leprosy, a women's department for venereal diseases, the number ranging from 50 to 125, and finally a department for infectious diseases. This last department is separate from the main building, and consists of four pavilions, one of which provides quarters for the nurses, the other three being for plague, cholera and smallpox respectively, each having a capacity of about 20 beds. A medical inspector is usually detailed to this institution as an assistant for the attending physician. This hospital is in the suburbs of Manila, about 2½ miles from the Escolta, the principal business street.

The chief health inspector is the chief sanitary officer of the Philippines, under the commissioner of public health. His special work is to direct all sanitary work in Manila and the medical inspectors are under his supervision. He is also one of the members of the Board of Health.

In Manila the medical inspectors are assigned to the various sanitary districts into which the city is divided. They have under them a corps of assistants and direct the sanitary work from their respective stations, according to the orders of the Board of Health. The medical inspectors are supposed to do their share in the provincial as well as the Manila work. The Board of Health is at present making a statistical medical and sanitary study of the entire islands. The material has been collected by the medical inspectors and they will continue to be detailed to special provincial districts until the data from all the islands have been obtained. If epidemics of cholera or plague arise in any part of the islands, a medical inspector with assistants is sent to take charge of the situation until the disease is stamped out.

The attending physician of the Civil Sanatorium, which is situated at Baguio, in the province of Benguet, about 130 miles from Manila, is the medical official provided by the government to treat the sick civil government officials and employees who have been sent to the sanatorium from various parts of the islands. Baguio is situated on a beautiful plateau 5,300 feet above sea-level. The surrounding country is like a park, the pine groves being without underbrush and the ground carpeted with green grass. Here and there tree ferns and bamboo are found to remind us that we are still in the tropics. The scenery is grand. Rugged mountain tops rear themselves in the distance and deep valleys, through which rush mountain torrents, are met on every hand. It is not in beauty alone that Baguio excels. The climate is a complete change from the heat of the lowlands, it being from 12° to 18° cooler than in Manila. In this cool and beautiful country is situated the Civil Sanatorium, which has a capacity of about 50 beds. Here we have an ideal place for those who have become enervated in the heat of Manila or the lowlands, to recuperate. The Philippine commission early saw the value of this region, and in order to avoid the depressing summer heat, made it the summer capital of the Philippines. It is prophesied that at no far distant day Baguio will be made the permanent capital. When this is

¹The positions of commissioner of public health and assistant commissioner of public health are not included in this list, as they are at present filled by physicians detailed from the regular army. In addition to their regular salary they receive a daily compensation from the Philippine Civil Government.

done, the government officials and employes will no longer be compelled to seek a cooler clime after two or three years' service, but they will be able in this mountain city to continue their work as comfortably and without fear of nervous breakdown as in America.

The resident physician and surgeon of Bilibid Prison is responsible for the health of the 3,500 prisoners and the sanitary condition of the prison. Bilibid Prison is situated in Manila. It is the only civil prison in the Islands, and here are sent convicts from the entire Archipelago. This prison furnishes one of the best medical positions in the islands, provided the prison is under good management. The physician has pleasant quarters and the work is most interesting. The police surgeon is responsible for the health of the Manila police. The position of the two resident physicians of the Civil Hospital is practically the same as interne in our hospitals in America, except that here they are regular civil service positions with a salary. The training, however, is much inferior to a like position in the United States. These are seven or eight physicians employed in the Government and Serum Laboratories with salaries ranging from \$1,500 to \$3,300 per year. To obtain these positions one is required to take a special examination which necessitates advanced knowledge in pathology, bacteriology and laboratory work. It cannot be said, however, that these positions are open at large, for the last appointments were made by selection and not according to civil service rules. Beside the routine laboratory work, the making of vaccines, serums, etc., these physicians have the opportunity to do much research work in tropic diseases. For one who desires to do such research work, there is scarcely a better field in the world.

Having given a brief outline of the medical positions in the Philippines, let us inquire how these positions are filled and what opportunity the new man coming to the islands as a medical inspector would have for advancement and attaining some of the better positions. It might be said that all the medical appointments and advancements, except the physicians of the Government Laboratories, the Civil Hospital staff, the resident physician of the Civil Sanatorium, and the resident physician of Bilibid Prison, are made by the Commissioner of Public Health of the Philippine Islands, with the approval of the Commissioner of the Interior.

Contrary to civil service rules in July, 1903, several men were appointed as medical inspectors in the Philippines without the required examinations and at the advanced salary of \$2,500 per year. As there were men already in the service who had passed rigid examinations for the position and who had given faithful service for more than a year, and who had such service praised by the higher officials with intimations of future recognition, they could not but feel the injustice of being continued with their original salary of \$2,000. Again men who ignominiously failed in the examinations for medical inspector have been placed in civil service positions with higher salaries than those who had passed well. It can thus be seen that in the department of the Board of Health the civil government does not assure the expected or promised advancement of the employe. This, however, is not true of all departments. In the Bureau of Government Laboratories although the civil service rules are not always followed, the work of the physician is recognized and during the year nearly all have received a substantial increase in their salaries.

One inducement to many for coming to the Philippines is their desire to study the diseases of the tropics. The only physicians in the civil government service who have the opportunity to make a scientific study of tropic diseases are those employed in the Government Laboratories. The attending physician and surgeon of the Civil Hospital, the attending physician of San Lazaro Hospital, and the resident physician of Bilibid Prison have under their charge an abundance of material which affords much interesting study, but they have little time for microscopic or bacteriologic study. Such scientific investigation as they may wish to do is hampered as they are not provided with microscopes and the other necessary apparatus which makes up a laboratory outfit, and unless these physicians can procure their own microscopes, etc., they can do nothing in bacteriology or in the study of parasites. It is the policy of the government to concentrate all such scientific

investigation in the Bureau of Government Laboratories where physicians are provided, and the necessary accessories are at hand.

The position of medical inspector is especially devoid of anything which lends to the study of tropic medicine. In his daily routine he goes to his sanitary station at 8 o'clock. There almost his only duty is to oversee sanitary work. He signs reports, oversees the making of sanitary orders, approves or disapproves applications for licenses, visits property to ascertain whether the sanitary inspectors have made the proper orders or if certain orders have been complied with. A case of cholera or plague may be reported at the station. He goes at once to investigate the case. If it is one of these diseases, a guard is placed over the house, the ambulance sent for, the patient removed to San Lazaro Hospital or morgue, according to whether the person is alive or dead, and finally the house and contacts disinfected. All this demands the attention of the medical inspector. A portion of it, as the disinfection, is done by his assistants, but he himself is responsible. Many minor things take up his attention. If his rat catchers are not bringing in enough rats, he must find out why Pedro or Alejandro are not catching as many as Francisco.¹

If plague had been somewhat prevalent, he may have spent the greater portion of the day inoculating unending lines of natives or Chinese with prophylactic serum. At 5.30 p.m., having had from 12 m. to 2 p.m. as his noon hour, the day's work is done. In the foregoing routine we see there is little that we can call true medical work. The medical inspector will see an occasional case of plague or cholera, but it will be seldom, as the majority of such cases are not reported until after the patient is dead. He has no opportunity to study these cases in the morgue, as the necropsies are all done by the physicians of the Government Laboratories. If he is lucky, he may be able to leave his station long enough to see a few necropsies, but under the present system such opportunities are few. In fact, if a medical inspector does not have some private practice, or does not exert marked vigilance, he will grow rusty and behind the times in medical matters. This evil could be remedied to some extent if those in authority saw fit to do so. As was recently suggested by one of the physicians of the Government Laboratories, let medical inspectors in their turn be assigned to duty at the Government Laboratories for two, three, or four months. Let them do necropsies, make cultures, study the organisms of plague and cholera; let them make the routine examinations of blood, feces, etc., and become acquainted with the different intestinal parasites. If this were done, these men would be better satisfied and would advance in medical knowledge and not deteriorate.

A word should be said in regard to the climate. Although the climate of the Philippines is much more conducive to health than many tropic climes, it is not without its dangers. Few Americans can endure the continuous heat in the Philippines for more than two years without a change. Many suffer a nervous breakdown in less time, or become so debilitated that they are easy victims to amebic dysentery, sprue, or other tropic diseases.

Amebic dysentery is the climatic disease most to be dreaded by the American population in the Philippines, and undoubtedly is the leading factor in the climatic conditions which compel so many Americans to give up their duties in the islands and return to America. By taking the precaution that all food must be thoroughly cooked and all water boiled, this disease can be avoided, but with native and Chinese servants doing all the work, there are few families who can be absolutely sure that they will not take in the dreaded amebas. Governors, commissioners, and physicians, who of all persons should understand the aseptic technic of eating in the tropics, have suffered with this disease. Our exgovernor Taft once made a trip through the islands. Wishing not to offend, he ate and drank all set before him. As might be expected, he was immediately attacked by amebic dysentery. In the Philippines, therefore, "eternal vigilance" must be the price of one's health.

¹ For the prevention of plague, the rat catchers are an important factor. From 10,000 to 20,000 rats are destroyed each month in Manila by means of poisons, traps, etc.

The physician who contemplates entering the Philippine civil service must not forget that in so doing he loses his independence, and is under the orders of a superior who may have an inferior knowledge of medicine or who may not even be a physician. No matter if he should become commissioner of public health, he would still be under the orders of the commission. The fact that there are many men in the Philippine civil service who have been suddenly raised from some inferior position to a position of authority and importance probably accounts for the high-handed manner in which some officials treat those beneath them. When a physician has charge of, for example, Bilibid Prison Hospital, the Civil Sanatorium, the Lazaro Hospital, or any such institution, it would seem only reasonable that no changes be made in the affairs of the institutions without consulting the physician-in-charge. But in the Philippine civil service the physician is often chagrined to learn that certain nurses have been ordered to other institutions, leaving him short (the order often going direct to the persons themselves, and not through the physician's hands), or that persons who have been trained with much labor and trouble for special duty have been transferred to other departments, or that his estimate for drugs and medicines for the coming half year is cut down; all these things done by men higher in authority with no knowledge of medicine, and without one word of consultation with the physician-in-charge. Such methods are not only most irritating to one used to independent action, but greatly interfere with the proper conduct of the institutions. If the proper persons are appealed to, those higher in authority are usually upheld, and the same methods are continued.

Some physicians, coming to these islands would, perhaps, be willing to overlook their little opportunity for advancement, their meager opportunities for medical study, and the hardships of the climate etc., provided they could make a good living and save money. We will therefore devote the rest of our time to a consideration of the cost of living in the Philippines in comparison with the salaries received. Since the American occupation, the cost of living in Manila has continually increased. House rent has quadrupled; servants receive six times the wages they did in Spanish times, and all other expenses seem to have increased in proportion. One of the main factors which keeps up the expense of living is the high tariff levied on all imported commodities. The revenues derived from the custom house alone are sufficient to pay the greater proportion of the expenses of the Philippine civil government; but the resulting burden resting on the American citizens in the Philippines is very heavy.¹

To give a correct idea of the cost of living in Manila we have taken actual cases, and such things which have seemed extravagant or needless have been eliminated so that we may arrive at the lowest necessary expense of living consistent with health and comfort.

I.

The monthly expenses of a family of three who keep house:

House rent.....	\$75.00
Lighting.....	10.00
Water.....	2.50
Laundry.....	20.00
	\$107.50

II.

Table expenses:

Meat, 75 pounds, at 50 cents.....	\$37.50
Butter, 15 pounds, at 40 cents.....	6.00
Market, vegetables, etc.....	30.00
Groceries.....	30.00
Ice, 900 pounds, at ½ cent.....	4.50
Distilled water, 80 gallons, at 4 cents.....	2.40
Coal, 1 ton, at \$10.....	10.00
	\$120.40

III.

House servants, etc.:

One cook.....	\$25.00
Two servants, at \$7.50.....	15.00
One horse, feed.....	10.00
Cocharo ²	12.50
Etc.....	5.00
	\$67.50

Total monthly expenses.....**\$295.40**

¹ The cost of living in the "provinces" is considerably cheaper than in Manila, but so few physicians are stationed in the "provinces" that we have not taken this phase of Philippine life into consideration.

² Cocharo, Spanish word used for coachman.

Clothing and incidental expenses are not included in the foregoing. These depend entirely on what the individual makes them, but they could hardly be lower than from \$10 to \$20 per month per individual. Placing the estimate at \$10 per individual, the total monthly expense for a family of three would be \$295.40 + \$30.00, equaling \$325.40.

The expenses of two persons keeping house can be estimated by taking two-thirds of the table expenses and laundry of a family of three and adding this amount to the items, which would remain the same. That amount would be \$248.59, and adding to this \$20 for incidental expenses, the total monthly expenses for a family of two would be \$268.59.

If a family of two were to board, their expenses would be as follows:

Board, with room, at \$60 each.....	\$120.00
Laundry.....	13.50
One horse, feed.....	10.00
Cocharo.....	12.50
Repairs.....	5.00
Incidental expenses.....	20.00
Total.....	\$181.00

The expenses of one person would be:

Board and room.....	\$60.00
Laundry.....	7.00
One horse, feed.....	10.00
Cocharo.....	12.50
Repairs.....	5.00
Incidental expenses.....	10.00
Total.....	\$104.50

We see from the preceding that the cost of living in Manila is much higher than in America. It is true that some people live on less than stated in these examples, but to do so they must deprive themselves of so many comforts and necessities that their health is endangered. They must eat poor food, live in hot, uncomfortable houses, do part of their own household work, or deprive themselves of a horse and carromata.¹

To do any of these things in Manila is suicidal. In no place in the world is it so necessary that one should live well as in the tropics, to counteract the debilitating effects of the climate. One must have the best of food, and plenty of it. Good meat is especially necessary. Fruit is but little eaten, and with great caution, on account of the dangers of amebic dysentery and cholera. Too often have ambitious housewives who have tried to do their own housework, suffered a nervous breakdown. If one has no horse and carromata, he is not only deprived of the recreation of driving in the cool of the evening, but he also must suffer the debilitating effect of the midday sun as he goes to his place of business.

In summarizing the expenses of living as tabulated above, the yearly expense of living in Manila is as follows (in round numbers):

Family of three to keep house.....	\$3,900
Family of two to keep house.....	3,200
Family of two to board in private family.....	2,200
One person to board.....	1,200

If we compare these yearly estimates of expenses with the list of salaries previously stated, we see that one of the best positions, as chief health inspector, at \$3,500, would not support a family of three, but it would support nicely a family of two, and if they boarded, considerable could be saved. But the new man coming to Manila could not hope for these better positions, he would probably be appointed as medical inspector, at \$2,000 a year. If unmarried, he could save money, but if married, he would have to board, and even then would have trouble in meeting his expenses. Two or three years ago it was possible to piece out these salaries by engaging in private practice. This is much more difficult now, as the American inhabitants have diminished by two-thirds, and there is now but little transient population.

We may summarize as follows:

The medical man who contemplates entering the Philippine Civil Service should give up all idea of doing so if he has a family. If a recent graduate and unmarried, he may be able to save some money, but at what sacrifice? 1. He runs the risk of losing his health. 2. He can hope for no advancement if we judge the past policy pursued. 3. He has little opportunity to study tropic diseases, or in fact anything which makes

¹ A two-wheeled vehicle.

him more proficient in his profession. 4. He loses his independence, and may be subjected to the insults and indignities by those above him, who may be his inferior in knowledge and education.

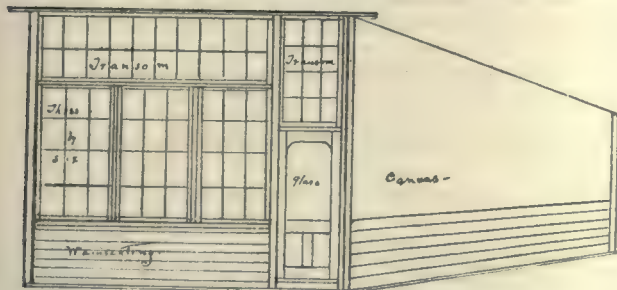
Compare with this the young physician who starts in practice for himself somewhere in America. He does not have to become acclimated, his future is unlimited; it is true he may have little to do for a few years, but if he is persistent, his opportunity will come if he is well grounded in his profession. Above all, he is independent and does not suffer the petty annoyances coincident with civil service life in the Philippines.

THE LAPHAM TUBERCULOSIS TENT.

BY

MARY E. LAPHAM, M.D.,
of Highlands, N. C.

The disadvantages of tent life are coldness, dampness, dullness. As long as the sun shines and the walls are dry, living in a tent is not especially irksome, even to the mondaine temperament. To the romantically inclined it may even be a pleasure for a time, and as long as all goes well. When, however, day after day of driving clouds and rain goes by, the dweller in a tent wearies of dripping walls that shut out from him the sight even of rain. He becomes depressed if the bad weather persists, and longs for the shelter of wooden walls and an abundance of window panes. Light and warmth and dry air are craved. Then, even in sunny weather the direct rays of the



sun do not pass the canvas walls. A sun bath cannot be taken and the water from a shower bath is slow to leave the floor.

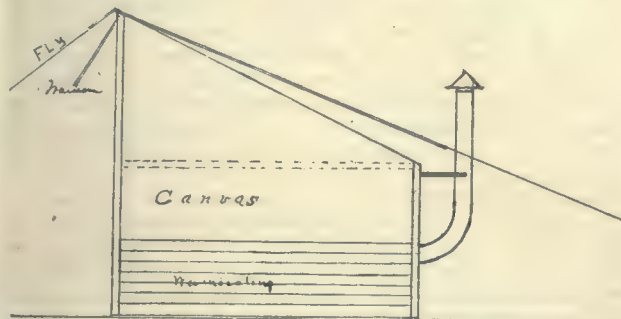
To remedy these depressing conditions I have devised a tent, which is now in use in a little village high up in the North Carolina Mountains. Apparently it succeeds in avoiding the disadvantages of tent life while retaining its advantages. The direct rays of the sun enter as freely as in a greenhouse; the tent is flooded with light, never dark, even in the dullest day, and yet perfect ventilation is secured, together with freedom from draughts and protection from sudden cold and damp changes in the weather. The patient can walk back and forth alongside of 14 unbroken feet of glass, and on the other side of the tent is a blazing fire of logs. The whole effect is one of an abundance of light and warmth, while in reality the air is constantly cool and fresh for the lungs. The feet and legs are kept warm by the open fire; the lungs and head are cool from the air coming in through the canvas roof and sides. A work table in front of the windows, a large, comfortable rocking chair, cupboards in the corners for books and papers, give the patient that sense of being at home and of being surrounded by his Lares and Penates, so advantageous to an invalid settling down for a few months of enforced and unaccustomed leisure.

The tent is built as follows: It is a "lean-to"—12 ft. high in front, facing the south, 5 ft. at the back, 12 ft. wide, and 14 ft. long. The southern exposure, 14 ft. long and 12 ft. high, is all of glass from the wainscoting up. The floor rests on sills, raised a foot or more from the ground; it is made of matched lumber an inch thick, is double, and contains a 2-in. air space. The wainscoting across the northern exposure is 5 ft. high and 30 in. around the other three sides; it is closely and firmly keyed to the floor by mortise and tenon. It is made of matched lumber, is double, contains a 2-in. air space, and is lined with tarred building paper.

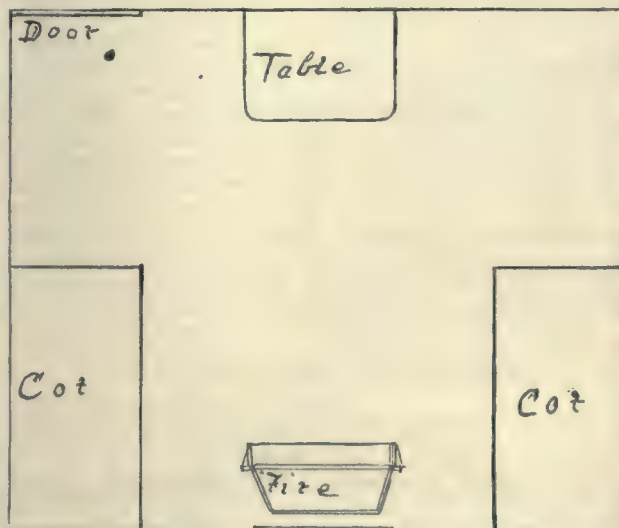
The canvas roof and sides are laced to this wainscoting through rings. Over the roof a fly is stretched and held in place by ropes. In the center of the north wainscoting is a thimble for the stovepipe.

The glass front is composed of two transoms, one door with a glass window, and three windows. One of the transoms is 3 ft. by 4 ft., the other 3 ft. by 10 ft.; both are easily swung out from within and held in place by a system of levers. The windows are each three feet wide and six feet long. They all swing out, and thus the whole front is thrown open to the air.

The combination of glass and canvas has many advantages. The tent is practically a sun parlor, in which every inch of



space is accessible to the direct rays of the sun, excepting just below the south wainscoting. Thanks to the high transoms the sunlight enters as freely as though the whole roof was of glass. Thanks to the canvas roof and transoms, there is no scorching, burning heat. The tent has no cold spots, no draughts of cold air, the patient is perfectly protected from cold winds and sudden changes in the weather, and yet there is the freest possible interchange of air through the canvas and opened transoms. All the superheated air at once escapes, and thus the heat of a close tent in a midsummer day is never encountered. In warm weather the fly is extended down and out, like another half of the tent, making a porch and preventing the direct rays of the sun from striking the glass. In warm weather the sides of the tent may be pegged out, leaving only a huge umbrella under which one may sit in perfect comfort



even in our hottest weather (86° F.). When the weather is cold the tent is always warm, so long as the sun shines, even in our coldest weather (—20° F.) and warmed equably throughout. There is no shade within the tent, no dark damp places. When the sun does not shine, the tent is heated by a fire of blazing logs, within a fireplace made of sheet iron after my designs. It is something like a Franklin stove, and has a blower, so that the fire burns promptly and heat is furnished at once. These open fires are very desirable: the feet and legs are warmed, the head and lungs are cool, they are a great source of pleasure to the patient and materially assist in making the time pass

agreeably. Many a patient may break up the tedium of the day's monotony by broiling a chicken, making a cup of coffee, or some toast and tea or roasting a potato. These picnicking pleasures are by no means to be despised. They stimulate the patient, improve the appetite and cast a sort of holiday glamour over the serious undertaking of getting well. Fortunately wood and chickens are plentiful and cheap in our North Carolina mountains. The surroundings of a patient having such an effect upon his morale, it may not be out of place to describe the furnishing of the tents. The floor and woodwork are finished in hard oil. There is a comfortable rocking and Morris chair and a generous table in front of the windows. A single iron bed stands on either side of the fireplace, a bureau and washstand complete the set. Around the bed a framework resembling a four-poster is placed, over the top is stretched a light cover to shield the eyes from too much light. Around the sides at the head of the bed, curtains hung on rings slide; in case the light is too bright or a cold wind springs up in the night they can be drawn as a screen. In summer, mosquito netting is used as a protection from flies. Mosquitos are unknown here. The cover, the curtains, the counterpane and valance are made of some pretty washable material, such as blue and white percale, and the effect is really very pleasing. The windows are also hung with curtains to temper the light. For douching and spraying we have a bucket of water and perforated piece of rubber tubing. This gives an excellent shower bath. A platform extends across the outside of the front of the tent, along which one must walk to gain admission. This prevents tracking in mud and dampness when the weather is bad. Each tent is connected with the house and common dining and sitting rooms by sidewalks.

The tent is very easily stored or transported. The door, the transoms, and each window constitute a section. The floor is in three sections, the wainscoting in four. The whole can be loaded onto wagons and carried where one will—or stored until again needed. While seeming somewhat complicated, it is in reality not so. Highlands is a small village high up in the Blue Ridge mountains, 20 miles from the nearest railway, and my tents are made for me here—even stitching the canvas—by the village carpenter, who is, however, something of a genius, as is also the village tinsmith, who makes my fireplaces for me.

The climate of our country is peculiarly suited to tent life. The abundance of moisture in the air makes the change from sunlight to shade far less pronounced than in a dry climate. The nights, also, are often nearly as warm as the days. Our southern situation, we are six miles from Georgia, protects us from the cold, and our high altitude keeps us cool, 86° F. being the warmest ever known. The air is singularly pure and bracing, and free from dust. We are so far south that the sunlight stays with us until nearly 6 o'clock, even in our shortest days, and so high, 3,750 feet, that often fires are needed for nights and mornings, even in summer weather. I have seen some bad cases of nervous prostration, with complete anorexia, improve remarkably as soon as tent life was tried, and for general building up we think there is nothing like it.

KATABOLISM AND EYESTRAIN.

BY

HOMER WAKEFIELD, M.D.,

of New York City.

To the Editor of American Medicine:—During the past year I have read with much interest the controversies in the medical press in regard to Dr. George M. Gould's writings on eyestrain as a neglected etiologic factor of many diseases heretofore unrecognized as so related, and especially in connection with Dr. Gould's and Dr. Bennett's relief work at the Craig Colony of Epileptics. During the same period I was engaged, devoted all spare moments to investigation, the monograph just terminating in this journal being the subject-matter.

In this monograph I have pointed out that fatigues, strains, pressures, etc., when prolonged, operate through connecting nerves to produce tetanics of opposite nerve endings. An application of this knowledge to eyestrain shows how, according to degree and duration, a tetany may be induced and main-

tained at distant nerve distributions directly, or by primarily affecting cerebral centers, and indirectly, tetanics of dependent areas may be in evidence. This nerve-end tetany, being in eyestrain continuous, the suboxidation and increased generation of metabolic products augments the terminal subkatabolism and produces manifestations which, according to degree and intercurrent influences and modifications, hyperesthesia, may be twitching, contraction, pain, convulsions, flaccid relaxation, anesthesia, expansion, hemorrhagics, ulceration or putrefaction.

I was deeply impressed with the fact in the reports of the corrected errors of refraction in the epileptic cases that nothing was reported done to relieve the subkatabolic conditions present other than the correction of the eyestrain by Drs. Gould and Bennett, and thus, however innocent this neglect, it is due to Drs. Gould and Bennett to state that the test was not fair.

In order to obtain an accurate test of Dr. Gould's contention, I should propose, in addition to the optical correction, that general metabolism be intensified by exercise and possibly induction cage treatment by the D'Arsonval high-frequency currents; that the emunctories be opened that maldistribution of the blood, incidental to the localized subkatabolism, be equalized and all expanded tissues be contracted by such agencies as the hypodermic administration of ergot; and lastly, when the cerebral tissues are involved I should favor the proper application of the röntgen rays to the cerebrum. Branth¹ has demonstrated that, independent of any other treatment, the röntgen rays produce remarkable results, which, though temporary, would be perpetuated if the primary and dominant cause was simultaneously removed. It should go without saying, that any of the factors of oxygenation or oxidation may need attention in individual cases to insure results. For these points I must refer again to the monograph now closing.

AN UNUSUAL CASE OF MAMMARY CANCER.

BY

HOWARD CRUTCHER, M.D.,

of Chicago.

The patient, aged 60, is a woman of remarkable vigor of mind and body, and the mother of two healthy daughters. Fifteen years ago she first noticed a small lump in the upper and outer quadrant of the right breast. Her husband, a medical practitioner of large general experience, opposed all mechanical interference, and the condition was permitted to drift along with internal treatment. The lump grew slowly, and in 1898, broke into an open sore. Examination showed a deep cavity with angry edges and a mass of very dark tissue at the bottom. The entire gland appeared to be firmly attached to the chest wall. The husband asked me to scrape out the cavity as best I could, but gave positive orders that I was under no circumstances to attempt the removal of the mass. Indeed, such an attempt was foredoomed to failure. In June, 1899, I scraped out the cavity with a sharp spoon, applied the usual antiseptic dressings, and left the case to its fate. This surgical makeshift was followed by certain local applications, the nature of which I am unable to state. The cavity healed within a few months, and I heard nothing of the patient until December, 1904, when the reappearance of a small cavity, accompanied by violent pain, caused me to etherize the patient and remove with the knife about two ounces of the tissue that appeared to be most seriously at fault. Relief from pain was immediate, granulation was prompt, and the patient is now sojourning on the Pacific coast. She expresses herself as feeling perfectly well. It is worthy of note that at no time have the axillary glands been in the slightest degree involved, so far as thorough palpation could determine.

The specimen removed last December was submitted to Dr. W. A. Evans, who pronounced it scirrhus. Within a year this woman has lost a sister through mammary cancer, which ran a more typical course, ending life within three years. It was never treated surgically, but was looked after by soothsayers, mind readers, and a peculiar class of internists whose presence among us is a singular commentary upon the boasted enlightenment of the age in which we live.

The lesson to be drawn from the foregoing case is that palliative surgery is often practicable and helpful when ideal practice can not for one reason or another be applied.

¹ Branth, J. Herman: Röntgen Rays in the Treatment of Cancerous and Skin Affections, and Epilepsy, and in Diagnosis, New York Medical Journal, June 11, 1904.

ORIGINAL ARTICLES

TREATMENT OF CEREBROSPINAL FEVER.

BY

CHARLES G. STOCKTON, M.D.,

of Buffalo, N. Y.

In reviewing the treatment of cerebrospinal fever we have to consider the management of a self-limited infection of known etiology and great mortality, with a death-rate that differs widely in different epidemics. To begin with, we have to confess that the sanitarian, as relates to this disease, is more useful than the therapist. The study of epidemics shows that overcrowding, bad ventilation and drainage are largely responsible for the transmission of the affection. A striking illustration of this is shown in the experience of Surgeon C. F. Stokes,¹ of the Navy. An epidemic occurred on board the ship Minneapolis, whose normal complement is 500 men, but which at the time of the outbreak carried 1,450. The disease developed for the most part on the main deck, which was especially overcrowded and lacking in ventilation, whereas in the less crowded parts of the ship the disease made little headway. While this view does not explain sporadic cases developing under apparently good hygienic conditions, there is convincing evidence that isolation should be resorted to wherever possible. Much might be added in support of this apparently self-evident view of the subject. The problem is a familiar one in epidemiology.

Formerly the treatment of the disease consisted in the early employment of blood-letting, either general or local; the use of mercurials in repeated and rather large doses, ice locally, the employment of opium and other cerebral sedatives. In this country the extraction of blood found little favor, and most physicians were content to use mercurials in moderation. Cerebral sedatives, on the other hand, were constantly employed, generally for the relief of the symptoms, pain, coma, and convulsions. Of these, opium, as recommended by Stillé, was most largely employed, while others preferred full doses of bromin salts, and others antipyrin or chloral. The application of ice to the head and along the spine, or counterirritation at the nape of the neck with the internal use of ergot, found favor with many.

These measures still have advocates, and there remains a question as to whether their use is to give way to more modern methods. Among the plans of treatment which have of late years attracted most attention the foreplace must be given (1) to the hot bath, as recommended by Aufrecht; (2) to spinal puncture and drainage, as practised by Quincke, with or without irrigation of the spinal canal with antiseptic solutions and other medicinal agents; and (3) subcutaneous injections of corrosive sublimate.

It seems necessary briefly to review the present status of these methods. First, the hot bath treatment. Aufrecht,² in 1894, reported a sporadic case, patient in coma for about 11 days, with weak pulse, subnormal temperature, and grave danger of collapse, in which he ordered the baths at 48° C. (104° F. to 106° F.), continued for 10 minutes. After the first bath the symptoms improved, the pulse became stronger, with decrease of headache and stiffness of neck, and a return to consciousness. The treatment was continued for 12 days, after which the cerebral symptoms disappeared.

Worschiliski,³ following the experience of Aufrecht, treated two patients by the hot bath treatment, also employing drugs. In the first patient the baths were begun on the eighth day. The same striking improvement was seen as in Aufrecht's cases; that is, an improvement in the pulse, in the comfort of the patient, and decrease in the stiffness of the neck and headache. After the eighth bath, the symptoms practically disap-

peared. Beside the baths he employed calomel, 0.06 four times a day, enemas, potassium iodid, unguentum hydrargyri, and leeches. In the second case the baths were begun on the sixth day. The first was followed by general improvement, the patient sleeping for the first time during the illness. The baths were repeated twice daily, at the patient's request. On the twelfth day they were discontinued, because of the appearance of pericarditis and arthritis of the left side. The headache and other symptoms reappeared, so that the baths were resumed on the eighteenth day and continued for three days longer, when the symptoms disappeared and recovery slowly followed. This writer concludes that the hot baths are not contraindicated in pericarditis.

Jerwin⁴ reports five cases in which he followed Aufrecht's method, with recovery in each case, and says that the indications for their use are subnormal temperature, small, weak pulse, and threatened collapse, headache, stiffness of neck and nervousness. He believes that the baths are without danger.

Wolisch⁵ adds the report of seven cases in children treated by Aufrecht's method, with five recoveries and two deaths, a mortality of 28%. He states that one fatal case was fulminating, and that in the other, owing to the objections of friends, the treatment was omitted until too late in the course of the disease. This author believes that hot baths lower the temperature, quiet the nervous symptoms, and improve the heart tone.

Netter, before La Société Médicale des Hôpitaux de Paris, 1900, reported seven cases, all of which showed the presence of *Diplococcus intracellularis*, and in which he combined the treatment of hot baths in conjunction with lumbar puncture. There were five complete recoveries, one with resulting ankylosis in two joints following arthritis, and one in which the result was doubtful. He continued the baths for 20 minutes, and repeated them every three hours.

Turner,⁶ in his Paris letter, mentions 11 cases of his own, in which seven patients recovered and four died, a mortality of 57%. But of the four fatal cases, three of the patients were under treatment but one day before death. Schlesinger, Anhauch and Steckel⁷ reported a number of cases in which the hot pack had been used apparently with relief of symptoms, but with a mortality varying from 30% to 40%. Urban⁸ reported six cases, with a mortality of 50%, but believes that the hot bath treatment, Aufrecht's method, is serviceable in the relief of symptoms. E. Blavot⁹ says that Aufrecht's method, combined with lumbar puncture, has proved in his hands almost invariably successful, even in severe cases. When the condition is grave, he would prolong the bath to 25 minutes, and recommends its use every three to four hours, day and night, the patient being moved in a blanket. He considers the lumbar puncture of great assistance in diminishing intracranial pressure, as well as removing toxic substances. In conjunction, he would use salt transfusions, calomel and opium internally, and iodoform locally.

Aufrecht's method does not appear to have been widely practised in this country, although in a recent discussion before the American Medical Association it was stated that repeated hot baths were recommended and somewhat widely employed as early as 1873 in some portions of this country, and that their use was attended with considerable success. It will be noted that the method of employing hot baths as to duration and frequency varies considerably with different clinicians and that in some instances the treatment was associated with the employment of drugs. Reports favor the hot bath treatment, and yet the high mortality rate given in some reports is not to be forgotten. Apparently the practice is harmless, is generally followed by the relief of symptoms, and in some instances at least apparently has had a favorable effect upon the course of the disease.

Concerning the treatment of lumbar puncture, Seagers¹⁰ reported 31 cases in which this method was practised, followed by injections of from 9 cc. to 12 cc. of 1% lysol solution. There was a mortality of 42%; but he explains that the patients were from the lower classes and in bad condition, and occurred in the Lisbon epidemic of 1901-1902. He compares the results with the early treatment by hot baths which gave a mortality of 60%, with simple lumbar puncture in 20 cases which gave a mortality of 43%, 11 cases with puncture followed by injections of mercury oxycyanid, which gave a mortality of 59%. The author refers to the Oporto epidemic of 1901, giving a mortality of 61%.

Morris Manges¹¹ reports three cases in which the patients were treated by intraspinal injections of lysol solution with recovery in each case. He expresses the opinion that lumbar puncture is superior to the hot bath of Aufrecht. He uses 10 cc. of the 1% solution of lysol. He believes for children the dose should be from 3 cc. to 9 cc.

Nammack¹² reported five cases in which he employed intraspinal injections of 15 cc. of 10% lysol solution, explaining that the solution employed was through a misunderstanding stronger than he intended. Of the five cases, four died, a mortality of 80%. However, in the same epidemic with the various forms of treatment, of 29 patients admitted to the Bellevue Hospital, 24 died, a mortality of 90%. Koplik¹³ believes that lumbar puncture is not curative, although most advantageous in diagnosis. He consents to its use for the relief of pressure symptoms. He points out that it is unfortunately unavailing for patients with extreme retraction of the neck with rigidity, the very cases in which its employment would be most indicated to prevent the danger of sudden dilation of the ventricles. This author quotes Osler, Connetti, Treves, and Smith as advising lumbar puncture for the relief of pressure symptoms.

Quincke,¹⁴ in his original report on lumbar puncture, reported its effect on 53 patients from whom he withdrew from 3 cc. to 60 cc., on an average of 20 cc. of cerebrospinal fluid, and considers that it has a therapeutic value in the relief of pressure symptoms. He compares its effect with that seen after aspiration in pleural effusion.

F. H. Williams,¹⁵ after reporting this form of treatment in 39 cases in the Boston City Hospital, with a mortality of 59%, concludes by advising lumbar puncture for early diagnosis, and for the relief of pressure symptoms.

Councilman, Mallory, and Wright¹⁶ report that no ill-effects were seen from a large number of spinal punctures made in the Boston epidemic, and quote Williams as believing that the practice is sometimes positively beneficial, referring to a state of quiet and sleep following the operation.

Antony,¹⁷ after referring to its importance as a diagnostic measure, speaks of the utility of lumbar puncture in the treatment, claiming for it the lessening of pressure symptoms and more rapid defervescence, the disappearance of hyperesthesia, and, in some cases, a marked curative effect. He reports five cases of his own with recoveries, two cases without good effect, and two cases still undecided. He quotes the statistics of Chapault, Babinski, and Bernard as reflecting favorably on the effects of lumbar puncture.

Joseph Collins¹⁸ thinks that puncture has little effect in ameliorating the disease. From these reports it may be learned that the mortality in cases in which the patients are treated by lumbar puncture, or in which lumbar puncture has been practised for diagnostic purposes, or in which, following lumbar puncture, injections of various antiseptics have been employed, differs but little from the mortality following other lines of treatment.

The treatment by subcutaneous injections of corrosive sublimate is highly recommended by Angyan¹⁹ (Bela).

His plan is to inject subcutaneously along the spinal column .01 of corrosive sublimate in the case of adults, and from .0005 to .005 in children, once a day. In severe cases the injections are repeated as often as the fever, headache and stiffness in the neck continue. In subacute cases the injections are practised until the increased temperature disappears. He reports 27 cases in which the patients were thus treated with a mortality of 30%; the injections, varying in number from 4 to 24, were, as a rule, well borne. In most cases after the second or third injection, the mind became clearer, excitability was allayed and the pain less marked, so that the patient could sleep. After the fifth or sixth injection, the mind usually cleared up and sleep was still quieter and of longer duration. He did not hold that the treatment shortened the disease, but that it favorably modified its course.

Dazio and Consalivi²⁰ report nine cases in which the patients were treated by this method, with eight recoveries. The diagnosis was not confirmed bacteriologically.

J. D. Smith²¹ reported six cases in which he injected .02 gm. to .01 gm. ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.) doses hypodermically, with recovery in each. The diagnosis was not confirmed by bacteriologic examination.

On the whole, the evidence in favor of this method of practice cannot be called conclusive, to say the least. Miscellaneous measures of treatment which seem worthy of consideration are, first, the opium treatment so strongly recommended by Stille, Whittaker,²² and a host of others, finds its indication through its anodyne influence, thus sparing the nervous system until the force of the toxin is abated.

A. Steiner recommends .65 gm. (10 gr.) of gum opium at a dose when convulsions are severe, and has found no stupor to result. Chauffard and Boudin from .45 gm. to 1 gm. (7 gr. to 15 gr.) Stille, .065 gm. (1 gr.) every hour, and Von Ziemssen, morphin hypodermically, in sufficient doses.

Nearly all practitioners admit the occasional use of opium, but as will be seen, there is the greatest difference as to the dose and the indications. Perhaps an equally large number prefer bromids in large and repeated doses. With some this is regarded as the sheet anchor in the treatment of the disease. In connection with the bromids, antipyrin is advocated, and has been serviceable in relieving headache, lowering temperature and lessening hyperesthesia. Ergot has been used extensively, either alone or with bromids, and like other remedies, has found its advocates, while most continental authorities seem to think that mercury in some form or another, usually in large doses, is a necessary method of treatment, no matter what else is done. In spite of this array of therapeutics, we find that the mortality continues large.

Antony, before referred to, has collected 508 cases with a mortality of 339, between 64% and 65%.

When we recollect the difference in virulence in different epidemics, it is easy to understand how faulty notions as to the effects of measures of treatment may gain credence. Nevertheless, a timely review of the subject would seem to warrant the conclusion that benefit does follow certain of these measures and from my own point of view I should conclude that the most useful procedure is the bringing about of the best hygienic condition for the patient, that is to say: 1. Absolute quiet in well-ventilated, darkened rooms, with the absence of all excitement and irritation. 2. Giving the greatest attention to secure the proper performance of the various functions of the body. 3. The trial of the hot baths after the method of Aufrecht in all cases in which they seem to do good. 4. The practise of intraspinal puncture, with drainage when necessary to relieve severe pressure symptoms, to be repeated, if necessary, provided benefit follows the first puncture. 5. The use of antipyrin in cases in which the temperature is raised,

not only for the relief of this symptom, but for the mitigation of headache and hyperesthesia. Personal experience has shown me that the drug is also useful in improving the mental state, and it has not been followed, in my hands, by the expected depression. 6. The use of opium or the bromids alone, or in connection with antipyrin, if necessary, for the relief of convulsions, pain, hyperesthesia and pressure symptoms generally, which are not relieved by the foregoing methods of treatment. 7. The use of mercury when needed for its laxative effect, or needed to assist in stimulating the organs of elimination.

BIBLIOGRAPHY.

- ¹ Report of the Surgeon-General of the Navy, 1903, p. 229.
- ² Therap. Monats., Vol. viii.
- ³ Therap. Monats., Vol. xviii, 1895.
- ⁴ Therap. Monats., Vol. x, 1896.
- ⁵ Therap. Monats., Vol. x, 1896.
- ⁶ Therapeutic Gazette, July, 1900.
- ⁷ Wiener med. Woch., Vol. xli, 1896.
- ⁸ Wiener med. Woch., Vol. xlvii, 1897.
- ⁹ Centbl. f. Bacter., July 12, 1901.
- ¹⁰ London Lancet, 1902.
- ¹¹ Medical News, May, 1904.
- ¹² Medical Record, June, 1904.
- ¹³ Medical News, Vol. lxxxiv, 1904.
- ¹⁴ Berl. klin. Woch., 1896.
- ¹⁵ Boston Medical and Surgical Jour., Vol. cxxvii, 1897.
- ¹⁶ American Journal Medical Sciences, March, 1898.
- ¹⁷ Archives de Médecine et de Pharmacie Militaire, Paris, Vol. xlii, 1903.
- ¹⁸ Twentieth Century Practice.
- ¹⁹ Abstract from Medical Record, Vol. lili, 1898.
- ²⁰ La Semaine Médicale, abstract from the Jour. Amer. Med. Asso., Vol. xxvi, 1896.
- ²¹ Jour. Amer. Med. Asso., Vol. xxvi, 1896.
- ²² Reference Handbook Medical Sciences.

A DISSERTATION ON TEMPERAMENT, DIATHESIS, DYSCRASIA, PREDISPOSITION, CACHEXIA, SUSCEPTIBILITY, IDIOSYNCRASY AND HEREDITY.

Introducing, as a New Conception of the Involved Problems, a Definite and Orderly Biologic-retrogressive Series of Physical Manifestations, Constituting the Symptologic Expressions of the Phases and Stages of the Pathology of Katabolism, Including an Analysis of Etiologic Homogeneity.

BY

HOMER WAKEFIELD, M.D.,

of New York.

[Concluded from p. 486]

Analysis of Etiologic Factors.—To facilitate a methodic and orderly consideration of the factors producing subkatabolism, they may be divided into four main groups, depending respectively upon the four essential factors of oxidation, namely, oxygen, alkalinity, oxidase animation, and protoplasmic density. The first group, bearing the name of oxygenation, involves the requirement of an abundance of respirable air, free from undue moisture, and from irrespirable gases, a free and unimpeded passage of the external air to the lungs, an adequate pulmonary space, an ample quantity of red corpuscles and hemoglobin, an unobstructed vascular system, and last but not least, sufficient heart power. Thus we must entertain, as important factors, all affections of the nasal, laryngeal, tracheal, bronchial, and pulmonary structures, which interfere with normal respiratory exchanges. We must take cognizance of all processes which by the production of oligemia, oligocythemia, and hemoglobinemia, diminish the oxygen carrying capacity of the blood. We must take into account as factors, all diseases that serve to diminish vascular caliber, obstruct, as by pressure thrombi and emboli that dispose to pathogenic distributions of the blood, congestions, etc., and that embarrass the heart's function, valvular deficiencies, orificial stenoses, coronary obliteration, muscular degenerations, etc. We must recognize all pathogenic processes and all etiologic factors, gastrointestinal fermentation and other

causes of hyperacidity of the alimentary tube, the ingestion of an excess of acid foods and beverages, deficient elimination of the bowels, skin, and kidneys; local hyperacidities arising from fatigue, suboxidation, and subelimination, and we must not exclude pathogenic microorganisms, especially those which are acid producing in certain mediums, as are the colon bacilli in sugar mediums.

We must be always on the alert for several related conditions of habit, sex, and age, which I have heretofore pointed out as being so closely identified with the oxidase function of the economy; and finally, the capacity of flabby, expanded, and rarefied muscle protoplasm, with its consequent reduction of molecular density, for oxidative activity is necessarily lower than that of the solid, dense protoplasm of the muscle cells of higher adulthood. It is thus observed that oxidation disposes to oxidation, and suboxidation reacts to produce progressive suboxidation.

Having epitomized the general factors of the four principal etiologic groups, I will now take up, in greater detail, some of those factors which have been clinically recognized, but which require elucidation, especially in their relation as factors of subkatabolism. Of the first group—suboxygenation, we will discuss sedentation, shock, and venous stasis of cardiac deficiency. All of these, representing morbid inequalities in the distribution of the blood, and exhibiting a suboxidation, proportionate to the degree that the blood is vacated from the terminal capillaries in the muscles and skin, and is deflected to the great splanchnic vessels, as described in the beginning of this paper. This pathogenic deflection of the blood is illustrated in its acute form by shock and in its chronic form by prolonged sedentation and enforced immobility. The same effect, in cardiac cases, is produced by the subkatabolic dilation of the splanchnic veins and by the enforced sedentation incidental to the progress of the disease. These cases, as treated by ergot, suprarenal extract, nux vomica, and the Nauheim Bath, will exemplify the physiologic significance of the state of distribution of the blood, especially ergot, which is most free from untoward effects, when in itself pure and free from toxic contaminations.

Passing on to those factors that concern oxidation as distinguished from oxygenation, we will now discuss a group that inhibits katabolism by the presence of both acidity and other pathogenic products. Irritation suggests irritability, one of the fundamental reaction properties of protoplasm. Yet the stimulus that excites physiologic reaction is termed stimulation, and only when violent or excessive is it termed irritation. We have abundant examples of stimulation—mechanical, chemic, electric and toxic in nature; being increased or intensified into irritation. Any stimulation may be, by time prolongation alone, evolved into irritation, as evinced by its pathogenic action; thus to define irritation as an excessive stimulation, and its pathogenic expression as a fatigue effect, does not seem far from the truth. Stimulation, in its physiologic sense, implies an excited activity within the limit or the capacity of the economy to eliminate or destroy the waste product of the incidental metabolism; in other words, an activity compatible with health. Conversely irritation transcends the capacity limit and as in fatigue, sarcolactic acid and toxic waste products are produced in excess and accumulate, producing the characteristic expression of fatigue. Physiologic chemists have long since proved that both fatigue and irritation are attended with an excess of sarcolactic acid and toxic metabolic products, the specific expression being similar in both. Fatigue and irritation are both divisible into acute and chronic forms, accordingly as due to sudden or prolonged causation; for example, strain may be defined as acute fatigue.

Fatigue is a factor of subkatabolism by virtue of its sarcolactic acid product inhibiting oxidation, its toxic

products augmenting the fatigue state by virtue of their irritation effects reacting upon it.*

Tetany is an example of a chronic irritation causing a chronic fatigue, the retrogressive subkatabolism passing through the biologic series. During tetany and other prolonged fatigue effects of irritations, transmitted by the nerves, either direct or reflexly, the terminal tissues always exhibit fatigue and its manifestations, considerably in advance of the substance of the transmitting nerves, which research has determined to possess extraordinary powers of destroying (oxidating) metabolic products, thus forestalling their accumulation in excessive proportions.

In addition to localized fatigues, we have for our consideration conditions of excess of metabolic products, due to some inequality between the production and destruction, which instead of being circumscribed, are general, and being widely distributed, they produce general irritating effects only. In a person so affected, there is a predisposition to fatigue on slight exertion, and there exists a general condition of irritable weakness. We observe, according to the degree of subkatabolism and toxicity, a condition of tension or hypertonus, and a hyperirritability, hyperexcitability, and unrest, nearly or quite approximating fatigue manifestations, thus constituting a generalized tetany; and proportionately attenuated is the degree of contraction, as related to the near approximation to the stage of flaccid prostration, which it so readily progresses into, on the slightest accentuation of the condition, as accomplished by any of the causes of subkatabolism. This condition of general irritability, weakness, and incapacity, has been brought to the notice of the profession especially by Beard,⁵ under the names of nervous exhaustion and neurasthenia. Beard believed and advocated the theory of the nerve exhaustion, as is implied by his terminology, and he especially exploited the factors relating to sexual exhaustion, though vague and shallow in his analysis of the pathogenesis. He, like other early writers, was led into the error of attributing all pathogenic manifestations to nerve functional disturbance, that could not be associated with marked tissue changes. We now know, however, from actual experimental demonstration, that, in these cases, the nerve function remains intact during the whole series of terminal tissue changes, and when reconnected with competent muscle, is capable at once of transmitting the physiologic stimulations. Sherrington⁷ writes, "that nerve fibers themselves are practically infatigable has been established. (Bernstein, Bowditch, Waller, Wedenskii, and others.)" This nerve exhaustion is a misnomer, and in the great majority of instances, when there is an absence of cerebral and spinal lesions showing central irritations, the nerves may be said to be involved only in so far as they convey the painful cell contractions of their distributions to the consciousness.

It is observed that this condition which Immerman⁴¹ more correctly styles irritable weakness, is a common result of all factors of subkatabolism, either as

primary or secondary causes. Sexual exhaustions, the prime factors recognized by Beard,⁵ by virtue of oxidase debility, consequent suboxidation and accumulation of metabolic products, constitutes a predisposition which the slightest augmentation of other factors as "irritations," loss of sleep, mental or physical fatigue, etc., readily develops into prostration. Conversely, anemia or other factors may constitute the proclivity and menstruation, pregnancy, lactation, the menopause, or the most moderate sexual indulgence, may prove the exciting causes. This condition, which, according to cerebral involvement, implicates the manifestations which we know as hysteria, is closely related to other fatigue factors, which have not, in my estimation, been sufficiently recognized as such, namely, fatigue of the brain, which being composed of very highly specialized tissues of great metabolic activity, is productive of waste products far in excess of the other tissues of the body. Even the most arduous mental labor and even mental strain, do not receive the recognition that their importance warrants, especially in cases other than of mental aberration. In a case of cardiac debility, in which the general vitality is low, the disruption of compensation is quickly attained following imprudence in exceeding the decreased capacity for exertion; when fatigue is developed entirely in the mental effort involved in attention, excitement, ecstasy, taxing the memory, in mental operations, as psychic struggles with opposition, in emotions of joy, pain, anger, fear, dread, apprehension, worry, anxiety, grief, depression, etc., which are responsible for tetany and deflections of blood from the involved cerebral centers and consequent subkatabolic retrogressive changes. It is thus not surprising that the conditions of irritable weakness and of mental derangements are so closely related, or that the same causes are in evidence.

The therapy of these cases under the old symptomatic-expectant plan, by rest and narcotics, instead of the restoration of oxidation, made chronic sufferers of these patients, until they degenerated into insanity or general paresis, or were fortunate enough to embrace a faith cure, which led them from their beds to outdoor exercise, and from the narcotic and sedative bottle, even to an abhorrence of medicine.

This is the class of cases which have in the past been diagnosed as neuroses (as functional nervous disorders) and as such, have been so unsuccessfully treated that recourse has been had to a new (pseudo) science, which with a religious relation, counts its numbers of hundreds of thousands singing the praises of their "mother" redeemer and the damnation of all that is medical. The fact that these cases predominate largely among the female sex of the wealthy (sedentary) classes is more eloquent than words in the explanation of the financial decline, per capita, of the American physician, and the inordinate wealth of Mrs. Eddy and her church. The ostrich hiding his head deceives not his hunter, so let us frankly admit that we have been rudely deceived in certain vague theories about nerves, and try in the limelight of physiologic and pathologic chemistry to rescue our lost prestige.

Loss of sleep is another factor involving fatigue products, that has neither been correctly interpreted nor fully recognized. If we admit sleep to be a condition of greatly diminished metabolic activity, as is supported by the low blood-pressure, determined by Bruce,¹⁰ as an invariable attendant of sleep, both natural and drug induced; we must logically deduce that recuperation from fatigue states is attained by virtue of the diminution in the production of the metabolic products which cause the fatigue manifestations, when in excess. This continued production of the full metabolic product without intermissions of recuperation would ultimately accumulate a product, incompatible even with life. In addition to the evidence of its pathologic effect being a fatigue effect, the experimental findings of Gilbert²⁴ enlighten us on its subkatabolic action. Gilbert, in a

*An important etiologic action of fatigue, which I have neglected to mention, is that of hemoglobin destruction; which thus makes it a secondary factor of suboxygenation. Oliver has experimentally determined that all muscular exercise "uses up hemoglobin." Therefore in fatigue, when the exhaustion exceeds the capacity of compensation, the hemoglobin index is lowered in ratio to the degree of fatigue. Physiologists have proved that fatigue is due to a product, accumulating in muscle during fatigue. This is composed of sarcolactic acid, which is admitted to be a suboxidation product and a toxin, which when transferred to a nonfatigued animal, will produce fatigue manifestations. That this toxin is also a suboxidation metabolic product, due to a disparity between its generation and its oxidation is manifested by the fact that stagnation of oxidation and other sources of disparity between generation and oxidation, in fact, of metabolic equilibrium are also causes of malaise and fatigue manifestations. Among these are snake toxins, which when inoculated produce typical effects. I have remarked the fact in a preceding paragraph that it has been determined that various methods of oxidation transmute snake toxins into antitoxins. In connection with this, it is of interest that Weichardt (*Münchener medizinische Wochenschrift*, November 29, 1904) claims to have produced antitoxin to fatigue, by injecting fatigue products into normal animals. This also suggests that possibly all vaccines and antibodies are in reality simply products of animal oxidation, thus being analogous to the experimental oxidations of toxins into antitoxins by oxidation intensifying agents.

careful record of effects of 90 hours without sleep, summarized a lowering of temperature, strength decreased, mental ability waned, excreted nitrogen was diminished, phosphoric acid elimination increased and body-weight increased. All these effects disappeared on recuperation obtained through sleep, thus proving it a compensatory state.

Having analyzed the preceding forms of fatigue, we will proceed to an apparently paradoxical factor, the extreme opposite, but yet a common factor of subkatabolism, namely, sedentation, a factor already mentioned in connection with neuroses. Sedentation plays an important part in many diseases of katabolism. Sanderson⁷³ has experimentally demonstrated that approximately two-thirds of the entire blood volume of the body is contained in the superficial muscle capillaries during activity against a third during periods of rest, the remaining two-thirds in the latter instance being lodged in the great splanchnic vessels. The full significance of this remarkable vacating of the blood from the muscles, the principle seat of oxidation of the economy, is striking in itself, but such a deviation in the distribution involves another vital factor, namely, the resulting obstruction to the circulation and the consequent impediment to the heart's action. I have heretofore^{90(a),(c)} pointed out the fact that a crippled heart can generally maintain compensation when by cold baths and exercises the blood is maintained at the periphery, and conversely cardiac failure accompanies the opposite distribution. Moreover, the metabolic integrity of the heart and the whole body depends on the maintenance of the peripheral circulation.

Sedentation predisposes to general subkatabolism, the site and degree or stage of the manifestation being determined by cooperating (exciting) factors. The most characteristic manifestations of the subkatabolism of sedentation are the neuroses, obesity, and the general state known as cardiac debility. To supplement what I have said on neuroses, I wish to direct attention to the very common abuse of the rest cure by a class of female chronics, who actually rest themselves to death. The more they rest, the more rest they require to shield themselves from fatigue manifestations. Their muscles become more and more soft and flabby; they become weaker and weaker; they are progressively rendered incapable of the most commonplace physical exercise, without experiencing the fatigue expressions of irritability, weakness, and exhaustion. The same may be said of the second form—obesity; like the former, it increases with the continuance of the sedentation, and the sedentation becomes more and more confirmed with the development of the obesity. That cardiac debility is an expression of the suboxidation of deflected blood distribution is proved by the fact that in the face of the continuance of the (causative) cardiac infirmity, the debility of the economy passes away when the blood is artificially deflected back to the peripheral circulation, and there it is maintained, as described.

The factor of subkatabolism, most nearly allied to sedentation, is shock. This word refers to a still more serious condition of perverted distribution of the blood than is observed in sedentation, in fact it often approximates the extreme venous stasis of late cardiac disease. Whether from chill, traumatism, concussion, prolonged anesthesia and surgical operations, great and sudden emotion, as fright, etc., intense pain and other violent excitations of the reflexes, the clinical picture—namely, pallor and coldness of the periphery, weak pulse, general languor and prostration, dyspnea, subnormal temperature and possible loss of consciousness, is typical of acute subkatabolism. Recent advances in the therapy of shock, by ergot and adrenal toxins, which have a selective action upon the hyperesthetic subkatabolic fibers of the flaccid dilated vessel walls, has done much, not only to cure the condition, but to elucidate the nature of it. This brings us to a common secondary

cause of subkatabolism, one that is not infrequently responsible for localized areas of degeneration, and of more or less extensive perversions of distribution of the blood, namely, circumscribed areas of vascular dilation and congestion, which impede the regional circulation and that of the dependent area and throw out of balance the general distribution. In these cases adrenal toxins and especially ergot, hypodermically, are of untold value and efficacy as correctives. Prolonged and gradually attained large doses of nux vomica and strychnin serve a similar purpose less effectively than the foregoing. Ergot, for safety and efficacy combined, is much preferable to all other remedies for this purpose.

Chill, while an etiologic factor of shock, is also independently productive of less pronounced deflections of peripheral blood to splanchnic areas, and in varying conditions and degrees, is productive of much evil, as it operates and cooperates in a great variety of ailments. The extreme seriousness and perpetuation of subkatabolic sequences caused by deflections of the blood, at once suggests the operation of vicious cycles, which we observe clinically. The progressive character of unmodified diseases of splanchnic engorgements, must be recognized as a disposition to permanence of the engorgement, and of the dilation, owing to the subkatabolic effect enjoined, by the blood in stasis, in supplying vessels, acting and reacting, one upon the other, to perpetuate and accentuate the effect. Thus organal and hollow visceral atony, ptosis and prolapse are not infrequent consequences of these etiologic factors, acting independently and in combination with other factors.*

Pressure effects, by interfering with the respiratory exchange of tissues, by collapsing vascular walls, occluding lymph vessels, etc., as by tumor, pregnant uterus, congestion, foreign bodies, aneurysms, etc., internally, and by extraneous pressures of all descriptions, demonstrate the suboxygenation of dependent areas, by pain, tingling, numbness and anesthesia of the outward manifestations, and by the degenerative morphologic changes heretofore described as typical of subkatabolism.†

Acidity requires little in the way of analysis, for it is long since established and generally admitted by all authoritative writers on physiology and chemistry, that oxidation is possible only in an alkaline or neutral medium. I have mentioned the several processes of producing an excess of sarcocactic acid as a metabolic product of muscular activity. To this should be appended the other sources of hyperacidity, namely, excessive ingestion of acids, gastric and intestinal (acid) fermentations, acid production by virtue of imperfect oxidation of foodstuffs and physiologically generated acids of the economy, and last, but not least, retention and accumulation from failure of excretion by the kidneys, skin and bowels.

Oxidase incapacity, as indicated by its parallelism with the state of vitality of the sexual organs, is most intimately related to a deficiency of the phosphorized albumins (nucleins) and fats (lecithin) which act as supporters of oxidation by the radical accentuation of oxy-

* Independently of chill which produces a blood deflection from the peripheral to the deep vessels, great cold (low temperature) exhibits the specific action of promoting loss of heat from the body by process of neutralization, and thus lowering the heat requisites of oxidation, below the limit capable of compensation by the oxidase function. Acclimatization to cold is undoubtedly largely achieved by the increase in density of protoplasm caused by the cold. By virtue of the greater protoplasmic density, oxidation is usually accelerated and considerable cold is thus more than compensated for. Cold, like many other factors of subkatabolism (narcotics) appears to affect the brain or nervous centers prior to the muscle areas of nerve endings, and thus owing to peripheral anesthesia so produced, the reaction to the cold is expressed only by numbness. The restoration of the normal body warmth however, is attended by pain similar to the case of the narcotics.

† In addition to the circulatory effects of pressure, those upon the parenchyma should receive passing mention. I have mentioned elsewhere that condensation of protoplasm augments oxidation. This is true only to a certain degree, beyond which physiologic amoeboid movement is prevented and oxidation is abolished by the twofold cause of suboxygenation and suboxidation. We have reason to believe that in a certain degree of pressure, the suboxygenation is more or less compensated for by augmented oxidase activity. Beyond that, pressure necrosis is inevitable.

gen into ozone, necessary to the oxidation process. A notoriously intimate relation is universally observed between the many manifestations and diseases of subkatabolism, the transition (critical) periods, and the physiologic and pathologic exercise of the sexual functions, sexual undevelopment and maldevelopment. Pregnancy is always a cause of katabolic stasis, as it is complicated by uterine pressure, maldistribution of the blood, etc. By too oft repeated pregnancies, too rapid for ample intervals of oxidase and nutritive recuperation, retrogressive effects are produced and extreme conditions, as osteomalacia, are caused.*

Starvation, which involves hemoglobinemia as well as general anemia, has been too frequently ignored by investigators, as a factor of suboxygenation and subkatabolism as well as of nutrition. We will now complete this analysis of subkatabolic factors by a discussion of two, which have heretofore been overlooked or ignored, but which play a no less important part, namely, heat and narcotics. In the heatstrokes of sun exposure, in the lassitude and relaxation of tropic life and in the relaxation and weakness of the hot air, vapor and water baths, we have an illustration of a means of producing direct, without an expression of the intermediate manifestation of pain, the flaccid stage of the biologic series. The same is the case with narcotics, of which I will speak later. This brings us to the physical chemistry of protoplasm. I have mentioned, in describing the biologic series, that all protoplasmic life attains what we call adulthood or maturity in ratio to their exemption from the contingencies of factors of subkatabolism. The morphologic state of the highest adulthood is one of the highest density analogous to allotropic ozone, while that of flaccidity is one of rarefaction, expansion and elongation, disorganization and disintegration being only a step further in the retrogressive series. We have seen the illustration of the loss of integrity of tissue by hemorrhagic manifestations, thus evincing that impermeability is a condition of adulthood, while permeability is as typical to the loose texture of the flaccid state; the two states being analogous to the allotropic states of chemistry. There is not a little evidence that the phenomenon which we call perspiration, whether from heat, narcotic toxemia, asphyxia or other factors of katabolic stasis, is a superficial flaccidity, attended with transudation of the watery constituents of the blood from the capillary terminals in the skin. We have with the peripheral flaccidity of warm weather, which is attended with sweating, that hyperesthesia, which is characteristic of the borderline between the stages of contraction and of flaccidity. This hypersensitiveness is illustrated in all circumscribed flaccidities by the selective action of contracting agents, as ergot, etc., in which the flaccid tissues contract in response to a given dose, while a much larger one is required to contract normal tissue. The remarkable susceptibility of a perspiring person to effects of cold that ordinarily would be without effect, is illus-

trative of the hyperesthetic condition present. There is, however, another phase of it, namely, that the susceptibility is greatest for cold, and this cold effect restores the density of the tissue. We give cold baths in order to attain a normal tonic, which is as possible as is the unequal hypertonicity involved in chill, cramps and shock. The relation of heat and cold to rarefaction and density in tissue, and especially the energetic contraction and condensation from the flaccid state is very suggestive of the allotropic changes between yellow and red phosphorus. The change from the yellow to the red form, which involves contraction of volume and increase in density (specific gravity), is possible only by a modulated oxidation, as in a carbon dioxide medium. Especially the yellow is condensed by cold, 500° and above will evolve and perpetuate the yellow. Readers with even meager chemic knowledge will recognize in this, universal chemic laws, and it may be said, moreover, that there is no evidence on which to exclude living substance (protoplasm) and tissues from the general scope of chemic law. It is perfectly consistent to deduce that the extended wave length and slow vibrations of heat are responsible for the rarefaction and expansion, and that the shorter wave length and more rapid vibrations of cold cause the reverse effect, namely, condensation.

Microorganisms as Factors of Subkatabolism.—In another part of this paper I have referred to the fact that parasitic organisms require for their propagation, as a favorable medium, that condition which I term subkatabolic degeneration. This does not mean, however, that such organisms have no properties of producing subkatabolism, for they have. When they gain access to a favorable soil, however produced, they thrive and multiply, and extend their zones of infection, sometimes greatly, other times more moderately. Microorganisms, like all other forms of protoplasmic life, excrete metabolic waste products (toxins), and partly by their presence as foreign bodies, and partly by their irritation of contiguous tissue cells, these also are caused to produce and excrete excess metabolic (fatigue) products, all of which are heterogeneous and toxic to the living substance (protoplasm) of the host. These toxins, by virtue of their irritation effects, however, become also katabolic inhibitors, in both the tissues of the host and of the parasite; yet they act chiefly in accentuating the effect on the host. Probably the most vicious effect, inhibiting katabolism, is the sarcolactic acid element of the exaggerated metabolic product of the host, which in its pathogenic excess, reacts upon the tissues, thereby extending subkatabolism. Thus parasitic infection acts as an agent of a vicious cycle of progression.

Counteroxidation.—There are a number of agents, which when taken into the system, generally through the stomach, owing to their high combustibility, but varying in solubility, volatility, and diffusibility, are too rapidly consumed, thus utilizing the available oxygen of the arterial blood, and to the deprivation of less oxidizable foods and tissues. Such agents as alcohol, ether, acids, lead, mercury, arsenic, and phosphorus (the latter only when in excess), have long been observed as concerned in the production of suboxidation, and in the causation of many of the diseases herein classified as of subkatabolic causation. An investigation of the mode of operation of this suboxidation, by such agents, divulges the fact that they burn in the vascular system; especially in the glands, and above all, in the liver. In cases of hyperoxidation in the portal system, evidences of subkatabolism of dependent tissues, cirrhosis, fatty degeneration, etc., occur. From thence onward until the suboxygenated blood is reoxygenated in the lungs, no venous or right heart evidences of hypercombustion are observed, but after the return from the lungs, through the left heart and arterial and capillary systems, fibrosis, sclerosis, and atheroma are found.

The prime difference in the effect of hyperoxidants appears to reside in variations in diffusibility, perhaps

*As I have pointed out before, and can adduce abundant substantiation of pregnancy is a maximum state of physiologic subkatabolism. From the preliminary nausea to the expulsion of the fetus, a period of varying suboxidation and subkatabolism is manifested. The dominant expression of this physiologic subkatabolism is the hypertrophy, expansion and extension of the smooth fibers of the uterine parenchyma; the enormous degree of which may be appreciated by a conception that the fibers of the gravid uterus have increased from $\frac{1}{16}$ to $\frac{1}{8}$ from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch in length, and from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch in breadth. Starling⁷⁹ mentions finding "fresh" and "embryonic" muscle cells, that "the large muscle cells become increased seven to eleven-fold in length and two to five-fold in width;" the hypertrophy involves all tissues and both groups of muscle fibers. Even "the vaginal walls become thickened and of looser texture." "The uterus is 24 times as heavy as the unimpregnated uterus." As the uterus increases in size and becomes more distended, its irritability becomes greater. He also comments upon the "great irritability of the uterus at the termination of pregnancy." I mention these features to illustrate the identity of the condition with my description of the subkatabolic in general. The increased irritability of the expanded and extended tissues accounts for the selective action of constricting agents (ergot) for such tissues. The subkatabolism of pregnancy is due to many causes. Prominent among them are the oxygen deprivation of the mother by the fetus, inability of the mother to excrete the combined autotoxins of herself and fetus (autotoxemia) and hydremia, which together with anemia and hyperacidia or subalkalinity are incidental to these causes, thus acting as contributing factors.

more than in oxidizability, owing to diffusion through contiguous foodstuffs. As an example of this, alcohol ingested alone, while fasting, meets such an exclusive and rapid combustion in the portal system that a very transient suboxygenation is the result, but cirrhosis (burns) of contiguous tissues and vascular walls remains as a permanent sequence. If the alcohol be ingested with food, it will diffuse through the food, and the result will be that the food will undergo an accentuated combustion. Here the pathogenesis is at least of alcoholic origin. If now, instead of a highly alcoholic (diffusible) beverage, we consider those heavily impregnated with sugars, or other carbohydrates of low diffusibility, as in sweet wines and beer, we find as a result a prolonged, slower combustion, but still acting as counteroxidants of both foodstuffs and the hepatic tissues. With these we observe as a foremost sequence that morbid syndrome which we call gout. In gout, sweet wines, beer, and lead furnish the fuel for the typic portal oxidation, complicated, however, more or less, by gastrointestinal hyperacidity.

Acids are atypical in their relation to portal oxidation. Vegetable and fruit acids meet a moderate oxidation in the liver, when not in excess. The volatile, fatty acids, however, as produced in excess, by gastrointestinal fermentation, as shown by Boix,⁶ approximate alcohol, in their hypercombustion, and production of cirrhosis. In the first (inflammatory) stage of syphilis, mercury is administered internally, and undoubtedly exerts its main effect by its countercombustion in the liver, thus moderating the inflammatory reaction to the virus of the disease. Antimony is similar to mercury in its action. Arsenic and phosphorus, beyond physiologic quantities burn in the portal system, and when given in large doses, or long-continued smaller ones, manifestations of acute or gradually increasing subkatabolism obtain. It is often referred to as an accumulative effect, but it should be understood as indicating an accumulated action, not of the drug *per se* in the system, for that never occurs short of pronounced subkatabolism. The effect is analogous to other causes of the retrogressive biologic series (fatigue). The occasional value of arsenic in anemia does not disprove this theory, for by a mild subkatabolism the hemoglobin is augmented, which improves general oxygenation if the arsenic is then discontinued, otherwise it is of no value. Phosphorus is pathologic only when in excess of that which is conveyed through the thoracic duct to the general circulation, thus escaping the liver. Arsenic has been shown, also, to possess an effect accentuating oxidation, similar to phosphorus in physiologic quantities.

Narcotics and Anesthetics.—The exact relation of subkatabolism to metabolic products, in excess, and irritable weakness, is well illustrated in relation to narcotic habits, especially that of morphin and its group. Narcotics of the morphin class produce subkatabolism, and by virtue of the accumulation of suboxidative metabolic products, irritable weakness, and extreme pain are common consequences. However, notwithstanding that such is the case, during the periods of narcosis, the consciousness is not impressed with any sensation of irritable weakness or pain, but conversely it is with one of well-being. However, when the narcosis wears off, the irritable weakness and pain are manifested. The same may be said, in a milder degree of alcohol, and even of the narcosis of tobacco. With the continuation of periodic narcosis the intermediate periods are marked by more pronounced types of irritable weakness and pain, and thus the habit which is often initiated for pleasure, becomes confirmed as a means of escape from the pangs of an indescribably horrible irritability, weakness and pain. During narcosis the condition is no less present, yet the sensible manifestations are not in evidence.

I have mentioned that narcotic and anesthetic agents are powerful causes of subkatabolism. Both have been

determined by biologic research to be profound inhibitors of cell life. By abolishing irritability, activity and therefore oxidation, all the other life manifestations are held in abeyance. It is true that the waste products of activity are not formed to the same extent during narcosis and anesthesia, as during normal activity, yet the suboxygenation is much more marked than in any other form of immobility; and subkatabolic products, being retained, as they are, are often of much greater import than in cases in which waste products are formed in excess of their excretion. In fact, the situation is not unlike instances of profound chill, following directly upon cessation from activity, and while in a state of intense fatigue. Free and independent unicellular organisms recover their metabolic equilibrium, freeing themselves from the retained subkatabolic products of narcosis and anesthesia much quicker than do the higher and larger forms of animal life, especially man, in whom owing to the extension of the paralyzing effect over a large organism, the elimination is slow, the effects are prolonged and restitution is difficult. Such are the chronic features which are most marked in habits.

Susceptibility.—The relation of susceptibility to katabolic states is without doubt a close one, and I have long held that subkatabolism actually constituted the condition of susceptibility to infection. Animals and man of mature years, possessing a higher adulthood of cell protoplasm are more immune from parasitic infection than are the young with an immature state of protoplasm. Infection always gains its first foothold, and is always most virulent in subkatabolized tissue.

I will quote below a case in which even anthrax infection disappeared upon simply inducing better oxidation to the part. Hydrogen dioxid, with one more atom of oxygen to the molecule than water, is attributed to be 60 times stronger than carbolic acid as an antiseptic. The great sterilizing power claimed for high-frequency currents and photo rays I believe depends largely upon oxidation of the favorable medium, thus destroying the necessary soil as such. I have heretofore pointed out that the real successful therapy of even such virulent and undoubted parasitic diseases as gonorrhea is one of combat of the factors of subkatabolism, not otherwise parasitocidal.^{90(b)} Pasteur⁹³ has shown that fowls, after inoculation with anthrax, from which they are normally immune, if refrigerated (chilled) would become infected and perish.

Behring⁹³ has demonstrated the fact that the white rat, which normally possesses a remarkable immunity to anthrax infection, owing to his highly alkaline blood, loses the immunity when the alkalescence is artificially diminished. The physiologic power of fresh normal blood to kill bacteria, whether chemic or not, has been shown by Buchner⁹³ to be destroyed by heat, but not by freezing. Arloing⁹³ has caused anthrax in animals naturally immune by injecting into them carbolic, pyrogallie, and especially lactic acids. Leo⁹³ has induced glanders in white mice naturally immune by inducing phloridzin diabetes. Susceptibility to tuberculosis in man is very commonly acquired by sexual excesses and vices; adolescent females are particularly disposed. Vitiating atmospheres, cold, fatigue, and other established causes of subkatabolism in New York tenements are prolific causes of tuberculosis. Arloing,⁹³ Cornevin,⁹³ and Thomas⁹³ have shown that rabbits succumb to anthrax when acid is injected into the muscles with the bacillus. Certain anesthetic agents have been shown to cause white rats to lose their immunity for anthrax (Sternberg⁹⁰).

Platania⁹³ succeeded in communicating anthrax to dogs, frogs, and pigeons naturally immune by bringing them under curare, chloral or alcohol. Wagner⁹³ obtained similar results on pigeons with chloral. Watson Cheyne¹⁵ has determined that not less than 250,000,000 cocci must be injected into a normal living body to produce an abscess, and Bujwid⁹³ holds that even

1,000,000,000 are insufficient. Thus it will be seen that local subkatabolism, by the irritation of great numbers, acting, moreover, as irritating foreign bodies, is necessary to make a suitable soil for their growth.

Freshly drawn blood (alkaline) has germicidal power, including the power of oxidation (ionization) of the toxins, producing antitoxins, but when kept for some time it becomes acid, and coincidentally these powers are destroyed. The so-called bactericidal power of the blood is reduced in living animals (experimentally) by lowering the alkalinity. Behring and Hankin⁹³ recognize the excessive alkalinity of the blood of the white rat as an important factor of its great germicidal power. Beumer⁹⁴ has demonstrated that repeated small doses of toxins are tolerated without pathogenic reaction, while larger ones prove violently toxic, thus suggesting that in the former, the oxidative capacity was not exceeded.

Heredity of Subkatabolism.—I know of no subject which is encumbered with more fallacy than is that of heredity, as relating to the transmission of disease. Laws of hereditary transmission are entirely ignored, repeatedly, by medical authors, who on the flimsiest evidence have attributed all kinds of acquired diseases, often of infectious nature, to heredity. Family histories are continually produced in an attempt to settle the etiologic responsibility upon some direct or collateral ancestor. Other causes than direct heredity are ignored as possible causes of the recurrence of any particular disease in succeeding generations. Even in the absence of any family history evidence, it is not uncommon, when the etiology of a disease is obscure, for authors to allude vaguely to a probability of heredity being the guilty culprit, or a contributory cause.

There is a general law pervading all hereditary transmission, that provides for the supplies for the demands of the organism, and determines that which is useless and superfluous. During a single life cycle, the elements of the economy, individually and collectively, are subject to modifications, by adaptation, to environmental influence, the governing law being known to evolutionists as "compensation and economy of growth." In commercial language it is an application of the law of regulation by demand and supply. Disuse, atrophy, is the most common expression of modification of structure and constitution, by this law of descent. The law of compensation and economy of growth is as much in evidence in the transmission of acquired characteristics as it is in single generations. The disposition of the mechanism of compensation is toward new equilibriums, as former ones are continuously or permanently disturbed, and it is these modified equilibriums of metabolism in vogue at the period of conception and fetal development which obtain in the offspring, when hereditary attributes vary from a recognized standard; and there is much evidence that the persistence and progressive character of such modifications of equilibrium are responsible for the variations of species.

One of the most vital of these modifications of equilibrium, and that which I have most studied, is the sequence of subkatabolism, and I hold that it is the most important modifier of individual existence, and almost the sole cause of those modifications, which are inherited and find expression in different forms of pathogenic manifestations, and which I have made it my endeavor to prove to be of subkatabolic origin. Any investigation of medical literature will, I believe, convince any unbiased observer that specific forms of disease are seldom, if ever, transmitted; but instead, a lower grade of equilibrium of metabolism is exhibited. For example, a parent, by alcoholic excesses greatly impairs his powers of oxidation; one by hepatic destruction, another by sexual excesses, will greatly lower his oxidase capacity; another will become poisoned by the toxin of syphilis; all being differently expressed in the parent, etc. The offspring may inherit from the other parent the predominant standard of his race, the so-called normal

equilibrium; yet should it inherit the degraded equilibrium, the only constant condition manifested will be one of subkatabolism, but not necessarily the same type of the parent. Ill-defined subkatabolic manifestations, commonly called scrofulous or strumous, may obtain, or hemophilia, rickets, obesity, irritable weakness, insanity or tuberculosis may become the ultimate expression of the so-called inherited taint; the form of disease of the parent not governing that of the offspring, other than by the grade of the subkatabolism.

It is not a predisposition to scrofula, to diabetes, to tuberculosis or to cancer that is inherited, but a general dyscrasia only, a proclivity to any form of subkatabolism, that is determined by the exciting cause. With a diminished capacity for oxidation, an excessive consumption of carbohydrates may lead to diabetes; habits of diet and wine and beer drinking, or humid climates, or the two combined may lead to gout. Anemia or oxidase debility may, under favorable (exposure) conditions, lead to tuberculosis. One may be predisposed to obesity under favorable conditions of sedentation or even in spite of physical activity. Whatever the ultimate manifestation developed, the exciting cause, whatever it may chance to be, finds an augmenting factor in the underlying subkatabolism, which is the same whether it is inherited or acquired. The child of an alcoholic may acquire scrofula, tuberculosis, diabetes, Bright's disease, or cancer. If it be "neurotic," it will be inclined to alcoholic or narcotic habits. A child of cancerous, tuberculous or diabetic progenitors may become a neurotic and an alcoholic, or it may become the subject of obesity. Thus subkatabolism, but no particular form of it, may be inherited from morbid progenitors.

In conclusion I beg to say that no one is more cognizant of the shortcomings and imperfections of the foregoing paper than is its author. It is submitted as an epitome of a conception of the nature and relationship of disease, which it is hoped will prove helpful to those who aspire to acquire a better, more accurate, and intelligible idea of the pathology of the so-called diathetic group, than we have heretofore had.

However extended the present monograph, it has proved inadequate to the demands of so wide and extensive a field as I have endeavored to cover, and I must therefore ask my readers to bear with me, accepting the present paper as a preliminary statement until I can prepare and issue, an elaboration of the same, which will prove a more exhaustive and complete exposition.

BIBLIOGRAPHY.

- ¹ Aliehl, W. H.: Diseases of the Peritoneum, Allbutt's Practice, Vol. iv, New York, 1897.
- ² Althaus, Julius: The Pathology and Prevention of Influenza, London, 1892.
- ³ Altschul, Henry: Is Iodid of Potassium a Specific in Lobar Pneumonia? Medical Record, March 26, 1904.
- ⁴ Bastian, H. Charlton: Various Forms of Hysteria or Functional Paralysis, Philadelphia, 1898.
- ⁵ Beard, Geo. M.: Revised by A. D. Rockwell, A Practical Treatise on Nervous Exhaustion (Neurasthenia), New York, 1888. Sexual Neurasthenia, Edited by Rockwell, New York, 1884.
- ⁶ Boix, Emile: The Liver of Dyspeptics, and particularly the Cirrhosis produced by Auto-intoxication of Gastrointestinal Origin, New York, 1897.
- ⁷ Bowby, Anthony A.: Injuries and Diseases of Nerves, London, 1889.
- ⁸ Bouchard, Ch.: Lectures on Auto-intoxication in Disease. (Translated by Oliver), Philadelphia, 1894.
- ⁹ Brown-Séquard, Edward: Lectures on the Diagnosis and Treatment of the Principal Forms of Paralysis of the Lower Extremities, Philadelphia, 1861.
- ¹⁰ Bruce, Lewis C.: The Blood-pressure in Sleeplessness and Sleep, British Medical Journal, June 23, 1900.
- ¹¹ Brunton, Sir Lauder: (a) On Disorders of Assimilation, Digestion, etc., London, 1901, p. 462. (b) British Medical Journal, October 18, 1902. (c) Modern Developments in Harvey's Work in the Treatment of Diseases of the Heart and Circulation, Smithsonian Report, pp. 459-478, Washington, 1896.
- ¹² Bunge, G.: Physiologic and Pathologic Chemistry, Second Edition, Eng. Trans., Philadelphia, 1902.
- ¹³ Burton-Olitz, R.: Muscular Contraction and the Venous Blood Flow, Amer. Jour. of Phys., May, 1903.
- ¹⁴ Castelv, Jose: Paper read before the Fourteenth International Medical Congress, Madrid, 1903.
- ¹⁵ Cheyne, W. Watson: Suppuration and Septic Diseases, Med. and Surg. Monographs, Vol. viii, No. 1, New York, 1900.
- ¹⁶ Cole, Rufus L.: Pneumococcus Arthritis, American Medicine, May 31, 1902.

- ¹⁷ Comby, Jules: *Scrofula, Diseases of Children*, Twentieth Cent. Practice, Vol. xii, New York, 1897.
- ¹⁸ Corson, Eugene R.: The Oxygen Bath for the Peritoneum, etc., *American Medicine*, November 8, 1902. Report on Pain of Cancer relieved on Exploratory Laparotomy, *American Medicine*, March 22, 1902.
- ¹⁹ Demarquay, J. N.: *Oxygen in Medicine and Surgery*, Trans. by Wallian, Philadelphia, 1899.
- ²⁰ Dastre, A.: The Theory of Energy and the Living World, the Physiology of Alimentation, Smithsonian Reports for 1898, pp. 515-549, Washington, D. C., 1900.
- ²¹ Davenport, Chas. B.: *Experimental Morphology*, New York, 1897 and 1899. (a) Vol. i, Effect of Chem. and Phys. Agts. upon Protoplasm. Vol. ii, Effect of Chem. and Phys. Agts. upon Growth.
- ²² Eccles, A. Symons: Difficult Digestion Due to Displacements, London, 1899.
- ²³ Eichhorst, Herman: *A Textbook of the Practice of Medicine*, Vol. 1, Philadelphia, 1901.
- ²⁴ Ewart, Wm.: *Gout and Goutiness*, New York, 1896.
- ²⁵ Fano, Guilio: The Relations of Physiology to Chemistry and Morphology, Smithsonian Reports for 1891, pp. 377-89, Washington, 1896.
- ²⁶ Fenwick, W. Soltan: The Dyspepsia of Phtisis, London, 1894.
- ²⁷ Fletcher, W. M.: *Journal Physiology*, September 12, 1902.
- ²⁸ Flint, Austin: *Human Physiology*, Fourth Edition, New York, 1888.
- ²⁹ Folin, Otto, and Shaffer, Philip A.: On Phosphate Metabolism, *Amer. Jour. Phys.*, April 1, 1902.
- ³⁰ Fothergill, J. Milner: *Diseases of Sedentary and Advanced Life*, New York, 1885. Vascular Change Versus Bright's Disease, London, 1887.
- ³¹ Fox, Edw. Long: The Influence of the Sympathetic on Disease, London, 1885.
- ³² Garrod, A. E.: *Rheumatism and Rheumatoid Arthritis*, Philadelphia, 1890.
- ³³ Gies, Wm. J.: On the Irritability of the Brain during Anemia, *Amer. Jour. Phys.*, May, 1903.
- ³⁴ Gilbert, J. Allen: Loss of Sleep, *American Medicine*, September 13, 1903.
- ³⁵ Gowers, W. R.: *Epilepsy and Other Convulsive Diseases*, New York, 1885.
- ³⁶ Granddier: Die Freiwilligen Nachblutungen der Neugeborenen, Cassel, 1871, also see Schmidt's Jahrbucher, Bd. cliv, p. 95.
- ³⁷ Haig, Alexander: Uric Acid as a Factor in the Causation of Disease, Sixth Edition, Philadelphia, 1902. The Causation, Prevention and Treatment of Gout, Medical Record, January 26, 1901.
- ³⁸ Hill, Leonard: The Mechanism of the Circulation, Schafer's Physiology, Vol. ii, New York, 1900.
- ³⁹ Humphry, G. M.: *Observations in Myology*, Cambridge and London, 1872.
- ⁴⁰ Hutchinson, Jonathan: The Pedigree of Disease, Med. and Surg. Monographs, Vol. i, No. 1, New York, 1889.
- ⁴¹ Immerman, H.: Anemia, General Disorders of Nutrition, Ziemssen's Encyclopedia, Vol. xvi, New York, 1877. Hemophilia, Scurvy, and Morbus Maculosus, Ziemssen's Encyclopedia, Vol. xvii, New York, 1878.
- ⁴² Jackson, J. Hughlings: *Convulsive Seizures*, Med. and Surg. Monographs, Vol. vi, No. 3, New York, 1890.
- ⁴³ Jones, H. Bence: *Lectures on Some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics*, London, 1867.
- ⁴⁴ Kanthack, A. A.: *General Pathology of Infection*, Allbutt's Practice, Vol. i.
- ⁴⁵ Knuthsen, L. F. B.: *Obstinate Hiccough*, London, 1902.
- ⁴⁶ Kolk, Schroeder van der: The Spinal Cord Medulla and On the Proximate Cause and Rational Treatment of Epilepsy, New Sydenham Society, Vol. iv, London, 1859.
- ⁴⁷ Kussmaul, Adolph, and Tenner, Adolph: On the Nature and Origin of Epileptiform Convulsions Caused by Profuse Bleeding, and also those of True Epilepsy, New Sydenham Society, Vol. iv, London, 1859.
- ⁴⁸ Landau: Ueber Melaena Neonatorum Diss., Breslau, 1874.
- ⁴⁹ Lilley, Ralph S.: On the Oxidative Effect of Cell Nucleus, *Amer. Jour. Phys.*, August, 1902. On the Effects of Various Solutions on Ciliary and Muscular Movement, etc., *Amer. Jour. Phys.*, April, 1892.
- ⁵⁰ Livingston, Alfred T.: Some New and Unusual Therapeutic Applications of Ergot, *Jour. Am. Med. Assoc.*, March 21, 1903. Ergot in Surgery, *N. Y. State Jour. of Med.*, June, 1904. Ergot in General Practice, *Jour. Am. Med. Assoc.*, August 27, 1904.
- ⁵¹ Vaughan, Victor C.: Ptomaine Toxins and Leukomains, Twentieth Cent. Prac. Med., Vol. xiii, p. 107.
- ⁵² Lyman, Henry M.: *Insomnia and Other Disorders of Sleep*, Chicago, 1895.
- ⁵³ Lyon, E. P.: Effects of Potassium Cyanid and of Lack of Oxygen, etc., *Amer. Jour. Phys.*, April, 1892.
- ⁵⁴ Mallet: Thèse de Thérapeutique de Paris, February, 1902.
- ⁵⁵ Maxwell, S. S., and Hall, J. C.: On the Effect of Calcium and Free Oxygen upon Rhythmic Contraction, *Amer. Jour. Phys.*, Vol. vii, No. 5.
- ⁵⁶ McCrae, Thomas: Acute Articular Rheumatism, *Jour. Am. Med. Assoc.*, January 24, 1903.
- ⁵⁷ Michaels, Phil.: *Phila. Med. Jour.*, May 5, 1900.
- ⁵⁸ Mobius, P. J.: *Tabes Dorsalis*, Twentieth Cent. Practice, Vol. vi, New York, 1897.
- ⁵⁹ Mott, F. W.: The General Pathology of Nutrition, Allbutt's Practice, Vol. i.
- ⁶⁰ Murrell, Wm.: Nitroglycerine as a Remedy for Angina Pectoris, London, 1882.
- ⁶¹ Noorden, Carl von: *The Acid Intoxications*, Part IV, of Disorders of Metabolism and Nutrition, New York, 1903.
- ⁶² Oliver, George: A Contribution to the Study of the Blood and Blood-pressure, London, 1901.
- ⁶³ Osler, Wm.: On Chorea and Choreiform Affections, Philadelphia, 1894.
- ⁶⁴ Pavy, F. W.: *Physiology of the Carbohydrates*, London, 1894.
- ⁶⁵ Pembrey, M. S.: *Animal Heat*, Schafer's Physiology, Vol. i.
- ⁶⁶ Radcliffe, Chas. B.: *Lectures on Epilepsy, Pain, Paralysis*, etc., Philadelphia, 1866. Dynamics of Nerve and Muscle, London, 1871.
- ⁶⁷ Ranney, A. L.: *Eyestrain in Health and Disease*, Philadelphia, 1897.
- ⁶⁸ Roberts, Sir William: *Collected Contributions on Digestion and Diet*, London, 1897.
- ⁶⁹ Roger, G. H.: *Introduction to Medicine*, New York, 1901.
- ⁷⁰ Rogovin, E.: *Zitsch. f. klin. Med.*, Vol. xiv, Nos. 5 and 6.

- ⁷¹ Rosenow, Edw. C.: *Studies in Pneumonia and Pneumococcus Infection*, Journal Infectious Diseases, March 19, 1904.
- ⁷² Russell, Frances A. R.: *The Atmosphere in Relation to Human Life and Health*, Smithsonian Collection, Washington, 1896.
- ⁷³ Sanderson, J. Burton: The Properties of Striped Muscle, Schafer's Physiology, Vol. ii, 1900.
- ⁷⁴ Schafer, E. A.: *Metabolism*, Schafer's Physiology, Vol. i, 1898.
- ⁷⁵ Shattuck, S. G., and Ballance, A. C.: *General Pathology of New-growths*, Allbutt's Practice, Vol. i, London, 1896.
- ⁷⁶ Sherman, H. C.: Experiments on the Metabolism of Nitrogen, Sulfur, and Phosphorus in the Human Organism, Bulletin 121, U. S. Dept. of Agriculture, Washington, 1902.
- ⁷⁷ Sherrington, C. S.: The Spinal Cord, Schafer's Physiology, Vol. ii, p. 331, New York, 1900.
- ⁷⁸ Spender, Jno. Kent: Therapeutic Means for the Relief of Pain (Prize Essay), London, 1874.
- ⁷⁹ Starling, Ernest H.: The Muscular Mechanisms of the Generative Apparatus, Schafer's Physiology, Vol. ii, pp. 349-51.
- ⁸⁰ Sternberg, Geo. M.: *Manual of Bacteriology*, New York, 1893.
- ⁸¹ Stevens, Geo. T.: *Functional Nervous Disease*, New York, 1887.
- ⁸² Stricker, S.: *Disturbances of Nutrition*, Vol. i, Ashurst's Encyclopedia of Surgery, New York, 1881.
- ⁸³ Storey, Thos. A.: The Influence of Fatigue upon the Speed of Voluntary Contraction of Human Muscle, *Amer. Jour. Phys.*, January, 1903.
- ⁸⁴ Thirlar, Prof.: Oxygen Treatment of Wounds and Other Lesions, La Semaine Médicale, xxiv, No. 22. Oxygen in Surgical Infections, Communication to Belgian Académie de Médecine, Gaz. Méd. Belge, August 6, 1904.
- ⁸⁵ Thompson, E. Symes: *Influenza or Epidemic Catarrhal Fever*, London, 1890.
- ⁸⁶ Thompson, J. Ashburton: *Free Phosphorus in Medicine*, with Especial Reference to its Use in Neuralgia, London, 1874.
- ⁸⁷ Treves, Frederick: *Scrofula and Its Gland Diseases*, New York, 1882.
- ⁸⁸ Varigny, Henry de: (a) Temperature and Life, Smithsonian Reports for 1890, pp. 407-28. (b) Air and Life, Smithsonian Reports for 1893, pp. 521-544. (c) Air and Life, Smithsonian Collections, No. 1071. Washington, D. C., 1896.
- ⁸⁹ Verworn, Max: *General Physiology* (Trans. by Lee), London, 1890.
- ⁹⁰ Wakefield, Homer: (a) Some Observations on Modern Cardiotraphy, Medical Record, September 14, 1901. (b) The Pathology of Katabolism in Relation to Cancer and Allied States, *American Medicine*, November 22 and 29, 1902. (c) The Heart Cure; Its Terminology, Purposes, and Achievements, including the Etiology of Fatty Degeneration, Medical News, November 21, 1903. (d) Commentaries upon Lues and Leprosy as Subkatabolic Diseases, Medical Record, January 2, 1904. (e) The Rational Treatment of Malignant Tumors, *American Medicine*, April 23, 1904. (f) A Contribution to the Etiology of Malaria, Medical Record, January, 1905.
- ⁹¹ Walker, E. W. Ainley: Practitioner, February, 1903.

UNPUBLISHED AND INDIRECT REFERENCES.

- ⁹² Halliburton, W. D.: Herter Lectures on Physiologic and Pathologic Chemistry, University and Bellevue Hospital Medical College, January, 1904. The Biochemistry of Muscle and Nerve, Philadelphia, 1904.
- ⁹³ Pasteur, Wagner, Canalis, Morpurgo, Arloing, Scrafini, Cornevin, Thomas, Behring, Leo, Platania, Buchner, Beumer: See pp. 242-4, No. 30, above.
- ⁹⁴ Harsey, H.: Treatment of Hemoglobinuric Fever; Transcript from British Med. Journ., March 5, 1904, in *American Medicine*, April 23, 1904.
- ⁹⁵ du Toit, G. L.: Observations Relating to the Symptoms and Effects of Oxygen Inhalations, Edinburgh Medical Journal, December, 1900; Transcript in New York Med. Jour., January 19, 1901.

ON PERITONEAL ADHESIONS.¹

BY

CARL BECK, M.D.,
of New York City.

Professor of Surgery in the New York Postgraduate Medical School and Hospital, Visiting Surgeon to the St. Mark's Hospital and the German Poliklinik.

No disease has helped develop and educate surgical instinct and judgment so much as appendicitis. The knowledge gained during the observation of its course, that is, before, during, and after operation, has also been utilized for the better understanding of other abdominal conditions, especially in the sphere of the pelvis, the intestine, gallbladder, and even the kidneys.

The study of the adhesions forming after repeated attacks of appendicitis has also given us a clearer insight into adhesion formations in general, thus revealing obscure ailments in their true light, as, for instance, when adhesion formations have been mistaken for enteroptosis, pelvic neuralgia, or even for ulcer and carcinoma of the stomach or cholelithiasis. It is a fact to be proud of, that such observations are especially to be credited to American surgeons. Europe has taught us a great deal in abdominal surgery, and this should be gratefully acknowledged; no country has done so much

¹ From a discussion of the papers of Drs. R. Abbe and C. A. McWilliams, read before the Medical Association of the Greater City of New York, December 12, 1904.

as this in advancing our knowledge of the subject, both technically and experimentally. I well remember the time when the question of adhesion formations in the abdomen was an unknown quantity, and when any attempt to perform an exploratory laparotomy with a view of removing adhesions would have been universally condemned.

It is only 28 years ago that Czerny was able to show the first undisputed success in intestinal resection for gangrenous hernia. At about the same time I approached this question by experimenting on cats. I operated under nominally so-called antiseptic precautions, that is, with a carbolic spray. I tied a loop of intestine with a cord in order to produce artificial gangrene, closing the abdomen again, and opening it four to six days later. Then in a series of cases I resected and formed an artificial anus in another. In almost all of the cases when the animal was killed after recovery, more or less extensive peritoneal bands were found. This I attributed mainly to the irritation set up by the carbolic spray.¹

Nowadays no such experiments are needed, because we have ample opportunities to study the question in man.

Naturally adhesions are found more frequently in the ileocecal region than anywhere else. As a rule there is a broad parietal adhesion, especially if there is postoperative hernia. The peristalsis of the free part of the gut elongates it until it becomes a tense, unyielding band; and if an intestinal loop becomes ensnared below it, its circulation will be under pressure, and will give rise to more or less disturbance, sometimes even to complete strangulation. Experience shows that such is the case, especially if the procrastination policy be followed, the surgeon not having a chance to discharge the large appendicular abscess until days after the onset of the disease. After an early operation, on the other hand, postoperative adhesions are rarely found; another point in favor of prompt early surgical interference in appendicitis.

Now, if the history in a case of obstruction reveals a previous operation in the iliac fossa, the likelihood of adhesions is obvious, and operation should not be deferred until the symptoms become more grave. But even the surgical interferences by simply dissecting the bands will still save the life of the patient. Of course, if such symptoms turn up shortly after an appendectomy, the indications are clearly defined. In former years I used to close the abdomen in acute cases of appendicitis, provided no perforation had occurred. But it happened repeatedly that I had to reopen the abdominal cavity because of the formation of an infected focus around the stump; this was followed by the formation of bands fixing a loop of intestine in a displaced position so that a kink resulted, and the symptoms of intestinal obstruction became manifest. This was one of the main reasons for my present practice of closing the abdomen only in appendectomies performed in the free interval. In the acute stage I always surround the stump with a small 3% iodoform wick, after touching it with pure carbolic acid. The wick is removed 24 hours after the operation, provided there are no further symptoms of infection, in which event thorough packing is done.

The diagnostic difficulties cannot be emphasized too much, and sometimes differentiation is simply impossible. So, for instance, may ligamentous bands be confounded with a distended gallbladder. I have repeatedly referred to cases in literature where a sausage-shaped gallbladder, containing elliptic gallstones, reached down into the iliac fossa. Of course, the error would be of academic importance, but practically it would be remedied by laparotomy just the same.

There is another condition with which appendicitis as well as adhesions may be confounded, viz., renal or ureteral lithiasis. In an essay published November 12,

1898, in the *New York Medical Journal*, I reported a case in which I was called to operate for appendicular abscess and found a renal calculus in an abscess. The patient had repeated colicky attacks which were located in the upper iliac region. At the same area a tumefaction formed, which the attending physician naturally took for the result of an attack of appendicitis. I was of the same opinion. It seems to me that the concretion had found its way from the renal pelvis into the right ureter, where it must have become arrested without obstructing the ureteral caliber entirely. There it caused inflammation which produced adhesion formation in which the calculus became impacted. Later, with the following attacks, perforation with abscess formation took place, the adhesions then being so dense that the ureteral perforation was sealed again.

In regard to the absence of hematuria in this case at the time of the last attack, the possibility must be considered that during the first epoch it might have been present unnoticed. The normal passing of the urine and the absence of renal paroxysms are certainly remarkable. From the experience obtained in this case I made it a principle to examine cases in which the high situation of the exudate, as well as the violent pain, justified a suspicion of lithiasis, by the röntgen method. We may positively assume today that with the aid of the diaphragm we shall be able to detect renal concretions, unless they are very small or the patient is very stout.

I also know of a case of appendectomy in which operation was performed on account of a history of colicky attacks. After the patient was discharged the colicky attacks persisted the same as before. This was now explained by adhesion formation. The patient suffering considerably, he was naturally ready to submit to a second operation, when after another violent attack he discharged a renal calculus by the natural passages.

My experience in cases of chronic progressive adhesion-forming peritonitis, as it is observed idiopathically as well as after appendicitis, is absolutely bad. The nature of this peculiar condition, characterized by a multitude of cobweb-shaped bands, is not yet sufficiently elucidated.

THE TREATMENT OF HEMOPTYSIS.

BY

FRANCIS HARE, M.D.,

of London, Eng.

Consulting Physician at the Brisbane General Hospital; Visiting Physician at the Diamantina Hospital for Chronic Diseases, Brisbane; Late Inspector-General of Hospitals, Queensland.

Before the advent of the inductive method of investigating pathologic problems, the *science* of medicine was represented by a group of more or less fanciful and teleologic doctrines; and such doctrines dominated the *practice* of medicine. So despotic were they in their rule that seemingly consistent facts were elevated into undue prominence, while facts manifestly inconsistent were depreciated or shelved. Hence there can be no doubt that John Hunter's advice, "Observe, don't think," was expedient *for the time*. Is it so now?

The collection and recording of facts can only be regarded as preliminary steps essential to ultimate generalization adapted to the elucidation of natural law. This being so, the question must always be impending: At what stage in the augmenting accumulation of facts are we justified in attempting their generalization? In answer, I submit that the attempt should not be delayed beyond the stage at which the accumulation becomes unwieldy and no longer possible of retention by human memory. Are we not nearing that stage? The answer seems to lie in the fact that many clinical observations duly recorded in the middle period of the nineteenth century and earlier, are with increasing frequency being reobserved and rerecorded in current

¹These experiments are published in *Langenbeck's Archives of Surgery*, March, 1879.

medical literature. The truth of this statement will, I think, be admitted by those who are conversant with the works of Trousseau, Graves, Holland, Hyde Salter, Living and other contemporary writers. Is it not time then to reverse the second half of Hunter's advice?

The recent masterly articles in *American Medicine*, by Dr. S. J. Meltzer and Prof. James J. Putnam, on the expediency of approaching medical problems from the side of physiology, have encouraged me to lay before the readers of this journal, a method of treating hemoptysis which was arrived at solely through deduction from known physiologic principles.

In any case of hemorrhage there are two essential factors. There must be at the bleeding point a solution of continuity of the wall of the vascular system, and an intravascular pressure of the blood exceeding the extravascular pressure of the tissues. It follows that in order to check hemorrhage we might attempt (1) to restore the continuity of the vascular wall; (2) to supplement the extravascular pressure of the tissues; or (3) to reduce the intravascular pressure of the blood. The first is out of the question in hemoptysis; the second has been suggested—the deliberate induction of pneumothorax on the bleeding side; the third alone concerns this article.

The intravascular pressure at a given point in any vessel may be reduced in three ways: (1) By reducing the systolic force of the heart; (2) by increasing the resistance in the bleeding vessel on the cardiac side of the bleeding point; and (3) by reducing the general peripheral resistance in the circulation. The first indication is attained in the use of drugs, such as aconite and antimony; the second in compression of the arterial trunk leading to the bleeding point, and in vasoconstriction of the bleeding vessel itself through drugs such as adrenalin and cold applications; and the third, in the use of amyl nitrite. It is to the third that I wish to draw attention in the treatment of hemoptysis.

Amyl nitrite promotes widespread or general vasodilation of the systemic arterioles with acceleration of cardiac action. The acceleration of cardiac action depends upon the reduction of peripheral resistance, and is evidently a conservative device adapted to prevent a serious fall of blood-pressure. The conservative acceleration however seems always less than fully adequate since a material fall of blood-pressure always does ensue (Lauder Brunton). Such fall of blood-pressure, commencing as it does at the systemic periphery, travels backward in the course of the circulation through the left ventricle and left auricle into the pulmonary periphery. As Schäfer¹ points out, the blood-pressure in the pulmonary circulation may be reduced passively "by a fall of pressure in the left auricle due to diminished resistance in the aortic outflow." Hence it was anticipated that amyl nitrite would tend to cause cessation of hemoptysis.

The following nine cases comprise, so far as I know, all those in which amyl nitrite has been used for the purpose of checking hemoptysis.

CASE I.—A man, aged 36, suffering from mitral insufficiency, had often been attacked by hemoptysis on becoming chilled. The bleeding had always persisted for from two to four days. Hemoptysis commenced at midnight associated with marked coldness of the hands and feet. Inhalation of one capsule of amyl nitrite instantly relieved vascular spasm of the extremities and stopped bleeding, though sputum continued bloodstained till the following day. (Communicated by Dr. Claude S. Hawkes, Queensland.)

CASE II.—Male, tuberculous patient, Diamantina Hospital, aged 31. Hemoptysis 4.30 p.m. One capsule of the nitrite stopped bleeding instantaneously. Hemoptysis recurred 12.40 a.m.; again stopped instantaneously on inhalation of drug. Thereafter no further recurrence.

CASE III.—Male, tuberculous patient, Diamantina Hospital, aged 34, had had 12 attacks of hemoptysis, all of which had begun insidiously. January 16, 1904, he began to spit pure blood. One capsule stopped the bleeding instantaneously, though the sputum continued bloodstained for a few days. No further recurrence.

CASE IV.—Tuberculous patient, Jubilee Sanatorium, Queensland. December 6, 1903, hemoptysis to the extent of 5 oz. had occurred when amyl nitrite was administered. Hemorrhage ceased instantaneously and completely. On January 30, 1904, there had been no recurrence. (Communicated by Dr. Andrew Stewart, Queensland.)

CASE V.—Female, tuberculous patient, Diamantina Hospital, aged 26. Had had many profuse attacks of hemoptysis. February 7, 1904, hemoptysis 2½ oz. at 5.25 a.m.; this ceased immediately on inhalation; 8 a.m. bleeding recurred to the extent of 11 oz. Inhalation retarded bleeding which continued for 10 minutes subsequently; 11 a.m., 2 oz.; hemoptysis ceased spontaneously. February 29, 2 oz.; hemoptysis ceased instantaneously under amyl nitrite.

CASE VI.—Tuberculous patient, Jubilee Sanatorium. Two attacks hemoptysis separated by half an hour. Both ceased immediately on inhalation. (Under care of Dr. Andrew Stewart.)

CASE VII.—Tuberculous patient, Jubilee Sanatorium. One attack hemoptysis; ceased instantaneously on inhalation. (Dr. Andrew Stewart.)

CASE VIII.—Very advanced case of pulmonary tuberculosis; the patient had been spitting blood profusely for some days. Amyl nitrite stopped the bleeding at once, but the patient died shortly afterward. (Communicated by Dr. D. Wield, Queensland.)

CASE IX.—Tuberculous patient, aged 45. Hemoptysis commenced at 10 p.m. At 11.30 when a pint of blood had been lost, inhalation checked further bleeding almost instantaneously. Hemorrhage recurred on September 28, 29, 30, and October 1; each ceased instantaneously on inhalation. (Communicated by Dr. E. Leslie Pooler, South Australia.)

To sum up, of 16 attacks of hemoptysis occurring in 9 consecutive cases (8 tuberculous, 1 mitral) and treated by amyl nitrite inhalation, all save one ceased within 3 minutes; in the exception, cessation was delayed for 10 minutes.

The treatment has obvious advantages. In hemoptysis there is a highly vicious circle in operation. The intrapulmonary irritation of effused blood causes cough; coughing, like any other sudden exertion, causes rise of blood-pressure; rise of blood-pressure induces fresh bleeding; and so on, the circle continuing to revolve in many cases until the loss of blood has been sufficient to reduce blood-pressure materially and thus end the hemorrhage. This natural cure was at one time imitated by physicians who resorted to the lancet. The treatment by amyl nitrite is another imitation less complete, but more economic than venesection. The circle is broken at the same point and by the same means, namely, reduction of general blood-pressure, but the blood being saved, the procedure may be repeated as often as necessary.

The drug causes no interference with cough; it is the influx of blood to the ulcerated lung tissue which is stopped, not the efflux from the bronchial tubes. Consequently blood already effused is rapidly cleared, retention and subsequent septic pneumonia obviated.

So far as I know the treatment is absolutely safe, easily and rapidly applied. Hence it can be used by the patient in the absence of professional supervision, a point of considerable practical importance. It is matter for surprise that the freedom from hemorrhage conferred by a drug whose influence is so fleeting, should last so long as seems to be the case.

The Susceptibility of Blondes and Brunets to Disease.—One of the most interesting anthropologic investigations lately published is by Dr. F. C. Shrubbsall, who has made use of the data obtained by the British Privy Council's Committee on physical deterioration, to study the physical characteristics of various individuals in a given area, comparing the hospital patients with those more healthy. His object was to ascertain how the different diseases affected the different elements of population, and he was able to make some interesting observations on the comparative susceptibility of blonds and brunets. Blondes are more likely to suffer from rheumatic disorders, but less from nervous diseases, tuberculosis, and cancer. While they are more susceptible to children's diseases, and the mortality is greater than with brunets, yet in the case of the latter, pulmonary tuberculosis occurring after the age of from 20 to 25, goes a long way toward restoring the balance. The most unhealthy and overcrowded portions of cities are populated by brunets, and as the blond children are likely to die off early, these localities also have the heaviest infant mortality. [*Harper's Weekly*.]

¹ Textbook of Physiology, 1900, Vol. II, p. 150.

SOME OBSERVATIONS UPON THE TREATMENT OF CHRONIC DISEASES.¹

BY

CURRAN POPE, M.D.,

of Louisville, Ky.

President, Louisville Neurological Society; Consulting Neurologist
 Louisville City Hospital; Ex-Professor Diseases of the Mind
 and Nervous System, Louisville Medical College;
 Associate Editor "Journal of Advanced
 Therapeutics," etc.

Persons chronically diseased or disordered are usually considered the opprobrium of medicine and an example of the inaccuracy and incompetency of therapeutics. This allegation is usually based upon the fact that the patient has run the gamut of all known medicinal remedies, singly and in combination, has followed such hygienic rules and dietetic regulations as his physician has laid down, and in spite of all this has slowly but surely drifted from bad to worse until, in a state of chronic invalidism, he assumes a somewhat pessimistic attitude regarding therapeutics and doctors in general. I am constrained to believe after thirteen years' close observation of such cases, in a practice limited practically to chronic affections, that the fault lies not in the lack of opportunities, methods or means for recovery, but in the medical man himself, who refuses to utilize all of those physiologic methods that have long since demonstrated their sphere of usefulness. Medicine has not been, is not, and can never hope to be, an exact science as applicable to the therapeutics of disease, owing largely to the fact that the human being, the principal factor in the problem, is not and can never be accurately estimated in all exactness. It is this uncertainty of individual reaction to remedies together with an inability to control certain surroundings and influences that are deleterious which has led to the growth and development of sanatoriums for the treatment of functional, nutritional and organic diseases of various kinds. It is probably owing to the same cause, that is to say, a failure to secure satisfactory and certain results through the administration of wellknown and well-tried remedies, that there is today a mad rush for all that is new.

These new remedies placed before the physician in alluring terms of their certainty of action and reaction has led him to use them in some cases in a blind endeavor to overcome diseased conditions. In chronic maladies he seems to forget that the therapeutic action of many medicinal substances has been based upon their influence in simpler and acuter conditions, and should, therefore, not be administered in chronic troubles based upon a therapeutic reaction in the acute. Thus it seems to me that the practitioner of medicine, unless engaged in the actual scientific investigation of a particularly new remedy should remember the words of the distinguished poet who says:

Be not the first by whom the new is tried,
 Nor yet the last to lay the old aside.

It is in this mad rush that old remedies and measures that possess the power of physiologic stimulation are forgotten, placing our faith in a phantom, ever rushing on ahead. Something good and valuable is well worth holding to, no matter whether this be in the shape of the material gains of the mundane world or a therapeutic result, and the refusal to retain that which is good and useful is, to say the least, certainly ill-advised. I have had on several occasions an opportunity to note in acute diseases, and in some chronic maladies as well, the beneficial effects that arise from homeopathic administration, and after mature thought I have come to the conclusion that the results obtained were not so much the effect of the medicines administered as the result of the diminution and absence of excessive drug taking. I use medicines just as every other practitioner does, but I realize

fully, I believe, their extreme limitation and have learned to depend upon what I consider to be much more certain, safe, and satisfactory measures by which results may be obtained. Medicines, in many cases, are like the double-edged sword, cutting both ways, and in some instances the bad effects, or after-effects, outweigh the value of their administration. Please do not understand me as saying that drugs do not possess value, for they do, but I am of the opinion that value lies in the meeting of certain conditions that are temporary, and in which the securing of relief tends to conserve the energy, activity, and capacity of the patient, but I do also believe, and fully, freely, and frankly state, that in chronic diseases their usefulness is more than limited.

The chronic invalid at the present is beginning to be spared from the purely operative mania that passed over the country in a sort of tidal wave when the poor ovary, tube, and uterus were made to do surgical duty on many occasions, especially in the neuroses, in which their removal accomplished no good, but exactly the reverse. I here wish to pay a tribute to Lucien Lofton, that surgeon and experienced operative gynecologist, who has had the courage of his convictions and who has written rules for the guidance of the surgeon, with a spirit and care that show breadth of intellect and conservative ability. He tells us in "Modern Gynecology" that the surgeon must not "pronounce every abdominal pain of ovarian origin, for women are surely susceptible to appendicitis and most every other disease to which the sterner sex is liable. Do not thrust upon a neurotic the appalling news that her condition is always due to an abnormal position of her womb, and try to estimate your surgical skill not by the number of ovariectomies you have done, but rather by those you have not done." These words could well have been written by those of us who refrain from the use of the bright and glistening scalpel, and particularly by those who follow especially along the lines of neurologic practice. For fear of misinterpretation or misconception of the foregoing, permit me to say that I am a believer in *necessary* surgery and *necessary* gynecologic operations. It seems to me that the sensible position in chronic diseases to be assumed by the physician and surgeon is that in which there is a question as to whether the work can be accomplished by other than operative procedures; these should be diligently, conscientiously, and thoughtfully applied, and surgery should be reserved as the *dernier ressort* rather than as a therapeutic measure. In the strict sense of the word, surgical procedures are not therapeutic, they are ablative. Removal or destruction of certain portions of the human body while they may be beneficial to the remainder of the economy, should not be resorted to until the wonderful reconstructive and recuperative powers of nature have been fully called into play.

My case-book shows a gratifying record of such cases in which the patients have been restored to health and usefulness without the intervention of the knife, but by the utilization of some of the remedies hereafter to be mentioned, and I doubt not that my confreres, in a like line of work, can more than duplicate these methods from their own practice and experience. I hold that this is especially true in the diseases of women, for in endometritis I have seen the patient promptly recover without the seemingly necessary curetment; I have a record of two cases of pus tubes in which the patients were relieved by the galvanic current. In the many other forms of trouble in the pelvis much can be done by the use and application of the electric current. It is always a source of regret to me that surgeons have not utilized the diagnostic action of the faradic and galvanic currents in the pelvis. It may be stated with certainty that if a mild current of galvanism applied within the pelvis causes pain, and that pain is relieved by the rapidly interrupted faradic current there is *no pus present* in the pelvis; but if the pain caused by the galvanic cannot be

¹ Read before the meeting of the Ohio Valley Medical Association, December, 1904.

relieved by the high-tension faradic then we will find pus when we operate. It is my plan, in these cases, to have such operative work done when there is pus or when it is necessary to repair lacerated and torn tissues.

I think the statement can be demonstrated that medicine approaches nearer to an exact science in the physiologic remedies, especially electricity, than in any other domain. Another fertile field of treatment in the management of these cases is that of the rectum, and these conditions demand very careful attention and much thought from him whose work is thrown in this particular domain of treatment. The painful conditions that may arise from inflammatory and other diseases of the lower bowel, from ulcerated and fissured conditions of the anus, act as a heavy drain upon the strength and neural vitality in all cases, and it behooves the practitioner, in these cases, to remove likewise the irritation and lessen the wear and tear. Some cases are so situated as to be incurable, except through the intervention of the surgeon and in these we must operate as soon as the patient is in good condition; but there are many others that can be relieved by ordinary means and measures without the intervention of chloroform narcosis and operation. I have, on a number of occasions, overcome conditions of fissure, inflammation, pain, neuralgia, etc., by local applications and the use of the electric current. I have found of especial value in these conditions the high-frequency current and believe there is a great future for it.

What then have we to offer the chronically diseased in the way of treatment and in lieu of the ordinary methods of treatment? We have all the ordinary methods and measures and many more.

They can be briefly described as follows in the order of their importance:

1. Hydrotherapy: Local and general.
2. Electric currents: Local and general, high-frequency, galvanic, faradic, sinusoidal, static, static wave.
3. Massage and vibration: Local and general.
4. Exercise and gymnastics: Local and general.
5. Hygiene and diet.
6. Rest, freedom from worry and work.
7. Control and individual influences.
8. Medicinal measures.

It will thus be seen that a large field, rich in possibilities, is opened for the treatment of these maladies.

In all these cases we find a condition of toxemia, both endogenous and exogenous, and these poisons circulate through the system, irritating and increasing the symptomatology present, whether they be the product of absorption, tissue change or toxic microorganisms. We are beginning to become better acquainted with those groups of toxic products developed in the many and multiple changes that occur during the chemism of tissue change, the result of imperfect retrograde changes not eliminated, but retained through imperfect excretion. These cases, as a rule, usually refuse to yield to symptomatic or medicinal treatment, but yield brilliant results to the mechanical methods.

It is my uniform habit to make a careful painstaking examination, supplementing it by the various analyses, and it is upon a combined oral, physical and analytic examination that a course of treatment is mapped out. The diagnosis having been settled we should then endeavor to remove any and all burdens that might through their transferred or reflex action increase or accentuate the local symptoms, such burdens being found prominently in the eye, the gastrointestinal tract, the pelvis and the rectum. This removal, of course, would proceed hand in hand with the general treatment and with the laws laid down by the physician. We should direct the patient how to regulate his hygienic surroundings attending with especial care to the cloaca maxima. We should then remove such toxic problems as tobacco, alcohol, coffee, and tea; regulate work; prevent overwork; enjoin a proper dietary; sufficient exer-

cise and, so far as possible, such mental treatment as will tend to prevent constant recollection and repetition of symptoms. Having done this we should next apply the mechanical methods, both local and general, best suited for the particular case in hand. In their application I should say that mechanical methods are doubly suitable in all forms of functional and nutritional diseases and in many of the organic diseases as well, and in laying down the principles underlying the application of hydrotherapy, electricity, massage, etc., these principles should be the guiding star, changed and modified to fit particular causal conditions, and used in connection with general hygiene and such wellknown medicinal remedies as have been shown to be useful in these cases.

From the foregoing it will be evident that treatment must proceed along two very broad lines: (1) For the causal conditions existing in these patients, and (2) for the general nutritional state of the patient, and to accomplish this, treatment may be both local and general. Another interesting fact may be mentioned, and that is that a diet suitable for a patient taking the nonmedicinal treatments is not a diet suitable for patients depending entirely upon medicinal and hygienic methods. In these chronically diseased cases, one cannot insist too much or too frequently upon the necessity and use of a fairly liberal diet, though the dietary must be based and regulated by the result of the gastric analysis; when this, however, has shown a sufficiently rich juice to warrant a fair or liberal amount of food, we should insist upon patients taking this amount, in order to bring, so far as possible, nutrition to the top notch. There are few patients, in reality, who are undergoing a thorough and radical course of mechanical methods that cannot eat freely and with a certain amount of impunity a diet that would be completely destructive under other circumstances. In fact, my observation has led me to believe that it is more often a question as to *how we eat, when we eat, and how much we eat, rather than what we eat.*

Digestive disturbances almost inevitably follow in the wake of those who are in the habit of "getting on the outside of a meal." In this particular, nonmedicinal remedies have yielded me results far beyond and much superior to any other known measures. It has always seemed to me that there is a reasonably fair and rational explanation of why these methods should be superior to any that we can employ. Their action is largely upon the neural and blood vascular systems of the body, and agents that can control the activity of the circulation, can favor elimination and produce the wonderful changes in tissue that these remedies provoke, are agents for vast good in the production of permanency of results.

Hydrotherapy.—Standing at the head, and towering above all the nonmedicinal remedies, is this flexible agent that has for centuries upon centuries yielded results so marvelous that, to one who uses it, it seems strange that the knowledge of its use and the frequency of the resort to its power is so little known or so little profited in by the regular practitioners of medicine. The application of stimulating hydrotherapy is of great service in these cases, and we have, as a rule, resort to the dripping sheet, the general pack, the rain bath, jet douche, hot air, and electric light and arc bath. The favorite method of application in institutions where these methods are used, is to place the patient in a hot air or electric light bath until sufficient heat has gathered upon the surface or until free and full diaphoresis is produced, following this by the use of some active procedure, such as the rain bath or circular or jet douche. The result of the application of such a treatment is to draw the blood from the visceral organs, where it has, to a certain extent, been stagnating, and bring it to the surface; here especially during the application of warmth, the secretion of the sweat is favored and stimulated. Immediately upon the application to the periphery of cold water we have, by its direct action and reflex effects upon the

bloodvessels and upon the cutaneous nerves in the skin, a contraction, the result of which is to drive the circulating medium again to the center, carrying the already somewhat purified blood and raising arterial tension. When reaction sets in, and this should always be sought and obtained, the blood again goes to the periphery, but it is contained in bloodvessels whose tone is good and not relaxed, as in the case of the hot application, and thus a tonic and normal circulation is obtained which would otherwise be impossible. The systemic effects are extensive, far reaching, and satisfactory, nearly all the secretions and excretions are much stimulated, and especially is this true of the excretions; its influence upon tissue change is one of the most remarkable within the range of therapeutics, as it cleanses and reconstructs at one and the same time. In depraved general states, in which the functional activity of organs has been threatened and crippled, these treatments give, as it were, a "physiologic lift," and they are enabled through this lightening of the burden to resume their former and proper action, with the result that a permanent improvement and a more healthy state are developed. The nervous system is much more apt to be valuably impressed by this treatment and greatly influenced, owing to the manifold reflex effects that arise through thermic irritation. In cases of overwork, overstimulation, feeble elimination, retention of waste and irritating products, or in which there is a combination of these conditions, we find this agent more nearly a panacea than any I know of, and thus it is that the neurotic American man and woman, with their manifold disorders, find in hydrotherapy a new "Pool of Bethesda." It is exceedingly difficult within the confines of such an article as this to compass even more than a few thoughts concerning an agent about which many books have been written; suffice it to say, however, that to me it has become my right hand ally.

Electricity.—Everywhere in the ranks of science there remain a number who will always doubt, and to whom scepticism is not only a pleasure but a luxury, in which they indulge constantly and upon all occasions. Probably nowhere in the range of therapeutics has this scepticism existed in greater degree than with regard to electricity, but I think today in the minds of intelligent persons, lay and medical, this scepticism is giving way to a rational appreciation of its true value. That currents of electricity possess power and produce physiologic results upon living tissue, is well established and accepted today, but I think nowhere is it better appreciated than in its action upon the nervous system, in producing what we call "tone." This tonic action is best exhibited in general results rather than in the specific action upon muscular fiber or superficial structures. The production of vital changes in tissues is such as to produce changes of a chemic, circulatory, stimulating and sedative kind.

In those cases in which there is a great depression of vitality, and which are characterized by painful states, we find in the various currents valuable agents in the production of changes that are necessary and essential for relief. Electricity, like hydrotherapy, increases secretions, favors excretions, and produces changes in the tissues that may continue for months after its discontinuance. Today the medical profession is paying a great deal of attention to the use of electricity, daily using it more and more. Of all the currents that are most useful in my hands, the galvanic has yielded the best results.

The next form of current that I prefer is the static, and this form should be applied especially in large volume. The machine itself should be a powerful one, and contain from 8 to 12 revolving plates, ranging from 26 to 36 inches in diameter. A few practical points in the arrangement of the machine give better results, especially when it is run at a regular rate of speed by an electric motor. The current is one of high potency

and great frequency, its discharges being oscillatory in character; its electromotive force is enormous, and estimated at thousands of volts. I am accustomed to use it by applying the sparks from the large brass ball in the following manner: They are first applied freely to the entire spine from the occiput to the sacral region; sparks are then applied *ad seriatim* to the liver, spleen, epigastrium, and pelvic regions. This is followed by the use of insulation or the static breeze. We can sometimes accentuate the effects of stimulating applications by concentrating the current by means of the brass point upon the painful spot in the head.

In the static wave current we have a most valuable application, especially in those cases accompanied with subacute and chronic inflammatory conditions of the mucous membrane of the small and large intestines. Its influence is very valuable as an eliminative measure, while in inflammatory conditions it has proved in my hands almost a specific in certain cases. When there are relaxed tissue conditions and lack of muscular power and capacity of the viscera of the abdomen, the slowly or rapidly interrupted sinusoidal current, with one pole in the rectum and the other applied to the abdominal wall, will secure results that would astonish those who are unaware of the valuable assets they possess in this current. The faradic current has been of some use to me in these cases, but not nearly so valuable as the foregoing currents, and is used largely by me for its general stimulating and tonic influence applied as general faradism.

The results of electric treatment are, as a rule, very satisfactory and usually permanent. It can safely be stated as an every day observation that electric currents increase and enhance physiologic processes; that they also diminish and modify pathologic ones. Their general influence is to increase the appetite and digestion, equalize and tone the circulation, increase and favor assimilation, improve secretion, hasten excretion, calm and quiet nerve irritation, and in fact, affect all those tissue change processes in a most positive and certain way. When general effects are desired, the application must be made general, while local conditions should have such local applications and modifications as the individual requires. I am fully satisfied, from very careful and thoughtful consideration of the action of these currents, that they possess the ability to enhance and improve the action of medicinal agents taken internally.

Massage and Vibration.—Of the physiologic remedies, massage possesses a value because of its general influence upon nutrition. It should be utilized in those cases in which there is the depravity of a general state and likewise in this field mechanical vibration does its maximum good. The reason for improvement following the use of this agent is that the results are obtained through its influence upon tissue changes, and we find that it has a general and beneficial effect upon circulation, elimination, reconstruction of tissue, and the vivifying of nerve tone. As a rule, sanatorists never see these cases until the patient has tried a string of physicians and a multitude of remedies, adopting them more or less miscellaneous under the impression that they "may do him some good." The physiologic remedies in these chronic and supposedly incurable cases are the goal toward which the sufferer must turn to secure relief and cure. Each in its particular field and sphere possesses valuable qualities that the other has not, and this is true both in its general and local applications. It naturally follows as a corollary to this that the sanatorist should possess each and all of these methods in order that every indication in the particular case in hand may be met and successfully treated. There is no question but what a combination of these remedies into a daily schedule together with proper hygiene, diet, rest, and exercise form a powerful method for removing the warped and twisted states of the chronic invalid, lifting him into the domain of health. They thus become a part of a general system.

It is probably needless to say that a time element is more or less essential in these cases and when opportunity is given to train these patients into the ways of health, success will crown their efforts.

Exercise and Gymnastics.—In many conditions of disease, exercise and gymnastics play a large part in the restoration of patients to healthy conditions. That exercise and gymnastics are taking a prominent part in the therapeutic handling of cases that have for a long time been considered hopeless is evidenced by the fact that in functional disorders, digestive disturbances, rheumatic conditions, obesity, and the like, they are being frequently utilized, and form an integral part of every system of treatment. This is especially true of the organic diseases, and in these, many cases yield brilliant results by the application of gymnastics and graduated exercises in reeducating nerve and muscular function. Among the notable diseases of an organic character may be mentioned locomotor ataxia, lateral sclerosis, paralysis agitans, organic heart disease, and others of a like nature. In various forms of paralysis, notably hemiplegia, Swedish movements at the start, later actual exercise of the parts by the person afflicted is a valuable adjunct to other measures of treatment.

Hygiene and diet, of course, are important elements in every case of chronic disease or disorder. Many patients who come under the care of the sanatorist are well acquainted with the ordinary hygienic rules, and it is hardly necessary to dwell upon any particular line of hygiene than to say that an inquiry should be made into the general conditions of clothing, habits of eating, habit of stool and other ordinary functions and instructions given in this line. Diet, of course, is to be based upon a most careful quantitative gastric analysis, but when the patient is taking the mechanical treatments outlined, he may be allowed the utmost latitude with regard to certain kinds of food. I am firmly of the opinion that one of the great benefits that arise from mechanical treatment is the fact that the patient can eat, digest and assimilate a quantity of food impossible under other circumstances and conditions, thus enhancing nutrition, which, in its turn, enriches the digestive juice and thereby establishes a health circle of normal functioning.

In the chronic sick this is one of the most important elements in the successful handling of these cases and is often the basis of success, for when we can have the patient digest and assimilate large quantities of nutritious material, we are bound to build up and reconstruct him upon a stronger and firmer basis.

Rest.—The chronically sick are chronically tired, and they work under great difficulties and disadvantages, and this is one of the many reasons why sanatoriums offer great advantages to them. It must not be misunderstood, however, that rest is anything more than a part of a general system. While it should be made an important part, still it should follow treatment, being used largely as a measure by means of which the benefits of active treatment are assimilated. The plan of early to bed and late to rise, and with rest following each treatment, is a favorite prescription of mine. Worry is wearing as well as work, and patients that give up and go to sanatoriums, freeing the mind from the cares, anxieties, and petty annoyances that are so common to each and every one in this strenuous life of ours, are lightened of a burden that it is very difficult for them to carry, and which often prevents them from making any headway under ordinary hygienic and medicinal treatment. Many of these patients bring their worries with them, and it is with difficulty that they can be made to realize the many advantages of cessation, but with a gain in strength, with better blood, and better circulation, with an infusion of hope, worries gradually disappear.

Control and Individual Influences.—There is no denying that the control of every hour of the 24, of the movements, activities, and treatments, is a great and

fundamental factor in the arrangement of methods by which all conditions may be met and all measures systematically applied. This great advantage cannot be attained by the patient when he is within the walls of his private home or attending to matters, business or personal. Under these latter conditions of worry and work, the treatment labors at a great disadvantage, and is compelled to dovetail itself into the needs and exigencies of the occasion, but when one has command of all the time, he can control every movement and every action of his patient. Away from home, from its cares and worries, under the kind, firm, and gentle control of those who are laboring for his betterment and recovery, the patient takes on a different frame of mind and activity. Personal influence is very much greater, and this element can be utilized as a means of encouragement toward sustaining the patient at critical times during the earlier stage of his treatment. There never will come a time when the personal element and individual influence can be removed from the problem, and it therefore becomes one of the many influences that are brought to bear upon these cases.

Medicinal measures, that is to say, drug-taking, occupies a very small and minor place in the treatment of patients in chronic cases. It might be divided, more or less, under three heads: 1. Those drugs that are valuable as aids in the digestive process and which the gastric analysis has shown to be advantageous. 2. General tonics, prescribed with the idea of meeting deficiencies in nerve tone and blood thinness. 3. Drugs prescribed for their eliminant or antiseptic qualities.

While drugs do occupy the least and most minor position in the therapeutic armamentarium of the physician, still there are certain niches that they fill nicely and which prove of some help in a general system of treatment.

In the brief space allotted it is most difficult to more than glance over the ground and cover it more or less cursorily. It is my belief that with a clearer conception by the family physician of the importance and need of early treatment these patients will be sooner sent to sanatoriums under favorable conditions and where recovery can be assured under controlled conditions.

AN INTERESTING TUMOR AND ITS RELATIONS TO HEREDITY.*

BY

HENRY E. RADASCH, M.S., M.D.,
of Philadelphia.

Associate in Histology and Embryology, Jefferson Medical College.

This little tumor was a turnip-shaped mass, at one pole of which was attached a short and rather thick pedicle. By means of this pedicle it had been attached to the external surface of the little finger at the second joint. It gave the impression of a cyst, for, although resistant to the touch, this resistance resembled that of a vesicle filled with liquid. It measured 11 mm. to 12 mm. in its greater diameter and about 6 mm. in its lesser. The color was not pronounced to the naked eye, although it had been removed from a colored child. Following is the history of the case:

Mrs. M., colored, aged about 28, gave birth to a girl, who, though otherwise normal, had a turnip-shaped growth at the second joint of each little finger. Each was connected to the external surface of the finger by a short pedicle. These growths were allowed to remain for several days, and upon the fourth the obstetrician intended to remove them. Upon his visit, however, he found but one present, the other having apparently been pulled off during the night. Its stump was still bleeding, showing that the vascularity of the tumor was considerable, a point corroborated by histologic study of the other growth. The second was removed and given to me as of possible embryologic interest.

Investigation of the family history disclosed a rather inter-

*I am indebted to Mr. E. N. Faught, of the senior class at Jefferson Medical College, for this interesting tumor and the family history.

esting condition. The mother at birth possessed just two such growths upon the outer surface of each little finger at the second joint. This showed the symmetry of the inheritance. These were not removed early, as in the case of the baby, but were allowed to remain until she was 12. At that time they were removed by her mother, as they were considerably in the way and were a source of discomfort. The stumps bled profusely for some time and the outer two joints of each little finger seemed affected from that time on. At present these fingers are drawn up and in a crippled condition, and this condition is thought due to the removal of the little tumors.

Of still greater interest is the fact that Mrs. M's. mother at birth also possessed such tumors that seemed similar and were located upon the external surface of each little finger at the second joint. At the time, Mrs. M. remembered no more in regard to the history of her mother and since then the family has disappeared.

It seems that the growths upon the baby's fingers resembled those of the mother and grandmother. It can only be conjectured, however, that the microscopic pictures were the same, though this seems highly probable.

As no such case has come to my notice, it seemed of great interest, especially the incident of the transmission through several known generations and perhaps as many preceding generations. The symmetry of the condition and the fact that it occurred on the female side of the family are also points of interest. It seems to illustrate the adaptation of nature to peculiarities that may have cropped out accidentally and were then transmitted to the offspring for generations. It would be interesting to learn if any of the children of this last generation will possess such growths at birth. How far back among the ancestors this condition existed is not known, but it must have occurred quite a distance back, as it was reproduced with a symmetry and regularity and correctness that seems wonderful. Yet the cause, or causes, that lead to such growths in the first ancestor that showed them are unknown, and why such useless structures should be transmitted from generation to generation seems strange. Yet the transmission seems as perfect as the transmission of peculiar characteristics or traits.

Upon incision, the liquid contents, apparently lymph escaped. Upon examining the growth it was seen to consist of an outer wall and an inner mass. The wall was comparatively thick and light-colored, giving no macroscopic evidence of having been removed from a colored child. The inner mass was dark red and resembled a thin walled cyst containing blood. This mass appeared to be attached to the wall at one point and was much smaller than the tumor itself. No attempt was made to open it.

The entire tumor was fixed in Heidenhain's solution, dehydrated in alcohols of ascending strengths, cleared in a mixture of equal parts of absolute alcohol and cedar oil, and then pure oil, infiltrated with paraffin and blocked. It was mounted so that the sections would be cut parallel to the long axis. The tissue cut readily and the sections were stained with hematoxylin and eosin, hematoxylin and van Gieson, hematoxylin and picric acid, safranin and picric acid, paracarmin and picric acid, Mallory's reticulum and Weigert's elastica stains.

Upon general examination, at a magnification of 55 to 96 diameters, the tumor was seen to consist of epidermis, derma and central connective tissue, the centrum. The epidermis surrounded the whole tumor and the entire mass resembled a cross section of a finger in which the bone was missing. For about two-fifths of the circumference of the growth the epidermis was detached and formed the wall; the remaining portion was firmly attached to the inner mass, except at one small area where a small cyst had formed. This no doubt would soon have coalesced with the larger cyst. The wall seemed stretched, as further examination proved. The dark red color of the inner mass no doubt was due to the capillary reflex, as these vessels were exposed by the separation of the epidermis. As was seen later, these vessels were numerous and engorged with blood. Pigmentation was quite pronounced, though macroscopically none was suspected. In some areas the pigment was not limited to the epidermis, but was found scattered in the papillas of the derma. It did not extend beyond the bases of these papillas, however. The pigment was well shown in those sections stained with safranin and picric acid. The upper portion of the derma was papillated and contained many small bloodvessels and the ducts of sweat glands. The lower part of the corium contained the secretory parts of the glands, a great number of large bloodvessels and several pacinian bodies. The centrum seemed made up of a large number of darkly-staining fibers or bundles, resembling somewhat voluntary striated muscle. They were nearly all parallel, and in the upper sections studied, cross sections were few.

Under high magnification (265 to 750) the epidermis was seen to consist of four layers, stratum malpighii, stratum granulosum, stratum corneum, or perhaps lucidum, and a

stratum pigmentum. In the separated portion of the epidermis, the wall of the cystic part, the layers were less characteristic. Over the small cyst the layers were no different than those of the united areas. This seems to indicate that this separation must have been recent, and that the pressure in the small cyst was not great, as all the papillary waves of the stratum malpighii were present.

Stratum Malpighii.—In the united area the basal or genetic layer of the stratum malpighii consisted of a single layer of very tall, slender columnar elements, each of which possessed a long and comparatively broad nucleus that averaged 6 microns by 10 microns. The cells above the genetic layer were irregular, and their boundaries indistinct. They were fairly large, nearly polyhedral, and the nuclei well separated from one another. These nuclei were nearly all uniform in size; usually circular in outline, and averaged 7 microns to 8 microns in diameter. Each was surrounded by a clear space that made the darkly-stained nucleus quite prominent. The cytoplasm responded well to the acid stains. In the separated part the papillary waves were not well marked. This was probably due to the fact that this part of the epidermis seemed to have been stretched to form the wall of the cystic portion. The nuclei here did not respond so well to the safranin, but the light area around each was more prominent.

This layer averaged 80 microns to 125 microns in thickness. The pigment was scattered along its lower border and was more abundant in the separated part of the epidermis, especially in that part at the junction with the united portion.

Stratum Granulosum.—In those sections stained with safranin the stratum granulosum was not apparent. The best results for this layer were obtained with hematoxylin and van Gieson. This stratum consisted of two or three layers of long, spindle-shaped cells. The middle of each cell averaged 9 microns to 12 microns, and contained a distinctly stained nucleus surrounded by a narrow, clear field. Each cell was about 50 microns long, and the protoplasm contained many small dark granules. The whole layer averaged 25 microns to 35 microns in thickness, and had a somewhat wavy course.

Stratum Lucidum, or Corneum.—This stratum resembled the latter more than the former. It consisted of many layers of almost homogeneous material which gave a striated appearance. Nuclei were entirely wanting, although unequally stained areas appeared at irregular intervals. It averaged 75 microns to 125 microns in thickness and took a diffuse stain with safranin.

The Stratum Pigmentum.—This layer was peculiar in that it covered the external surface of the tumor. The amount of pigment was not great though it appeared so under the microscope. Macroscopically no deep color was apparent. The outlines of the individual cells could not be distinguished, though many layers were present. These cells were probably not over 5 microns in height as the separated layers did not exceed this in thickness. The pigment varied from coarse to fine granules, the latter being quite diffuse. The large granules varied from 5 microns to 8 microns and resembled nuclei, but they did not react to the basic stains. Where this stratum was thin the granules were usually large and closely aggregated so as to give a dark color. In the broader areas the pigment was finer and diffusely scattered. The protoplasm between the granules responded to the acid stains.

The pigment was not limited to the above layer as it was found in the strata corneum and malpighii in places. In these areas it varied from fine and diffuse to large and coarse. In several regions where the epidermis was separated from the corneum, pigment was seen in the latter. In one of these patches the granules were many, diffuse and small and extended to the bases of the papillae; in another the granules were fewer, closer, and closely arranged and limited to the apices of the papillas.

Derma.—The stratum papillare resembled that of ordinary skin. The papillas were best shown where the epidermis was separated. They consisted of delicate white fibrous connective tissue surrounding large and prominent capillaries. These vascular papillas predominated over those that contained tactile corpuscles of Meissner. The endothelium of the capillaries showed so plainly, that the entire outline of these vessels could at times be traced. The vessels were all engorged with blood cells that were in good condition. A basement membrane beneath the stratum malpighii was not discernible.

The stratum reticulare contained many very large bloodvessels. The connective tissue was arranged in larger, coarser bundles than in the foregoing. A delicate reticulum was visible in places. In some areas large wavy bundles predominated; these usually continued into the centrum. The nuclei were usually numerous and distinct, varying in length from 20 microns to 50 microns; in other areas the bundles were denser and formed a close felt-work that contained but few nuclei.

In the lower part of this layer were seen the secretory portions of the sweat glands and the pacinian bodies. The sweat glands seemed normal in structure and size. They formed a ring that enclosed the centrum and was visible to the unaided eye. The cells of the ducts were low cuboidal elements averaging 20 microns to 25 microns in height; each contained a large deeply-staining nucleus, which was usually about 10 microns in diameter. The diameter of the lumen about equaled the height of a cell, 25 microns. With van Gieson's stain the basement membrane of the secretory tubules

could be seen. The muscle fibers that usually separate these cells from the membrane, could not be distinguished. The endothelium of the capillaries that lay between the coils of the secretory tubule was very distinct.

The pacinian bodies were not numerous, numbering about six in a middle section. They were located more deeply than the sweat gland and were readily distinguished by their lamellar structure. The lamellas were well formed, and the nuclei of each distinct. The spaces between the various layers were prominent. Not many of these bodies exhibited a good section, but one showed an almost perfectly transverse cut. Near the middle of this one was seen the inner bulb, in the center of which was noted the distinct axis cylinder.

The *centrum*, on general examination, seemed to consist of many small, branching muscle fibers. When these were examined under the high power, however, no cross striations were visible, but each seemed to be made up of fibrils. The nuclei were not characteristic of voluntary muscles. To van Gieson's stain these bundles responded well, appearing as large, heavy bundles of fibers of white fibrous tissue. Nuclei, however, were unusually numerous; these varied from long, slender bodies 80 microns to 100 microns wide to shorter, heavier elements 20 microns to 30 microns long and 5 microns to 7 microns wide. Some of the bundles extended up into the derma, even to the papillary layer. Most of the fibers were in longitudinal sections, but cross sections were also seen. These latter increased in number as the lower pole of the growth was approached and the longitudinal sections correspondingly decreased. It seems as if these bundles all converged toward the pedicle in the lower part, and in the upper part of the tumor spread out like a fan.

Adipose tissue was not abundant, but was seen in patches in the lower part of the derma, but not in the *centrum*. It appeared normal.

Sections subjected to Mallory's reticulum stain showed that the most delicate fibrils were stained. When a magnification of 750 diameters was employed, the delicate fibrils of reticulum that supports the secretory tubules of the sweat glands were readily distinguished. The lamellas of the pacinian bodies responded to this stain also, and showed the concentric lamellation very well. Even the inner bulb exhibited a number of concentric blue lines, seeming to indicate that this part of the body consisted of concentric lamellas also. The wavy course of some of the smaller bundles was shown.

Sections stained with Weigert's elastica stain, indicated the presence of considerable elastic tissue. In the papillary portion of the derma this tissue was present in the form of delicate fibers that extended up into the papillas and formed the greater portion of these. In some papillas, the elastic tissue was not very abundant. In the neighborhood of the blood vessels, however, it was more abundant, even though the vessels were small. In the lower portion of the derma the elastica was quite abundant in areas. In the lighter, looser regions, the elastica existed as delicate fibers that formed a loose network; in other regions the fibers were larger and coarser, ran a wavy course, and gave a dark appearance to the area. It existed in the sweat glands, lying between the coils of tubule. In the *centrum*, the heavy, thick fibers, or fiber bundles, responded to this stain. The cross sections that predominated in those sections nearer the lower pole of the tumor, were as distinct as the longitudinal sections that predominated higher up. It seems very strange, however, that these fibrils should react well to both van Gieson's and Weigert's stains. Ordinarily, they do not exhibit the characters of the elastic fibers, except the wavy course, and yet they respond to the elastica stain.

The vessels of the tumor were unusually numerous, and very large for so small a growth. In the papillary layer of the derma, the capillaries were very numerous, large, and filled with blood cells in very good condition. In the lower part of the derma the largest trunks were found, and these were unusually large. They were all thin-walled, and some contained but few blood cells, while the others were filled. In the upper part of the tumor, these main trunks were not so large as those near the lower pole. They all seemed to converge toward the lower pole, from which extended the pedicle. Even upon careful examination with a $\frac{1}{2}$ oil immersion lens, no nucleated red cells were found, although the infant was but four days old.

Pigmentation is greater in these sections near the lower pole. It seems that the nearer the tumor to the skin the greater the amount of pigment. The amount in the stratum Malpighii is greater and it extends further and the same is true of the papillary layer of the corium. Here the amount of detached epidermis is also increased.

The pedicle was surrounded by the epidermis, which at no portion was separated. All the layers were distinct. The papillary layer of the derma contained no pigment. The elastic tissue was abundant and consisted of delicate fibrils. In the lower part of the derma, the elastica here and there consisted of large fibers, which had a longitudinal disposition. These occurred singly or in groups, but were not numerous.

The vessels of the pedicle were few but large. They possessed more distinct walls than higher up and had more muscular tissue in the medias. In the lower portion of the inner mass the vessels were numerous and large, and surrounded by the *centrum*. In the pedicle, vessels occupied the central part, replacing the *centrum*.

This tumor, from its position, seems to resemble a supernumerary finger. Its structure also is closely related to such a structure, but neither cartilage nor bone was found; instead a mass of peculiar connective tissue occupied the central area of the tumor, most of which responded to both the van Gieson and elastica stains. From the foregoing description the question naturally arises: Is this an aborted supernumerary digit?

On review of the literature on the subject, no cases were found in which the structure was given, though many interesting histories were noted. The following were chosen as of especial interest, representing supernumerary, deficient or suppressed and fused digits, bearing especially upon heredity.

Of supernumerary digits, the case cited by Dr. Hey¹* shows a remarkable recurrence of the malformation in several generations. The condition first appeared in the great great-grandfather, in whom it was represented by supernumerary toes. It next appeared two generations further on in the grandfather's children. Of these children but one showed the malformation (supernumerary toes), and his one child possessed the same. Although none of the other children of the grandfather had a malformation, the children of three of the six exhibited in one instance supernumerary toes; the two others had two children each, and of those a supernumerary toe and finger occurred in each family.

A point that Dr. Hey failed to note in the *alternation* showed in the occurrence in the grandfather's children.

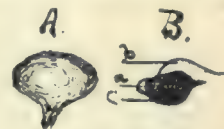
F. S. Sherwood² mentions in a whole family supernumerary digits on both hands and feet in two generations. These malformations occurred in both males and females. Under his own personal observation the condition was shown in the third generation.

One of the most interesting cases of suppression or deficiency is described by Heim.³ In this the malformation seemed to result from an acquired condition. The patient, aged 40, at about 19, injured the third finger with a needle. In two years, after considerable trouble, the finger and part of the metacarpal bones were removed. Her fourth child had malformed hands in which the digit was absent and the metacarpal bone was rudimentary and short.

Marshall⁴ mentions an interesting case. A child of seven months possessed fingers that ceased at the proximal phalanges and thumbs that were poorly developed. The same defect occurred in the toes, though not to the same extent. The mother was deformed in the same way. Of the mother's 11 brothers and sisters, *alternate* ones were affected in like manner. Her father had had the same malformation, beside double thumbs, and the condition alternated among his brothers and sisters. No information could be obtained as to the proportion of males and females affected. In the fourth generation of a collateral branch, the condition was represented in mother, son and grandson.

Armstrong⁵ cites cases of deficiency of phalanges and digits in several (3) generations. The children had one or more phalanges or digits missing and the condition was always symmetric, but the same in only two.

Under fused digits Dr. Hilbert⁶ cites a case in which the middle and index fingers of each hand and the middle and fourth toes of each foot were united in the soft parts. A common nail existed in all the deformities. Each foot possessed an extra hallux that articulated with the first



A, natural size of the tumor. B, cross section after embedding: a, separated epidermis forming the smaller cyst; b, separated epidermis forming the larger cyst; c, central mass or centrum.

n.—Normal	great, great-grandfather
s. t.—Supernumerary toes	great-grandfather
s. f.—" fingers	grandfather
	st. — n — n — n — n — n
	st. st. st. st. st. st.

metatarsal bone and lay parallel to the true hallux. The same is said to have occurred in father and grandfather. There are many other malformations on record, but these are of exceedingly great interest from a standpoint of inheritance. In all but one case they passed from generation to generation.

In the case of Dr. Hey we find the condition skipping three generations to appear in but one instance in the fourth, and in four of the fifth, alternating as the diagram shows. Marshall's case is interesting, because of the alternation. In the mother's family alternation occurred as it did in the father's. Both Armstrong's and Hilbert's cases represent three generations. The only one representing but one generation is of importance as it represents the transmission of an artificially produced condition to the child. It is the only one that gives any cause for the origin of the malformation, as none of the others have any such element.

CONCLUSIONS.

From its general structure the tumor represents a digit in which the bone is absent. Its position is suggestive of this, but its shape is against it. No description of any such tumor or description of the structure of the digits could be found. It exemplifies inheritance, and shows quite a persistence in extending through three generations. Its symmetry, location, and general appearance in the three generations bear this out. It was transmitted through the female side, and to the female only.

REFERENCES.

- ¹ Brit. Med. Jour., May 28, 1904.
- ² Jour. Amer. Med. Assn., March 11, 1899.
- ³ Wien. klin. Rundschau, No. 9, 1904.
- ⁴ Rep. Sec. Study Dis. of Children, London, 1903.
- ⁵ Brit. Med. Jour., June 11, 1904.
- ⁶ Münch. med. Woch., No. 39, 1904.

Panama Canal Commission.—It is reported that President Roosevelt will call for all the resignations of the Isthmian Canal Commission before he leaves for the South. It is understood that he will appoint an entirely new board of three members, leaving four places vacant. The commission has prepared and filed with the Secretary of War a reply to criticisms made on its conduct of affairs on the Isthmus of Panama by Dr. C. A. L. Reed, in a letter to the Secretary dated March 2 last. The charges are considered in detail. The commission declares that the organization of the Health Department was effected with the cooperation of the medical staff and that Dr. Reed's criticism is without foundation. The commission flatly contradicts Dr. Reed's statements about the purchase of supplies and concurring in the existence of yellow fever on the Isthmus, the employment of hospital physicians, purchase of supplies and the general subject of sanitation the Commission refutes the statements of Dr. Reed.

The Drug Combine.—Attorneys in Chicago, from Philadelphia, have been investigating the so-called drug trust with a view of instituting criminal proceedings against the alleged combination. The assertion of one of the attorneys concerning the condition is as follows: The plan of operation covers the whole country. Over 20,000 retail druggists are members of the national association and are acting in accord with the scheme to raise and keep raised the retail prices of proprietary drugs and medicines. Every wholesale druggist in the United States is a party to the arrangement, and about 100 of the leading proprietary firms and corporations are involved. The testimony produced at the Chicago hearing shows the business governed by the combination amounts annually to \$400,000,000, and it is estimated that the retail druggists have made at least \$40,000,000 a year as a result of the scheme. There is abundant evidence of the conspiracy in documentary as well as oral form. The National Retail Association has about 20 paid men called organizers, who are stationed in the various sections of the country, and who report the names of all druggists who sell below the fixed price. Each local association gives out, periodically, a schedule of prices, and every druggist must conform to this schedule or have his name sent to Secretary Wooten as an aggressive cutter. Wooten then places the cutter's name on a blacklist, which is sent out at regular intervals to the wholesale dealers throughout the United States, and from that time forward the cutter cannot purchase any supplies in any State in the union. If a wholesaler continues to supply a blacklisted cutter, this wholesaler becomes the subject of a complaint in the shape of a "pink slip" sent out by Wooten to the retailers, and the result is the retailers withdraw their patronage from the offending wholesaler.

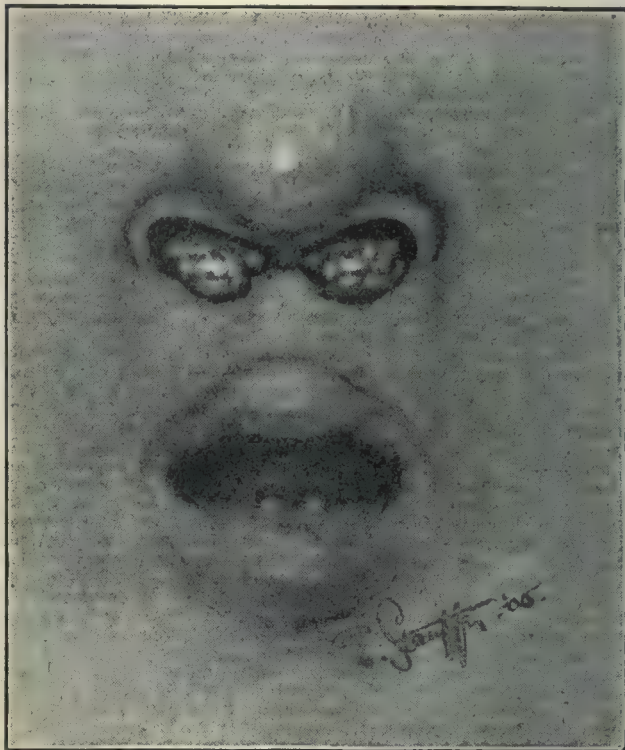
PAPILLOMAS IN SYPHILITIC CHILD, OCCLUDING BOTH NOSTRILS.¹

BY

W. G. B. HARLAND, M.D.,
of Philadelphia.

The following case is an unusual one, and seems worthy of being recorded:

John W., age 8, colored, presented himself at the Presbyterian Hospital, in the summer of 1904, with soft tumor masses arising from the base of each nostril and obstructing respiration by their presence. This condition dated back two weeks. A thin mucopurulent discharge exuded over the growths, these being papillomas covered with thin, tough, pallid epidermis. The nose was broad and somewhat sunken at the bridge, and the general appearance of the head suggested hereditary syphilis. The tumors looked like venereal warts, and the nasal discharge was like that often seen in children with congenital syphilis. Under the administration of mercury and potassium iodid, with local applications of silver nitrate, the growths rapidly disappeared. It was then possible to examine the nose



and perceive a large septal perforation and a swelling of the mucosa of the floor of the left nostril, similar in some respects to the tumors at the entrance.

Papillomas of the kind described are often found in syphilitics at the orifices of the body where skin and mucous membrane join. A continuous irritating discharge causes overgrowth of the papillary layer of the corium, giving rise to so-called syphilitic vegetations—lesions not syphilitic in nature, but apt to occur in those suffering from specific infection.

Considering the frequency of such growths elsewhere, it is odd that the nose is affected so seldom. Papillomas in this locality do not often occur. No mention is made of them in the textbooks on diseases of the nose and throat, nor in books on skin diseases; nor have I found anybody who has seen a case similar to the one herewith presented.

Variola and Bubonic Plague in Para, Brazil.—Variola and bubonic plague are both existent in Para, or, as it is called in the native tongue, Belem, the capital of the State of the same name. There are also many cases of beriberi in the city.

¹Case exhibited before the Section on Laryngology, College of Physicians, of Philadelphia, November 16, 1904.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 25, 1905. [Vol. XLIV, No. 12.]

1. Some Common Errors in the Treatment of Pulmonary Tuberculosis. NORMAN BRIDGE.
2. The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve: A Report of 20 Cases of Operation on the Gasserian Ganglion, with Anatomic and Physiologic Notes on the Consequences of Its Removal. (Continued.) HARVEY CUSHING.
3. An Improved Röntgen Ray for the Study of Bone Injuries and Foreign Bodies. G. H. STOVER.
4. Should Inebriates Be Punished for Crime by Death? T. D. CROTHERS.
5. The Museum in Medical Teaching. MAUDE E. ABBOTT.
6. Diphtheria Infection in Minnesota: Recent Experiences with the Disease in School Children and in Institutional Epidemics. F. F. WESBROOK.
7. Clinical Examination of the Urine: A Critical Study of the Commoner Methods. (Concluded.) RICHARD C. CABOT.
8. Idiopathic Epilepsy: Observations on Its Treatment. DANIEL R. BROWER.
9. Leukemia: The Ultimate Failure of the Röntgen Ray as a Therapeutic Agent. EVERETT J. BROWN and CECIL M. JACK.

1.—Tuberculosis.—Norman Bridge (Los Angeles, Cal.) insists on the importance of reinforcing the nutritive forces of the body as the chief agency in the cure of tuberculosis. The fear of draughts is a popular error; another is overfeeding and the recommendation of alcoholics. Still another is the indiscriminate recommendation of exercise, as if muscular development could help to resist the disease. He also opposes deep breathing exercises. What we need is a safe and efficient method of putting a sick lung at rest in all unilateral cases. Another error is the use of ergot in hemorrhage, tending to increase the blood-pressure, and the administration of normal salt solution in exsanguinated cases, thus again distending the vessels and opening up their lesions. The patient is most likely to survive a large lung hemorrhage when the blood-pressure of the parts is lessened to the utmost for the time. Still other errors are the recommendation of indiscriminate eating, taxing the digestive powers, errors of clothing, the injudicious recommendation of change of climate. In Illinois, patients by proper management, can be given 85% of the benefits of the very best climates. With the modern treatment of the disease properly carried out, in almost any climate its mortality can be reduced another 10%, and this he maintains will be effected.

3.—Röntgen-ray Stereograms.—G. H. Stover (Denver) finds a decided advantage in obtaining what may be called stereoscopic röntgen-ray pictures, taking two separate plates by slightly shifting the position of the radiating tube, and using a special stereoscope for their examination when placed side by side. By diverging the eyeballs by attempting to look through a point midway between the negatives or prints, and focusing the eyes for a distance far away, the stereoscope may be dispensed with. Details will gradually appear which are not noticed at first glance. The advantages of this method in locating foreign bodies or injuries to bones are, he says, obvious. While he does not claim priority, he thinks he has at least been one of the early workers with this method.

4.—Criminal Responsibility of Inebriates.—T. D. Crothers (Hartford, Conn.) concludes from his studies on the subject that alcohol produces changes in the brain and nervous system, impairing responsibility, and that the State in considering them sound and responsible fails in its object to prevent crime and to protect society through the law. Statistics and experience prove, he holds, that the fear of punishment fails to affect these cases. The death penalty should never be inflicted on inebriates for crime committed under the influence of alcohol. Capital punishment, in such cases, favors a contagion of crime in other persons similarly affected. The excessive use of alcohol should be accepted, he maintains, as evidence of mental impairment and of inability to control conduct. Crothers states that physicians who are called on to give evidence regarding the sanity and responsibility of inebriates should be governed by the facts of the neurotic heredity and by the liquor and drug history.

5.—The Museum in Medical Teaching.—Maude E. Abbott (Montreal) notices the great advance in laboratory methods in medical teaching, but considers that the adaptation of the medical museum to the didactic method of teaching is too little understood. When properly systematized, the museum furnishes most valuable object lessons far more instructive

than mere reading—a sort of observational study enabling the student more easily to fix the facts in his mind. She describes at length the methods employed in McGill University, the classification and general arrangement and the use of the specimens for direct teaching purposes in the way of examinations and quizzes on the specimens presented.

6.—See *American Medicine*, Vol. IX, No. 6, p. 219.

7.—Clinical Examination of the Urine.—R. C. Cabot states that, incited by a statement of Councilman that the chemic and microscopic examination of the urine failed to give certain information of the character of the renal lesions, as well as by discrepancies coming under his own observation, he has compared critically the records and postmortem findings in the cases that have come to autopsy in the Massachusetts General Hospital since 1893. Although the number of cases is not large, he thinks they warrant the following conclusions: 1. Many cases of acute glomerular nephritis occur that are unrecognized by any known methods of examination. 2. The diagnosis is at fault in some cases of subacute and chronic glomerular nephritis, but in the great majority of cases the condition of the urine, taken in connection with other symptoms, foretold the autopsy findings. 3. In chronic interstitial nephritis, the diagnostic resources appear to be neither so sufficient as in the chronic glomerular form, nor so inadequate as in the acute glomerular nephritis. In about a third of the cases the diagnosis was correctly made before death. 4. Among other conditions mistaken for nephritis by too much reliance on the urinary findings are senile and arteriosclerotic condition, mistaken for chronic nephritis, while in conditions involving passive congestion or acute kidney degenerations, the urine occasionally simulates that of acute nephritis. Even when no lesions are found at autopsy, the urine is sometimes highly albuminous and full of casts. 5. In ordinary urinary examinations the common errors are: (a) The attempts to estimate urea without accurate knowledge of the patient's metabolism; (b) stating that renal cells are present when all that is seen are small mononuclear cells, perhaps from the kidney tubules, perhaps not. 6. Cryoscopy and other attempts to test the renal permeability more directly are not yet capable of supplementing in clinical work the older methods of examination. Cabot holds that the vast majority of estimations of urinary solids, including urea, are a waste of time, since they are not and cannot be made part of a general metabolism experiment, and that the attempt to estimate the anatomic condition of the kidney by measuring albumin and by searching for casts is fallacious. The most reliable data are the 24-hour quantity, the specific gravity and the color.

8.—Treatment of Idiopathic Epilepsy.—D. R. Brower (Chicago) says that spontaneous cure of this disease is possible, and mentions one of several cases in his observation. He calls attention to the necessity of more care as to the prevention of the trouble, especially in infants suffering from convulsions. The proper treatment and environment in these cases may prevent the later development of the disease. The treatment of the individual convulsions is also important, and the aura may afford a warning that enables the patient to abort the attack. He advises the carrying by epileptics of nitrite of amyl pearls for this purpose. Other methods may also be effective in special cases. In epilepsy there is an autointoxication, usually of gastrointestinal origin, and the diet should be carefully regulated. These patients are usually very hearty eaters, and it is advisable to restrict the diet in quantity, to regulate periods of eating and to insure thorough mastication and digestion. Intestinal elimination must also be attended to, and for intestinal antiseptics he finds salol combined with phytolacca often very useful. For combating the nervous irritability the bromids are most useful, and he prefers the sodium salt. Their overuse, however, is dangerous, and Brower refers much of the existing epileptic insanity to this cause. The dose should seldom exceed 60 gr. daily in plenty of water after eating, and he sometimes adds fluid extract of *Solanum carolinense* in $\frac{1}{2}$ dr. to 2 dr. doses to the bromid mixture. Strychnin is also a valuable remedy for meeting the circulatory and vasomotor defects, and he specially recommends fluid extract of *Adonis vernalis*. Cerebral sclerosis calls for alteratives. In conclusion he insists on the importance of allowing plenty of time, at least

five years after disappearance of symptoms, before claiming a cure of epilepsy.

9.—Splenomedullary Leukemia.—Everett J. Brown and Cecil M. Jack (Decatur, Ill.) reported further history of a case of splenomyelogenous leukemia symptomatically cured by röntgen-ray treatment. In the fall of 1904 the patient began to become weaker, the spleen enlarged again and he finally succumbed with typhoid-like symptoms just 16 months after first coming under observation. The macroscopic examination showed a somewhat enlarged spleen, some kidney lesions and no special gastrointestinal abnormalities. The pathologic examination showed a marked fibrosis of the spleen with a general picture of splenic anemia, no evidence of leukemia in the intestines or lungs, extensive deposits of lime salts in the kidneys involving especially the convoluted tubules, and the lymph-glands showed a lymphoid hyperplasia resembling that of lymphatic leukemia, these being the only pathologic findings suggestive of leukemic disease. A. S. Warthin, of Ann Arbor, who made the pathologic examination, remarks that the only conclusion justified by the findings would seem to be that the röntgen-ray treatment had resolved the leukemic condition into aleukemic state, but that the essential disease process, as shown by the lymph-glands, was still active. The leukocytes have been removed from the general circulation and from the areas of infiltration, and the splenic changes seemed to be secondary. The remarkable condition in the kidneys offers room for some speculation as to the source of a toxin such as might result from very extensive destruction of leukocytes. No specimen of bone marrow was secured.

Boston Medical and Surgical Journal.

March 25, 1905. [Vol. CLII, No. 12.]

1. Can We Wait for Localization when the General Peritoneal Cavity is Involved? C. A. PORTER.
2. Remarks on Appendicitis. MAURICE H. RICHARDSON.
3. Some Observations on Appendicitis. R. H. FITZ.
4. Choice of Method of Opening the Abdomen in Appendicitis. FRANCIS B. HARRINGTON.
5. Subphrenic Abscess as a Complication of Appendicitis. HERBERT L. BURRELL.
6. Immediate Operation vs. Delay in Acute Appendicitis. G. W. W. BREWSTER.
7. The Bacteriology of General Peritonitis. THOMAS J. MANAHAN.
8. The Results of Operative Treatment of General Peritonitis following Appendicitis, at the Massachusetts General Hospital during the Past Five Years. WILLIAM C. QUINBY.

1.—Treatment of Appendicitis.—C. A. Porter warns against giving purgatives before operation in acute cases, believing Ochsner's treatment best then, and when operation is refused, and also after operation. Notwithstanding Ochsner's statistics, immediate operation will be urged by the majority in acute cases. Conservative treatment may be advised when septic symptoms are disproportional to the evidences of peritonitis, in cases due to streptococcal infection; also, when there is recent improvement, or obesity, surroundings, etc., are unfavorable for operation. Ochsner's treatment should be advised in most diffuse cases, when a reasonably good surgeon is unobtainable. General irrigation is contraindicated in extreme distention, and is indicated in recent diffusion, and especially after sudden rupture of an abscess into the peritoneal cavity, and sometimes in spreading infection without adhesions, but not in general peritonitis with circumscribed collections of pus. It should be followed by a tube or cigaret drain to the bottom of the pelvis or vagina, with exaggerated Fowler's position. Local operation with drainage is preferred by many. Peritoneal resistance is the most important factor in overcoming infection, if the abscess and pelvis are drained, or the appendix promptly removed, as proved by similar results with different methods of operation. After operation, colotomy or the rectal tube for distention may be occasionally beneficial. Turpentine stipes are best. Cathartics are ineffectual, and may be given when intestinal sounds indicate returning peristalsis. [H.M.]

2.—Appendicitis.—M. H. Richardson operates as early as possible after the first symptoms. Mortality is due to waiting till sepsis overburdens the patient. Severe affections of lungs, bronchi, heart, kidneys, etc., furnish exceptions to the rule. In general peritonitis recoveries are frequent after operation if this is done before marked changes in the intestinal peri-

toneum or paralysis of the bowel occurs. In many cases of recurring peritonitis the operation is safe during the attack, but on the whole it is desirable to postpone it if belonging to a mild series. The diagnosis of appendicitis may be extremely difficult, the prognosis can never be positively made, the operation, though often easy, is more often difficult. Among the inexperienced a policy of universal medical treatment will give better results than a universal surgical treatment. Richardson does not believe in waiting for localization in involvement of the general peritoneal cavity, considering it dangerous. For chronic appendicitis the best incision is the muscle-splitting one of McBurney. For a longer incision the outer border of the rectus is the writer's choice. If turbid serum spurts out on nicking the peritoneum it indicates beginning general infection. Gauze can be placed to absorb all the fluid, putting in permanent wicks before removing it. No wiping or irrigation is necessary. A patient is never safe from hernia when the incision is at right angles to the internal oblique and transversalis. [H.M.]

3.—Appendicitis.—R. H. Fitz believes the physician is justified in delay until conditions call for an immediate operation. If after 24 hours there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay. The surgeon may be expected to perform an immediate operation on his arrival under these circumstances. [H.M.]

4.—Choice of Method in Opening the Abdomen.—F. B. Harrington states that by opening at McBurney's point we can drain the right iliac and lumbar regions, and the pelvis, without penetrating intestinal coils. In removing septic collections he depends almost entirely on sponging and drainage. It is possible to enlarge the McBurney incision so that an opening extending from the iliac crest nearly to the linea alba can be obtained with no cross cutting of muscular or tendinous fibers. This he describes again as the "extended McBurney incision." If there is doubt whether the disease is of gallbladder, duodenum, pylorus, or appendix, he uses a rectus incision at the level of the umbilicus; if the doubt is between the appendix and the pelvic organs, the median incision; if the symptoms do not point to any particular region, a median incision. [H.M.]

5.—Subphrenic Abscess Complicating Appendicitis.—H. L. Burrell estimates this as occurring in from 8% to 10% of fatal cases of appendicitis. In the cases in which it occurred in the Boston City Hospital the development covered from 2 to 14 weeks. The temperature, pulse, and respirations were markedly increased. Leukocytosis varied from 16,000 to 29,500. The incision, with or without anesthesia, was made between the eighth and tenth ribs in the right midaxillary line in most cases. [H.M.]

6.—Immediate Operation vs. Delay in Acute Appendicitis.—G. W. W. Brewster believes that delay is indicated in mild cases in which there is no doubt about recovery without operation, and in immediate operation in all other cases. [H.M.]

7.—Bacteriology of General Peritonitis.—T. J. Manahan has classified in 110 cases facts indicating the sources of infection, the presence or absence of septicemia, as to whether the infection was pure or mixed, and the organisms found. Twenty-nine percent showed septicemia. The streptococcus caused the lesions in 43%. A table indicated the relative frequency of other organisms. [H.M.]

8.—Operative Treatment of General Peritonitis following Appendicitis.—W. C. Quinby finds that of the cases at the Massachusetts General Hospital in which it was demonstrated that pus was situated throughout the cavity, 24 (30%) lived and 57 (70%) died. Of the fatal cases those which were ill the shortest time before operation survived it the longest. It has been impossible to draw conclusions as to the results following different methods of operation. [H.M.]

Medical Record.

March 25, 1905. [Vol. 67, No. 12.]

1. Manuel Garcia: Teacher, Discoverer and Man. JAMES E. NEWCOMB.
2. Radiotherapy and Surgery: With a Plea for Preoperative Radiations. WILLIAM J. MORTON.
3. Bile-tract Adhesions. ROBERT T. MORRIS.

4. Intratracheal Injections. J. W. GLEITSMANN.
5. The Present Status of Blood-examinations in Surgical Diagnosis. FREDERIC E. SONDERN.
6. Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon through the Vermiform Appendix or an Opening Into the Cecum. WM. H. ARTHUR.
7. A Warning and a Protector for Röntgen-ray Workers. ARTHUR HOLDING.

2.—Preoperative Radiations.—W. J. Morton (New York) says that in the treatment of carcinoma the best interests of the patient demand a combination of röntgen ray and surgery. The newgrowth must be removed, but the cutting-out process carries with it another most dangerous feature and that is incision of infected lymphatics, and the risk of leaving behind some of the neoplastic cells. On the other hand, radiation will not remove the tumor, but it will clear up of cancer cells all the outlying territory up to the tumor itself, and so render the operation a comparatively safe one. The plan followed by the author is as follows: Practise röntgen and radium radiations thoroughly, say six weeks to two months, before operation; and practise it as well after operation, say for the same period of time. In this manner we avoid the Scylla of "soiling the wound" and the Charybdis of failure to remove the tumor. The radiation should not be carried to the point of producing destruction of tissue, but should just barely give rise to a mild dermatitis. This preoperative radiation does not interfere with wound healing or favor the occurrence of gangrene. A number of illustrative cases are cited and figured, and the author's general conclusions are summed up as follows: 1. Radiation treatment exerts a retarding effect upon the growth of some cancers. 2. It cures some patients—the ratio to operative measures is not here discussed. 3. Preoperative radiation will increase the ratio of cures by operation. 4. Preoperative radiation transforms some inoperable cases into operable cases. 5. Preoperative radiation is recommended as a precautionary measure, probably quite as important as preoperative antiseptic preparation for surgical operation.

3.—Bile-tract Adhesions.—R. T. Morris (New York) says that the new subject of bile-tract adhesions is destined to awaken the medical profession as we were awakened by the subject of appendicitis. The condition is very common, and gives rise to symptoms of local tenderness, pain and colic, that are often mistaken for gallstone disease. The treatment is operative separation of the web of adhesions, and prevention of their recurrence by the application of either chromicized Cargile membrane or of aristol to the roughened peritoneal surfaces. Removal of the gallbladder is to be recommended. The operation is usually almost startling in its success, but care in diagnosis is necessary to avoid needless intervention. The diagnosis and treatment of these patients opens up a new vista, and biliary adhesions stand in abundance midway between the thoroughly understood adhesions of the pelvis and those of the cecal region.

4.—Intratracheal Injections.—J. W. Gleitsmann (New York) gives a historic review of the development of this method of medication which he considers deserves more attention than has been accorded it. Judgment in the selection of cases is necessary, however, and though the method is useful in alleviating the dry cough in the beginning stage of pulmonary tuberculosis, and may at a later stage favorably modify the putrid secretions in this disease, a cure is not to be expected from the procedure *per se*. In bronchiectasis the injections are almost specific, and many, but not all, cases of asthma can be relieved in this way. Intratracheal injections are not to be recommended in acute inflammatory conditions, but they are most efficient in chronic tracheitis and bronchitis, while tracheal syphilis has been cured and fetid pulmonary gangrene has been favorably influenced. The vehicle should be a bland purified oil to which may be added menthol in the proportion of 1% to 15%, guaiacol and creasote carbonate from 1% to 2%, etc. The laryngeal mirror is essential to the proper introduction of the canula which is preferably made of hard rubber and is used in connection with the Hartmann ear syringe, holding an ounce.

5.—Blood-examination in Surgical Diagnosis.—F. E. Sondern (New York) states that the differential leukocyte count offers a better guide to the status of an inflammatory process than the absolute leukocytosis. Three distinct blood

pictures may occur in inflammatory lesions. 1. A relative percentage of polynuclear cells below 70, with an inflammatory leukocytosis of any degree, excludes the presence of pus at the time the blood-examination is made, and usually indicates good body resistance toward infection. 2. An increased relative percentage of polynuclear cells, with little or no inflammatory leukocytosis, is still an absolute indication of the inflammatory process, and the percentage is a direct guide to the severity of the infection. 3. An increased relative percentage of polynuclear cells with a decided inflammatory leukocytosis. Here the percentage of polynuclear cells is an accurate guide to the status of the inflammatory lesion. Iodophilia is less reliable as a test of the presence of suppuration than is the differential count.

6.—Treatment of Chronic Dysentery by Irrigation of the Colon through the Appendix.—W. H. Arthur (Washington, D. C.) has carried out the treatment of dysentery by this plan in six patients, and is very favorably impressed with the results, although he considers the number too small to enable definite conclusions to be drawn. The advantages of this method of irrigation over the deep rectal injections are: 1. The irrigating fluid is delivered first at the point shown by experience at the postmortem table to be the location of the most extensive lesions, and is carried from there by the natural peristaltic movement of the colon to the outlet. Rectal irrigations, to reach even the transverse colon, must overcome this natural tendency of the bowel to drive out any foreign substance. 2. It is entirely painless, and very much easier for the nurse to administer. Indeed, the patient can soon be taught to do the irrigating himself. 3. It is possible to keep it up much longer, for rectal irrigations soon become so distressing that they must be discontinued for long periods.

7.—A Protection for Röntgen-ray Workers.—A. Holding (New York) rehearses the dangers of dermatitis, malignant disease, azoospermia, etc., that confront the röntgen-ray worker, and points out that it is possible that the second decade of experience with Röntgen's discovery may reveal activities as yet unsuspected. The greatest care should be observed by radiographers to avoid unnecessary exposure, and the author describes and illustrates a suitable screen 3 ft. by 6 ft. in size, covered with double layers of lead plates, which is intended to cut off all rays from the operator who manipulates the switch-board from its shelter and observes patient and tube by means of a pivoted mirror affixed to the side of the framework.

New York Medical Journal.

March 18, 1905. [Vol. LXXXI, No. 11.]

1. Gonococcus Infections in Children, with Especial Reference to Their Prevalence in Institutions and Means of Prevention. L. EMMETT HOLT.
2. The After-treatment of Abdominal Sections with Eserin Salicylate. DANIEL H. CRAIG.
3. The New York Board of Health and the Antispitting Crusade. WOLF FREUDENTHAL.
4. Opium Smoking Readily Cured. W. H. JEFEREYS.
5. Subcutaneous Injuries of the Abdominal Walls and Viscera. (Concluded.) DANIEL N. EISENDRATH.
6. Tuberculous Meningitis with Congenital Stricture of the Rectum. HENRY S. WIEDER and HAROLD L. SPRINGER.
7. A Study of the Stomach Function in Pulmonary Tuberculosis. J. F. MUNSON.
8. A Case of Acute Turpentine Poisoning. GUSTAVE HAUSER.

2.—Eserin Salicylate after Abdominal Section.—D. H. Craig outlines in detail his method of administering eserine salicylate after abdominal section for the purpose of antagonizing intestinal paresis. He says there should be no one routine dose, but the amount employed should be adjusted, whenever possible, to the demands of the individual patient. In cases in which the bowels are normally active or readily influenced by small doses of cathartics, a sixtieth of a grain is usually all-sufficient. When used in this small dose it may be repeated in a short time if necessary. If the patient gives a history of chronic constipation, the full therapeutic dose of a thirtieth of a grain should be given. In cases in which no satisfactory bowel data can be obtained, it is best to give a fortieth of a grain, and repeat at the first indication that the dose has been inadequate. He says that eserine salicylate should never be thus used, except in conjunction with atropin, because atropin systematically antagonizes all the undesirable actions of eserine, and vice versa, while they unite in stimulating intestinal peristalsis. He gives

$\frac{1}{160}$ gr. of atropin by the mouth an hour before anesthesia, when there is time, otherwise $\frac{1}{160}$ gr. subcutaneously immediately before. As soon as practicable after the opening of the peritoneal cavity, the entire cavity, the entire field of operation is explored, and if no condition is found which offers the slightest possibility of jeopardizing the integrity of the intestinal tunics below the peritoneum, the eserine is ordered to be administered at once. Craig does not advocate the use of this agent in all cases. Many cases arise in which intestinal rest is imperatively demanded; in such cases eserine should be withheld at least until such special indication for intestinal quietude has passed. The concomitant treatment after the administration of the eserine differs in no way from that ordinarily followed, except as to the omission of cathartics. [C.A.O.]

5.—Subcutaneous Injuries of the Abdominal Walls and Viscera.—D. N. Eisendrath urges greater care in the diagnosis of these cases so that surgical intervention might be discussed at a time when the percentage of chances of success was greatest. Left to themselves, over 80% of patients with spleen and liver injuries, 93% of those of the intestine, 89% of the extra-peritoneal and 98% of the intraperitoneal ruptures of the bladder will die. The outlook for spontaneous recovery in laceration of the kidney is far better. About 65% of such patients will recover without operation. Through earlier diagnosis and operation the percentage of recoveries is constantly increasing. The author's cases consist of two of rupture of the spleen, in both of which, unfortunately, the diagnosis was made too late; one rupture of the kidney, and two of the bladder. [C.A.O.]

7.—The Stomach in Tuberculosis.—J. F. Munson has made a study of the stomach function in a number of cases of pulmonary tuberculosis and has also given a review of the literature on this subject. He divides his cases into three groups: Advanced cases, cases of moderate intensity, and beginning cases. An examination of the tables and summaries shows that the motor power is little disturbed. The acidity in the first group appears about normal, but in the other groups is markedly decreased. In a large proportion of all the cases the same individual shows, at different times, hypochlorhydria and anachlorhydria. In such cases, he was not able to trace any connection with the fever; indeed, in view of Hildebrand's belief that free hydrochloric acid was not present at temperatures above 37.8° C., it is of interest to note in several instances that, not only was free hydrochloric acid present with temperatures above this point, but that it was present in normal or increased amounts. [C.A.O.]

Medical News.

March 25, 1905. [Vol. 86, No. 12.]

1. Roof-gardens on City Private Houses. W. P. NORTHRUP.
2. Fifteen Years' Experience in the Treatment of Typhoid Fever at the Roosevelt Hospital. WILLIAM HANNA THOMSON.
3. Clinical Studies in Blood-pressure and Shock in Traumatic Surgery. JONATHAN M. WAINWRIGHT.
4. The Purpose of Eyeglasses. ELLICE M. ALGER.
5. The Treatment of Chronic Empyema of the Antrum, Both Simple and when Combined with Empyema of the Ethmoid and Sphenoid. R. BISHOP CANFIELD.

1.—Roof-gardens on City Private Houses.—W. P. Northrup describes a roof-garden made at a cost of \$150 which afforded in all kinds of weather a safe playground for the children, above the city dust and noise line, allowing greater freedom in play than the street or the park, and working a transformation in their physical condition. [H.M.]

2.—Typhoid Fever.—W. H. Thomson believes that proper management in the first seven or 10 days materially modifies the subsequent course. Comparison between the incidence and degree of the leading symptoms now and 40 years ago shows the progress made. The absence of diarrhea now in the majority of cases he ascribes to a change in feeding. Thirty years ago beef tea was universally given, causing the above, and tympanites. Hemorrhage from the bowels has occurred in 1% of the writer's 574 hospital cases. Perforations were found in 7 out of 31 fatal cases. Our present forms of treatment have done away with the "typhoid condition." Delirium occurred in 16%, half of these being delirious on admission. Tremors and subultus were rare. Fissure of the tongue is not once

recorded. Peripheral neuritis limited to the feet occurred in 7%. There should be a foot rest with a cradle for the bedclothes after the third week, to avoid stretching of the nerves. In neuritis the feet should be wrapped in cloths wet with hot water containing infusion of red pepper. There was 18% of relapses; their etiology is obscure. Rectal irrigation from the beginning with four gallons at 120° prevents kidney complications from invasion by *B. coli*. Urotropin and sodium benzoate should be given when these are found in the urine. The writer gives calomel, 5 gr., and compound jalap powder, 35 gr., every other night till the middle of the third week. Milk should be diluted, a half to three-fourths with lime water, and pepsin be given every three hours. From 80 gr. to 160 gr. of bismuth subcarbonate may be given daily. Camphor is the most certain of cardiac stimulants. The Brandt bath is a potent eliminator of the toxin. Its duration should be according to the effect on the temperature. [H.M.]

3.—See American Medicine, Vol. VIII, No. 18, p. 751.

4.—The Purpose of Eyeglasses.—E. M. Alger states that improvement of sight is only one function of eyeglasses, relief of strain being fully as important. One may have perfect vision and be subject to eyestrain, may have headaches and other reflexes. Small errors of refraction often cause more strain than large ones, since there is more constant effort to overcome them. Strain can generally be relieved by glasses, but those which give the best vision may increase it, hence patients cannot safely select their own. [H.M.]

5.—Chronic Empyema of the Antrum.—R. B. Canfield urges first discovering the exciting cause and removing that. Treatment of the cavity through an empty tooth socket subjects the antrum to additional infection from the mouth and the patient to the continued drainage of pus depressing both health and spirits. With a nasal opening the breath creates a current which draws out any secretion in the antrum. The opening may be made in either the middle or lower meatus in accordance with the varying relation of these parts to the antrum. After air inflation the cavity should be irrigated and then dried with hot air. If improvement is not prompt the accessory sinuses should be suspected and opened. For the removal of newgrowths and diseased mucous membrane he describes a total resection of the facial wall of the antrum through an incision above the tooth line. From the antrum those ethmoid cells not accessible from the nose can be reached and cured. Some empyemas resist all treatment, others are curable in a few weeks. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Copious Water Drinking and Excretion in Typhoid Fever.—Though the value of the ingestion by the patient of large quantities of water during many of the febrile diseases is a recognized fact in therapeutics, it is a point insisted upon much less frequently than it deserves. This is due partially to the belief by many physicians that the wholesome effect of the water may possibly in part be overcome by its untoward influences. Studies recently made public¹ should go far toward correcting such ideas, at least insofar as typhoid fever patients are concerned. Drs. E. F. Cushing and E. W. Clarke detail the clinical results in 100 cases of typhoid fever in which the patients took as much as a gallon or a gallon and a half of water daily, resulting in a polyuria corresponding closely to the amount ingested. As compared with other cases not so treated, these patients were invariably more comfortable, and, of greater importance, the mortality seemed to be still further diminished when this method of hydrotherapy was employed as an accessory to the cold bath treatment. While these clinical tests were in progress, Drs. Torald Sollmann and J. A. Hofmann investigated several features of the urine secretion as influenced by this artificially produced diuresis. They found that the

¹ American Journal of the Medical Sciences, February, 1905.

eliminating capacity of the kidneys is not injured in typhoid fever nor by prolonged polyuria. No accumulation of fluid appears to occur in the body. Chlorid secretion varies directly with chlorid intake. There is a greater tendency to chlorid retention in typhoid fever and this is greatly diminished by polyuria. The writers conclude further that a moderate nephritis does not break down the chlorid retention mechanism, since all the cases had albuminuria. These studies emphasize very strongly the value of large quantities of water in the treatment of typhoid fever patients; there appear to be no untoward effects of the water per se to lessen the favorable action as a whole.

REVIEW OF LITERATURE

Cure of Aneurysms of Ulnar Arteries.—A. Fournier¹ reports the case of a man who gave the history of syphilis, and who had suffered from cerebral symptoms undoubtedly due to arteritis. Examination showed an aneurysm of each ulnar artery a short distance above the wrist. Each was half the size of an olive, and presented the typical appearance and signs of cylindric aneurysm; the vessels were stiffened, feeling much like rubber drainage-tubes. Injections of gray oil, and potassium iodid internally, were ordered. The former were by his physician superseded by inunctions. At the end of 23 days the man returned, saying the aneurysms were cured. Examination showed them not cured, but only a third the original size. At the expiration of three months they were small enough to produce no elevation of the skin, although the man had taken no specific medication for two months. He died soon after from cerebral symptoms. Fournier reports the case to emphasize the possibilities of specific treatment for diseased arteries when it is instituted early. The age of the subject, 26, in this case is also a factor. [A.G.E.]

Rachitis Tarda.—Curschmann² reports a case in which symptoms of rachitis first appeared at the fourteenth year, causing a typical rachitic appearance, with bone deformity. The girl was cured by treatment appropriate to rachitis. [T.S.G.]

Scabies in the United States and Canada.—J. N. Hyde³ directs attention to a recent and unmistakable increase in the number of cases of scabies in this country. Usually this parallels the immigration list, but certain other factors also have an important bearing. A great increase in 1893 was undoubtedly due to the gathering of numerous people at the World's Fair in Chicago. The year 1904 furnished the best facilities for the spread of scabies this country has ever enjoyed, namely, the largest immigration list and the fair at St. Louis. For the first time in many years, scabies is being met with in private practice. This is confusing for two reasons. Such people are not accustomed to these parasites and the symptoms often suggest something more serious or intractable; and physicians are not accustomed to meet these cases among their private patients and very easily fail to make the diagnosis. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Osteoma of the Intestines.—E. Quénu⁴ reports the case of a woman, on whom he operated because of violent abdominal pain and intestinal disturbance, leading to a diagnosis of cecal stenosis. She vomited, and had lost 60 pounds during the last seven months. The operation revealed a stenosis of the small intestine, a short distance above the ileocecal valve; and in this stenosis bone tissue was discovered. A thorough histologic examination of the bone tissue, the scar, the surrounding structures, and the mesenteric glands was made. This examination led the author to express the view that the case was one of primary osteoma of the intestine, resulting secondarily from simple ulceration of the mucosa, or through an adenoma

in the scar and the constriction. Cells of embryonal nature, with fragmented, multiple nuclei and atypical proliferation, proved to Quénu's satisfaction that sarcoma, adenoma, and carcinoma could be excluded; others believed the case to have been one of ossifying sarcoma, originating from an alveolar sarcoma, that had arisen from the involuntary muscular tissue. The author has had the opportunity of examining similar cases in animal pathology; he discovered and studied primary osteomas in the intestines of two horses. [E.L.]

Temporal Abscess of Otitic Origin.—Villard and Lelerc¹ report a case of abscess of the temporal lobe of the cerebrum, arising from otitis media. The extraordinary features of the case were the incomplete symptomatology, the way by which the abscess was reached, and the complete recovery of the patient. The symptoms consisted merely of sudden onset of diffuse compression symptoms in the course of an old otorrhea, accompanied by chills and a subnormal temperature. There were no localizing symptoms. In such cases the authors believe the proper course to be, first, a trephining and curetment of the tympanic cavity and vestibule, with evacuation of any extradural abscess that may be present. If phlebitis of the sinuses is thus exposed, it may receive proper treatment. If an abscess of the cerebellum is diagnosed, the cerebellar fossa may be reached from this opening. If an abscess of the temporal lobe is probable, the auriculomastoid route is abandoned, and the temporal fossa is directly trephined about 3 cm. above the external auditory meatus. In order to obtain a complete cure without relapses, it is necessary to drain a long time in these cases. [B.K.]

Diagnosis of Appendicular Abscess.—C. G. Cumston² says if a periappendicular tumor is detected by percussion, palpation or inspection and the skin is red and swollen, it is easy to determine the presence of pus by an elastic and fluctuating swelling. Patients with tumor about the cecum may appear to recover with disappearance of the mass and yet an abscess still be present. This is a constant danger and should be recognized. A study of the temperature leads to no definite conclusion; usually it is not high during the formation of an abscess. If it shows no tendency to drop after 4 or 5 days, pus should be suspected. As a rule the pulse follows the temperature and a rate over 110 during the late stages of attack indicates general sepsis, if not due to anemia or general debility. One of the surest indications of an abscess is more or less marked leukocytosis. A collection of pus of long standing leads to conspicuous anemia and later symptoms of mild pyemia. All these symptoms indicate pus in the abdomen and demand operation. Even after a minute negative examination it is proper to make an exploratory incision and inspect the regions where localized abscesses are commonly found. After opening and draining a pus focus, if the symptoms recur, the abdomen should be reopened and searched for other abscesses which usually will be found. [A.G.E.]

Toilet of the Anus.—A. G. Miller³ believes that a vast variety of organisms are conveyed by the hand from the anus to other parts of the body, and that in addition, pathologic conditions of the anus are often the result of imperfect cleansing. These affections generally cause itching, and thus the hands are still more infected. He advises that in addition to the use of toilet paper the anus be carefully washed with soap and water, with the skin put on the stretch after each defecation, this to be followed by thorough cleansing of the hands and nails themselves. He thinks that many cases of pruritus ani, boils, fissure, and even inflamed piles, might be prevented by proper cleanliness. [H.M.]

Primary Carcinoma of the Pleura.—G. Scagliosi⁴ reports the case of a woman of 48, who complained of pain in the left side of the thorax, and dyspnea. The pain, which was violent and boring in character, had come on suddenly five months before. Examination showed this side of the chest to be very much enlarged. The heart was displaced, and there was dulness on percussion, bronchial breathing, bronchophony, and a whispering voice. The chest was punctured seven times

¹ La Médecine Moderne, December 7, 1904.

² Mittheilungen aus den Grenzgebieten, Vol. xiv, No. 3.

³ American Journal of the Medical Sciences, March, 1905.

⁴ Revue de Chirurgie, 1904, xxx, 58.

¹ Lyon Médical, February 19 and 26, 1905.

² Medicine, February, 1905.

³ Scottish Medical and Surgical Journal, January, 1905.

⁴ Deutsche medizinische Wochenschrift, xxx, 1715, No. 47, 1904.

during a period of six months, a large quantity of bloody fluid being removed each time. At the puncture points small tumors grew, some of which were movable, while others were not. The autopsy showed the left pleura to be changed to a thick mass of adhesions, the surface of which was irregular. The pulmonary pleura was not thickened in the least, the lung under it showing only atelectasis, due to compression. There were no metastases in it, the lymph-glands, the diaphragm, or the peritoneum. The histologic examination established the diagnosis of endothelioma arising from the endothelium of the lymph vessels and lymph spaces. To some extent, it had also penetrated the walls of the neighboring bloodvessels, and had infiltrated the loose peripleural connective tissue. The author is of the opinion that the tumor rose secondarily to a pleurisy, and that it entered the bloodvessels by way of their lymph structures. He finds that carcinoma of the pleura is more common in men than in women, and exists especially often between the ages of 40 and 50. In most of the cases the entire pleura is affected, the right more often than the left. In all cases an exudate is formed. This contains a great deal of blood. The cases have proved fatal in from two weeks to 16 months. [E.L.]

Hemorrhagic Pancreatitis.—T. C. Litler Jones,¹ of Liverpool, reports that a woman of 26 was admitted to the hospital with signs and symptoms of intestinal obstruction. Previous good health had been the rule. A rectal examination revealed nothing abnormal; the pulse was 128, feeble and fluttering, and the temperature 96.2°. It was obvious there was injury within the abdomen. The latter was opened in the middle line and a quantity of bright blood with serum escaped. The intestines were moderately distended. Ruptured extrauterine pregnancy was excluded; fat necrosis was observed at the entrance to the lesser sac of the peritoneum. The gastrocolic omentum was opened, and it was found that the pancreas was three times its normal size, discolored, edematous, and in places hemorrhagic; there was no bleeding at the time. The contained blood and serum were removed, the cavity about the pancreas packed with gauze, drainage established, and the wound closed. The packing was removed after 36 hours and the patient made a good recovery. The urine, repeatedly examined, showed none of the crystals described by Cammidge. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPELMAN

E. LINDAUER

REVIEW OF LITERATURE

Atropin in Inebriety.—A. Hope Simpson² reports that he treated a patient for inebriety with the atropin method detailed by McBride, of Toronto. The patient was a man of 48, who began to drink heavily 20 years ago; 13 years ago he gave it up. With occasional relapses, he remained sober until the autumn of 1903, when he began to drink heavily. No treatment, medical, moral, or otherwise, was of any avail. In the early part of 1904 he applied to Simpson for treatment. He had been drinking beer and spirits heavily for days, and was on the verge of delirium tremens. Waiting till the effects had partly passed off, the patient was persuaded to undergo the atropin treatment. He was allowed to retain a bottle of whisky in his bedroom, and was given leave to take any alcohol he wished. The treatment was that recommended by McBride, which is, in brief, as follows: (1) Frequent and good meals every four hours; (2) combined hypodermic injection of atropin sulfate and strychnin nitrate in the following quantities—first week, atropin $\frac{1}{100}$ gr. strychnin $\frac{1}{100}$ gr., three times daily; second week, atropin $\frac{1}{50}$ gr., strychnin $\frac{1}{50}$ gr., three times daily; third week, atropin $\frac{1}{25}$ gr., strychnin $\frac{1}{25}$ gr., three times daily; fourth week, atropin $\frac{1}{100}$ gr., twice during the day. 3. A mixture containing fluid extract of cinchona, aromatic spirits of ammonia, and spirits of ether, chloroform twice daily. 4. Thorough regulation of the bowels. On the second and third days the patient indulged, with permission, in a bottle of beer. During the second and third weeks he suffered with interference of accommodation and dimness of vision, owing to dilation of pupils; he also com-

plained of thirst. At the close of the third week he began to twitch in the hands and face, and the strychnin was stopped. Since the beginning of treatment the patient has been living an ordinary life, and disclaims any taste for alcohol, in fact, a marked aversion to it. [A.B.C.]

Pepsin in the Treatment of Enteritis in the Newborn.

—Edlefesen¹ states that pepsin is especially valuable in the treatment of enteritis in infants who are given cow's milk. The object of its administration is to thoroughly digest the food before it passes into the intestine. For this purpose he administers 0.25 gr. (4 gm.) in a dessertspoonful of warm water 3 or 4 times a day before feeding. The drug may be given in the following solution to children over 1 year old:

Pepsin	10 gm. (2½ dr.)
Hydrochloric acid	4 gm. (1 dr.)
Syrup of bitter orange peel	30 gm. (1 oz.)
Distilled water	120 gm. (4 oz.)

One teaspoonful three times a day. [L.F.A.]

The Cyclic Method in the Treatment of Syphilis.—

N. E. Aronstam² recommends the following method as having given him the best results in the treatment of syphilis. He does not resort to specific medication until a general adenopathy has come into existence. He does not wait for the mucous and subcutaneous lesions. The initial lesion he treats with a simple dusting powder, consisting of

Boric acid	12 gm. (3 dr.)
Bismuth subnitrate	12 gm. (3 dr.)
Dithymol diiodid	8 gm. (2 dr.)

He cauterizes only when the chancre threatens to assume a phagedenic aspect. His method of syphilitic treatment he speaks of as the cyclic method, each cycle occupying a period of a little over three months. During the first week, he gives the patient mercury with chalk, in doses of from 6 gr. to 15 gr. daily. He follows this by three days, during which only a tonic is given. The second mercurial salt to be used is the protiodid. From $\frac{1}{2}$ gr. to 1 gr. is given three times a day for a week, this being again followed by three days of tonic treatment. Then he orders the mercury biniodid, in doses of from $\frac{1}{12}$ gr. to $\frac{1}{6}$ gr. three times a day. Seven days of this treatment are again followed by three days of tonic treatment. During 12 consecutive evenings he orders mercurial inunctions, employing 2 gm. ($\frac{1}{2}$ dr.) at each inunction. This is followed by three days of tonic repose. Fumigation for seven days is the next form utilized, 15 gr. of calomel being employed for each sublimation. The next morning a bath is taken and the skin is massaged. Three days of tonic treatment follow this. During the next week he orders mixed treatment, combining the iodid and mercury, in cases of anemia, with iron, arsenic and quinin. Three days of tonic treatment are then followed by a week of eliminative treatment, using ascending doses of sodium or potassium iodid. He gives this some hours after meals, and follows it by another repose of three days. Last comes a week of alkaline baths, and then two weeks of no treatment at all complete the cycle. This cycle is repeated during the first 18 months of the existence of the disease. The second 18 months the treatment consists of iodine in ascending doses for a month, a month of tonic treatment, 14 days of mercury and chalk treatment, four days of tonic treatment, and two weeks of no treatment. The author says that this method of treatment never salivates the individual; that no untoward after-effects are discernible; that gastrointestinal disturbances are obviated; that mercurial dermatoses are not apt to appear; that the effects of the treatment are prompt and permanent; that it is systematic and thorough; that the danger of recrudescence is minimized; and that the tertiary phenomena are held in abeyance. [E.L.]

Röntgen Rays and Constipation.—M. Albert Weil³ has observed that after the use of radiotherapy on limited areas of the abdomen, using each time the maximum of intensity that the skin will stand without losing its integrity, repeated two or three times a week, a sedative action on the intestine resulted, relaxing spasm and producing movements of the bowels in patients who were formerly constipated, and in whom purgative drugs produced little result. [L.F.A.]

¹The Lancet, February 18, 1905.

²British Medical Journal, January 21, 1905.

¹Journal des Praticiens, Vol. xviii, No. 34, 1904, p. 536.

²Canada Lancet, 1904, xxxviii, p. 795.

³Journal des Praticiens, Vol. xviii, No. 33, 1904, p. 520.

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Recent Cancer Research.—The lately issued reports of two sets of workers investigating the cancer problem, present evidence of continued honest labor on this subject, but so far as throwing light upon the true nature of these tumors is concerned, are distinctly disappointing. Further experiments, in some instances quite promising, are under way, and the only attitude to assume is that a most vital problem is to be solved, and that every line of research, whether sterile or productive, clears the field to that extent and thus lessens the ground to be covered. This point must be impressed upon individuals and legislatures which are supporting research work; indefinite results of years will some time be crowned with success. The Third Annual Report of the Harvard Cancer Commission¹ is made up of four papers. F. B. Mallory contributes a study upon the classification of tumors, based upon histologic differentiation of their cells and intercellular substance. Three kinds of fibrils produced by normal and tumor cells are considered—neuroglia, myoglia, and fibrogia fibrils. These, in certain ways, closely resemble each other, but are possible of differentiation. In tumors arising from neuroglia, smooth muscle, or connective-tissue cells, they tend to assume the same characters as in normal tissue, and this is regarded by Mallory as a proper basis for classifying newgrowths; all those which differentiate alike in cell and intracellular substance should be grouped together and treated as a definite entity. R. B. Greenough has continued his studies upon the nature of cell inclusions in cancer, and concludes there is no reason for interpreting these bodies as being parasitic in origin. The effects of the röntgen ray upon cancer is a clinical and pathologic study by R. H. Vose and W. C. Howe. They find that cutaneous cancer thus treated “undergoes a degeneration not peculiar to this form of treatment, or distinguishable histologically from degeneration due to other causes. The vascular changes are limited to an endarteritis; new formation of bloodvessels occurs if healing takes place, as in the process of repair elsewhere; there is an increase of elastic tissue. Mitotic forms are less abundant after treatment.” The only cure of cancer by the röntgen ray is by destruction and exfoliation, which limits its value to superficial growths. As many of these may be removed by a slight surgical procedure, the latter is to be preferred for the reason that if recurrence takes place, a second and extensive operation can sooner be performed than if the röntgen ray had been used. This is a most conservative estimate of the value of a much-vaunted curative agent, but we believe it is entirely justified. E. H. Nichols presents the results of a series of implantations of tissue in 62 animals. These experiments were undertaken to determine if tissues set free from their normal environment could acquire unlimited growth and give rise to metastases. In no instances were these attributes developed, though in some cases the implanted tissue retained vitality, proliferated, and produced nodules comparable to dermoid cysts or teratomas. These studies are interesting as showing the tendency to attribute cancer to inherent changes in epithelial cells, rather than to the presence of parasites.

Report of the New York State Cancer Laboratory.—The fifth annual report of this laboratory at Buffalo is a pamphlet of 164 pages made up chiefly of papers by Calkins, Gaylord and Clowes. Calkins discusses cell inclusions in cancer, and tentatively concludes that none of those described can at present be

considered the cause of these growths. The x-body of Behla is less readily explained as a degeneration or secretion product than are the others, but Calkins is not yet willing to give it a specific place and name in the animal or vegetable series. The remainder of the report is made up of the detail of experiments in the biologic-chemic laboratory concerning metabolism of patients suffering from cancer, and the possibility of serum treatment. The results are largely embodied in this paragraph: “In conclusion it must be said that while work of this nature affords considerable evidence of the presence in the system of toxic bodies capable of seriously interfering with the nutrition of the patient, there is no positive evidence that we have to deal in cancer with toxins of a specific type, such as are invariably associated with the course of development of diseases caused by bacteria and other recognized parasites. The presence of nitrogenous suboxidation products resulting from some interference with the metabolism of the cells may well exert a cumulative effect, and as the disease progresses cause all the symptoms with which we are familiar in cancer cachexia.” Further work is to be conducted chiefly along this line, active efforts to prepare serum from horses now being under way. The experiments with mice from Jensen’s laboratory, previously mentioned in this department, promise much as an aid in solving questions of immunity and serum diagnosis and treatment. Special attention will be devoted to this phase of the question during the coming year. Roswell Park, in his report as Director, calls attention to the fact that deaths from cancer in New York during 1903 were 10% more than in the preceding year. From these reports it will be seen that the parasitic theory of cancer is losing ground with organized investigators in this country, and the biologic aspect of the question is assuming greater importance. Progress in this line will necessarily be slow, but in our opinion it at present is the most promising field to till.

REVIEW OF LITERATURE

The Bone Marrow in Typhoid Fever and Other Acute Infections.—W. T. Longcope¹ found in the bone marrow from 26 cases of typhoid fever, certain definite and constant lesions; broadly speaking, they resembled very closely the changes in the mesenteric lymph-nodes and lymphoid follicles of the intestine and spleen. There were many lymphoid cells (at the expense of granular myelocytes), large phagocytes, and foci of necrosis. The marrow from cases of croupous pneumonia, peritonitis, meningitis, abscess, and puerperal septicemia showed common lesions, differing in important features from those of typhoid. No areas of necrosis were found and there was a marked relative increase of the granular myelocytes over lymphoid cells. Longcope says these changes may possibly account for the hypoleukocytosis of typhoid fever and the hyperleukocytosis usually found in the other conditions named.

Three Cases of Croup Due to the Staphylococcus and Requiring Tracheotomy.—F. P. Anzinger² gives the notes of three cases of croup in children in which respiratory obstruction demanded tracheotomy, in none of which was the diphtheria bacillus found in the throat; in two, diphtheria antitoxin was given without results; two of the patients lived in the same block, the other at considerable distance. There was no pseudomembrane in any of the cases. The organism in recent cultures was unusually pathogenic to white mice. The cases are reported as examples of those which, at times, are diagnosed as diphtheria when no microscopic examination of the throat is made. These are the cases which add largely to the list of failures credited to antitoxin; they indicate the importance of a careful analysis of each case, as they show that the staphylococcus, a common inhabitant of the throat, may, under favorable conditions, give rise to grave symptoms.

¹ Journal of Medical Research, January, 1905.² Bulletin of the Ayer Clinical Laboratory, No. 2, January, 1905.³ American Journal of the Medical Sciences, November, 1904.

A Study of the Group Actinomyces.—W. R. Stokes¹ gives a historic review of the subject and reports the case of a child of 28 days, which had died from wasting and exhaustion. In the lower lobe of the left lung was a pus cavity the size of a pea; all the other viscera were normal in appearance. In the contents of the abscess were found the actinomyces corresponding to the asteroides of Eppinger and others. The organism was pathogenic for animals. Stokes gives a lengthy table of the characters of the seven distinct groups of actinomyces that have been differentiated. He believes all forms can be placed under these seven; the generic name should be actinomyces since the other names at times employed have been previously used for other organisms. Cases resembling tuberculosis, but failing to show tubercle bacilli should be carefully examined for the presence of actinomyces.

Development of Trypanosomes in Cultures of the Leishman-Donovan Bodies of Cachexial Fever and Kala-azar.—To cultivate the Leishman-Donovan body, L. Rogers² placed infected blood from the spleen in small tubes, mixed sodium citrate solution with it, to keep it from clotting, and incubated it at 37° C.; the parasites disappeared within 24 hours. On incubating it at 27° C., they not only retained their characters for some days, but actually increased in number. This was proved by the facts that fields containing two or three parasites when the fresh blood was examined, were found to contain 50 to 100 when the cultivated blood was studied; and that the various stages of subdivision were relatively very numerous in the films made after incubating, while they were very rare in the blood at the time it was taken from the spleen. Two forms of division were noted; one in which the parasite divided longitudinally, and one in which it divided into many parts. The nuclei divided first; the parasite enlarged, lost its contour, and became somewhat glairy; the nuclei then arranged themselves into pairs, composed of one large and one small one. These divisions, at first without a capsule, later became separated from the others by a capsule. At 28° C., the parasites lived only a few days; at 22° C., they remained alive much longer and also multiplied better. In two of the patients, one of which was a case of kala-azar, fully-developed trypanosomes were found in the culture. [E.L.]

Does Carcinoma Implantation Exist?—Milner³ in an exhaustive article upon this subject, concludes: 1. That the so-called "implantation carcinoma" can at the present be conceived as originating from implanted carcinoma cells. 2. Implantation of carcinoma cells upon endothelium is not a rare occurrence, and in this respect Hanau's suggestion is even today worthy of attention. 3. In a small fraction of cases experimental implantation of tumor cells in a fresh wound has been successful. He believes that the imbibition of cytotoxin-containing fluids, and the presence of abundant carcinoma cells which are constantly gaining access to the wound canal may play an important part in bringing about implantation of the tumor. 4. Implantation upon intact epithelium has not been successfully accomplished experimentally. 5. The transplantation of carcinoma from one individual to another of the same species has not been successful, for that reason there need be no anxiety about the contagiousness of this tumor. 6. The possibility of implantation during operation is by no means ruled out, however; therefore all precautions must be taken. [J.F.]

Staining of Living Blood and Its Results.—H. Rosin and E. Bibergeil⁴ maintain that the results obtained by staining the living blood frequently differ from those of blood that has been dried and fixed. Their method consists first in spreading saturated alcoholic solution of the stain in a very thin layer on a cover-glass by means of a second cover-glass held almost at a right angle. The fresh blood is taken up on the edge of another cover-glass, and spread in a thin layer over the stain. While the blood is still moist, the cover-glass is rapidly inverted on a slide containing a concavity and surrounded by vaselin. When the blood is treated with acid stains in this way, the erythrocytes are rapidly dissolved; basic stains pro-

duce gradual disintegration. Red corpuscles can be stained by basic stains, if polychromatophilia exists. Basophile granulation of the erythrocytes is a sign of degeneration, and not of regeneration; the older cells alone show this phenomenon. By this method of staining the blood-platelets are found to be very numerous; they must be regarded as independent elements of definite structure and motile power. Their structure is best shown by staining with eosin and methylene-blue. [B.K.]

Hodgkin's Disease and the Possibility of Its Metaplasia into Sarcoma.—M. Yamasaki¹ expresses the opinion, based upon the study of five personal cases and extensive literary research, that Hodgkin's disease is a clinical and pathologic entity, and that it is separable from all conditions resembling it at first glance, especially from tuberculosis and pseudoleukemia, by its clinical and pathologic behavior and its characteristic histology, which speaks decidedly for the chronic inflammatory character of the disease. He emphasizes the fact that patients thus afflicted have a special disposition to tuberculosis. The pathologic changes in the lymphatic glands and other organs during Hodgkin's disease cannot be looked upon as simple hyperplasia, nor can they properly be spoken of as neoplasms, although they resemble the latter by the occurrence of metastases; the changes give the impression of being products of a chronic inflammatory process, due to some infectious agent, or pathogenic microorganism and its toxin. He also details two other cases, which prove to his satisfaction that Hodgkin's disease can be transformed into a true sarcoma. Sections from the case showed the picture of Hodgkin's disease in some places, in others that of sarcoma. [E.L.]

Experimental Investigation of the Effects of Röntgen Rays on the Viscera.—Heineke² exposed mice, guineapigs and rabbits to röntgen rays, in order to determine the cause of death. The effects on all the animals were so similar that they may be considered together, the greatest difference being the longer exposure required for the same effect in the larger animals. The symptoms were as follows in all cases in which exposure was long enough to cause death: Several days after exposure the animals began to show apathy and loss of appetite and contracted pupils. Then rapid emaciation, accompanied by weakness and dragging of the limbs, began, although there was never true paralysis. Several days later diarrhea began, and about 10 days after exposure a general dermatitis, which ended life. There were never any cramps or convulsions. In mice, 5 hours' exposure, in guineapigs 20, and in rabbits 40, sufficed to kill before the occurrence of dermatitis, the cause of death being obscure. Careful pathologic examination showed in no case any change in the central nervous system or abdominal viscera. The vascular system alone showed structural changes before the beginning of the dermatitis. The changes affected especially the lymphatics, and fell into three classes with regard to the time of occurrence: 1. After two hours' exposure, animals killed at once showed changes in the lymph-glands all over the body, including the malpighian bodies of the spleen, the lymphatic tissue of the thymus and of Peyer's patches. These consisted in death and degeneration of all the lymphocytes and their removal by phagocytes. The process reached its height in eight hours, in about 24 the lymphocytes and phagocytes had both disappeared, but six weeks were required for complete regeneration. 2. Two or three days after the exposure, changes began in the bone marrow, consisting in the disappearance of lymphocytes and all typical cells, and in the spleen, which was smaller and darker than normal, and showed almost complete absence of lymphocytes and giant cells, and an extreme decrease in the total cell content or density of the pulp. Very few leukocytes of any sort were present, but the pigment was much increased. 3. Ten days after exposure, if the animal lived so long, an inflammation of the skin began, which, if at all severe, led to death in from three to six weeks. These results show that death is not due to any change recognizable, microscopically; that the röntgen rays have a selective action on lymphatic tissue, which may account for their beneficial effects in leukemia, and that death is not due to toxic agents developed in the skin. [T.S.G.]

¹ American Journal of the Medical Sciences, November, 1904.

² The Lancet, 1904, II, 215.

³ Arch. f. klin. Chirg., Bd. lxxiv, Heft 4, 1904.

⁴ Zeit. f. klin. Med., Bd. liv, p. 197.

¹ Zeitschrift für Heilkunde, 1904, xxv, 269.

² Mittheilungen aus den Grenzgebiete, Vol. xiv, No. 1.

The Pathology of Fat and Fatty Degeneration.—In his paper on the pathology of fat and fatty degeneration, H. A. Christian¹ emphasizes the following points: Osmic acid does not stain all forms of fat and fat alone, and hence is an imperfect method of demonstrating fat. Sudan III and Scharlach R, though having disadvantages, give more satisfactory results. Visually demonstrable fat is present normally in very many cells of the body, while extractive fat occurs in practically all of the tissues. Under abnormal conditions, demonstrable fat appears in cells in increased amount and is an index of cell injury. Fatty infiltration is the physiologic appearance of fat in normal cells and fatty degeneration is the appearance of fat in injured cells; the fat is an index rather than the direct result of cell degeneration. In both conditions the origin of the fat is probably the same, coming mainly from without the cell, by transport from fat depots elsewhere, but it may arise within the cell from fat related bodies, not from proteid. [E.L.]

Origin of the Blood-platelets.—According to the investigations of E. Helber,² the spindle cells found in the blood of the frog are not analogous to the platelets of human blood. The author considers as blood-platelets only certain structures of a definite size and form, taking chromatin stains. These structures are not found in frog's blood. Neither does the blood of birds contain true platelets, although there may be found a limited number of the spindle-shaped cells. These latter are supposed to be related to the white corpuscles. Mammalian blood contains true platelets, but no spindle cells. By an investigation of embryonal blood the author was able to demonstrate that the blood-platelets arise by a process of separation from, or disintegration of the red corpuscles. The platelets are composed of chromatin and an achromatic substance, thus corresponding closely with the composition of the nuclei of normoblasts. When these nuclei separate from the red corpuscles they disintegrate and give rise to platelets. This process occurs in the circulation in embryonal life, but in extrauterine life the function passes to the red bone marrow. Hence, the number of blood platelets may be taken as an indication of the rate of blood formation in the bone marrow. In a case of anemia, if the number is large, this function is being well performed, and vice versa. [B.K.]

New Steps in the Surgical Treatment of Otogenous Septicopyemia.—Voss³ speaks especially of the results seen in one of his cases. The patient referred to suffered with a right-sided suppurative otitis media; later chills developed, the temperature rose and she appeared to be septic. He found a leukocytosis and diplococci in the blood; the diazo reaction was positive. At the operation Voss found a small extradural abscess; the lateral sinus was discolored and necrotic toward the bulb, it contained a dark dirty brown thrombus. Since he was not able to reach sound tissue as he proceeded toward the bulb, he ligated the internal jugular vein at the level of the thyroid cartilage where the vessels were normal. The thrombus in the lateral sinus was removed and the bulb was irrigated by introducing the solution in the lateral sinus and allowing it to flow out of an opening in the jugular above the ligature, but owing to the severe bleeding from the facial vein, this had to be stopped. Five days after the operation the patient developed symptoms of meningitis and chills. At the second operation he dissected the anterior and lower walls of the auditory canal, entered the bulb through the floor of the middle-ear, opened the vessel and pulled through a doubled piece of iodoform gauze introduced in the internal jugular vein just above the ligature applied during the first operation; the bulb was thoroughly irrigated until neither pus nor particles of thrombi came out. [J.F.]

The Physiology of the Thyroids and Parathyroids.—Pineles⁴ states that careful microscopic studies have shown that the parathyroids are present and normally developed in all cases of cretinism and thyreoplasia in man. Tetany and convulsions do not occur in these conditions, although both are common in animals, and occur in man after total thyroidectomy. Cats and monkeys died with tetany if parathyroids are

removed, but show only emaciation if these are spared. In man tetany has occurred after partial thyroidectomy when only the isthmus and upper part of the gland were spared. Tetany is therefore due to removal of the parathyroids. [T.S.G.]

The Treatment of Atrophic Rhinitis.—After trying many treatments for a crusted and dried nose, Volland¹ settled upon the following procedure as the best: He treats the interior of the nose by means of ointment. A straightened hairpin is wound with cotton to the bend, and this saturated with fresh zinc vaselin; the nasal interior is then massaged with this in all directions. This treatment is repeated every two or three days, and almost at once the patient's sleep improves, tendency to bleeding diminishes, and he is able to breathe through his nose. A complete cure is possible. He has also employed it with considerable success in the rhinitis of tuberculous patients, in ozena, and in cases requiring gradual dilation of the lower nasal passages. [E.L.]

The Role of Heredity in Renal Pathology.—J. Castaigne and F. Rathery² review a series of clinical, anatomopathologic, and experimental observations, which show the part heredity plays in renal pathology. Clinically, it is learned that mothers affected with nephritis give birth to children whose kidneys are less resistant to infections and intoxications. In some cases the renal alterations are so pronounced as to be incompatible with life. In such cases histologic examination often shows the kidneys affected by a marked, diffuse nephritis. By experimentation in lower animals the authors have produced chronic nephritis in females, and have then examined the kidneys of their offspring. These kidneys may be divided into two groups: In certain cases there was a diffuse nephritis, comparable with that found in the human fetus, as mentioned above. In the other group the lesions were more superficial and exclusively epithelial; such lesions were compatible with life but produced albuminuria. It is quite probable that similar alterations exist in the kidneys of children affected with so-called "renal debility," or with hereditary albuminuria. Finally, it was shown that nephrotoxins were in the blood-serum and amniotic fluid of pregnant nephritic female animals. Under these circumstances the origin of the diseased kidneys in the fetus can readily be understood. [B.K.]

The Origin of Mononuclear Cells in Inflammations.—Gottfried Schwarz³ experimented upon animals in an effort to throw light upon this question. He introduced into the subcutaneous tissue of dogs chemically indifferent foreign bodies, and during the first two hours after this procedure he was able to find significant histologic changes. An exudate was present which contained both mononuclear and polynuclear cells. He was able to demonstrate that the chief source of these cells was cells migrated from the blood during the first hours after the introduction of the foreign body. [J.H.W.R.]

Further Inoculation of a Syphilitic Infected Chimpanzee.—O. Lassar⁴ succeeded in producing a characteristic chain of symptoms by inoculating syphilitic virus into a chimpanzee. Soon after the inoculation the epitrochlear and cervical glands enlarged, papules appeared upon the palmar and plantar surfaces, which later became cornified, and the vessels in the diseased areas were sclerotic. The lesions were identical with those found in man. Lassar next decided to determine whether virus obtained from the lesions in the first chimpanzee is capable of producing a similar chain of symptoms in a second. Accordingly, he inoculated a second animal with the virus obtained from the initial lesion induced by human syphilitic virus in the first chimpanzee. Two weeks after the introduction of the material into the animal, a lesion appeared, first above the left, then above the right supraorbital ridge, which was hard, circumscribed, umbilicated, and spread both peripherally and toward the underlying tissue. Each lesion presented an appearance identical to the initial lesion seen in the human being. Six weeks after the inoculation, papules developed in various parts of the skin, but especially upon the hands and upon the soles of the feet. This chimpanzee died of miliary tuberculosis; at postmortem, syphilitic changes in the

¹ Johns Hopkins Hospital Bulletin, 1905, xvi, No. 1.

² Deut. Archiv f. klin. Med., Bd. lxxxii, p. 41.

³ Berliner klin. Wochschr., July 11, 1904, No. 28.

⁴ Mittheilungen aus den Grenzgebiete, Vol. xiv. No. 1.

¹ Therapeutische Monatshefte, 1904, xviii, 401.

² La Semaine Médicale, November 9, 1904.

³ Wiener klin. Wochschr., No. 44, 1904, p. 1178.

⁴ Berliner klin. Wochschr., 1904, No. 30.

viscera were not found, but these could hardly be expected so early. Lassar concludes by suggesting that the chimpanzee may be utilized to isolate the specific bacillus or to procure a syphilitic serum. [J.F.]

The Role of the Trichocephalus in the Etiology of Typhoid Fever.—J. Guiart¹ examined the stools of a number of patients during an epidemic of typhoid fever, and found the ova of *Trichocephalus dispar* in many of the specimens, sometimes in very large numbers. In some cases he was able to discover them before the Widal reaction was positive. In one of the patients, at autopsy, were found six living parasites, all lodged in the cecum. Guiart takes the stand that typhoid fever in some instances is caused by this parasite; it penetrates the intestinal mucosa, and gives the otherwise inoffensive Eberth bacillus an opportunity to become pathogenic. He states that in the presence of a febrile enteritis of unknown nature, and before the serum reaction has incriminated the Eberth bacillus, an anthelmintic course of treatment should be immediately instituted, to clear the bowel of microbes and intestinal worms, and thus prevent autointoxication. He believes that by this treatment many cases of typhoid fever can be prevented. [E.L.]

Heredity as a Determining Cause of Disease.—R. M. Phelps² considers heredity in general in order to establish a presumption for it in disease. In general, all our physical and mental characters are inherited. Our endowment includes things that seem to us voluntary, even the quality of the will itself. Antenatal temporary causes acting on parents have effect on the child. Environment and will may change qualities superficially, but do not wholly uproot any of them. Insanity is the most common disease recognized as strongly hereditary. A belief in predisposition is not obtained as much from statistics as by knowledge of some undeniable case. As regards tuberculosis, if we all receive infection then with similar environment the deciding point would be placed back in immunity which is largely inherited. Tonsillitis shows a marked trend in certain families, rheumatism more vaguely so. Asthma has been clearly noted as hereditary, while gout, cancer, goiter, and leprosy have more vague proof. "Old age" or circulatory failure is inherited in the sense that some families age sooner than others. We may sometime have tests to recognize this natural or inherited immunity, and to produce it artificially when absent. [H.M.]

Pathogenesis of Hodgkin's Disease.—Warnecke³ describes four cases of Hodgkin's disease in great detail, with pathologic findings. Inoculation experiments with the lymph glands were negative. He refers to the lack of certainty as to its cause, and discusses the possibility of its being an attenuated form of tuberculosis. He then speaks of its peculiar symptoms, which are the great variability of the leukocytes in the blood, the general enlargement of lymph-glands, and formation of nodes in adenoid tissues, especially in the spleen. [T.S.G.]

Enumeration of Blood-platelets.—In counting the blood-platelets, E. Helber⁴ employs a slide having a chamber only 0.02 mm. deep, instead of the customary 0.1 mm. A dilution of 1 to 30 is made with a fresh 10% sodium metaphosphate solution, and a thin cover-glass is used. In health the number of platelets varies between 190,000 and 260,000, a count beyond these limits being considered pathologic. Only those forms are considered as platelets which are a fifth to a half the size of red corpuscles, possess an oval or indented and disc-shaped form, are colorless, and show dark spots when in the phosphate solution. The number of platelets showed no relation to the taking of food. As a rule they are increased in chronic diseases. In some acute diseases, such as pneumonia and typhoid fever, they are diminished at first, and later increased; while in others, such as erysipelas and sepsis, they are increased from the beginning. In mild and moderately severe anemias, the platelets are increased in number, while in severe, progressive anemia a diminution is observed. The author believes there exists a certain relationship between the blood-platelets and the leukocytes, although he cannot affirm positively that the

former arise from the latter. In one case of purpura hæmorrhagica a relation between the number of platelets and the coagulation time was demonstrated; the former increased as the latter lessened. [B.K.]

Chromatic Zones in Vital Bloodstaining.—H. Rosin and E. Bibergeil¹ describe a peculiar color phenomenon observed by them in their researches in the vital staining properties of blood. When methylene-blue, methylene azure, or a combination of these 2 dyes is employed, there occurs, at a certain stage in the process, a staining of some of the usually refractory red blood cells. The erythrocytes affected are those which surround a leukocyte. The latter may be a lymphocyte, a myelocyte or a mast cell. The phenomenon may occur even when the red cells are in the neighborhood of a mass of blood plaques. This staining peculiarity is only temporary, but may last for several hours. It may be seen in pathologic as well as in normal blood. The authors believe the explanation of this occurrence lies in the fact that the leukocytes furnish enough oxygen temporarily to prevent the change of the methylene-blue to their leukoprodukt, or that the white cells and blood-plaques, because of their great affinity for the stain, attract the methylene-blue to their neighborhood and receive it as a leukoprodukt until they have lost their vitality. It is during this time the red blood cells are stained. [W.E.R.]

Septicemia Due to the Gas Bacillus.—G. Werner² has studied a case of gas gangrene. The patient was bitten on the left thumb during a fight. The inflammation quickly spread along the back part of the hand and the forearm, and went on to suppuration, the pus being very fetid, and containing many gas blebs. The man soon became septic and died on the tenth day after the slight injury. Postmortem examination revealed, in addition to the gangrene of the arm, grave changes in the heart, the spleen, and the kidneys—the latter rightly deserving the name of frothing kidney (Schaumniere). Anaerobic and aerobic cultures were made. Under aerobic conditions, three varieties of organisms were cultivated on agar. The first resembled *Streptococcus pyogenes*; the second, *Staphylococcus pyogenes aureus*, and the third was agglutinated by the paratyphoid bacilli α and β . From the anaerobic cultures made from the thumb was isolated an organism corresponding in all points with the Fränkel-Welch gas bacillus. Pure cultures of all four organisms were developed, and animal experiments were performed with them. Not one of the first three organisms was found capable of producing a disease resembling that in the man; but the fourth organism mentioned produced in guinea-pigs a gas phlegmon of grave type. Sections of the kidney showed a large number of the anaerobic microorganisms, thus establishing the etiologic relation of this bacillus to the gaseous collections found in the patient's kidney. [E.L.]

Influence of Diminished Atmospheric Pressure on the Blood.—A. Fiessler³ says diminution in the pressure of the atmosphere causes an increase in the number of erythrocytes and leukocytes, in the hemoglobin and specific gravity, without producing any morphologic changes. The white corpuscles increase in a greater proportion than the red cells, while the hemoglobin and erythrocytes correspond closely. The author believes these results show that the changes in the blood are not due to a new formation of blood cells, but to a diminution in the fluid portion. [B.K.]

Pathogenesis of Inflammatory Hyperemia.—Ritter⁴ believes that all inflammation is due to necrosis, and argues thus: Hyperemia following heat and cold and the action of acids and alkalies is due to destruction of tissue. Necrosis implies destruction of albumin, which being broken up into smaller molecules increases the relative number of ions in the necrotic tissue, and thereby its osmotic tension. The freezing-point of pus from acute abscess is always lower than that of the blood; pus from a cold abscess has the same freezing-point as blood. Normally the osmotic tension of the tissues is greater than that of arterial blood, but less than that of venous; inflamed (necrotic) tissues have higher than either. [T.S.G.]

¹ Bulletin de l'Académie de Médecine, III, 289, No. 33, 1904.

² St. Paul Medical Journal, November, 1904.

³ Mittheilungen aus den Grenzgebiete, Vol. XIV, No. 1.

⁴ Deut. Archiv. f. klin. Med., Bd. LXXXI, p. 316.

¹ Berliner klinische Wochenschrift, xx, December 5, 1904.

² Arch. f. Hyg., 1904, I, 274.

³ Deut. Arch. f. klin. Med., Bd. LXXXI, p. 579.

⁴ Mittheilungen aus den Grenzgebiete, Vol. XIV, No. 3.

American Medicine 547

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 14.

APRIL 8, 1905.

\$5.00 YEARLY.

The Stench of Politics.—The spectacle of nearly a half-million dollars of the taxpayers' money handed out in one year by a State gang of politicians to a single W. and E. sectarian medical school, and not a dollar granted to some of the most noble of public charitable institutions; the brazen support of the rottenest white slave traffic by a United States Senator, who whips his whole balking machine into line to crush the reformers; the veto message of our quaymade governor redolent with insult against the medical profession—these things in one State are matched in others by acts which show that we are descending, or have already long descended, into a cesspool of political corruption which threatens the very existence of the republic. So long as there was no legislation in medical and sanitary matters, nature and luck somehow preserved at least the semblances of social order, and it was possible to hold head against the individualism of fraud and morbidity. But where the organized forces of government have turned all the single greeds into corporate action against almost every effort of upbuilding and preventive medicine, what shall be done? One thing is certain, there can be neither public health nor public decency until we "turn the rascals out." Society has now come squarely up to the necessity of preserving its own existence against supposed servants, but its real parasites, allowed by its negligence to feed upon, then to govern, and finally to devour its stupid host. Turn the rascals out!

Two Methods of Preventing Vicious Legislation.—The first is that of the politician—the medical politician, of course, we mean. It consists in flattering law-makers, political bosses, and impossible governors, by pretending to be one of their lot while secretly despising and laughing at them. The aim is to prevent bad legislation and secure something half or quarter good in public health matters by flattery, wheedle, and cunning, by meeting wile with counter-wile, by making the best of a bad mess. The second is by frankly and tirelessly stating the truth and appealing to the honor and decency of the legislators and vetoers. It is the old question of compromise to secure the half-loaf. The trouble at present is that a majority of those who make and execute the laws in many of our States have no sense of honor and decency to which to appeal, and hence the attempt is foredoomed to failure. It is also true that to prevent the evil laws

or secure the partial good ones such emasculations and compromises are demanded that the medical politician must have no virtue to ask, and the public no advantage to get. The machinery of the legislative and administrative classes is now often unified in opposition to the welfare of the people they are supposed to serve. Consequently the great public business of all good private citizens now is to appoint committees to devise counter-machinery and find lobbies to prevent the riotous luxuriance of schemes ever appearing to outwit and bleed the public. It would be infinitely less bother and expense for the good private citizens to turn the rascals out and then themselves to make laws and govern according to sound business principles, common sense, and simple honesty.

The criticisms of Dr. Reed's report, on the part of President Roosevelt and Secretary Taft, and the answer of the members of the Canal Commission, have been cancelled and almost forgotten in the fact of the resignation by request of the entire commission. This constitutes a clear vindication of Dr. Reed, and little more needs to be said. It is true that other reasons than those brought out by Dr. Reed may have moved the Government to its decisive action, but until they are given, one must believe that Dr. Reed's report is largely responsible for the prompt execution of the long-delayed action of the President. If the publication, as is urged, was a breach of propriety, the argument needs other proof than mere assertion. The hero of "Kettle Hill" should remember whence the round-robin emanated at Santiago. Dr. Reed, one may add, was sent to Panama for an entirely different purpose, and, as we understand, was merely asked semiofficially to investigate the sanitary conditions as an incidental task; this he did also as chairman of the Committee on Medical Legislation of the American Medical Association, and the editor of the official journal of the Association published this chairman's report in his columns. The great good accomplished by Dr. Reed's report is evident. Its tone might with benefit have been less strenuous and more judicial, but "in such a time as this, it is not meet that every nice offense should bear his comment." If we are correctly informed, the scornful allusions to "Mr. Grunsky" are entirely justifiable, and one may hope that all presidents and secretaries will henceforth not avail themselves of this gentleman's services. The final and last-

ing benefit of the brave criticisms of Dr. Reed will be a keener mind of the Government and of the people to listen to and act upon the advice and demands of the medical profession in relation to all matters of public health and preventive medicine. Too long have we been ignored and even opposed in our efforts to preserve the people from such deplorable results as the French Government brought about by its sanitary blindness. The profession may well be inspired by the success of Dr. Reed's clear cutting criticisms, and henceforth fuse its energies into action, until the great motive and good of government, the people's health, shall both inspire and guide the makers and executors of the laws.

Pennypacker, the Impossible, in vetoing a bill not asked for by the medical profession, goes out of his way to say of medical men:

Scientists, like all other men whose experiences have been limited to one pursuit, and whose minds have been developed in a particular direction, sometimes need to be restrained. Men of high scientific attainments are prone in their love for technic to lose sight of broad principles outside of their domain of thought. A surgeon may possibly be so eager to advance in skill as to be forgetful of the danger to his patient. Anatomists may be willing to gather information by the infliction of pain and suffering upon helpless creatures, although a higher standard of conduct would teach them that it is far better for humanity to bear its own ills than to escape them by knowledge only secured through cruelty to other creatures.

The Governor also says that "if idiocy could have been prevented by an act of Assembly we may be quite sure that such an act would have long ago been passed and approved, etc." One may deny this on the grounds: (1) That self-preservation is the first law of nature, including "natural" legislators; (2) that there must really be the first enactments of laws, and hence that a new law could not have always been enacted previously—a bit of logic that might be comprehended even by preposterous and impossible governors; (3) that governors by their vetoes and approvals may be relied upon to protect themselves, their friends, and all of us from these mistakes of legislators. The governors whose minds have not been "developed in particular directions" and who, unlike the pitiable scientists, never "lose sight of broad principles outside of their domain," may be trusted to keep the wretched narrow scientists from perpetuating the abuses to which they are so prone. And these abuses the sine-Quay-non Governor says are "love of the technique of their art;" operations regardless of the danger to the patient; and helping humanity by "cruelty to other creatures." Every physician and every man of sense knows that these insults to the medical profession are both stupid, and false. There is no agency now working for human betterment to be compared with medicine for purity of motive, cleanliness of execution, and effectiveness of result. And yet Governor Pennypacker lectures us as to our professional ethics and acts! Let us see if he will veto the bill to reestablish the "white slave traffic" in "cities of the first class." That would be to "lose sight of broad principles," and of the profits of human vivisection, and we may therefore scarcely expect another caricature, "I forbid."

Epidemic Cerebrospinal Meningitis.—The unusual presence of cerebrospinal meningitis in New York has led to the formation of a special commission to investigate the disease. The history of cerebrospinal meningitis has just rounded out a century, the first recognized outbreak having occurred at Geneva, in February, 1805. Its American history began a year later, in March, 1806, in Medford, Massachusetts. In earlier times the existence of the disease was probably concealed in the typhus account, just as its endemic importance has in late years been concealed in the mortality tables under vaguer titles. Its essential agent has been known since 1887, but its etiology is almost as baffling as ever. Its epidemiology has from the first been very interesting. Notable outbreaks have been brief, closely circumscribed, and separated by wide intervals both of time and location. The disease has wholly disappeared from local mortality records for years together, and from 1850 to 1854 it is said not to have been mentioned in the mortality records of the world. Since 1866 it has been endemic in New York City, having made a mortality record, according to J. Lewis Smith, every year, and every week for the last twenty years. The disease has been endemic in Philadelphia since 1863, and for thirty years in a majority of the important cities of the country. At present it is domesticated in the United States, while little is heard of it in European countries. In New York its epidemic manifestations have occurred in 1866, 1872, 1881 and 1904. The Boston epidemics apparently do not correspond to this chronology, being dated 1864, 1874 and 1897. The discrepancy in the 70's is deceptive. Cerebrospinal meningitis did not appear in Massachusetts registration until 1873, when it killed 747 persons. In 1872 Dr. Derby recognized the presence of the disease and printed a note on it in the registration report of that year. The vague nosologic title, "cephalitis," claimed in 1872 an excess of 411 deaths over its record for 1871, and received excessive credits also in 1873, 1874 and 1875. Unusual numbers of deaths were charged in 1872, 1873, and 1874 to the indefinite account of "convulsions." In 1872 "pneumonia" also rose with a bound, and for several years maintained a bad if not illusive eminence. The epidemic usually referred to the year 1874 really occurred in 1873, and probably began in 1871. The New York epidemic of 1872 might perhaps be traced back in the same way. The present epidemic in New York is at least a year old. Dr. Berg's article in the *Medical Record* reports the occurrence of 563 deaths in the first five months of 1904, the acme of the year's mortality having been reached in the second week of May, when 73 deaths from the disease were recorded.

Man Shares Cerebrospinal Meningitis with the Lower Animals.—J. Lewis Smith says that the New York epidemic of 1872 was preceded, in 1871, by heavy mortality from a similar disease among horses, and he speaks as if the unaccounted deaths of horses impressed the professional as well as the popular mind. In the rural epidemic of 1811, in Vermont, Gallup says that foxes and poultry died in numbers from the disease. Law, reporting some cases in Ireland in 1865, says that the son of one of his patients had eleven rabbits,

and of this number nine died with convulsive and paralytic symptoms. Whittaker cites the histories of epizootics among artillery horses at Grenoble in 1841, among livery horses at Paris in 1844, and among domestic fowl in Algiers in 1848, all in association with epidemic cerebrospinal meningitis in man. Fagge quotes the veterinarian Ferguson's statement that several outbreaks coming under his observation in Ireland ran concurrently with a similar disease in swine and dogs. The heaviest incidence on one family, noted by J. L. Smith, fell on a family whose occupation was the manufacture of "head cheese." There were some 400 heads of animals in the house at the time of the outbreak, and the four cases occurred singly, at intervals of one week, three weeks, and fifteen days. Our forbears spoke of these coincident epizootics as cerebrospinal meningitis, giving undue weight, perhaps, to the clinical resemblance. In these days we have rather put aside the earlier notion without fairly disproving it. The idea that the equine disease is conveyed somehow by food is held by many modern veterinarians. The same theory of its etiology was held until quite recent times concerning human cerebrospinal meningitis. The widely separated points of its appearance, the relative rarity of multiple cases in one house, and the extremely irregular intervals between cases belonging apparently to the same series, weigh strongly in favor of some sort of intermediate transmission and against the importance of direct contagion, though the latter undoubtedly occurs. When other epidemic diseases, notably cholera and plague, have manifested similar peculiarities, careful study has sometimes shown that cases occurring far apart and belonging apparently to different series were, in fact, closely related. And so, in the study of epidemic cerebrospinal meningitis, fuller information about the occupations and places of business of all who are concerned in house outbreaks might suggest probabilities which are commonly supposed to be excluded by the special incidence of the disease on children.

A careful study of the epidemic distribution of cerebrospinal meningitis might also show that its incidence is relatively heavier on small villages and rural districts. Some authors believe so. Pfeiffer says it is "a disease of winter, children, and soldiers." During the American Civil war the armies on both sides suffered repeatedly and severely from cerebrospinal meningitis, and the history of its appearance and spread in France between 1837 and 1842, and in Algiers in 1840, is almost a chronicle of the movements of troops. The susceptibility of soldiers would seem to indicate that the conditions of city life are not especially favorable to the spread of cerebrospinal meningitis. If it is, as seems likely, more prevalent under rural conditions, one more is added to the reasons already urgent upon municipal authorities to demand exact accounting for current mortality and thorough-going sanitary government in small communities and rural districts. Time was when great cities constantly menaced the health of the surrounding country, but nowadays it is the other way about. The United States Census reports show for the registration States a rural mortality slightly less than that of the

cities. The difference is so small that equal efficiency of registration would give the lead to rural districts. The testimony of the census is, however, open to serious question, for the census reports place the apex of the seasonal curve in June and July, which means that this part of the mortality account includes much beside cerebrospinal fever. The stir about the disease is liveliest in New York, whose great population will yield impressive figures. It seems probable that the smaller populations, living in neighboring towns and villages and in the rural districts, are suffering a higher relative mortality, and that, too, under conditions in some respects more favorable for the solution of its mysteries than the experience of Greater New York will offer.

The Opticians Aspire to Practise Medicine by Deception.—All over the United States, and indeed, all over the world, the opticians are establishing periodicals and schools, and are moving legislatures, as much of heaven and earth as they can, for the privilege of practising ophthalmology without a medical education or license. Their contention is, of course, the humorous one that errors of refraction and muscle imbalance have no relation to diseases of the eye, and that to themselves should therefore be left the practice of testing and prescribing, as well as making, glasses. The claim is the sheerest impertinence and error. Every case of refraction is or may be inextricably bound up with diseases of the eye and of the general system. As well might the maker of trusses pose as a surgeon whose specialty is hernia, or a maker of pessaries and forceps call himself a gynecologist. The best proof of the absurdity of the aspirations of the opticians is that no glasses ordered by them are ever correct. Among thousands not one will be formed mathematically or optically answering the patient's needs. They cannot, and dare not use a mydriatic, unless they hire some scapegrace physician to prostitute his profession, and without such a help, in the vast majority of cases, there can be no accurate diagnosis of errors of refraction. These men are in reality seeking to practise medicine without studying medicine. The guilt, at last, for their vogue and pretensions lies at the door of the medical profession which still ignore the many and profound interrelations between errors of refraction and disease, local and general. All this strange neglect will in the future have to be atoned for by long and laborious struggles of the profession to undo the evils we are now permitting to become entrenched in malicious customs and laws.

Fraudulent Impersonation at State Examinations.—The daily papers report the arrest, in Portland, Me., of two physicians charged with conspiring to obtain by fraud a license to practise medicine. According to the newspaper account, one of the physicians is a recent graduate of a medical school in Baltimore, and the other is a teacher in the same school. The recent graduate applied for admission to the State examination; the teacher appeared at the designated time and place, personated his quondam pupil, and handed in papers to which he had signed his pupil's name. There are two stories of the disclosure of the fraud. According

to one account, an anonymous friend of the Baltimore conspirators wrote a letter to the Maine Board, stating that at the forthcoming examination Dr. B. would personate Dr. M. The other explanation is that Dr. B. inadvertently added his own address after signing the name of his pupil. Dr. B. confessed his guilt, and said that the price of his extracollegiate service to his pupil was \$100. The press dispatch says further that Dr. B. has previously substituted for candidates at State examinations in Maryland and Virginia. The incident recalls a like occurrence two years ago, when another teacher of medicine personated a candidate for license before the examining board of West Virginia. A stranger in the town having heard that a young friend of former days was among the candidates at the examination then in progress, called and asked the examiner if he might see his friend, and when confronted by his friend's substitute, let loose his natural surprise. The personator confessed to the examiners, giving his real name and his medical school connection. In order to verify his story, inquiry was made at the medical college, and in reply it was stated that the man in question had ceased to be a teacher in the medical school several weeks before the date of inquiry. In the annual announcement, published several weeks later, the name of the confessed personator appeared in its usual place among the teachers. Nothing serious came of the Baltimore teacher's adventure in West Virginia, and it is somewhat significant that the Maine adventurers came from the same school.

Fraudulent impersonation before State examining boards is a fairly safe "graft." The chances of discovery do not exceed 10%, and the consequences of detection have no more than a 10% value. It is not essential to the success of a personator that he shall be a teacher. Certainly the best teachers lack the physical and moral qualifications necessary in a successful personator. Perhaps it is a delusion of students that in the choice of a personator one is safer to select a teacher. In such matters, however, the judgment of students is difficult to influence. In the present state of medical education there is, as we are informed, so great a demand for teachers of medicine that large numbers of students are satisfied to be taught by physicians of mediocre attainments, or less. Indeed the wisdom sold by some schools is said to have a distinctive merit as compared with that dispensed by more expensive schools, in that it is "practical." Those who want a "practical" knowledge of medicine naturally patronize the dealers in goods of that character. A man who wants his new house furnished with "practical" windows and doors, of course employs a stage carpenter, the only kind of a mechanic who understands what is meant by "practical" windows and doors. The good faith of those who supply the "practical" medical education which so many students are said to desire is not to be questioned, but one cannot approve of the conduct of students who after giving up so little of their substance to the teachers, exhibit such liberality toward the impersonators. The services of a good personator for a single event readily bring a price above the fees of a faculty for a year. The charitable instincts of an educational institu-

tion must be severely shocked by such unfilial prodigality, just as an ophthalmologist is apt to be pained when a patient, whose eyes have been refracted without charge, returns wearing the most expensive spectacles that the optician can produce.

Uncharitable Charity Bread Lines.—Another instance of the manner in which well-meaning but misguided charity falls short of its purpose is graphically set forth by a contributor to *Charities*. This man, disguised as a tramp, patronized the free "bread lines" run in New York by the *American* and *Fleischmann*, and later investigated certain of the free lodging houses of the city. He found the greater number of the men in line were rugged young fellows, typic "hoboes," who had gathered in New York for the winter because they can there live easily without working. Most of them "repeated," that is, went down the line a number of times to get sandwiches and coffee. One man made at least nine trips, this being possible because no questions were asked at the wagon. Later, other lines were worked and then lodging obtained in one of the several places kept open by the Salvation Army or mission societies. "What's the use of working?" was the very pertinent question of one man. And thus indiscriminate almsgiving continues to breed paupers. Inquiry elicited the fact that these men shun the Charity Organization Society because they are there asked unpleasant questions and have to saw wood. Most significant of all was the veiled threat of one of the men who spoke of the gathering there would be if the bread wagons were taken away and it was made a crime to beg or be on the street without a home: "All that is left for them is to feed us and to let us alone." Think of it! Able-bodied men educated to subsist on charity and threatening mob violence if it is withdrawn! Veritably, much of present day charity is not a case of right hand not knowing what the left hand doeth; it is flinging out with both hands without the head knowing or caring anything of the result from either.

Measures against Smallpox in Saxony.—In order to prevent the importation of smallpox into the Kingdom of Saxony, the minister of the interior has decreed that all foreign workmen must be vaccinated within seven days after their arrival in Saxony, unless they can show a certificate stating either that they have been successfully vaccinated within the last 10 years or have been twice unsuccessfully vaccinated, exception being made of persons who have already had smallpox. Persons are also exempted from vaccination who have performed military service in countries where, like Austria-Hungary and Italy, recruits are vaccinated on entering the army. A certificate is given by the vaccinating physician showing the result of the vaccination. If the operation proves unsuccessful, it is to be repeated after one year, in case that on the expiration of such period the workman is still present in the Kingdom of Saxony.

Amendment to Medical Practice Act of North Dakota.—Hereafter license to practise medicine in North Dakota will be awarded on presentation of a diploma granted by a college giving four courses of lectures of at least eight months each and an examination in prescribed subjects. The board is given power to revoke or refuse a license for dishonorable or immoral conduct, chronic or persistent inebriety or mental aberration, excessive use of narcotics or for the practice of criminal abortion. In complaints for violating the provisions of this section of the law, the accused must be furnished with a copy of the complaint and be given a hearing before the board in person or by an attorney. The law provides for reciprocity as follows: The board, in its discretion, may grant license for the same fee (\$20) without examination to applicants examined and licensed by other State examining boards maintaining standards not lower than those provided for by the law.

BOOK REVIEWS

Clinical Hematology.—By JOHN C. DACOSTA, JR., M.D. Second edition. Revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1905.

The second edition of this work follows the lines laid down in the first, containing in addition the principal advances made in hematology since the former appeared. These include a description of technic, and several new clinical entities determined entirely by blood-examinations. Among the improvements in technic described are Wright's stain, Milian's method of estimating the coagulation time, Reudiger's serum test, medicolegal tests for blood, and cryoscopy. The interpretation of the blood report as an aid to diagnosis is still made the important feature of the book. A new colored plate has been added; these plates are easily the finest in their line. The book remains one of the best practical guides to a rational study of the blood. The technic of blood-examinations is very clearly described for the student; this, with general considerations of the blood, is rather better than that part of the work devoted to diseases of the blood, but the latter contains a very fair discussion of the anemias, and a thorough consideration of the blood changes in numerous other affections. We would prefer grouping the parasites of the blood instead of placing them alphabetically, but this is a minor detail. The author's statement that the mast cell is totally foreign to the normal blood of man is not borne out by our experience. In general this edition can be recommended as a reliable and up-to-date treatise upon hematology.

International Clinics.—Edited by A. O. J. KELLY, A.M., M.D. Volume IV. Fourteenth series, 1905. Philadelphia and London: J. B. Lippincott Company.

This volume completes the fourteenth series, and contains the general index for the four numbers. It presents 21 articles, all of value to the general physician, and some particularly so to specialists. Most important under treatment are papers dealing with excessive use of drugs, dechloridation treatment, and radium. Medicine includes polycythemia, joint disease, gout, albuminuria, diseases of the liver and heart. The papers on surgery discuss lateral curvature, chronic arthritis, nerve anastomosis, gastric surgery, constipation, and Glénard's disease. Pathology includes a discussion of the infectious diseases, and of amebic infection. The volume is well illustrated, and closes a most successful series of this valuable publication.

Aequanimitas, with Other Addresses to Medical Students, Nurses and Practitioners of Medicine.—By WILLIAM OSLER, M.D. Philadelphia: P. Blakiston's Son & Co., 1904.

Under this title has been issued a book of 389 pages, containing 18 of Dr. Osler's addresses. Among those, in addition to the valedictory under the chief title, are Chauvinism in Medicine, On the Educational Value of the Medical Society, and The Master Word in Medicine. These have been read with profit by many physicians and the profession is indebted to Dr. Osler for bringing them out in collected form. To the list of ten books for the medical student given on the last page by the writer, we would add this volume. The publishers have issued it in a very attractive form.

A Book of Tests—Blood, Urine, Feces, and Moisture.—By HENRY EMERSON WETHERILL, M.D. Published by G. P. Pilling & Son, Philadelphia.

This book is of pocket size and contains color scales for blood, both antemortem and postmortem; urine, and feces; also a scale for determining the degree of cutaneous moisture. The scales are in the form of circular areas, with the various colors occupying segments; the comparison is made by placing in a small opening in the center a disc of paper moistened with the material to be tested. For the urine test, the central opening may be placed over a jar containing the urine. Envelopes containing necessary discs are in pockets on the inside of the covers of the book. The book is a very handy arrangement. The small ends of the color segments are brought nearest the color to be tested, which is not all that could be desired; this, however, does not prevent fairly accurate reading.

Sanitation of Quarantinable Diseases.—By FEDERICO TORRALBAS, M.D. Introduction by DIEGO TAMAYO. Gutierrez y Comp. Havana, Cuba, 1905.

This little volume is worthy of notice. It gives very detailed accounts of bubonic plague, yellow fever, cholera, typhus (exanthematous), smallpox, and the general diagnostic and prophylactic procedures in connection with these diseases. The book shows a knowledge of the subject quite up to date, and the controversies regarding *B. icteroides* and *Stegomyia fasciata* receive attention. The exciting and predisposing causes of these diseases are freely discussed, and microscopic examinations described. The addition of chapters on construction and location of lazarettos, hospitals, and disinfecting apparatus increase the value of the book which undoubtedly merits an English edition.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Transactions of the Association of American Physicians. Nineteenth Session, May 10 and 11, 1904, Vol. xix. Printed for the Association, 1904.

A. L. A. Catalog. 8,000 volumes for a popular library, with notes, 1904.—Prepared by the New York State Library and Library of Congress, under the auspices of the American Library Association Publishing Board, Editor Melvil Dewey, Director New York State Library and Library School. PART I, CLASSED. PART II, DICTIONARY. Government Printing Office, Washington, D. C., October, 1904.

Mental Defectives. Their History, Treatment and Training.—By MARTIN W. BARR, M.D., Chief Physician Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Illustrated by 53 full page plates. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$4.00 net.

Clinical Hematology. A practical guide to the examination of the blood, with reference to diagnosis.—By JOHN C. DA COSTA, JR., M.D., Demonstrator of Clinical Medicine, Jefferson Medical College; Chief of Medical Clinic and Assistant Visiting Physician, Jefferson Medical College Hospital; Hematologist, German Hospital, etc. Second edition, revised and enlarged, containing 9 full page colored plates, 3 charts and 64 other illustrations. P. Blakiston's Son & Co., Philadelphia, 1905. Price, \$5.00 net.

A Chart of Modalities.—Edited by F. HOWARD HUMPHRIS, M.D. (Brux.), F.R.C.P. (Edin.), M.R.C.S. (England), L.R.C.P. (Lond.), Hon. Consulting Physician, Queen's Hospital, Honolulu, T. H., U. S. A. The Hospital Supply Company, New York, 1905.

Politics in New Zealand. Being the chief portions of the political parts of "The Story of New Zealand."—By FRANK PARSONS and C. F. TAYLOR. Selected and arranged by C. F. Taylor. Equity Series, Philadelphia, 1904.

Bacteriology and Surgical Technic for Nurses.—By EMILY M. A. STONEY, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Second edition, thoroughly revised and much enlarged by Frederic R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. 12mo volume of 278 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York and London, 1905. Cloth, \$1.50 net.

Saunders' Medical Hand-Atlases: Atlas and Epitome of Operative Ophthalmology.—By DR. O. HAAB, of Zurich. Edited, with additions, by George E. deSchweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. With 30 colored lithographic plates, 154 text cuts, and 377 pages of text. W. B. Saunders & Co., Philadelphia, New York and London, 1905. Cloth, \$3.50 net.

An Introduction to Pharmacognosy.—By SMITH ELY JELLIFFE, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Octavo volume of 285 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York and London, 1904. Cloth, \$2.50 net.

A Textbook of Legal Medicine.—By FRANK WINTHROP DRAFER, A.M., M.D., Professor of Legal Medicine in Harvard University; Medical Examiner for the County of Suffolk, Massachusetts. Octavo volume of 573 pages, fully illustrated. W. B. Saunders & Co., Philadelphia, New York and London, 1905. Cloth, \$4.00 net.

Transactions State Medical Association of Texas, 1904. Thirty-sixth annual session, Austin, Texas, April 25-29, 1904.

A Practical Treatise on Nervous Exhaustion (Neurasthenia).—By GEORGE M. BEARD, A.M., M.D., Fellow New York Academy of Medicine; Vice-president of the American Academy of Medicine, etc. Edited, with notes and additions, by A. D. Rockwell, M.D., Neurologist and Electrotherapist at the Flushing Hospital; Professor of Electrotherapeutics in the New York Postgraduate Medical School and Hospital, etc. Fifth edition, enlarged. E. B. Treat & Co., New York, 1905. Price, \$2.00.

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of Wm. Osler, M.D., Baltimore; John H. Musser, M.D., Philadelphia; James Stewart, M.D., Montreal; J. B. Murphy, M.D., Chicago; A. McPhedran, M.D., Toronto; Thos. M. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Edmund Landolt, M.D., Paris; Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Berlin, Paris, Vienna, Leipzig, Brussels and Carlsbad. Vol. iv, fourteenth series, 1905. Price, cloth, \$2.00 net. J. B. Lippincott Company, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

Free Antitoxin for Cerebrospinal Meningitis.—The firm of H. M. Alexander & Co. will appropriate 500,000 units of diphtheria antitoxin for use in treatment of cerebrospinal meningitis, half the amount for use in Philadelphia and vicinity, the balance in New York and vicinity. Requests for free antitoxin in such cases will be honored either at the laboratories at Marietta, Pa.; by John Wyeth & Brother, of Philadelphia, or at the New York office of the firm, Tenth street and Third avenue.

The new drill regulations and outlines of first aid for the hospital corps are the result of a revision by Major Chas. F. Mason, Major Francis A. Winter and Captain Frederick P. Reynolds, medical officers. One of the important changes is that which reduces the squad from four to two men—all that can be spared in time of war. When obstacles are encountered in the transportation of wounded by litter bearers, it will be easy enough to detail another squad of two men to assist, and the same will be true when the patient is too heavy for two men to bear. The litter sling is made a permanent part of the litter, instead of being attached to the apparel of the hospital corps men. In the latter case they were generally in the way, and especially as all hospital corps men are not engaged in litter bearing.

Pay for Philippine Service.—The United States court of claims recently decided the case of John J. Repetti, late captain and assistant surgeon, United States Volunteers, who was appointed under the act of Congress approved February, 1901, and the result of which will benefit about 200 surgeons and assistant surgeons who were appointed under said act. The case of Repetti was pending on appeal before the comptroller of the treasury, and was certified by the Treasury Department to the United States Court of Claims for the adjudication of certain questions involved in this class of cases. These claimants appeared before the Court of Claims in contending that these officers are entitled to two months' extra pay by reason of their services in the Philippines. The court decided favorably and the Treasury Department is now beginning to pay these just claims.

Personal.—Major Edward C. Carter, of the army medical department, has completed his three years' tour in Manila as commissioner of public health. While there he instituted a course of instruction for provincial health officers which was wholly practical and intended to remedy the deficiencies in sanitary training. He was responsible for a new hospital for the treatment of contagious and infectious diseases at Manila. He instituted a free clinic in each sanitary station to afford the poor of the city every possible opportunity for obtaining free medical aid. He established and directed the operation of sanitary boards for house-to-house inspection, and took all possible precautions to prevent the breeding of mosquitos. He has wiped out the cholera since April 27, 1904, and controlled the plague, the last case of which was reported in September of last year. In June he got up a comprehensive scheme for the vaccination of the entire population of the islands, inaugurated the effort to establish a leper colony, introduced water works and sewerage, established a public bath and laundries, and obtained the filling-in of the low ground of Manila. This has been done since July 31, 1902. Major Carter will be succeeded as commissioner of public health at Manila by an officer of the marine-hospital service.

Miscellaneous. **New York State Pathologic Institute.**—The position of assistant in the clinical laboratory will be filled by Civil Service examination on April 8. The salary is \$1,500.—**United States Food Laboratories.**—It is said that food laboratories will be established in Boston, New Orleans and San Francisco similar to the one recently opened in New York City.—**The Naval Medical School.**—The supplemental or post-graduate course will probably begin about April 15. The officers who will attend in the capacity of students will be those who have completed at least one cruise, and who have not been at the school hitherto. The course will be of two months' duration.—**Promotions in Army Medical Service.**—The Secretary of War has acted on the case of Major George M. Wells, of the medical department, who was reported incapacitated for duty by a board convened in the Philippines. Major Wells reached San Francisco on an Army transport from Manila and will now be retired. This retirement promotes to the grade of major, Captain Frederick P. Reynolds, on duty at the Presidio of San Francisco, and leaves at the head of the list of assistant surgeons Captain Robert S. Woodson, on duty at Fort McDowell, Cal., who will become a major next week.

Germs Carried on Money.—It is asserted that Dr. Thomas Darlington, president of the New York Board of Health, has been experimenting with bacteria on money with the following results: The germs of only two diseases have been experimented with—tuberculosis and diphtheria—and both of these may be communicated from one person to another on money. Moderately clean bills obtained from a cheap grocery store held 2,250 living bacteria, and dirty bills held 73,000. Pennies

held only 26, and dimes 40. The experiment was made of placing pennies, nickels, and dimes in the mouths of children suffering from diphtheria. The coins showed no traces of diphtheria bacilli 24 hours afterward. The report sums up the results reached thus: Pennies at the end of 24 hours gave a growth of diphtheria bacilli when fairly dry. At the end of 48 hours they gave no growth. Nickels, at the end of 24 hours, gave a growth at times, but not at others. At the end of 48 hours they gave no growth. Dimes gave a growth at times, not at others. In 48 hours the growth had disappeared. Paper money at the end of 48 hours gave a growth and continued to do so at times for a month. The number of bacteria found alive on paper was 170,000, on nickel about 40,000, and on copper none. Dr. Darlington presented the conclusion of the advisory committee of the New York City Board of Health, "that it is desirable in the interest of public health that soiled bills be withdrawn from circulation as soon as practicable."

EASTERN STATES.

Impersonation for State Board Examination.—Dr. Austin Francis O'Malley, of Clinton, Mass., and Dr. Houghton Baxley, of Baltimore, were arrested at Portland, Me., last week on a complaint alleging a conspiracy to do an act dangerous to the public health. Dr. Baxley, impersonated Dr. O'Malley and attempted to pass an examination before the Maine Board of Registration of Medicine. The case was continued, bail being fixed at \$1,000 each. At the further hearing, conviction followed.

Place for a Leper Colony.—The Massachusetts State Board of Charities is trying to find a place for its leper colony and is considering the islands of Boston Harbor. Hangman's Island, near Quincy, was proposed, but that city urgently objected. Now Apple Island and Governor's Island or a part of Gallops Island are proposed. On the latter are located the quarantine station's hospitals. The committee of public charitable institutions has however reported adversely on the establishment of a hospital for persons afflicted with leprosy or other contagious diseases.

NEW YORK AND VICINITY.

Leper at Bellevue Hospital.—The first leper at Bellevue for some years is Joseph Metansky, a Russian, who has been in this country only a short time. It was thought at first he was suffering from some sort of inflammation.

Immigration Record Broken.—Immigration through the port of New York for the month of March reached unprecedented figures, the total arrivals numbering 97,000. Last year for the same month the arrivals were only 47,877.

Personal.—A farewell dinner to Dr. Osler will be given at the Waldorf-Astoria, New York, on the evening of May 2; invitations to subscribe can be obtained until April 20 by applying to the chairman, Dr. Tyson, 1506 Spruce street, Philadelphia.

Substitute for Pure Food Bill.—Senator Tully, chairman of the Senate Public Health Committee, has introduced a bill which defines as adulterants, paraffin and shellac when used in the manufacture of candy. He also defines adulterants and misbrandings.

Health Census.—One hundred and fifty inspectors will be employed by the New York City Health Department within a few days to make a health census of the city. Dr. Darlington, of the Health Board, said that every person in the city will be subjected to an examination. The work will cost \$35,000, and will be finished in five months.

Pneumonia, grip, bronchitis and kindred ailments are so near epidemic in Brooklyn that the hospitals, like those of Manhattan, have, with two exceptions, reached the limit of their bed accommodations. In some of the institutions patients are compelled to sleep on mattresses on the floor. Eighteen cases of meningitis are under treatment.

State Board of Health.—The February report shows that cerebrospinal meningitis is increasing. The disease is reported in sporadic form from many places, but it is chiefly prevalent in New York City, where 186 deaths occurred during the month, against 130 in January and 95 in December. Its increased prevalence began in New York City in March of last year. Since January 25 there have been 39 fatal cases of cerebrospinal meningitis in Yonkers. This mortality is said to be higher than in any other locality in the country. The houses in which cases have occurred are quarantined.

Favorable Report of the Osteopathy Bill.—The Committee on Judiciary has given a favorable report on the osteopathy bill. Dr. E. Eliot Harris, chairman of the committee on legislation of the New York State Medical Association, has put on foot a movement to petition the members of the Senate and Assembly to defeat the osteopathic bill in the interest of individual and public health for the following reasons: 1. Osteopathy, so-called, is an agent or method used in the treatment of disease, and is included in the general practice of medicine. 2. Osteopathy should not be made a special branch of medicine, by an act of the Legislature, but should come under the present

State laws, which govern all the special branches as well as the general practice of medicine. Any licensed physician has now the right to practise osteopathy as a specialty. 3. The legislature should protect the public by denying the endorsement of the State to any person, as being capable of treating the diseases of the human body, unless such person can make a diagnosis of the condition of the human body, to do which requires a full knowledge of the science of medicine, as taught in the medical colleges of this State, including the use of drugs and other valuable therapeutic agents. 4. If the so-called osteopathic bill becomes a law, all candidates who fail to pass the regents' examinations to obtain a license to practise medicine in this State may in this State treat all diseases of the human body by holding a diploma from any regular osteopathic college in the United States, a privilege which would lower the standing of this State in the educational world. And, finally, it would be more reasonable for the Legislature to separate the special branches of criminal, corporation and real estate law from the general practice of law and establish for each of them a special examining board, so as to make it easier for the candidates for admission to the bar who desired to practise as specialists, than it would be for the Legislature to select one special therapeutic agent used in the treatment of disease and to separate it from the general practice of medicine as a panacea for all diseases at the request of those enthusiasts who now ask for a special osteopathic examining board.

PHILADELPHIA, PENNSYLVANIA, ETC.

Woman's Medical College of Pennsylvania.—GERTRUDE A. WALKER has resigned the position of Clinical Professor of Ophthalmology. ANINA C. RONDINELLA has resigned the positions of Demonstrator of Ophthalmology and Assistant Demonstrator of Pathology.

Smallpox Scourges Town.—Mount Union, a town of 1,000 inhabitants in Huntingdon county, has nearly 100 cases of smallpox under quarantine. The epidemic broke out some time ago, the disease being diagnosed as chickenpox. It spread, and the State Board of Health sent the quarantine officer, to the town to make an examination. He reported the disease smallpox, and has quarantined the infected houses. Previous to his visit the victims of the disease had been permitted to mingle with the people of the town, and trouble is anticipated in stamping out the disease.

The New Jersey State Charity Bill has been signed by Governor Stokes. This creates a commissioner of charities and correction, for a term of three years, at a salary of \$3,000. The appointment is to be made by the governor with the approval of the Senate. The new department will have power to inspect all institutions of the State which receive money from the State Treasury, and at the request of the governor, it may investigate the management of any State institution. All plans and specifications for new State buildings or for additions for present buildings will be prepared by this department, which is also to pass upon the necessity for new buildings or additions.

Appropriation Bills Passed.—PHILADELPHIA: Samaritan Hospital, \$130,000; Frankford Hospital, \$60,000; Pennsylvania Institution for Instruction of the Blind, \$84,000; Rosine Home, \$4,000; Children's Homeopathic Hospital, \$45,000; Home for the Aged, \$4,000; American Oncologic Hospital, \$150,000; Home for Aged Veterans and Wives, \$13,000; Union Home for Old Ladies, \$4,000; St. Joseph's Hospital, \$15,000; Home for Aged Couples and Old Men, at Bala, \$6,000; Philadelphia Polyclinic and College, \$95,000; Pennsylvania Institution for Deaf and Dumb, \$260,000; Women's Southern Homeopathic Hospital, \$5,000; St. Martin's Home for Boys, \$6,000; Home for Infants, \$5,000; Pennsylvania Society to Protect Children from Cruelty, \$5,000; Home for Training in Speech of Deaf Children, \$38,500; Jewish Hospital Association, \$20,000; Kensington Hospital for Women, \$10,000; Orthopedic Hospital, \$35,000; German Hospital, \$75,000; Rush Hospital for Consumptives, \$20,000; Garretson Hospital, \$50,000; Women's Homeopathic Association of Pennsylvania, \$45,000; Children's Aid Society of Pennsylvania, \$15,000; Philadelphia Protectors, \$70,000; Home of Good Shepherd, \$20,000; St. John's Orphan Asylum, \$5,000; Wills Eye Hospital, \$80,000; Mount Sinai Hospital, \$15,000; St. Luke's Homeopathic Hospital, \$65,000; St. Mary's Hospital, \$27,000; Trustees University of Pennsylvania for Hospital, \$175,000; Nazarene Home for Aged, \$7,500; Lying-in Charity Hospital, \$15,000; St. Vincent's Home, \$7,500; Catholic Home, \$5,000; St. Timothy's Hospital, Roxborough, \$24,500; Western Temporary Home, \$3,500; Howard Hospital for Incurables, \$10,000; Free Hospital for Poor Consumptives, \$100,000; Frederick Douglass Hospital, \$12,000; Northern Home for Friendless Children, \$14,000; St. Christopher's Hospital for Children, \$15,000; Maternity Hospital, \$5,000; Friends' Home for Children, \$4,000; Penn Asylum for Indigent Widows and Single Women, \$6,000. THROUGHOUT PENNSYLVANIA: State Hospital at Blossburg, \$16,000; State Cottage Hospital, Connelville, \$21,940; German Protestant Home for the Aged, at Fair Oaks, Allegheny county, \$40,000; Christian H. Buhl Hospital, Sharon, \$19,500; Home for Friendless Children, Lancaster, \$10,000; Home for Widows and Single Women, Lebanon, \$2,000; Pittsburgh Newsboys' Home, \$8,000; Children's Home, South Bethlehem, \$1,000; Bethesda Home, Pittsburg, \$5,000; State Hospital, Scranton, \$255,000; Packer Hospital, Sayre, \$24,000.

SOUTHERN STATES.

Pullman Mosquito Bars.—Secretary Barrow of the Louisiana State Railroad Commission has ordered the equipping of all Pullman cars with mosquito bars while passing through the State of Louisiana during the summer months.

Personal.—Robert L. Goodbred, Mayo, Fla., has been appointed managing physician of the Florida Hospital for the Insane, Chattahoochee, vice V. H. Gwinn, resigned.—James H. Randolph, Tallahassee, Fla., has been appointed assistant physician, vice Eldred C. Christian, resigned.

To Register Tuberculosis.—The Maryland State Board of Health has received the first installment of supplies for the enforcement of the new laws regarding tuberculosis passed by the last Legislature. They have received 30,000 sputum cups, 2,500 metal cup holders and a lot of chemic supplies. The new law compels all physicians to report to the board all cases of tuberculosis within seven days upon special blanks provided by the board. John S. Fulton, secretary of the board, said he expected but little friction in enforcing the law. All reports are to be kept secret.

To Succeed Dr. Osler.—The trustees of the Johns Hopkins University have divided the chair of medicine, occupied by Dr. William Osler, into the chairs of medicine and clinical medicine. Dr. Llewellys Franklin Barker was elected to the chair of medicine, and Dr. William Sydney Thayer was appointed to the chair of clinical medicine. The action was taken upon the recommendation of the advisory board of the medical school, which made the recommendation several days ago. Dr. Barker is professor of medicine in the University of Chicago and in the Rush Medical College. He spent his youth in Canada, although he was born near Philadelphia, 37 years ago. He received his early education in the public schools and in Pickering College, in Ontario. He was graduated in medicine from the University of Toronto, in 1890. The following year he was house officer in the Toronto Hospital. Coming to Baltimore in 1891, he was successively an assistant physician and assistant resident pathologist in the Johns Hopkins Hospital. He was fellow in anatomy for two years, and was associate professor of anatomy from 1894 to 1899, and associate professor of pathology during the year 1899 to 1900. In 1899 he visited the Philippine Islands as one of the medical commissioners representing the Johns Hopkins. In 1901 he was appointed by the Secretary of the Treasury a member of a special committee to decide the existence or nonexistence of the plague in San Francisco. During a great part of the last year he has been in Germany studying clinical medicine. He has written several books, and has done much work for the medical journals. His best known literary work is a translation of Werner Spalteholz's "Hand Atlas of Human Anatomy," and his book, "The Nervous System and Its Constituent Neurones," published in 1899, is widely used. Dr. Thayer was born in Massachusetts, 40 years ago. He studied in private schools in Cambridge and at the Cambridge High School, and was graduated from Harvard University with the degree of Bachelor of Arts in 1885, and from the medical school of the university in 1889. He was resident physician of the Johns Hopkins Hospital from 1891 to 1898, and associate in medicine in the university the year of 1895-1896. He is associate professor of medicine, first assistant under Dr. Osler, in the Johns Hopkins University, associate in medicine in the hospital, and head of the medical clinic of the hospital. He is a member of the Association of Pathologists and Bacteriologists, of the Washington Academy of Sciences, and an honorary member of the Therapeutical Society of Moscow. He is the author of "Lectures on Malarial Fevers," "The Malarial Fevers of Baltimore," and various articles in the medical journals.

WESTERN STATES.

Record for Smallpox Cases.—The Chicago Health Department reports that 95 smallpox cases have been recorded at the isolation hospital during March, the greatest number since the opening of the institution 8 years ago. Of the patients, 47 were taken from the south side, 41 from the west side, and only 6 from the north side; 12 were found in lodging houses.

Food Famine in Dowie Stronghold.—It is reported that want and privation are threatening to dismember Dowie's colony at Zion City. Zion is running out of supplies and in the direst straits from a lack of the prime necessities of life, the people are facing sickness and disease. There is not a sack of flour for sale. For nearly ten days not a pound of beef was carried into the town. The first consignment in that time arrived last night. Potatoes, meal, sugar and other staples are fast giving out, and the residents have been forced to fall back upon canned goods.

National Fraternal Sanatorium for the Tuberculous.—It is reported that plans are being formed by the various fraternal associations of the United States to found a new city in New Mexico for the purpose of caring especially for such members of the various fraternal organizations as may be affected with pulmonary tuberculosis. The purchase contemplates upward of 50,000 acres of land at an altitude of from 4,300 to 9,000 feet, and with the full facilities for

carrying for 50,000 patients. This "Fraternal City," as it will be called, will be on the municipal ownership plan, and stock raising and garden trucking will be offered to those desiring to work while recovering their health. At the head of the project as president and chairman of the executive committee is W. R. Eldson, president of the Associated Fraternities of America, representing 3,000,000 members. A tax of a cent per month per capita has been fixed as the amount to be placed against the various fraternalists in the country. The direct location of the city has not yet been determined, but it is reported that the influence of two rival railroads is being pushed to the limit to secure favorable consideration, and that one prominent railroad officer has pledged \$100,000 in cash if the sanatorium is located anywhere along his line.

CANADA.

Medical Department of McGill University.—At a recent meeting of the corporation of the McGill University, the Medical Faculty presented a resolution stating the interests of the medical department would be best served by seeking a full union with the University. The details of this consolidation will be discussed at a special meeting.

Founding District Medical Libraries in Canada.—It has been proposed to found a small medical library in each district, so that physicians may see the current medical journals at least. It has been proposed that the national medical bureau apply its surplus to this purpose, but as yet there has been no surplus. It is also recommended that financial aid be given only to district societies with a given minimum of regular meetings and regular attendance.

The Canadian Association for the Prevention of Tuberculosis held its fifth annual meeting in Ottawa, March 15. The association decided to ask the federal government to appoint a royal commission to deal with the entire question of tuberculosis as it affects the Dominion of Canada. At the evening meeting, at which the governor-general presided, Professor J. George Adams delivered an address on "Adaptation and Consumption." Senator Edward was reelected president, and the Rev. Dr. Moore, Ottawa, was reelected secretary.

FOREIGN NEWS AND NOTES

GENERAL.

Fifty cases of ankylostomiasis were reported in the Arnberg district, Germany, from January 25 to February 15, 1905.

Deafmutes in China.—There are about 400,000 deafmutes in China, the school at Chifu being the only means of education in the empire. The school is supported by the deafmutes of the United States and Great Britain.

French Congress of Medicine.—In order to avoid clashing with the International Tuberculosis Congress, which is to be held this year in Paris from October 2 to 7, the organizing committee of the French Congress of Medicine has decided to change the date of meeting from October 2, 3, and 4, to September 25, 26, and 27.

The Cigaret Law in Japan.—A current paragraph, which states that everybody in Japan smokes, should except minors. According to the Japanese Minister in London, the sale of tobacco is prohibited in the case of any person under the age of 20 years, the penalty being a fine of \$5. A parent who allows a minor to smoke is subject to a fine of 50 cents.

Epidemic on Molokai.—A relief expedition has been sent to Molokai on account of reports of an epidemic in the form of an unknown sickness believed to be typhoid fever. Eight deaths already have taken place, and there are other cases. There is no doctor on the island, outside of the practically inaccessible leper settlement. One report, which is being investigated, suggests poisoning, and says there is a native poison tree in the valley and that the deaths result from a feud.

Additional Report of Plague in Chile.—A report from Santiago states that the outbreak of plague in Pisagua has caused a veritable panic among the population. It is a seacoast city to the north of Santiago, and has a population of not more than 4,000 to 5,000. The report is dated February 28, and states that the health authorities are incapable of dealing with the situation, or even burying those dying of the disease. The corpses, in many cases, are left in the places where death occurred.

Röntgen-ray Congress.—An international röntgen-ray congress will begin at Berlin on April 13. It will be the first of its kind ever held, and its purpose is to show what progress has been made since the discovery of the rays by Prof. Röntgen. Lectures will be delivered and demonstrations made by leading scientific men and physicians of various countries. There will be an exhibition of röntgen-ray appliances and of the literature on the subject. A statue of Prof. Röntgen has been placed on one of the bridges of the city.

Plague and Smallpox.—Three cases of plague were reported at Para, Brazil, from January 19 to 21, 1905. Owing to the rainy season, rats have been driven out from the sewers into the dwellings. In different parts of the town there were found dead rats infected with plague bacillus. The only hospital suitable for the accommodation of plague patients was at the time filled with smallpox patients. The government authorities were consequently obliged to fit up another building for the purpose of isolating the plague patients.

Bubonic Plague at Cebu.—A fatal case is reported. The plague organism was found in stained preparations made from the femoral glands, which on the right side were enlarged and hemorrhagic. This case is interesting from the fact that it was taken from a house where, as well as in the two adjoining houses, about the middle of December, 1904, a good many dead rats were found. They continued to die for a week or 10 days, and after that no more were discovered; and from the fact that the mortality seemed to be limited to these few houses it was thought that they had probably been poisoned.

The smallpox situation in Shanghai has become so acute that it is a menace to the entire shipping of the Orient. Eight vessels are already known to have carried smallpox from that port, and the true number is no doubt far in excess of the figures given. Acting Assistant Surgeon S. A. Ranson has been asked to vaccinate all crews and steerage passengers before permitting vessels to proceed to ports of the Philippine Islands. It is believed that the situation is sufficiently serious to warrant inviting the attention of all quarantine officers stationed at United States ports to the liability of smallpox infection being present upon vessels that have touched at the port of Shanghai. The infection has even been conveyed aboard vessels which anchor at Woosung, a distance of fourteen miles from Shanghai, and from which the personnel of passengers are reported not to have left the vessel. In such cases the infection was no doubt carried aboard by the Chinese stevedores.

OBITUARIES.

William Bodenhamer, aged 96, March 30, from pneumonia, at his home in New Rochelle, N. Y. He was a graduate of the Worthington Medical College, Worthington, Ohio, in 1840. He was the oldest physician in New Rochelle and for fifty years he has contributed to medical journals in America and Europe. His specialty was diseases of the intestines.

Albert K. Hadel, April 3, from paralysis, at Baltimore, Md. He was a graduate of the University of Maryland School of Medicine in 1889, and a wellknown local historian. He was president of the Maryland Society of the War of 1812 and registrar-general of the national body, Sons of the American Revolution.

Willis P. Spring, aged 50, March 22, from accidental asphyxiation by gas, at his home in Minneapolis; a graduate of Harvard University Medical School, Boston, in 1879. Member of the American Medical Association; formerly coroner and county physician of Hennepin county.

Benjamin B. Lenoir, aged 84, March 13, from pneumonia, at his home in Lenoir City, Tenn.; a graduate of the Jefferson Medical College, Philadelphia, in 1846. Member of the American Medical Association. He practised medicine in Loudon county, Tenn., for nearly 60 years.

George F. Leick, aged 49, March 30, from Bright's disease, at his home in Cleveland, Ohio; a graduate of the medical department of the Western Reserve University, Cleveland, in 1885. For several years he had been at the head of the Department of Health of Cleveland.

George W. Phillips, aged 83, March 17, from effects of fracture of femur, at his home in La Junta, Colo.; a graduate of the Indiana Medical College, Laporte, in 1846. He served as surgeon of the Seventy-fifth Illinois Volunteer Infantry during the Civil war.

Thaddeus W. Johnson, aged 52, March 16, from nephritis, at his home in South Pittsburg, Tenn.; a graduate of Vanderbilt University, medical department, Nashville, Tenn., in 1885. At one time he served as senator in the State Legislature.

Moses Richardson, aged 74, March 15, at his home in Norcross, Ga.; a graduate of Jefferson Medical College, Philadelphia, in 1858. He served as surgeon of the Forty-second Georgia Infantry, C. S. A., during the Civil war.

John C. Scott, aged 64, of St. Catharine, Mo., March 14, from paresis, at the State Hospital for the Insane No. 2, near St. Joseph, Mo.; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1870.

Frank H. Rice, aged 75, March 27, at his home in Passaic, N. J.; a graduate of Woodstock College, Vermont, in 1854. For ten years he served as State lunatic medical inspector of Massachusetts at Worcester.

Samuel D. Drewry, aged 74, April 2, at his home in Mineola, near Centralia, Va.; a graduate of the Medical College of Virginia, Richmond, in 1854. He was in the Confederate service during the Civil war.

Alexander F. H. Gale, aged 85, of New York City, March 17, from influenza, at sea, while taking a trip for his health; a graduate of the College of Physicians and Surgeons, New York City, in 1887.

Samuel B. McCleery, aged 56, of Lancaster, Pa., March 21, from cerebral hemorrhage, at the general hospital in that city; a graduate of Jefferson Medical College, Philadelphia, in 1871.

Edwin Tomlinson, aged 65, March 29, at Gloucester City, N. J.; a graduate of Jefferson Medical College, Philadelphia, in 1872. For some years he was coroner of Camden county.

William E. Treadwell, aged 54, of Maple Park, Ill., March 17, from cerebral hemorrhage, at Elgin, Ill.; a graduate of Bennett College of Eclectic Medicine and Surgery in 1884.

John S. Briggs, aged 38, March 17, from acute meningitis, at his home in Bowling Green, Ky.; a graduate of University of Nashville (Tenn.), medical department, in 1889.

Abraham S. Brubaker, aged 52, March 16, at his home in Indianapolis; a graduate of the department of medicine of the University of Pennsylvania, Philadelphia, in 1877.

Charles A. Olcott, aged 50, March 30, from pneumonia, at his home in Brooklyn, N. Y.; a graduate of the Bellevue Hospital Medical College, New York City, in 1876.

Richard Sullivan, aged 51, March 27, at his home in Brooklyn, N. Y.; a graduate of the University of New York, and a member of the Kings County Medical Society.

John J. Garland, aged 31, March 20, at his home in Syracuse, N. Y.; a graduate of the University and Bellevue Hospital Medical College, New York City, in 1899.

Fabius Fox, aged 40, March 29, from heart failure, at his home in East Baltimore; a graduate of the Baltimore University Medical School of Medicine in 1898.

Henry A. B. Klippel, aged 29, March 17, from smallpox, at his home in St. Louis, Mo.; a graduate of Missouri Medical College, St. Louis, in 1899.

Frederic Danne, aged 68, March 29, at his home in New York City; a graduate of the New York Medical College, New York City, in 1863.

John W. Gamwell, aged 75, of Pittsfield, Mass., March 26, at Daytona, Fla. He was a graduate of the Berkshire Medical Institute in 1852.

FOREIGN.—**Robson Roose**, aged 57, February 12, at his home in London. He studied medicine at Guy's Hospital and in Paris. In 1870 he took the diploma of L.S.A.; in 1872 that of M.R.C.S., England; in 1875 that of M.R.C.P., Edinburgh; and in 1877 he obtained the degree of M.D., at Brussels, and was elected a Fellow of the Royal College of Physicians of Edinburgh.

Ralph Hodgson, aged 50, suddenly, January 18, at his home in Sydney, New South Wales. He studied medicine at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S., England, and L.R.C.P., London, in 1885. He was one of the founders of the King Edward Hospital for Seamen.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 1, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Florida:	Jacksonville.....Mar. 18-25.....	2	
	West Tampa.....Mar. 18-25.....	5	
Illinois:	Chicago.....Mar. 18-25.....	18	2
	Danville.....Mar. 11-25.....	7	4
Louisiana:	New Orleans.....Mar. 18-25.....	16	
Four imported			
Michigan:	Detroit.....Mar. 18-25.....	1	
Missouri:	St. Louis.....Mar. 18-25.....	85	4
Nebraska:	Omaha.....Mar. 18-25.....	1	
	South Omaha.....Mar. 18-25.....	1	
Pennsylvania:	Philadelphia.....Mar. 18-25.....	1	
	Steelton.....Mar. 18-25.....	1	
South Carolina:	Charleston.....Mar. 11-25.....	6	1
	Greenville.....Mar. 11-25.....	4	8
Tennessee:	Memphis.....Mar. 18-25.....	11	
	Nashville.....Mar. 18-25.....	2	

SMALLPOX—INSULAR.

Philippine Islands:	Manila.....Jan. 28-Feb. 11 ...	2	
---------------------	--------------------------------	---	--

SMALLPOX—FOREIGN.

Africa:	Cape Town.....Feb. 11-18.....	1	
Brazil:	Pernambuco.....Feb. 1-15.....	105	
	Rio de Janeiro.....Feb. 12-26.....	49	19
	Victoria.....Feb. 7-18.....	19	1
Chile:	Valparaiso.....Mar. 4.....	Epidemic	
China:	Shanghai.....Feb. 4-11.....	1 case, foreign; 14 deaths, native	
Denmark:	Copenhagen.....Feb. 25-Mar. 11....	2	

France:	Nantes.....Mar. 3-17.....	38	8
	Paris.....Mar. 4-11.....	10	1
Great Britain:	Birmingham.....Mar. 11-18.....	2	
	Glasgow.....Mar. 10-17.....	1	
	Leeds.....Mar. 4-18.....	17	
	Leith.....Mar. 4-11.....	1	
	Newcastle-on-Tyne.....Mar. 6-13.....	1	
	Nottingham.....Mar. 4-11.....	1	
	South Shields.....Mar. 6-13.....	6	
India:	Bombay.....Feb. 21-28.....	148	
	Calcutta.....Feb. 18-25.....	7	
	Karachi.....Feb. 19-26.....	21	3
	Madras.....Feb. 18-24.....	1	1
Italy:	Catania.....Feb. 23-Mar. 16....	1	8
	Lecce Province.....Feb. 23-Mar. 9....	9	
	Palermo.....Feb. 11-25.....	24	10
Japan:	Kobe.....Feb. 22.....	1	
	Matsuyama.....Feb. 15.....	1	
	Nishiwagun.....Feb. 11.....	16	
Russia:	Moscow.....Feb. 25-Mar. 4....	8	2
	Odessa.....Feb. 18-Mar. 11....	13	4
Spain:	Barcelona.....Mar. 1-10.....	9	
Straits Settlements:	Singapore.....Feb. 4-11.....	2	
Turkey:	Constantinople.....Feb. 28-Mar. 12....	5	
West Indies:	Grenada.....Feb. 23-Mar. 9....	8	

YELLOW FEVER.

Brazil:	Rio de Janeiro.....Feb. 12-26.....	23	6
Panama:	Panama.....Jan. 1-Mar. 13....	40	17

CHOLERA.

India:	Calcutta.....Feb. 18-25.....	1	15
Russia:	Baku.....Jan. 31-Feb. 10....	1	
	Erivan.....Jan. 23-30.....	1	
	Ural Territory.....Jan. 31-Feb. 10....	1	
Turkey in Asia:	(General).....Jan. 21-Feb. 4....	7	4
	Van.....Jan. 21-28.....	2	1

PLAGUE INSULAR.

Philippine Islands:	Manila.....Jan. 28-Feb. 11....	5	5
---------------------	--------------------------------	---	---

PLAGUE—FOREIGN.

Africa:	Cape Colony.....Feb. 4-11.....	1	
Arabia:	Aden.....Feb. 18-25.....	269	242
Australia:	Brisbane and vicin.....Jan. 2-Feb. 11....	9	3
	Bundaberg.....Feb. 3.....	1	
	Clarence River Dist.....Jan. 10-28.....	3	1
Brazil:	Rio de Janeiro.....Feb. 12-26.....	4	6
	Taubete.....Feb. 18.....	1	
Chile:	Arica.....Mar. 4.....	Present	
	Iquique.....Mar. 4.....	"	
	Pisagua.....To Feb. 27.....	104	
Egypt:	Suez.....Feb. 8-23.....	7	5
	Tukh.....Feb. 16-23.....	1	
India:	(General).....Feb. 18-25.....	31053	27837
	Bombay.....Feb. 21-23.....	769	
	Calcutta.....Feb. 18-25.....	130	
	Karachi.....Feb. 5-12.....	65	63
	Madras.....Feb. 18-24.....	3	
	Rangoon.....Feb. 9.....	13	

Changes in the Medical Corps of the U. S. Army for the week ended April 1, 1905:

GRAY, Major **WILLIAM W.**, surgeon, and **HOWELL**, First Lieutenant **PARK**, assistant surgeon, are detailed to represent the medical department of the army at the meeting of the American Antituberculosis League to be held at Atlanta, Ga., April 17 to 19.

WELLS, Major **GEORGE M.**, surgeon, will proceed from San Francisco, Cal., to Hot Springs, Ark., and report to the commanding officer, Army and Navy General Hospital, for treatment therein.

MCCALL, **JAMES H.**, contract surgeon, will proceed to Fort Howard in time to report to the commanding officer, artillery district of Baltimore, about May 1, for duty in connection with the joint Army and Navy exercises for 1905. Upon the termination of the exercises Contract Surgeon McCall will return to his proper station.

BITTERMAN, **THEODORE**, sergeant first class, Fort Schuyler, will be sent to Fort Wadsworth, to relieve Sergeant First Class Hartmann. Sergeant First Class Hartmann will be sent to Fort Schuyler for duty.

The following changes in the stations and duties of assistant surgeons are ordered, to take effect upon the completion of the course of instruction at the Army Medical School:

WEED, First Lieutenant **FRANK W.**, will proceed to Madison Barracks and report not later than April 14 to the commanding officer of the Ninth Infantry for duty, to accompany that regiment to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty.

HUMPHREYS, First Lieutenant **HARRY G.**, will proceed to Fort McPherson and report to the commanding officer of the Sixteenth Infantry for duty, to accompany that regiment to the Philippine Islands, where he will report to the commanding general, Philippines Division, for assignment to duty.

BARTLETT, First Lieutenant **COSAM J.**, assistant surgeon, now at San Francisco, Cal., is relieved from further duty at the Army and Navy General Hospital, Hot Springs, Ark., and will proceed to Fort Miley for duty, to relieve First Lieutenant Edmund D. Shortlidge, assistant surgeon, who will proceed to Hot Springs, Ark., and report at the Army and Navy General Hospital for duty.

BYARS, **CASPAR R.**, contract surgeon, will proceed from Bay City, Tex., to Fort Sam Houston for duty.

KULP, Captain **JOHN S.**, assistant surgeon, is relieved from command of Co. B, Hospital Corps, and from duty in the department of California, to take effect at such time as will enable him to comply with this order, and will proceed to Manila, P. I., on the transport to sail from San Francisco, Cal., about April 30, and report to the commanding general, Philippines Division, for assignment to duty.

WEED, First Lieutenant FRANK W., and HUMPHREYS, First Lieutenant HARRY G., assistant surgeons, orders of March 18 are revoked.

Changes in the Medical Corps of the U. S. Navy for the week ended April 1, 1905:

FIELD, J. G., surgeon, appointed surgeon from March 3, 1905—March 24.
 FARWELL, W. G., medical director, retired from active service in accordance with the provisions of section 1,444, Revised Statutes, April 5, 1905, upon which day he will have reached the age of 62 years—March 29.
 FITTS, H. B., surgeon, detached from the Buffalo, when placed out of commission, and ordered to the Lawton—March 30.
 GUTHRIE, J. A., surgeon, commissioned surgeon, with rank of lieutenant-commander, from December 15, 1904—March 30.
 ORVIS, R. T., surgeon, commissioned surgeon, with rank of lieutenant-commander, from January 1, 1905—March 30.
 CLIFFORD, A. B., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Navy Yard, New York, N. Y.—March 30.
 MILLER, J., JR., assistant surgeon, detached from the Buffalo, when placed out of commission, and ordered to the Lawton—March 30.

Changes in the Public Health and Marine-Hospital Service for the week ended March 29, 1905:

WILLIAMS, L. L., assistant surgeon-general, relieved from duty in the Bureau, and directed to proceed to Baltimore, Md., and assume command of the service, relieving Passed Assistant Surgeon C. W. Wille—March 25, 1905.
 BAILHACHE, PRESTON H., surgeon, reassigned to duty at Stapleton, N. Y., effective March 8—March 24, 1905.
 STONER, G. W., surgeon, reassigned to duty in the Immigration Service, Ellis Island, N. Y., effective March 8—March 24, 1905.
 STONER, J. B., surgeon, relieved from duty at Norfolk, Va., and directed to proceed to Evansville, Ind., and assume command of the service, relieving Passed Assistant Surgeon B. W. Brown—March 24, 1905.
 YOUNG, G. B., passed assistant surgeon, upon being relieved by Passed Assistant Surgeon B. W. Brown, to proceed to Chicago, Ill., and assume command of the Service—March 24, 1905.
 BROWN, B. W., passed assistant surgeon, upon being relieved by Surgeon J. B. Stoner, to proceed to Louisville, Ky., and assume command of the service, relieving Passed Assistant Surgeon G. B. Young—March 24, 1905.
 EAGER, J. M., passed assistant surgeon, upon being relieved by Assistant Surgeon A. J. McLaughlin, to proceed to Washington, D. C., and report at the Bureau for duty—March 24, 1905.
 BLUE, RUPERT, passed assistant surgeon, relieved from duty at the Plague Laboratory, San Francisco, Cal., and directed to proceed to Norfolk, Va., and assume command of the service—March 24, 1905.
 COFER, L. E., passed assistant surgeon, reassigned as chief quarantine officer of the Territory of Hawaii, effective December 1, 1904—March 24, 1905.
 GRUBBS, S. B., passed assistant surgeon, upon being relieved by Passed Assistant Surgeon C. W. Wille, to proceed to Chicago, Ill., and report to the medical officer in command for duty and assignment to quarters—March 24, 1905.
 FOSTER, M. H., passed assistant surgeon, detailed as inspector of unseizable property at San Diego Quarantine Station—March 27, 1905.
 LUMSDEN, L. L., passed assistant surgeon, to proceed to Perth Amboy, N. J., for duty during absence of Passed Assistant Surgeon W. A. Korn—March 27, 1905.
 CORPUT, G. M., passed assistant surgeon, upon being relieved by Passed Assistant Surgeon M. K. Gwyn, to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters—March 24, 1905.
 KING, W. W., passed assistant surgeon, one day's leave, March 18, 1905, under paragraph 189 of the regulations.
 GWYN, M. K., passed assistant surgeon, upon expiration of leave of absence, to proceed to South Atlantic Quarantine Station and assume command of the service, relieving Passed Assistant Surgeon G. M. Corput—March 24, 1905.
 CURRIE, D. H., passed assistant surgeon, directed to assume temporary charge of the Plague Laboratory, San Francisco, Cal.—March 24, 1905.
 KORN, W. A., passed assistant surgeon, granted leave of absence for seven days from March 29—March 27, 1905.
 WILLE, C. W., passed assistant surgeon, upon being relieved by Surgeon L. L. Williams, to proceed to Gulf Quarantine Station and assume command of the service, relieving Passed Assistant Surgeon S. B. Grubbs—March 24, 1905.
 MCLAUGHLIN, A. J., assistant surgeon, relieved from duty in the bureau, and directed to proceed to Naples, Italy, for duty in the office of the American consul, relieving Passed Assistant Surgeon J. M. Eager—March 25, 1905.
 MCLARTY, A. A., acting assistant surgeon, granted leave of absence for thirty days from April 1—March 21, 1905.
 MCKAY, MALCOLM, pharmacist, to report April 3, 1905, to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class—March 23, 1905.
 HERTY, F. J., pharmacist, granted leave of absence for four days from March 8, 1905, on account of sickness—March 8, 1905.

Board Convened.

Board convened to meet at Chelsea, Mass., April 3, 1905, for the physical examination of Pharmacist Malcolm McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon R. M. Woodward, chairman; Acting Assistant Surgeon F. H. Cleaves, recorder.

CLINICAL NOTES AND CORRESPONDENCE

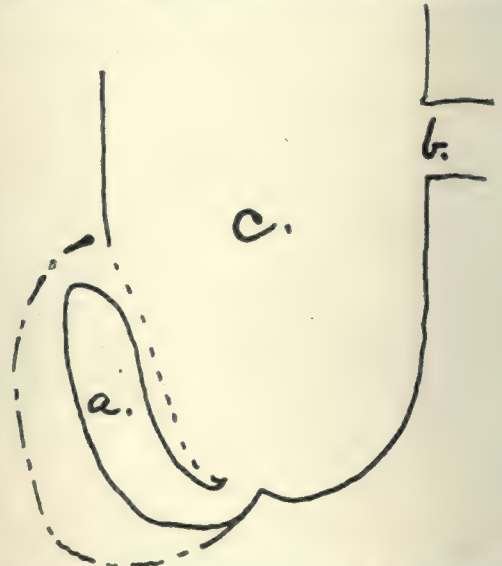
[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

INTUSSUSCEPTION OF THE APPENDIX VERMIFORMIS.

BY

J. F. BALDWIN, M.D.,
 of Columbus, O.]

To the Editor of American Medicine:—I have read with great interest Dr. Brewer's report of a case, in your issue of January 14, which he regards as one of inversion of the appendix. Intussusception of the intestine is so easily accomplished with the fingers that we can readily understand how it can be brought about by nature under certain circumstances; but intussusception of the appendix is a very different matter. The anatomy and physiologic action of the musculature of the appendix are such, and its artificial inversion so difficult (and I have experienced these difficulties in over 1,000 patients in which I have inverted it), that one is fairly safe in saying that its accomplishment by nature is a physical impossibility. I know how unwise it is outside of pure mathematics to use the word "impossible" (Arago), but certainly in comparison with



a, Appendix; b, ileocecal opening; c, caput coli. Dot and dash line, abscess wall; dotted line, necrotic wall of colon, which breaking down allows the appendix to drop into the colon.

what might be called autoinversion of the appendix, ophidian autodeglutition would seem a very simple proposition.

In Dr. Ditman's pathologic report of the specimen, he says that he found "epithelium of mucous membrane present upon both the inner and outer surfaces." If it were an inverted appendix, he would have found mucous membrane upon the outside of the mass, but the inside must necessarily be lined with peritoneum, unless, as would be almost inevitably the case, the peritoneum would have been destroyed and a mere fibrous cord result.

Again, if in this case we have simple inversion of the appendix, how can we account for the large amount of inflammatory exudate on the outside of the colon? There could be no possibility of any retention of secretions, and the lining of the appendix having now become the outside with free drainage, and being thoroughly washed by the contents of the colon, ought soon to become entirely healthy, or present merely points of scar tissue where ulceration had previously existed.

The following explanation seems to me to be adequate: There was appendicitis with pus formation, the appendix hanging free in this abscess; the abscess ruptured into the bowel, and the appendix was carried in at the same time; as contraction and healing of the abscess took place, the appendix would,

of course, remain imprisoned in its new location, its surface becoming covered by a more or less typical mucous membrane epithelium. Under ordinary circumstances, such an appendix would soon slough off, just as we so frequently see in abscess cases in which the appendix is in the abscess. In some of these patients, however, the nourishment of the appendix is amply maintained, so that unless removed by the surgeon, it would continue to make trouble after healing of the abscess. If this view of the case reported is correct, it seems to me that it affords an explanation of the extensive adhesions which were found, these being the result of the original abscess, while the appendix, though inside the bowel, would continue to be a chronically inflamed appendix, with exacerbations and all the usual symptoms accompanying that condition. Undoubtedly, nature would ultimately have effected a cure in the case reported by such an acute attack as would have interfered with circulation sufficiently to produce necrosis.

The accompanying diagram will, perhaps, make the idea clearer.

INFLUENCE OF EYESTRAIN UPON NERVOUS SYSTEM.

BY

F. W. GALLAGHER, M.D.,
of El Paso, Tex.

In connection with the discussion in the journals, in which some of our leading neurologists have taken part, for and against the profound influence of eyestrain upon the nervous system, the following reports may not be without interest. I copy from my note book, under date of February 28, 1901:

CASE I.—Son of Judge F., aged 16, student. Consultation because of epileptic attacks. History: Had first attack three years ago. Has had in all four fits, the last two at night and the last one three days ago. The attacks are preceded by a strange color before one eye, after which the patient falls down senseless and remains in this state a half hour. Has headache before and after the attack. During the attacks he foams at the mouth and bites his tongue. Within the past few years has had tapeworm on two occasions. The last one was passed a year ago, since which time no segments have been seen.

The aura beginning in the eye suggested an examination for refractive error, which was found and corrected as follows:

R. +.75 = +.50 ax. 90
L. +.75 = +.50 ax. 90

I saw nothing more of this patient until September 9, 1904, when he called because he had lost his glasses and wished them replaced.

I inquired regarding the convulsions and he stated that he had had no recurrence.

CASE II.—Miss G. DaG., aged 16, student. February 3, 1903. Consultation because of convulsions. History: About two weeks ago, while sitting with company, without warning or exclamation, so far as I can elicit by inquiry, she fell from her chair in convulsions. There was complete unconsciousness and foaming at the mouth. At 7 p.m. of the same day she had a recurrence of the attack and again at 10 p.m. Up to the time of her visit to me there had been no other attacks. I examined her eyes and found the following errors of refraction as indicated by the glasses prescribed:

R. +1. ax. 105
L. +.25 = +.75 ax. 75

December 28, 1904. The patient returned today because one of the lenses had been lost from her frame and she wished one to replace it.

She reports no recurrence of the convulsions. Neither of the cases reported are conclusive of the evil effect of eyestrain upon the nervous system but they are interesting insofar as no recurrence of convulsions followed a given line of treatment over quite long periods of time. In Case I the history of tapeworm is given for whatever bearing it may have. Personally I do not think this element of the history had any influence in producing the convulsions because of the lapse of time since any evidence exists of the presence of the parasite. But admitting its influence as a causative factor then we cannot logically deny that eyestrain may be equally potent in damaging reflex disturbance. Case II is only of interest because no convulsions occurred since the much needed correction of refractive error was made. As no convulsions occurred prior to the date given this case of itself proves little.

A CASE OF SPASMODIC TORTICOLLIS APPARENTLY DEPENDENT ON AN OCULAR ABNORMALITY.

BY

ELLICE M. ALGER, M.D.,
of New York City.

Ophthalmologist to the New York Dispensary. Instructor at the New York Post-Graduate Medical School.

Several observers have recorded cases of spasmodic wry-neck claimed to be dependent on eye conditions of various sorts. Such reports have generally been received with incredulity or the coexistence of the two regarded as a mere coincidence. The rarity of these cases must be my excuse for presenting the history of a case which exemplified both these conditions in an extreme degree, and in which one apparently was excited by the other.

The patient, aged 47, was a laborer, of American birth, with more than the average intelligence of his class. So far as he could remember his medical history was as follows: At 19 he had an attack of articular rheumatism which lasted a year and a half, but from which he made a perfect recovery; at 25 he had another attack affecting all his joints and was helpless for about a year; six years later he had another attack and was in Bellevue hospital for several weeks. Otherwise his health has been good, and he has done unusually heavy work as a porter. In August, 1900, he was hit on top of the head by a sidewalk elevator, but did not become unconscious nor consult a physician. Some time afterward his wife noticed that in reading his paper he began to look sidewise, turning his head toward the left. Within a month he could not turn his head easily to the right, and for the last year or two it has been entirely beyond his control, his head is twisted strongly toward his left shoulder and jerks spasmodically whenever he fixes his attention on anything or attempts to carry his head straight. When he walks on the street he has to stop every few yards to relax the spasm. The man always ascribed his trouble to his injury. He has visited a number of hospitals and dispensaries and was once referred by an interested physician to a neurologist of acknowledged standing who returned a diagnosis of hysterical torticollis. It is stated he made no examination of the eyes.

The patient had long given up any hope of being helped, and came to the New York Dispensary in 1903, for the relief of some intercurrent trouble, when I saw him through the kindness of Dr. L. F. Warner.

His right sternocleidomastoid muscle was very much hypertrophied, and from time to time would contract spasmodically and violently, jerking his chin upward and over his left shoulder, while even in quiescent periods his head was considerably turned to the left. My attention was attracted by the fact that in addressing anyone standing on his left the spasm relaxed almost completely, while when his attention was transferred to one standing in front or on his right, and forcing him to turn his eyes to the right, the spasm immediately began and became worse and worse as he struggled to keep his eyes on the person addressing him. When, however, I induced him to turn his eyes strongly to the left, the spasm relaxed to the extent of allowing him to rotate his chin almost to the normal degree over his right shoulder.

The moment, however, he attempted unconsciously to look straight ahead the spasm reasserted itself, and in a few seconds was entirely beyond his control. His attitude when reading was also characteristic, sitting with his elbows on his knees to steady himself, with his head, twisted over his left shoulder, and jerking constantly, but when the paper was held to the left the spasm relaxed, and as long as his eyes were turned in this direction he could hold his head in any position with his mastoid muscle completely relaxed.

The refraction of his eyes was examined as carefully as circumstances would permit, the vision in each eye being 20/30, while the ophthalmoscope and ophthalmometer showed a hyperopic astigmatism of 2 1/2 D. in the right and a simple hyperopia of 3 D. in the left. He accepted no glass, possibly because the head was so turned as to force him to look through the periphery instead of the center of each lens. The same difficulty arose in testing his muscular balance, the first requisite for which is that the head be held symmetrically and steadily, which I was not able to manage with the means at my command. However, he showed no diplopia in any part of the field, either near or far; and he could rotate his eyes apparently as far to the right as to the left. There certainly was no evidence of any paralysis and I cannot say that there was or was not muscular insufficiency, though I infer that there must have been. To facilitate a more exact examination of his eyes, I gave him a solution of atropin to use, and let him go for the day, with some advice about turning his eyes so as to avoid the spasm. He never appeared again, and I have never been able to get hold of him, the address given being that of a one-night lodging house.

It is, perhaps, fortunate that I can present no history of either success or failure in the treatment of this patient. The

association of a spasmodic torticollis with a particular movement of the eyes is the most important thing. Early treatment might or might not have prevented the torticollis; later treatment of the eyes might or might not prove curative. Neither am I arguing that all cases of torticollis are caused in this way. But here is one case in which a spasm of the sternocleidomastoid was caused by stimulation of the associated centers for moving the eyes to the right, acting through the third and sixth nerves. This raises at least a presumption that similar spasms might at times be caused through other centers, and even perhaps by simple stimulation of the third nerve in the act of accommodation, in which case treatment would be both simple and beneficial.

THERE ARE NO WOMEN OF GENIUS; WOMEN OF GENIUS ARE MEN.

BY

EMMA L. BILSTEIN, M.D.,
of Highlands, N. C.

To the Editor of *American Medicine*:—"What a funny philologic jumble of contradictions inhabits his head" (for these words I am indebted to the editorial pages of *American Medicine*), who says: "There are no women of genius; women of genius are men." This epigrammatic jumble consists of a denial followed by an admission of what is denied and the contradiction is a whimsical expression of the irritation or perplexity of its author at the recognized fact. Seriously quoted in a recent work that purports to be scientific this *mot* of Goncourt is meaningless, and only serves to show that "no man is the wiser for his learning."

In this same work it is said there are no deep-dyed women criminals, reserving for men the sole distinction of genius and the supreme odium of crime—the meeting extremes of an exclusive masculine "superiority" having its origin in degeneration. Genius is said to be not so very uncommon and we are appalled at the lengthening list of men and *non-women* women, consigned to the "demnition bowwows" of degeneration.

Once pious churchmen diversified their fantastic calculations touching the number of angels that can dance on the point of a needle with consideration of the question whether woman has a soul, and now zealous scientists are trying to pull our heroes off their pedestals and striving to prove that the greatest among men are no better than the worst.

O, star-eyed science! hast thou wandered there,
To waft us home the message of despair?

POSTGRADUATE WORK IN PHILADELPHIA.

BY

R. MAX GOEPP, M.D.,
of Philadelphia.

To the Editor of *American Medicine*:—In your issue of February 4 there appeared an editorial on postgraduate instruction in Philadelphia and in New York, in which it was stated that the facilities we possess in Philadelphia are not utilized to the extent they ought to be and that students, not finding the inducements offered here sufficiently attractive, go on to New York for their postgraduate work. There is no doubt some justification for this criticism, and at all events the fact remains that the number of postgraduates who came to Philadelphia during the past year is only a little more than half of the New York showing, according to the table quoted; but it must not be forgotten that, aside from its opportunities for medical study, New York offers many more attractions which strongly appeal to the visiting student. The body of postgraduate students is made up in part of hard working country practitioners who are in the habit of making an annual pilgrimage to a postgraduate school to "brush up" their medical knowledge and, incidentally, to seek rest and recreation. Another group consists of young men who have just been graduated from some fresh water college and wish to round out their medical education and at the same time see something of life in the large cities of the East before settling down to prac-

tice. What is more natural for these men to go where they will find the maximum of general interest and entertainment, especially when they can get excellent postgraduate work at the same time? Personally, I believe comparatively few men come to Philadelphia to take a postgraduate course and then change their minds in favor of New York. The difficulty is rather to get them to come to Philadelphia at all, and in some instances, at least, I have known men to come here from New York for the purpose of doing work in special lines because they had been told that our facilities were better in these lines and our clinic rooms less crowded, which is unquestionably true.

As a matter of fact, there is a good deal of postgraduate teaching constantly going on in Philadelphia, both organized and unorganized. In addition to the Philadelphia Polyclinic, which has a regularly organized postgraduate school and receives students the year around for periods averaging a little more than six weeks and also possesses well-equipped laboratories, the University of Pennsylvania has had for several years on its roster a special spring course of six weeks for postgraduate students and the practice is to be continued in the future. Jefferson University, while it offers no regular courses, admits postgraduate students by special arrangement during the college year, and the abundant material in some of the other hospitals of the city, notably Wills Eye Hospital and the Philadelphia Hospital, is utilized in connection with the postgraduate work in some of the other institutions.

Since this subject has been aired in your columns, it seemed to me not inappropriate to present the facts in regard to postgraduate work in Philadelphia, as the editorial in question hardly seemed to do justice to them.

CLINICAL DIAGNOSIS OF DIPHTHERIA.

BY

H. W. HILL, M.D.,
of Boston, Mass.

To the Editor of *American Medicine*:—I regret exceedingly to call attention to an error in your editorial of March 4, 1905, relating to the physicians' error in the clinical diagnosis of diphtheria, but feel that the error should not go uncorrected. The facts that your editorial is complimentary to the Boston Board of Health, and that the error you have fallen into is due in part to my omission to forestall a misapplication of my figures which I find has been made by many others as well as by yourself, cause me to regret the matter all the more.

The figures which you quote in your editorial from my article in the *Boston Medical and Surgical Journal* are correctly quoted, but incorrectly applied. It is true that in Boston the number of cases reported without bacteriologic examination should be discounted about 38%. Unfortunately, the impression has become widespread that the total cases reported should be thus discounted. Now in Boston, between the Boston Board of Health Laboratory and the Laboratory of the Infectious Hospital (South Dept.) under Dr. J. H. McCollom about 70% to 80% of the total reported cases receive bacteriologic examination (and prove positive) for diagnosis. Hence only 20% to 30% of the total cases are reported on clinical grounds alone, and it is only to this 20% to 30% that the 38% discount can be applied. Hence, the total reported cases can only be discounted by 38% of 20% to 30%, or about 7% to 12%.

It is obvious that in places where the proportion of clinical to bacteriologic diagnosis is higher than 20%, the discount on the total cases reported will be larger, and *vice versa*, within limits, it is probable that, where bacteriologic diagnosis is unknown, the correction should be plus, not minus.

Crusade against Tuberculosis.—At Carlsruhe, Germany, a museum similar to that already established at Charlottenburg has recently been opened with the view of acquainting the public with the ways in which tuberculosis is diffused and the means of preventing infection. Special arrangements have been made with the railroads to facilitate excursions to the museum on the part of the working classes in all parts of Baden.

ORIGINAL ARTICLES

THE SIGNIFICANCE OF THE URINARY EXAMINATION IN WOMEN.*

BY

GUY L. HUNNER, M.D.,

of Baltimore, Md.

Associate in Gynecology, The Johns Hopkins University.

A more appropriate title for this paper would possibly be: "The Importance of an Examination of the Urine;" for it is my sole aim to present a simple plea for a simple examination of the urine.

The general practitioner, who systematically makes an examination of the urine in cases of obscure diagnosis, is an exception among his conferees. That the busy internist is not the only delinquent, we can, doubtless, all attest from personal experience. While most of you are surgeons and gynecologists, many are general practitioners as well, and usually depend entirely upon your own resources for the diagnosis in a given case. For this reason I shall confine my remarks almost exclusively to the discussion of the simpler methods of examination in cases of urinary tract disease.

I wish first to relate a few recent cases bearing on the question under discussion.

CASE I.—A woman aged 40, was referred to me in September, 1904, complaining of a pain in the left pelvis. This pain began suddenly about 12 or 14 years ago, after the patient had received a severe wrench of the body. Her physician made a diagnosis of inflammation of the womb, and the inflammatory symptoms persisted about a week, keeping the patient in bed. Since that time she has suffered from a more or less constant pain in the left pelvis, with occasional exacerbations. No history of colicky pains could be elicited, although the patient stated that she had had "nervous spasms" on three different occasions, because of the pain. She enjoyed a good appetite and good general health. There seemed to be less secretion of urine when the pains were more intense, due, she thinks, to the reduced ingestion of food and water. She never had symptoms referable to the bladder. On examination, the vaginal outlet was much relaxed, the uterus was of normal size and in normal position, the right ovary small and freely movable. In about the region of the left broad ligament I found a small elongated body, which I at first thought was a stone in the left ureter. On further examination, however, I found the left ovary to be a small, hard, elongated and very movable body, and I could not definitely locate two such bodies. There was considerable tenderness somewhat higher in the pelvis, in the region of the posterior brim of the true pelvis.

I could not make a diagnosis, and recommended that the patient go to the hospital for a few days to give us an opportunity to go carefully over the urinary conditions. This she consented to do, and on returning to my office three days later to make final arrangements for her room at the hospital, she remarked that I must have displaced whatever was wrong in the pelvis, as she had been entirely free from pain since my examination. This was very suggestive of a movable stone in the ureter, and I decided to use a wax-tip bougie at once and try to determine this point. She was first prepared in the dorsal position for another bimanual examination before catheterizing. On making this examination I again found the small, hard, movable left ovary, and could easily bring it down to the uterovesical region, where I had first suspected the presence of a stone. On palpating farther back in the pelvis where there had been extreme tenderness on my first examination, I found what seemed to be a definite mass lying in Douglas' pouch. This seemed to be about the size of a small hen's egg, and was soft and very tender. Thinking I had discovered the cause of her indefinite symptoms of pain, I gave up the idea of using the wax-tipped catheter, and sent the patient to the hospital for operation the following day.

I sent word to the interne that I would operate for a small mass in the left pelvis, but that I had suspected stone in the left ureter, and would like to examine carefully a specimen of urine catheterized from the bladder for the presence of microscopic blood. His report was negative. Imagine my surprise to find after the patient was anesthetized that the pelvis contained no abnormal mass! I then placed her in the knee-breast posture and passed a wax-tipped renal catheter which came back without scratch marks. I performed a posterior vaginal celiotomy, and found a senile left ovary as before palpated, and found the left broad ligament the seat of a congeries of varicose

veins, which I considered the probable cause of her indefinite symptoms. The left broad ligament tube, and ovary were removed, and the relaxed outlet was repaired by the Emmet method.

Her convalescence was normal for the first three days, but at 11.30 p. m., the third day, she was taken with a sudden pain in the lower left side, and this pain soon extended throughout the left side and into the left kidney region. The left side of her abdomen was board-like in rigidity, and she objected strenuously to any attempt at palpation. The next morning her urine was very bloody. For twelve days she had more or less frequent attacks of colic, and the urine showed blood constantly. The attacks of pain usually followed urination or any change of position. Both morphin and chloral hydrate were used freely the first seven days, and after that chloral hydrate was sufficient. On the twelfth day she suddenly became more comfortable after a moderate attack, and she thought she passed something into the bladder. A röntgen-ray photograph taken the tenth day was negative in the kidney region. Iodoform, persisting after our postcervical iodoform gauze drain, clouded the pelvic picture. I saw the patient December 7, and she said she has not had an ache or a pain since leaving the hospital. In the near future she is to have a bladder examination, and if no stone is found in the bladder, a röntgen-ray photograph will be taken of the pelvic region.

This case is related to show how easily one may be misled in his diagnosis, and how important it is to examine carefully the urine in all doubtful cases. It is probable that if I had made a microscopic examination of the urine at the first two visits, this would have led to an exact diagnosis, and to a curative operation. The patient's symptoms had seemed so indefinite that from the first I had intended to send her to the hospital for a few days of observation, and for this reason had neglected a microscopic examination of the urine. A good hospital and a reliable interne to lean upon are not always an unmixed blessing.

CASE II.—Another patient, aged 35, was referred to me last August, her family physician thinking that she had some trouble with the right kidney. A tumor mass filled the right flank, pushing forward the lower costal margin and extending considerably beyond the linea alba at the umbilical region and beyond the pelvic brim inferiorly. The urine contained a large quantity of pus, and on cystoscopic examination a stream of thick yellow pus was seen flowing from the right ureter. By holding a speculum under the left ureteral orifice, the left kidney was found throwing down a large quantity of normal urine. Bacteriologic tests of the bladder urine showed a pure culture of *Bacillus coli communis*. After vainly searching for tubercle bacilli for several consecutive days, I decided that we were dealing with either a tumor or stone in the kidney, the excessive quantity of pus making me favor the latter diagnosis. I successfully removed the largest calculus kidney I have ever seen.

This patient had been operated upon at one of the Baltimore hospitals two years previously for a complete prolapse of the pelvic organs. According to her statement, she entered that hospital because of a fulness and uncomfortable feeling in her right side. For five years she had noticed that the side seemed stiff when she would lean over a chair or out of a window, and for two years she had noticed a swelling. Notes from her history, kindly furnished me by the house physician of the hospital, state that she entered complaining of "a sickening feeling in the right flank two months before admission," and again for three weeks immediately preceding her admission. The note on her examination stated that the abdominal examination was negative. A thoroughly scientific examination of the urine is one of the features of the hospital mentioned, and I was furnished a copy of the urinary analysis. This notes an absence of blood and albumin, but states that the sediment was "profuse, white, compact," that there were "pus cells in great abundance," "few pavement epithelial cells," and that there was "much nucleoproteid."

In view of the patient's previous history, and with this urine examination, and her condition while under my care, it seems fair to suppose that the patient had a calculus kidney while under the care of my esteemed colleagues; but that, as not infrequently happens, the very prominent physical defect which was first discovered diverted the attention from the very important urinary message.

* Read by title at the seventeenth annual meeting of the Southern Surgical and Gynecological Association, held in December, 1904, at Birmingham, Ala.

CASE III.—A third case was brought to me last September at the Frederick City Hospital by a general practitioner from another city, a diagnosis of ovarian cyst having been made. The patient was 33 years old and for the past four years had noticed pain and a swelling in the left flank. Eight months previously she had had a severe attack of pain in the left side accompanied by much blood in the urine. This was the only time she had noticed blood in the urine. The tumor had been growing rapidly during the past eight months. Bimanual examination demonstrated normal pelvic organs and no connection between these and the tumor. The tumor seemed to be of the left kidney and I made the usual lumbar incision for its removal. On reaching the peritoneum it was opened for transperitoneal palpation of the right kidney and then sutured. The tumor had apparently arisen in the lower pole of the kidney and had extended through its capsule into the pelvis of the kidney, where it followed the lines of least resistance upward into the calices of the upper pole and downward into the ureter, forming a cast of this organ for a distance of 11 cm.

An exhaustive microscopic study has not yet been made, but the tumor was of adrenal tissue and was apparently undergoing sarcomatous changes. I regret exceedingly that I did not get a catheterized specimen of the bladder urine for microscopic examination. Before hardening the specimen I prepared slides from scrapings of the surface of that portion of the tumor which had extended into the ureter. These slides showed cells of an epithelioid type, many of them being extremely large.

The three cases reported, occurring in my practice during the past few months, are enough to substantiate the proposition that a urinary examination is too often neglected, and sometimes when made is not carefully interpreted. To these I could add many similar observations made during a short experience in hospital and private work. I read before this society last year a paper on "Surgery of Urinary Tuberculosis in Women,"¹ which was based upon a previous report of 35 cases.² In the earlier report I showed that many of these patients had been treated or operated upon for various diseases while suffering with tuberculosis of the kidney. Typhoid fever, malaria, la grippe, appendicitis, oophoritis, and floating kidney were some of the diseases for which they were treated, when a careful study of the urine might have led to the true condition. I need not enter further into the details of such cases.

In the three cases outlined we see that one patient (the third) had suffered for four years with pain and a palpable tumor in the left flank region, signs and symptoms that should certainly have called for a urinary examination. She had passed bloody urine and still she was not referred to a specialist until her adrenal tumor was undergoing sarcomatous changes. The first patient mentioned had an outlet operation and a vaginal celiotomy and probably still carries a stone, the cause of her trouble, either in her ureter or bladder. The second patient had a pelvic operation performed at a time when the more necessary kidney operation would probably have been far less serious than it proved two years later.

In a body of surgeons and gynecologists we would probably not have to go far to hear of mistakes that resulted even more seriously because of a failure to examine the urine. On the other hand, many can cite cases in which the urine examination has proved a great blessing in clearing up an obscure condition and preventing an unnecessary operation.

Dr. L. P. Hamburger told me of such a case recently and kindly gave me the following notes:

On November 13, 1904, I was called to see Mrs. E. S., aged 31, who was complaining of pain in the abdomen on the right side. All throughout the morning the patient had had a desire to go to stool and to void urine frequently. The movements had been formed, but the result had not been satisfactory, the desire remaining. On preparing to go out in the afternoon she was seized with a violent pain in the region of the right iliac fossa. The pain was sharp and cutting, radiating in a slight degree to the back. She had been nauseated and had vomited.

She was seated in a chair with body flexed and feared to move, because of the suffering. The tongue was clean; pulse 72; a little irregular in rhythm; temperature by mouth at 4 p.m. was 99°. She was put to bed with difficulty. On palpa-

tion there was great tenderness over the lower half of the right rectus, particularly at McBurney's point, and in fact throughout the lower right quadrant of the abdomen. There was slight "muscle spasm." There was no tenderness over the lumbar region. Applications of heat had been ineffectual.

With the notion that I was dealing with appendicitis, I went to make preparations for counting the leukocytes, at the same time taking a specimen of urine for examination. To my surprise the urine disclosed albumin, and microscopically, blood. The urine was clear, with very slight flocculent sediment. After a thorough centrifugalization the sediment revealed many red corpuscles, shadows as well as crenated forms; 5.30 p.m.: The pain is still intense and is now extremely severe in the back in the lumbar region; .02 gm. ($\frac{1}{2}$ gr.) of morphin was administered and within a half hour 8 mg. ($\frac{1}{8}$ gr.). Within an hour there was considerable relief.

The interesting features in this case were these: That when Dr. Hamburger first saw the patient the pain was not in the back, and that the urine was to the naked eye perfectly clear. The presence of albumin was easily detected, but it was only after a long centrifugalization that enough sediment could be collected for microscopic examination. When he returned about an hour later the pain was situated in the back also, so that a suspicion of real colic would have been raised at this time without the urinary analysis.

I recently had a similar experience:

On October 15, a physician called me to see his wife, because of her suffering with severe abdominal pain. She had worked over a hot stove in the morning and before going to market had changed her clothing in a cold room. On going about the market she was suddenly seized with a severe pain in the right flank region, and had to be taken home in a cab. I saw the patient at 10.30 p.m. She was lying on the right side and groaning with pain. Two hypodermics of morphin within the previous five hours, the first of .03 gm. ($\frac{1}{2}$ gr.) and the second of .02 gm. ($\frac{1}{2}$ gr.), had apparently given her no relief. She had vomited her food taken at noon. Her pulse was 64, and her temperature normal. The abdominal muscles were rigid, but on careful manipulation and by diverting the patient's attention she relaxed enough to demonstrate that there was no great tenderness at any point except over the right kidney region. The diagnosis seemed to lie between a gallstone attack, appendicitis, and renal colic, with the conditions in favor of the latter. A careful blood count showed 17,000 leukocytes, and made me rather apprehensive of an appendicitis belonging to that treacherous type in which the pulse-rate and temperature are not disturbed. An examination of a specimen of urine catheterized from the bladder threw the weight of evidence in favor of a kidney attack, and prevented the patient from going to the hospital. The urine was scanty, high colored, and contained a few red blood-corpuscles, many hyaline casts, and about $\frac{1}{10}$ of 1% of albumin. Not having a Paquelin cautery, I applied a hot poultice over the kidney region and advised rest in bed, low diet, copious ingestion of water, and attention to the bowels. The patient improved steadily and was out of bed in about a week. The urine was examined on the third day, and a centrifugalized specimen showed a few pus and epithelial cells, a few red blood-corpuscles, and casts. The nitric acid test failed to give an albumin ring.

Let us now consider the practical application of such facts. I do not propose to describe or urge the adoption of the many new and exact methods that are being introduced for the examination of the urine and the urinary organs. I believe that those of us who have the advantage of surgical or medical practice in well-regulated hospitals should encourage original investigation and the trial of new methods of research. Cryoscopy, the phloridzin test, and the indigo-carmin test each has its sphere of usefulness, and should be used by those who have the facilities until their value and their limitations are determined. Cystoscopy and the various methods of precision made possible by its use seem indispensable to those of you who depend upon them.

But a discussion of these methods is beyond the scope of this paper. My appeal is to the general practitioner, and to the average surgeon who has not perfected himself in the finer details of the work, and I wish to make my suggestions so simple and practical that there will be no opportunity for him to dodge and excuse mistakes on the grounds of inability to do the unusual.

To urge the point briefly, I would say, let us use our eyes, microscopes, and wits. Too often the urine is never even looked at; more often the microscope and

powers of interpretation are not brought to bear upon the condition.

A great deal depends upon the method of obtaining the urine. If I am examining the urine to determine a special point in diagnosis, I always feel it a waste of time to look over anything but a catheterized specimen. If it should prove inconvenient to get a catheterized specimen it is almost as conclusive to examine a voided specimen, if this is collected after carefully sponging the vestibule and shutting off any vaginal discharge by leaving a cotton pledget in the introitus vaginae. When there is evidence of urethritis, a two-glass specimen should be taken. In acute or subacute urethritis of gonorrheal origin it would be unwise to catheterize, and by the two-glass method one can get a fairly correct idea of the condition of the urine from the second glass.

The problem of urinalysis acquires a new importance in this day of the small local hospital, when the specialist who is called from the city to operate usually has an opportunity to see the patient but a few minutes before operation. Each hospital of this character should have as a portion of its equipment a microscope and the instruments and reagents necessary for the more important tests; and there should be a standing order for the head nurse to have in conic glasses a catheterized specimen of urine, if the patient be a woman, and a two-glass voided specimen if the patient is a male. If possible the urine should be examined while fresh. Bacteria passed with the urine or entering by way of contamination if the urine was originally a catheterized sterile specimen, may very quickly change the picture. The reaction may be changed, casts may decompose, the hemoglobin of the red corpuscles may be dissolved leaving these difficult to find, and the entire field may be obscured by the precipitation of urinary salts.

We can often determine important features by simply looking at a fresh specimen. If it is clear one can say almost positively that there is no bacterial infection. With experience one can differentiate with a degree of certainty between a turbidity from the light, coarse flocculence of precipitated phosphates (which may obtain in a freshly voided specimen if the patient is extremely nervous), and second, the heavy and variously shaped particles representing pus and epithelial clumps, and third, the very fine, evenly distributed turbidity of a bacteriuria. Among the abnormal constituents which we may often suspect from a macroscopic examination, are pus, connective tissue, blood, and bile; among the rarer finds are stone particles, dermoid cyst contents (such as hair, sebaceous material, and fat), and the contents of an extrauterine gestation sac.

If the fresh urine looks perfectly clear one is usually satisfied after making the physical and chemic tests for evidences of diabetes and Bright's disease. But mistakes will occasionally be made if the microscope is not brought into use even in macroscopically pure urine. (See Dr. Hamburger's case cited above.) In renal calculus and in the early stages of tuberculosis the urine not infrequently looks clear, but contains microscopic quantities of pus and blood.

When pus or blood, or both, are found in the urine, our first duty is to locate their origin. A catheterized specimen excludes the urethra. The history of the disease is an uncertain aid. A kidney may be far advanced in tuberculous disease and the bladder quite uninvolved, and still the patient may have no symptoms except of the bladder. Palpation findings may be more helpful.

A periurethral or suburethral abscess as a source of pus is easily found by inspection and palpation. A thickened and tender bladder wall, or a thickened ureter is discovered by palpation, and a stone may be located in the bladder or ureter. Stone low in the ureter may cause much pain and tenderness in the rectum, as may an inflamed appendix hanging over the

pelvic brim. Stone lodges just above the pelvic brim in about 10% of cases of stone in the ureter. Pain and tenderness in these cases may simulate appendicitis. In any inflammation of the ureter, palpation over the pelvic brim will frequently show a cord-like body, and elicit tenderness and a desire to micturate.

Too much importance should not be attached to apparently negative palpation findings in the kidney region, as a badly diseased kidney may be smaller than normal, and lack special sensitiveness.

Cystoscopy discovers disease of the bladder or excludes this organ.

There are some urinary features which may help differentiate kidney from bladder disease. The urine is likely to show more albumin if the disease is in the kidney. If the disease is in the bladder there is likely to be more mucus, and if the infection is by an alkali-producing organism the urine when voided may be heavy with triple phosphates. Blood appears in the form of clots more frequently from bladder disease, but I have seen the bladder a quarter filled by clots and the urine showing nothing but diffused blood. The presence of any feature suggestive of bladder disease does not exclude associated disease of the kidney.

Our later textbooks are properly revising the old statement about an alkaline urine, indicating bladder as contrasted with kidney disease. These statements probably originated before the importance of examining fresh urine was recognized. We now know that in diseased conditions the reaction, except when influenced by drugs, usually depends upon the microorganism present. In the majority of cystitis cases, the patients have an acid urine. My observations on the bacteriology of cystitis agree with those of most of our recent workers in crediting the colon bacillus, an acid producer, with at least half of all bladder infections.

Some observers lay great stress upon the nature of the epithelial cells as an aid to diagnosis. While I can see a distinct increase in the ratio of small round cells and goblet cells in the specimens catheterized from the kidney, yet I have no confidence in my ability to say where the disease lies if I am presented with a mixed specimen of urine without further data.

If the disease lies above the bladder, it is with rare exceptions in the kidney. The most frequent causes of pus and blood from the kidney are stone in the kidney or ureter, and tuberculosis. Other conditions to be borne in mind are tumor, pyelonephritis during and following the infectious fevers, pyelonephritis during and following pregnancy, acute suppurative nephritis, or the so-called surgical kidney, and acute nephritis from exposure. The history and condition of the patient and the character of onset of the kidney disease, will be helpful factors in differentiating these conditions. The sudden onset of suppurative nephritis or surgical kidney, with pain, fever, chills, and prostration, may be imitated by stone or tuberculous disease when the first intimation of their presence comes from a sudden blockage of the ureter. The onset of calculous and tuberculous diseases is usually insidious. In only 5 of the 35 cases of tuberculosis which I reported last year, did the patients give a history of acute onset. Other insidious conditions in which we may get hemorrhage are the so-called idiopathic hematurias and chronic interstitial nephritis.

As before stated the most frequent causes of blood and pus from the kidney are stone and tuberculosis, and unless the history or other conditions point strongly to some other source, we generally begin further examination to identify or exclude one or both of these diseases. Although the history, the cystoscopic appearances, the tuberculin test, the wax-tipped bougie, and the röntgen ray, are all helpful in making a diagnosis, they all fail at times, and it is the urine upon which we must place the chief reliance. The absence of tubercle bacilli after repeated examinations makes the evidence strongly in

favor of stone.* Tubercle bacilli can be found in the vast majority of renal tuberculosis cases, and they are our chief dependence in making a positive diagnosis. At times, when they cannot be found microscopically a guineapig test will be positive. Pain and hemorrhage are more liable to be influenced by exercise in cases of stone.

The absence of growth on our ordinary culture mediums from a catheterized specimen of urine is very suggestive of tuberculous infection. Not an inconsiderable proportion of tuberculous patients however have an added colon bacillus infection. The finding of tuberculous lesions in other organs is strong evidence of the kidney disease being tuberculous. The passage of gravel either recently or in former years, makes the diagnosis of stone more probable. It must not be forgotten that coincident with blockage of the ureter there may be periods corresponding to the patient's most serious attacks of colicky pain, chills and fever, nausea and vomiting, and general prostration, in which normal urine is passed.

The significance of the urinary examination in women is a subject of such broad relations that it is extremely difficult to treat of it in a brief paper and to confine oneself strictly to any one phase of the subject. I have made no mention of the extreme importance of repeated delicate tests and careful microscopic examinations which the internist often finds necessary in cases in which the headaches, indigestion, increased arterial tension, disturbance of vision and retinal hemorrhages, all speak louder than words for interstitial nephritis, but in which an ordinary hurried examination of the urine fails to show albumin or casts.

Nor have I spoken of the most valuable work now in

*I make such positive statement about the comparative ease of finding tubercle bacilli when they are present in the urine that I am often asked for my methods. In view of the many recent developments it may be surprising that I adhere to old-fashioned methods, but this is because I have had so little trouble in finding the bacilli that I have seen no reason for changing.

I have not yet found it necessary to adopt the method of spreading a thin layer of egg albumen on the slide in order to make the specimen adhere. I suppose this result is generally obtained by virtue of the albumin and mucin present in the urine and in the elements we wish to stain. Nor have I adopted the more recent ideas of washing out the urinary salts with distilled water, and of centrifugalizing with water or alcohol because of their specific gravity being lower than that of the urine and the tubercle bacilli.

I use a specimen of urine catheterized with aseptic precautions from the bladder or preferably from the diseased kidney. I prefer to have this stand in a covered, sterile, conic glass for some hours. I am aware of the claim that tubercle bacilli have the same specific gravity as urine, but I believe that many of them settle when the urine is allowed to stand. It is probable that many bacilli are carried down with the precipitating particles of necrosed tissue, fibrin, and clumps of pus cells. For the purpose of centrifugalization I pipet the heavy sediment from the bottom of the conic glass, aiming to get only the pus layer and to avoid getting the more superficial layer of precipitated urinary salts. After transferring the heavy sediment to the centrifugal tube I sometimes add more fluid by taking some of the urine from the surface of the conic glass, but I think it would be an advantage to fill the centrifugal tube with distilled water.

The preparation of the glass slide is important. The slide is preferably new to avoid the possibility of the presence of bacteria from former staining, and it should be freshly cleaned with alcohol to remove all grease. The sediment is pipeted from the centrifugal tube and spread over one end of the slide. I generally cover half or two-thirds of the slide, according to the amount of sediment, and never prepare more than two slides from one specimen. I prefer to dry the specimen in the air or in an incubator, as too rapid drying over a flame results in a breaking off of the material on further manipulation of the specimen. After drying, the specimen is fixed over a flame. I am careful to apply the heat gradually, and to avoid over-heating, as it is a great satisfaction to look over a field with well-preserved leukocytes and epithelial cells. After each passage through the flame I touch the slide to the back of my left hand, and when the stroke becomes painful I consider the specimen sufficiently fixed.

Before staining, the slide is "cleared" by immersing for a few minutes in a jar of 95% alcohol or equal parts of alcohol and ether. This probably dissolves any excess of mucus and some of the urinary salts, and my colleague, Dr. T. R. Brown, thinks it results in a further killing of the bacteria to the slide.

After covering the specimen with carbolfuchsin the slide is heated for four or five minutes over the flame. I apply the heat slowly, increasing it gradually so as to get an active escape of steam during the last minute. After washing under the tap the slide is placed in a jar of 95% alcohol to which is added a few drops of hydrochloric acid or nitric acid. After complete decolorization, the specimen is counterstained with Löffler's methylene-blue, when after washing under the tap and drying it is ready for the microscope.

I seldom have to spend more than five minutes in finding the organisms, but do not consider the specimen negative until I have spent at least a half hour on each of the two slides. Nor do I allow a day's examination to negative a suspicious case. I have examined the urine on five consecutive days before being convinced that the case was not one of tuberculosis.

progress, which promises, through the examination of the urine, to clarify our ideas regarding the toxemias of pregnancy, and by differentiating the anomalies of metabolism to give us a more rational therapeutics for the vomiting of pregnancy and the uremic states.

If the relation of a few cases has awakened a determination to have a careful urine examination in every case of abdominal or pelvic disease the object of this paper has been accomplished. My remarks on the differentiation of conditions after finding the evidence of urinary tract disease are neither new nor exhaustive, but to some of you they may be helpful by indicating what you may do with the aid of but one instrument, the microscope.

BIBLIOGRAPHY.

¹ *American Medicine*, Vol. vii, 1904.

² *The Johns Hopkins Hospital Bulletin*, Vol. xv, 1904.

THE OPTIC AND OCULAR FACTORS IN THE ETIOLOGY OF THE SCOLIOSIS OF SCHOOL CHILDREN.

BY

GEORGE M. GOULD, M.D.,

of Philadelphia.

The Theses in General.—There seems no reason to doubt the accuracy of the statistics of Guillaume, Krug, Hagman, Kallbach, and Scholder, which demonstrate that in five European cities over 25% of the school children have lateral curvature of the spine. The fact is astonishing, and even appalling. The manifold and indirect production of morbidity is incalculable, and the neglect of this pathogenic factor in preventive and practical medicine is of terrible significance. We give absorbed attention to a score of morbid agencies of vastly less importance than scoliosis. Many of these are doubtless the direct and unrecognized results of the deformity, but of this no question is asked. The terminal diseases seize upon the anemic, morbid, and devitalized scoliotic, and the terminal diseases occupy the minds of the pathologists and hygienists to the entire exclusion of the early, real, and hidden cause.

Many experts admit that malposture, especially in writing, is the principal cause of so-called idiopathic lateral curvature of the spine. School desks and slanted handwriting are constantly emphasized as the chief factors in bringing about the malposture, and all are emphatic in advising an erect posture in writing, reading, and study. As to study, when not writing, the contention is just and pertinent, and the advice easily and usually followed. But as to writing, their advice, as it is given, is impossible of being carried out, and none has seen the reason of the impossibility, because none has recognized that the writing postures heretofore commended, are absolutely interdicted by a peculiarity of the visual function, namely, the necessity of seeing the writing field, *i. e.*, the space about the pen-point, with both eyes, but especially with the right eye. The simple observation has been overlooked that the eyes must see clearly and freely what is being done. The command of George Sand, *Écriture droite, sur papier droit, corps droit*, "vertical writing on vertical paper, the body also vertical," is the fitting demand or attitudinizing of the theorist who cannot see that obedience is impossible, and that no child and no theorist ever did actually write in that way.

The entire history of scoliosis investigation, of school hygiene, and of vertical and slanted handwriting is dominated by the strange ignoring of the function chiefly concerned in the mechanisms—*i. e.*, the visual function. All motion and activity of the higher animals in the history of evolution has been dependent upon visual function, the finest most delicate, most difficult of physiologic functions. Even Spencer was proud of his scorn of optics, of his own wilful ignoring of his eye-

strain, proud of his pride in ignoring the source of his own illhealth and that of many others.

An analysis of the optic problem, therefore, explains the malposture of writing, and so far as this malposture is responsible for spinal curvature, so far as this deformity due to ocular function. Orthopedic surgeons have taken the curves of the back as the primary ones, and have sought to explain their origin from the facts presented in this region. I suggest that another, the cervical curve, precedes, and by compensation causes those of the dorsal, lumbar, or dorsolumbar spine. In other words the surgeons have neglected the primary functional and habit curves of the neck, which are caused by morbid writing postures, and by eyestrain, and which later induce most of those of the lower spine.



Fig. 1.—A supposed malposture in writing, often pictured but never practised, because the pupil could not see the pen-point or writing field.

The malpostures of writing are caused by the demands of physiologic optics, the necessity that both eyes, and especially the right, shall have as unobstructed a view of the writing field as is possible. According to instructions given the right-handed pupil, this clear view is usually impossible without bending the head to the left. There is also another factor, likewise purely ocular, which accounts for the malposture which engenders curvature of a different kind and in an entirely different way. These are theses, which I think are easily demonstrable.

Age When Spinal Curvature is First Noticed.—Roth, in tabulating the reports of 1,000 cases in his practise, finds that when first noticed the numbers steadily increased from infancy to the age of 13, the highest number being 107 at 12, 117 at 13, 103 at 14, and then steadily declining. The average was 12.32 for the noticed beginning of the deformity, but 15.65 when the patients came under treatment. Eulenburg's 1,000 cases are listed as follow:

Before the sixth year	78
Between the sixth and seventh years	216
Between the seventh and tenth years	564
Between the tenth and fourteenth years	107
After the fourteenth year	35

Whitman's figures are of 3,252 patients, 1,299 (39.9%) of whom were under 14 years of age, and 1,576 (48.4%) between 14 and 21. The reports of some other specialists are in essential agreement with those quoted. More definite data are found in the report of Scholder,¹ whose figures are as follow:

7th grade, about 8 years, 218, 19 scoliotics =	8.7%
6th " " 9 " 257, 47 "	18.1%
5th " " 10 " 408, 81 "	19.8%
4th " " 11 " 404, 110 "	27.2%
3rd " " 12 " 370, 105 "	28.3%
2nd " " 13 " 354, 115 "	32.4%
1st " " 14 " 304, 94 "	31.%

Frequency.—As to the percentages among school children, the following are the more trustworthy reports:

Guillaume, Neuchatel, in 731 found	218=29%
Krug, Dresden, in 1,418 found	357=25%
Hagman, Moscow, in 1,664 found	29%
Kallbach, St. Petersburg, in 2,333 found	26%
Scholder, Lausanne, in 2,314 found	571=24.67%

The average is thus about 27%. Probably but a small proportion of all scoliotics are ever examined by the orthopedist. The general physician does not examine the back in the vast majority of his patients.

Sex.—The disease is mistakenly said to be more than three times as common among girls, although in cases

developing in early childhood, sex seems to exercise little influence. Eulenburg puts the proportion as high as 10 girls to 1 boy; Kölliker, 5 to 1; Tubby, 17 boys in 69 cases, although he thinks the number of severe cases greater in boys than girls. In orthopedic institutions, the average of nine tables is 85.8% girls, and 14.2% boys. A number of reasons for the greater incidence of the disease in girls have been given, but they do not appear to be very convincing ones. One at least wonders how puberty can have much influence. The old *propter ovarium est mulier idol* has to be redressed, solemnly bowed, prayed, and sacrificed to, even in scoliotic deformity.¹ It is evident that the numbers reported by orthopedists are without value, so far as indicating the absolute relativity. Thus, under five years of age, Rédard found the sex numbers equal, and in Dresden, among 1,418 school children, Krug found scoliotic boys 181=26%, and girls 163=22.5%. In Lausanne, Scholder found among 2,314 pupils of the primary grades, 571 scoliotic, of whom 23% were boys, and 26.7% girls.

Statistics of the Kinds of Curves.—The figures reported by the older writers as to numbers of the different kinds of curves are wholly untrustworthy. It is perhaps impossible to explain the errors of these reports satisfactorily. The latest and most accurate observers,



Fig. 2.—Another impossible posture, similar to that of Fig. 1, and unconsciously and unintentionally showing the cervical curve with convexity to the right, which is common in dextral writers.

in fact, reverse the relative numbers of right and left curves, as given by Roth, Kölliker, Drachmann, Adams and Lonsdale, and the Royal Orthopedic Hospital. The institutional figures differ decidedly from those of school children in the primary grades, and as it is in the school or young children that the beginnings of the evil are found, it is upon these that attention should be exclusively directed. It is the very earliest stages which must be studied, as the later complications are merely the results of compensation.

Of the 571 Lausanne school children examined by Scholder and his assistants, the curves were single left-sided in 401, or 70.3%; 121, or 21.1%, were single right-sided, and 49, or 8.6%, were combined. Krug's figures are 67% left, 21% right, and 12% combined. In the report of Schulthess, the proportion of left curves is higher—approximately 90% left as against 10% right.

Causes of Lateral Curvature.—Many writers, after listing a number of causes, such as inequality of the length of the legs, paralysis, thoracic disease, traumatism, organic disease of the spine, sacroiliac disease, rachitis, occupation, heredity, etc., confess that in the

¹ Archiv für Orthopädie, 1903.

¹ See especially Tubby, p. 108, and also other writers.

greater number there is no certainty as to etiology. This mystery has taken shape in the designation, "idiopathic," which is, of course, a frank confession of lack of knowledge. As to occupation and posture, the "confession" appears in another phrasing in Whitman's table:

Occupation.

School	285
No occupation	59
Factory	19
Clerk	13
Domestic, millinery, etc.	24

400

Posture.

Weight on right foot	48
Weight on left foot	48
Carrying weight on right arm	38
Carrying weight on left arm	36
Faulty attitude at desk	57
Sundry	5

282

And again in Roth's table of causes:

Hereditary	297 cases
Rapid growth	203 "
Delicate	176 "
After acute fevers	59 "
Lung affections	41 "
Born in the tropics	27 "
Nerve diseases	24 "
Education (violin, piano, etc.)	14 "
Premature birth	11 "
Eye affections	10 "
One of twins	8 "
Elderly parents	5 "
Very tall	3 "
Sundry diseases	8 "

Scientifically these awkward gropings after an explanation would be provocative of a very unscientific kind of laughter, were it not that the subject and its suggestions are of a profoundly serious and pathetic nature. The most striking physical characteristic of the human animal is his erect posture; all his dignity is in that, and his health; and there is no misfortune so great and no suffering so poignant, both physically and mentally, as that inseparable from spinal disease. Every consideration, professional and humane thus demands that a solution of the appalling mystery of spinal curvature shall be sought with all the zeal, ingenuity, and knowledge at the command of men of science and benevolence. I believe that it is demonstrable that the great majority of so-called cases of "idiopathic" spinal curvature are directly and indirectly the consequences of visual function and chiefly of binocularity, dextrocularity, and astigmatism.

Ruprecht holds that ordinary lateral curvature is rachitic, and Deutschländer goes so far as to say that all scoliosis begins in bone disease, and that there is no such a thing as a habit type, all being constitutional. (Sutter's report is of 1,140 institutional children and suggests nothing new as regards etiology). Such opinions need only to be glanced at and passed with a smile. They illustrate the too common tendency of specialists, and particularly of pathologists, to "go to seed," and the seed without any germinating power. Even Scholder's institutional cases were not always rachitic, and of the school children cases up to the fourteenth year, only 21% showed any rachitic symptoms. Too often the modern pathologist is apparently wholly oblivious of the axiom of physiology and of pathogenesis that function precedes structure. Liebreich¹ does not make this mistake, say-

ing, *e. g.*, "How these curvatures arise in children, notwithstanding their healthy bone structure, I have first illustrated, etc." As to constitutional diseases, Drachmann found but a small proportion of scoliotics among 28,000 children examined and which were anemic or scrofulous. According to Adams, lateral curvature rarely exists with pulmonary tuberculosis—in marked contradiction of Eulenberg, who found that 25% of scoliotics showed a tuberculous tendency, and to Vogt, who reported it in half. Lorenz thinks that weakly children have *ipso facto* a disposition to the disease. Lorenz also thinks symptoms of general disturbance accompany the development of the deformity.

As regards all such statements it may be urged that they are rendered valueless by the simple observation that the general or systemic symptoms of eyestrain, such as headache, anemia, anorexia, etc., now recognized by all competent American oculists as frequently due to the eyes, are not recognized as due to astigmatism, etc., by the orthopedists and hygienists, especially of Europe, but are charged to general constitutional diseases, supposedly present. Another similar instance of *post hoc, propter*

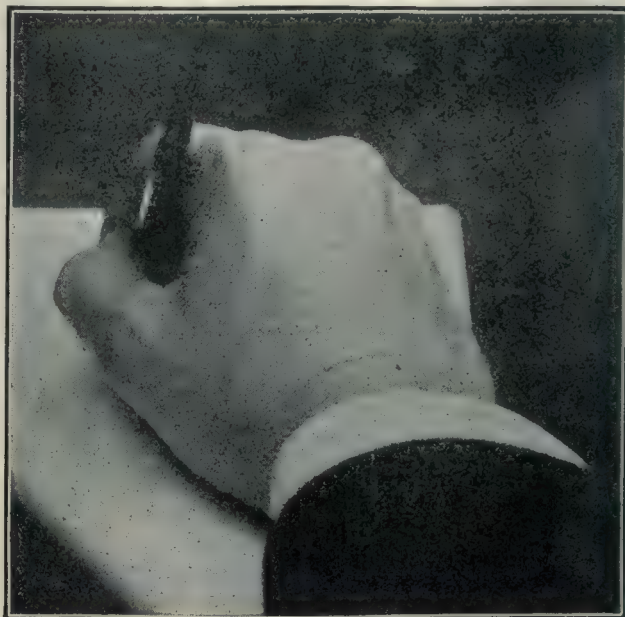


Fig. 8.—The hand in the writing posture as usually ordered, but not practised, because to the writer the writing-field is hidden by the thumb, finger, and holder. A view of the hand, as seen by the writer, with the head displaced in photographing.

hoc reasoning is to credit to the constitutional disease the balance of the anemias, weaknesses, etc., which may be due directly to the abnormalism of the curvature and the desperate efforts of the system to overcome or resist it.

It is admitted that all attempts to prove the origin of lateral curvature in supporting the weight of the body have proved in vain; and that the carrying of weights, unless habitually and unsymmetrically, are also of little or no influence.

Resist the Beginnings of Evil.—If it should be established that the functions of vision, and of eyestrain, are responsible for most spinal curves, the fact will throw added light on the symptomatology as well as etiology. I shall allude to but one or two aspects, and first in a quotation from Tubby:

For my part I think that if 1,000 presumably normal children were examined, the proportion of them showing some deviation of the spine would be large, but I should not include these as cases of scoliosis, inasmuch as they do not develop rotation.¹ And it is always a serious matter to disturb the

¹ Klin. Monatsbl. f. Augenheilk, 1904, and Annals of Ophth., January, 1905.

¹ There is always an element of twisting or rotation in lateral curvature.

domestic peace by pronouncing a child to be afflicted with spinal deformity; rather every effort should be made to minimize than magnify the possibilities of a slight case, both to the parents and in the hearing of the child. A slight spinal deformity is often "treasure-trove" to a hysteric lad or girl.

Was there ever more unscientific and inhumane advice? How discover the cause when the beginnings are minimized as unimportant? In no type of disease is the advice, *principiis obsta*, more zealously demanded. To lull to inconsideration with the hypnotic of pooh-pooh is



Fig. 4.—Changes of posture of body and head, the paper skewed, and the penholder angled, in order to bring the writing field into view. In practice different pupils modify or emphasize one or more of the factors, all of which are somewhat exaggerated in the picture.

surely as bad therapeutics as it is pernicious sociology. Almost all scolioses begin in the slight functional curves. The gravity of such beginnings can hardly be overestimated. There remains also the glaring question, Whence the "hysteria" of these "lads or girls?" Lastly also arises the question why so many of these scoliotic children have headache, poor appetite and digestion, are "nervous," pale, anemic, "delicate," have so many intercurrent diseases, are backward in their classes, and all the rest? The answer will be found in the fact that eyestrain, which causes many of the malpostures, also causes a certain large proportion of these systemic and cerebral disorders.

The Writing Posture.—Almost all authors, in fact, proceed to blame the school desks, and the postures in writing supposedly engendered by them. Thus Roth says:

The position in writing, as generally practised, is, more frequently than anything else, an initial cause of most cases of lateral and other curvatures not due to diseased bone or infantile paralysis.

But Roth then goes on to make some highly erroneous statements:

For many years I have made it a rule, when examining for lateral curvature, to let the patient sit down and write his or her name, and to observe the posture then assumed; nine times out of ten the patient will have placed himself or herself in a posture corresponding with the form of the curvature, except that usually it is highly exaggerated. In most early cases, where, as we shall see later on, the whole spine is usually convex to the left, this is found to be exactly the posture in writing; in severer (i. e., more advanced) cases, where the usual type is to have the dorsal (upper) curve with convexity to the right, the patient in writing generally raises the right shoulder, and this to a far greater degree than in the ordinary posture of the lateral curvature. This vicious posture during writing is due to the unfortunate custom of

teaching a slanting handwriting from left to right upward obliquely, whereas the natural direction of the handwriting ought to be really in the opposite direction, as anyone will recognize by sitting perfectly erect with his hands symmetrically placed upon the desk and then attempting to write without screwing the right hand round or twisting the body. I have therefore been glad to see that in the so-called "reformed" handwriting children are taught to make the letters vertical, or even sloping the other way.

I am utterly incapable of understanding how such a statement could be made by anyone who had observed any school child, any adult even, or himself indeed, during the act of writing. No right-handed two-eyed person actually writes with the head or body bent to the right, and the spine with the convexity to the left. Such a supposed position is often pictured in books, and I reproduce one as illustrative of the mistakes of this kind (Fig. 1). In such a posture the pen and writing space are more or less hidden from view. Every person so placed at once changes about and cants the head to the left, the neck presenting a convexity to the right, the body also, probably, adding other malpostures, such as turning the right side toward the desk, skewing the paper, holding the pen unnaturally, etc. All of which is in obedience to the demand, unconscious by the writer, and unobserved by the physician and teacher, that the writing space about the pen-point shall be seen by the right eye. The error of these authors may possibly be explained as arising

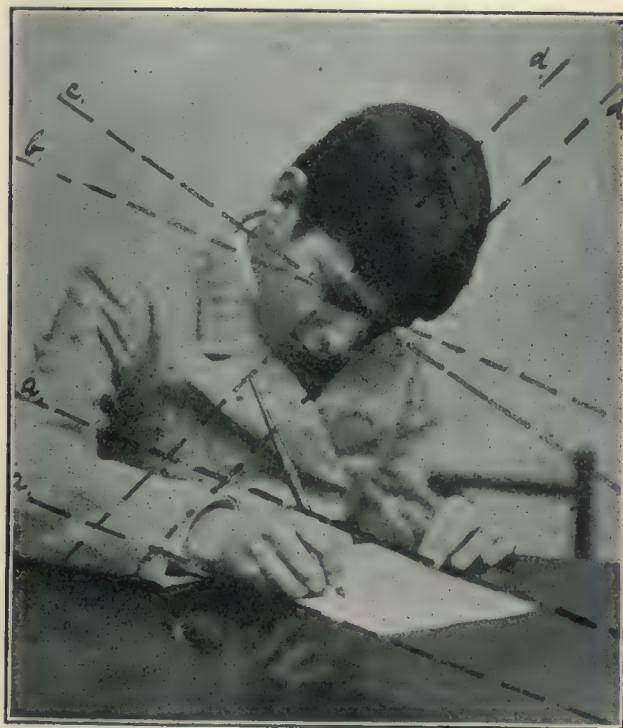


Fig. 5.—The usual malposture of writing. The skewed paper and head and body bent to the left producing a cervical curve with convexity to the right, with inclination and torsion. The astigmatic axes, d, d, are at right angles approximately with a, a, the upright lines of the paper and of the letters formed. The inclination or torsion of the head is lessened by slanting the written letters, making variations in approximate parallelism of the lines c and b, with a, a. This is the reason for slanted handwriting.

from their desire to find the posture of the child in writing such as will explain the dominant type of initial total curves to the left, and coupled with the false supposition that the bending of the body slightly to the right can be the only possible cause of the left scoliotic curve. Unconsciously, however, they may picture the head bent to the left while the body is bent to the right (Fig. 2), and at all events they completely ignore the initial, dominating, and supreme etiologic factor, the head bent

to the left and forming a right cervical curve. The suggestion I have to make is that this right cervical curve, without exception functionally present in all right-handed writers, is the primary pathogenic factor, and the simple left curve of the spine below is merely secondary and compensatory. The still later compound curve most frequently right dorsal, left lumbar, is the third or compensatory stage following the second single curve.¹

The importance of rotation of the vertebrae as a deforming factor has been brought out by Dr. Lovett. Anything which causes a rotation of the spine or head is a powerful influence in causing lateral curvature. "Any lateral yielding of the spine," says Lovett, "at any part must be accompanied by a twist of the spine. As the lateral curve increases, the twist will tend to increase." Dr. Lovett emphasizes that the torsion or rotation of the head alone causes rotation of

produce scoliosis. The cervical vertebrae are part of the spinal column and the mechanism whereby a persistent curvature or rotation of one part of the spine results by compensation in curvature of the other parts,



Fig. 6.—More hygienic posture gained by placing the paper vertically opposite the right shoulder. Some constraint is still necessitated by the level desk or table.

the spine, and that in all spinal curvature there is rotation. This, he says, may be easily demonstrated by placing the patient in front of the physician, with the back exposed, and have the patient turn the head or shoulders sharply to the right or left. We may therefore accept as true that any cause which compels too continuous abnormal postures of the head will probably

¹ The opinion of Tubby also seems to point to a similar finding of the facts in accord with a false theory. He says: That the dorsal convexity to the right is more frequent, admits of no dispute. The statistics quoted by Mr. Adams fully support the generally received opinion; of 569 cases in the dorsal region, 470 were convex to the right, and 99 to the left. As to the reason of the excessive preponderance of right-sided dorsal curves, I believe it is due to excessive use of the right arm in faulty positions involved in occupations and employments, these being such as to elevate the right shoulder and depress the left. Occupations of this nature are, clerking among men, painting and sewing among women, and in school children the very absurd position they are forced to assume in learning to write the "Italian hand." The desk is often too low, and the child is compelled to stoop over it, with the right arm raised and rigid to insure correct and fine up strokes, while the left arm is depressed, so that the hand may fix the copybook.

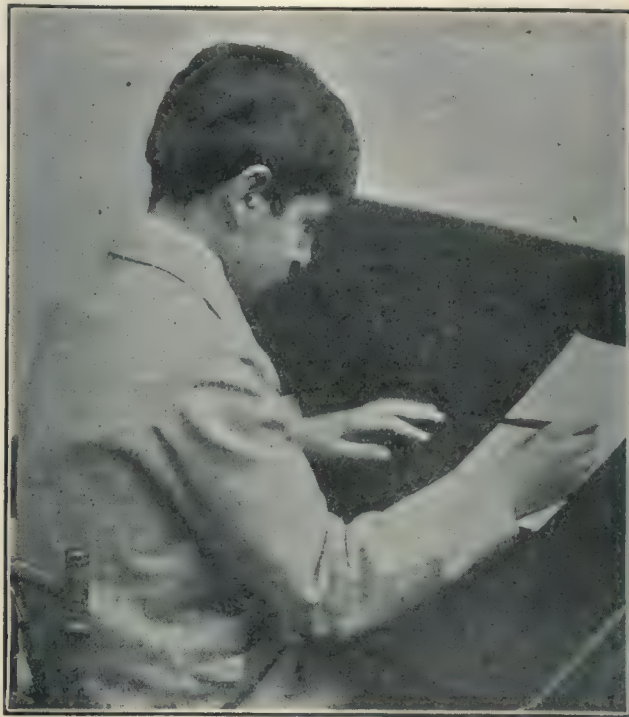


Fig. 7.—Normality of posture by placing the paper vertically, opposite the right shoulder, and with the desk-top well inclined. The pitch here shown is about 45°. At least one of 30° is demanded, although when greater the ink will still flow.

while not perhaps well understood by orthopedic surgeons is still admitted. So far as this paper is concerned, the demonstration of the mechanism must, of course, be left to orthopedic surgeons and the future progress of



Fig. 8.—The unobstructed view of the writing field gained by the writer in Fig. 7. The head is bent out of sight in photographing.

science. There are possibly some occupations beside writing which may compel these abnormal head postures, but at least in school children they are few and inconsiderable. Among occidental peoples the habitual

writing posture is always with the head bent to the left, the cervix presenting a convexity to the right. In addition to this the chest or trunk is commonly more or less bent to the left, and there is also another morbid factor added in the torsion of the head whereby the chin is turned to the right. (In the 1% or 2% of left-handed the inclinations and torsion are, of course, all reversed.) The reasons for the assumption of this malposture in writing, together with the related questions of vertical and slanted handwriting, unhygienic school-desks, etc., I shall discuss more in detail in another article now written, to be published in the *Medical Record*, and I may here only briefly epitomize the conclusions reached:

1. The school desks and seats, imperfect and unhygienic as they may be, are not the primary or chief factors in the production of the morbid writing postures, and hence do not *per se* cause spinal curvatures.

2. They are not the cause of slant handwriting.

3. The two really important needs in school desks, space to the right so that the paper may be placed opposite the right shoulder or elbow, and a pitch of 30° or more, have not been suggested or demanded.

4. Hygienists and the advocates of vertical as against slanted handwriting have persistently demanded a position absolutely impossible to be taken by the writing child, and have never seen that the child neither takes such a position when actually writing, nor that he cannot take such a position, nor the reason therefor. Slanted handwriting, so far as the writing child himself is concerned has no relation, as a cause, to disease, nor to the malposture, but is solely a result of the malposture—is in reality a method of lessening the malposture and of its consequences.

5. With the head and body erect, the paper straight before the median line of the body and the penholder held as commanded, no person can or will write, for the simple reason that the writing and the writing field about the pen-point are hidden by the writing hand, and the penholder (Fig. 3). Immediately the pupil skews the paper, tilts the head to the left, and grasps the holder differently—all in order to bring the writing field, and letters being made, into clear view, and especially of the right or "dominant" eye (Fig. 4). Beside the bending of the head (and usually also the body) to the left, there is a synchronous rotation or torsion of the head to the right, in order to bring the predominant 90° and 180° axes of astigmatism (instinctive desire for verticality and horizontality) into alignment with the upright strokes and lateral lines of the pen and paper (Fig. 5). The cervical vertebrae are thus forced into a combination of three morbid positions caused by: (1) Bending the head forward; (2) canting it to the left; (3) rotating it so that the chin is turned to the right. There is thus produced a threefold increase of the scoliosis-producing agency which is transmitted to the dorsal and lumbar regions of the spine in the effort at compensation. There is always a tendency to hump-back in patients with lateral curvature.

6. The slanted handwriting is due merely to the fact that less torsion or rotation of the head to the right is rendered necessary and a slight easing is secured by slanting the letters to the right. This is illustrated in Fig. 5. The attempt to make the pupil write vertically, without correcting the malposition demanded in order to see the writing at all, is futile, and is an unconscious fanaticism preferring 27% of scoliotic children to an unesthetic and mildly criticisable slanted handwriting.

7. The cure of the false position and of slanted handwriting consists in: (a) Placing the paper vertically, and opposite the right shoulder, and upon a desk leaf pitched at an angle of 30°, and 12 to 14 inches from the eye, the body normally erect and hygienically posed (Figs. 6, 7, 8). (b) Or, by the use of angled penholders, as pictured, leaving the paper straight in front of the

body (Fig. 9). (c) The grasping the old straight holder between the first and second fingers, or as the Japanese and Chinese do their brushes, from two to three inches from the point, and the upper end held vertically or somewhat slanted to the right. This would require that our common steel pens should be made somewhat differently.

The last two suggestions are, I think, less ideally perfect, are in fact somewhat of the nature of expedients, in the lack of properly constructed desks. Something, anything, must be done to prevent the horrible production of scoliosis in over a fourth of all school children.

Head Tilting from Astigmatism.—Except in the few left-handed, therefore, the malposture due to the writing act, and caused by visual function and peculiarity, results in a tilting of the head to the left and a functional right convex cervical curvature. There is another class of cases, also due to the eyes, which in the large majority affected produces a canting of the head to the right and resulting in a functional left curvature of the cervical portion of the spine. The first class of cases was in large part caused by the need of participation in vision of the right, or dominant eye. The second class is also



Fig. 9.—Suggested angling of the penholder in order to bring the writing field into view without morbid posture of the body, head, hand, or paper. (Flanges are fixed to the holder—hidden in the cut by the fingers—to insure ease of holding, steadiness, etc.)

ocular in origin and depends upon astigmatic peculiarity of the dominant eye.

It is, perhaps, necessary to explain more fully what is meant by the dominant eye; I refer for a more extended statement to "Dextrality and Sinistrality,"¹ and "The Pathologic Results of Dextrocularity and Sinistrocularity."² From one of the articles I quote:

A little observation and a few tests will show that, with few exceptions, the right-handed or dextromanual person is also right-eyed, or dextroocular; and the left-handed is left-eyed. That is to say, there is, in the dextromanual, the same habitual and unconscious choice of the image of the right eye for the more expert and important tasks, just as the right hand is chosen for those functions in skilled work. A dextromanual hunter places his gun against the right shoulder, because he can sight it with the right eye better than the left eye. The right-handed person, in playing the violin, violoncello, etc., is forced to use the left hand for the more expert task, because he thus sees the fingers and the neck of the instrument without foreshortening and better than he could if the fingering were done with the right hand. All actions, in fact, are determined by the fundamental necessity that accurate vision shall precede all action, and vision is more accurate with the habitually exercised eye, just as manual function is more expert and reliable with the hand most exercised in a special kind of work. But the domination of one eye does not throw the other out of all function, and especially in artistic work where stereoscopic

¹ Popular Science Monthly, August, 1904.

² Ophthalmology, October, 1904.

vision is of high importance. Du Maurier had but one eye, and his drawings have a peculiarity explained by this fact.

A little closer observation soon demonstrates that not only is the dextromanual also dextroocular, but that he is likewise right-footed, and usually right-eared; he is dextropedal and dextraural. This is equivalent to saying that a person is either dextral, generally, as to ear, eye, hand, and foot, or else he is sinistral. There must manifestly be a unity in the coordinations of all acts, and such coordinations would evidently be better with a habitual one-sided similarity of execution run-

trality of function in one individual, and it completely demolishes the foolish contention of those who would vainly educate the 2% of left-handed children to be ambidextrous.¹

In a small proportion of the oculist's patients he finds a peculiar asymmetric axis of astigmatism in the dominant eye which compels the child and youth to hold the head inclined or tilted, usually to the right, and *almost all the time*, in order to bring the abnormal axis of astigmatism to 90°. At the worst, school sessions last for but a part of the day, writing for but a part of the school hours, the school term for but a part of the year, the school years for only a part of the youth and adult life. A cause that keeps the head tilted to one side all the waking hours of youth will inevitably result in lateral spinal curvature. Such a cause is a certain axis of astigmatism in the dominant eye, not compensated for by that of the other eye.

An axis of astigmatism in the dominant eye from 10° to 20° to either side of 90° or 180°, while the axis in the fellow eye remains normal or unsymmetric, produces head tilting; symmetric axes produce no head tilting. In a year after I discovered this law I found in the ordinary run of office practice over 50 cases of head tilting. The stupid error I made all my life was to allow these patients to cant the head during the refraction testing. In this way I failed to find how large is the number of right-handed patients who have axes of astigmatism of the right eye from 10° to 20° to one side of 90° or 180°. And never before this had I thought of the necessity of inquiring as to dextromanuality in



Fig. 10.—Picture of patient taken 35 years ago, showing tilting of head, due to astigmatism of a peculiar variety, and producing spinal deformity.

ning through all kinds of action, so that there would be no indecision in rapid and dangerous acts. The unity and the resultant promptness and accuracy of all motions is thus enhanced by a synchronous dextrality and sinistrality. The mixed type, illustrated by the so-called ambidextrous, would place the organism at a wretched disadvantage in the struggle for existence, and in the social struggle of the highest types of civilized life.

The underlying and long forerunning cause, however, of the coordination of dextral acts, or of sinistral ones, lies in the necessity of the localization of the organ of speech in one or in the other side of the cerebrum. As it is a single and not a dual function, its organ can be only in one place. Pathology has proved what physiology pointed out, that in the dextral the speech center is in the left side of the brain, and in the sinistral it is in the right side. Moreover, the intellectual act of writing develops the speech center on the side opposite to the writing hand. The history of cases with tumors and paralyses has settled this question beyond controversy.

The speech center may be looked on as the organ through which intellectual judgment and decision issues in determination and act. The spoken and written word is the most intimate act of the mind, its irrevocable and immediate exponent. Prior to all judgment and decision, vision must give the data. Intellect is, in fact, the product of vision, and all mental symbols, the letters of the alphabet themselves, are but modified visual images. The thing seen is thus worked into judgment, and by the third component of human action, motion is wrought into completed function. Vision, judgment, act, are thus the unexceptional conditions of human activity and validity. It is at once plain that if the centers which intermediate these three functions are on one side of the brain, in contiguity, and closely united by many intercentral fibers, the resultant act will be more accurate and rapid than if one or two of the centers are in the opposite side of the brain. The commissural fibers between the two cerebral hemispheres would be fewer and longer, and the coordination less clear, sharp, and certain. This is the neurologic basis for a common dextrality or a common sinis-

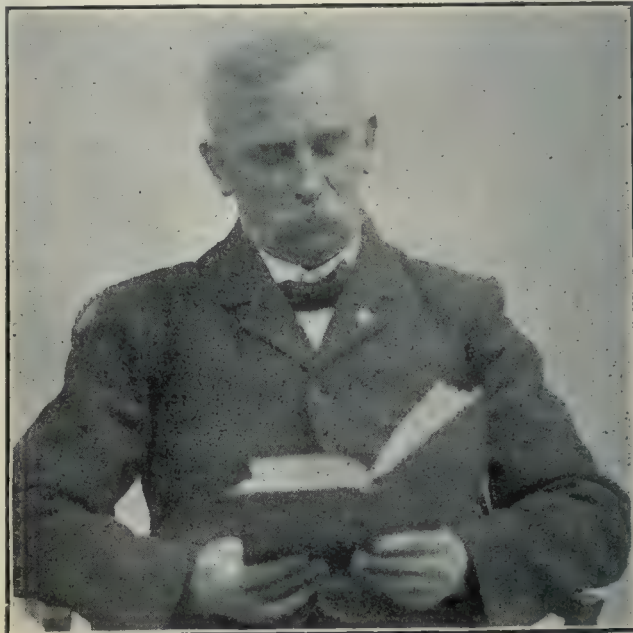


Fig. 11.—Present habitual pose of head of patient shown in Fig. 10.

patients having these slightly unsymmetric axes of astigmatism. It is evident that an axis in the dominant eye only 5° to one side of 90° or 180° would hardly produce a noticeable tilt of the head, or might possibly be compensated for by the rotation of the eyeball itself. It is possible that some types of heterophoria, and especially cyclophoria, may be explained as arising from this compensation of the ocular structures, instead of pro-

¹One thing has been much impressed upon me, and that is that those who are normally left-handed, and are taught to write with their right hand, suffer from writer's cramp much more readily than normally right-handed individuals. It would seem as though nature were taking her revenge for an interference with her original plan, for the man is right-brained and should not be compelled to use his right hand for a work requiring so much coordination as does writing.—From "So-called Rheumatisms," J. J. Walsh, Medical News, February 18, 1905.

ducing the tilt or cant of the head. It also seems possible that this compensatory twist of the eyeball in the orbit may possibly cause a compensatory twist of the optic nerve, and perhaps certain other diseases of the papilla and retina. After prescription of proper correcting glasses it would be natural to find before long a secondary change of axis resulting from the rectification of the abnormal head tilt, or ocular twist. Such patients must be kept under continuous and repeated observation. If the axis of astigmatism of the dominant eye is about 75° or 165° , it is evident that, if the nondominant eye is unsymmetric, the head must be tilted to the right in order to bring the false axis into line with the vertical lines of print, trees, houses, wall paper, doors, etc. (Figs. 10, 11.) If the axis of astigmatism of the dominant eye is about 105° or 15° , compensatory tilt of the head must be to the left. Greater variations of the axis than 20° would hardly be compensated for by head tilting, but would either produce amblyopia, a transfer of dominance to the other eye, or else some other pathologic consequence equally harmful to action and life. The axis of the largest number of head tilts is about 75° in the right eye, and thus the majority tilt the head to the right.

Among my cases of head tilts the majority had resultant spinal curvature or scoliosis or otherwise malformed backs. The fact was usually unsuspected by the patient, the parent, and the attending general physician. I sometimes had difficulty in getting consent that an expert orthopedic surgeon should verify the diagnosis. A report of these cases will be published later.

Of course there are other cases of functional head tilting, wry, or twisted necks, and spasmodic or rigid conditions of the head. A person who has one blind or nearly blind eye, or one deaf ear, will turn the functional eye or ear forward and bring about habitual abnormal head postures with the same disastrous results to the spine.

Other Organic Results of Head Tilting.—In the *Journal of Medical Research* of July, 1904, Dr. Thomas Dwight writes of the anatomic anomalies causing malposition of the head and distortion of the face. These he classes as follows:

1. Diminution of the cervical vertebrae.
2. Fusion of the cervical vertebrae.
3. Union of the atlas and occiput by fusion, or by a paramastoid process with or without fusion.

A question as to the origin of some of these anomalies, especially those in which fusions have taken place, is suggested: May they not in part or often be due to the habitual malposture of tilted head or wrenched and rigid attitudes, themselves the products of the postures compelled by astigmatism and other optic defects?

Illumination of the School Room.—Many writers have ascribed the malposture of pupils in writing to the fact of the wrong direction of the incident illumination upon the desk. However necessary good illumination may be it scarcely influences the posture. Bad light is bad, but not for a bad reason. It is remarkable how indifferent children and indeed almost all others are to the direction of the light. Scholder places insufficient light as the first of the evil school influences which begets scoliosis, by forcing the child to bend forward. To get relief he says unsymmetric postures sideways are assumed, and the curvature begins. This begs the question and ascribes to the assumption results which leave the mystery greater, because there will be lateral postures to both sides and neutralization of any tendency to one curvature solely. This wrong explanation of malposture is another instance of grasping at a hoped-for elucidation of the fact deplored, in the absence of an exact recognition of the real cause. Scholder even claims that in the new school buildings with better light there are fewer scoliotics.

The Sitting Posture.—The second cause listed by Scholder as the cause of scoliosis in school children is the prolonged sitting posture. Long hours, he says, tire the

muscles, and to rest, the child assumes lateral postures. This also, although of some influence is only indirect, vague, and most unsatisfactory. The beating about for an explanation in default of the genuine one, is also illustrated by the peculiar cause ascribed in the case of girls, the supposed fact of their sitting with their dresses and skirts more thickly bunched under one of the hips than under the other.

His third reason, that the desks are not adapted to the size of the children approaches closer, but still leaves the mystery untouched.

Placing of the Writing Paper.—His fourth reason is the wrong position of the writing paper, copy book, etc., and "this," he says, "is of the greater significance in etiology." With the paper placed to the right, he adds, it is skewed, and the written letters slant to the right. "The left eye is thereby brought nearer the paper than the right and therefore there are more left-eyed myopes than right-eyed myopes in our schools." To remedy this faulty placing of the eyes, "the body is turned to the left, producing torsion; the right forearm is turned from the body, the left supports it, the left shoulder is raised, the right depressed, and the spine is curved to the left. Hence the eyes suffer from myopia and scoliosis is produced. The largest portion of our pupils



Fig. 12.—Japanese and Chinese method of holding the writing-brush.

assume this position and it should be forbidden." Now unless 98% of the Lausanne children are left-handed or differ from other mundaners as much as the Martian children may differ, not a word of this is true. It is all exactly the reverse with any right-handed child. One cannot understand how such statements can be made, nor what meanings can have been attached to the terms "left" and "right," etc.; and malposture has little or nothing to do with the etiology of myopia.

He says further that if the paper is placed in the median position, straight or skewed, "the Grundlinien of the eyes instinctively seek parallelism with the lines." The more the paper is skewed to the left the more the head and body are depressed to the left, and the greater the torsion, and thus are produced the right curvatures. This observation of the instinctive seeking for parallelism of the Grundlinien of the eyes with the lines of the paper (the horizontal rulings, or the vertical written one?) constitutes a dim and inaccurate perception of one of the most important and real factors at work. But why this skewing of the paper? is a question not asked nor answered. And what the Grundlinien of the eyes may be, and why the instinctive search for parallelism exists, are suggestions, not answers, of the deeper question and fact. Scholder thus explains the origin of the

right curvature by the skewing of the paper to the left and the bending of the head and body to the left. These curvatures, however, according to him, constitute only something like 30% of the total of initial ones, and so the 70% of left curves must, it would seem, be explained by the placing and skewing of the paper to the right and the resulting bending of the head and body to the right. But there are no such positions of the paper, the head, and body, assumed by any righthanded child! And for the simple reason that in such a supposed position the hand utterly prevents vision of the writing field, and even of the pen. To emphasize the necessity of teaching vertical writing Scholder says that of children with curvatures the following were the proportions:

	Slant writers	Vertical writers.
Nürnberg	24%	15%
Zürich	32%	12%
Munich	24%	15%
Furth	65%	31%
Wurzburg	28%	8%

The average of the first column is about 30%, of the second, 16%. Taking the figures at their "face value," it would appear that the slanted writing produces less than twice the number of scolioses that the vertical style causes, but that the vertical style is responsible for $\frac{1}{3}$ of the chosen examples. The figures still leave over 50% of the total number of cases of scoliosis to be caused by some style of writing other than the slanted or vertical. The logic and the observation seem equally strange and inconclusive.

The Sense of Equilibrium and Adjustment.—The mechanism which controls the establishment of equilibrium and adjustment dominating the development of scoliotic malfunction, is also largely the result of a visual necessity. The vertical and horizontal positions of the head, i. e., the 90° and 180° axes of astigmatism, must be preserved in order to render bodily action or motion skilled, certain, and safe, and vision clear. The prevalent axes of astigmatism serve a function not unlike the hair lines of a transit or theodolite, i. e., they guide all judgments of horizontality and verticality. I suspect that the semicircular canals of the ear are less the organ of equilibrium than are the eyes, and that seasickness in swinging, or on board ship, is a visual rather than an aural phenomenon. The astigmatism lines are negative, and variation from them of head-posing is the warning and danger signal. The necessity is so great of aligning the dominant axis with upright objects, printing, etc., that head tilting results when the dominant axis is, say, 75°, and not neutralized by a symmetric axis in the fellow eye. In these head tilts the pathologic results in the spine, etc., are different from those in which the head preserves its verticality; and they differ also in this that the mental and psychic troubles are greater in the head tilts.

The Relation of Occidental and Oriental Writing Postures and Methods to Spinal Curvature.—In China and Japan the habits and methods of writing present throughout most noteworthy contrasts to those customary with us. The particulars may be briefly epitomized as follows:

1. The writing begins at the upper right-hand corner of the paper, giving an evident advantage in seeing the writing field or the letters which are being formed, and especially with the right or dominant eye.
2. The lines of writing are from the top to the bottom of the page, thus again securing increased visibility of the writing field.
3. There is thus no need and no practice of skewing the paper to secure unimpeded vision of the writing field. The writing is naturally vertical.
4. The writing brush (corresponding to our pen and holder) is grasped from two to three inches from the brush-tip (corresponding to our pen); it is held usually between the second and third fingers (instead of between the thumb

and first finger, as with us), and either upright or slanting away from the writing space, to the right, and not, as our children are instructed, with the holder pointing over or to the right shoulder. Each one of the methods of holding the brush aids decidedly and collectively very powerfully in keeping the writing space clearly in view of the vision of both eyes. It seems almost as if all these methods were consciously designed that the writing field might be seen. (Fig. 12.)

5. In addition, native Japanese and Chinese tell me it is a habit of many to hold the paper with the left hand, in the air, and pitched at an angle of from 30° to 50°. I did not know of this custom until months after I had written, advising a pitch of the leaf of the writing desk of 30°. A greater pitch than this would sometimes not permit the ink to flow freely from our steel pens. The mediæval copyists used a pitch of 50° or over, and our modern draughtsmen and artists often do the same. Modern artists in painting and sketching secure the clear view of the field of work by setting their canvasses nearly horizontal, and by holding the brush or pencil from 3 to 10 inches from the point. There are more modern writers than we suspect who increase the extent of visibility of the writing field by holding the pen between the first and second fingers, or by grasping the holder two or three inches from the pen-point, by turning the hand upward, or by slanting the pen-holder to the right. But these are devices forbidden by teachers (and writing books) who have no perception of the simple reason why the so-called "incorrect habits and postures" are unconsciously chosen.

6. Whether we should imitate the Oriental methods described above, either in part or not, is at present not my concern. Their result is our one great desideratum—the preservation of the erect and hygienic posture during the writing act. There is little or no bending of the head to the left. If this functional right cervical curve, habitual in the Occidental writing posture, is the cause of the incipient spinal left curve of our school children, it follows that there will be far less than 27% of Japanese and Chinese children showing such curves between the ages of 7 and 14 years. An orthopedic examination of the backs of a large number of the children of Oriental schools would yield interesting and critical results. A minor query would be as to the proportion of scoliotics among occidental children blind from infancy.

THE ADVANTAGES OF TENDON TRANSPLANTATION.*

BY
H. AUGUSTUS WILSON, M.D.,
of Philadelphia.

Professor of Orthopedic Surgery in the Jefferson Medical College;
Emeritus Professor of Orthopedic Surgery in the Philadelphia Polyclinic; Orthopedic Surgeon to the Philadelphia General Hospital.

Most writers give the credit of originating tendon transplantation to Nicoladoni and state that in 1882 he attached the peronei to the tendo-achillis in a case of paralytic calcaneus. Arthur W. Elting,¹ in an extensive historic review of tendon transplantation, states that Duplay,² in 1876, transplanted tendons in a case of loss of function of the arm due to traumatism.

In 1892, Parrish,³ of New York, reported a case of club-foot treated by this method and was the first one in America to transplant tendons. The same year Drob-nik⁴ used the same procedure and proposed periosteal insertion of transplanted tendons.

In 1894 Winkelman grafted a strip of the tendo-achillis upon the peronei and he was the first to publish and analyze a series of cases, 16 in all.

Since 1894 Goldthwait, of Boston, and other ortho-

* Read at the Seventeenth Winter Conversational Meeting of the Lehigh Valley Medical Association, January 26, 1905.

pedic surgeons, have perfected the methods and elaborated the details of the after-treatment. So little had been written on the subject prior to 1896 that Goldthwait's⁵ study was believed by him to have been on original lines. Careful research into the literature revealed the priority of Nicoladoni's operation, but he was, apparently, not aware of the operation done by Duplay six years before Nicoladoni reported his case.

F. S. Eve,⁶ in 1898, reported 274 of these operations, and Vulpius,⁷ in 1899, gave his experience in 160 cases. Lange,⁸ in 1902, introduced artificial tendons of silk between the sound and the paralyzed tendon, following the example of Glück,⁹ who, in 1892, had used bundles of silkwormgut to bridge over the gap after division of tendons in injuries.

Kummell,¹⁰ in 1896, had found that strands of silkwormgut subsequently became converted into fibrous tissue.

The method of transplantation of tendons is applicable to those cases in which function is faulty because of ill-directed voluntary movements and it aims to restore the balance of power as far as possible. It is applicable in traumatic loss of function of muscles and tendons; spastic paraplegia; infantile paralysis and congenital deformities. Recently I have obtained results from tendon transplantation in flat-foot that were never before considered possible in aggravated cases.

It is evident that the affected joint cannot be restored to full normal function when there is definite loss of muscle force by paralysis. The removal of deformity and ill-balanced muscle function and securing proper relative balance of voluntary action tend greatly to improvement in the general action and function of the parts involved.

Very often muscles that were previously deemed absolutely lost, in which the electromuscular evidence of degeneration was perceptible, subsequently demonstrated the resumption of function. One of the greatest benefits that may be obtained is the freedom from further necessity to use braces or forms of mechanical support.

There are anatomic and surgical limitations to the transplantation of tendons, but many of these limitations have been overcome, at least in part, and now it seems perfectly possible to reverse absolutely the normal action of muscles advantageously. Thus, flexor muscles become extensors; pronators become supinators.

It requires care to regulate and adjust to a nicety the amount of power to be transferred. Often previously undeveloped muscles become revived, and their function added to the transferred function, carries a preponderance of power, thus the balance is again disturbed, but in the opposite direction from that formerly existing.

The best results have, I believe, been obtained in cases of anterior poliomyelitis, in which, at least, one year has elapsed since the onset. This period is usually sufficient to have demonstrated the muscles that are lost or impaired as well as those that are fully capable. Those muscles possessing full function become exaggerated in their action, because they lack the resistance afforded by their opponent groups and there follow the disturbed balance of power, the faulty postures of the extremities, for which relief is sought.

The question has many times arisen as to the effect upon the motor centers of the brain by the alteration of function of muscles produced by tendon transplantation. A person desiring a certain mechanical movement obtains that motion in normal conditions in a definite manner. The brain sends out an impulse to the muscles involved, and the resulting action depends upon the origin and insertion of the muscles. The action in normal conditions depends also upon correlation of the muscular forces, the resisting groups counteracting the acting muscles, and thus the proper balance of power is exerted.

In the abnormalities of infantile paralysis there is more or less disturbance of the relation between the

various groups of muscles, and this disturbance increases with the further degeneration of the paralyzed muscles and the atrophy from disuse of the others, while the unaffected groups assume undue proportions, because of the absence of normal resistance.

In infantile paralysis patients soon acquire an intuitive method of brain control by limiting the force to the exigencies and an adaptation to the demands of the parts involved. As a matter of experience the effect of the brain on the transplanted muscles or the effect on the brain may be laid aside, because, surgically, the object sought is to transfer the insertion of a muscle to a suitable point for correct balance of power, and this is accomplished without evidence of having disturbed the brain. Tubby and Jones,¹¹ in their recent monograph, observe: "Are we to regard nerve impulses as of specific nature—that is, extension impulses or flexor impulses; or are we to regard them merely as being forms of force sent down to a muscle, and the direction of the force produced as being in no way special to the nature of the nerve impulse? We incline to the latter alternative, and we take it that what happens in the brain in these cases is not any subtle change from flexor impulse to an extensor nerve impulse, after transplanting a flexor and making an extensor of it, but a change of perception on the part of the sensory centers, so far as the position of the limb is concerned; that is, the patient must learn that when a certain muscle is contracted, the limb is not in a state of flexion as heretofore, but in one of extension or supination instead of pronation."

Each case presents individual characteristics and must be studied with care to determine first the condition of the various muscles normally in control of the parts involved. It is necessary to predetermine a definite procedure and therefore full information must be obtained as a preliminary measure.

All contractures of fascia, tendons, and any other structures must be removed and sufficient time allowed for the further development of the muscles that may have been influenced by the existence of these contractures.

It is generally desirable to select the reinforcing tendons from muscles whose normal action corresponds as nearly as possible with those to be reinforced. It is practicable, however, to take more or less remote tendons, remote in situation as well as remote in action. Not infrequently the conditions present leave no choice in the selection, and yet the resulting improvement is gratifying to the patient and to the surgeon.

It is always important to keep well in view the thoroughly established fact that muscles that previously gave evidence of paralysis have exhibited signs of returning strength after transplantation. This has also been observed many times after the removal of contractures about a joint, and indicates the necessity of knowledge on this point in avoiding overcorrection. Hoffa told me he has many times seen muscles that were decidedly yellow at the time of operation, and were, therefore, inactive from apparent degeneration, subsequently assume almost full normal function after rearranging the insertion.

The operation of tendon transplantation is rarely applicable to cases in which all of the muscles about a part are paralyzed. There being no active muscles, very little if anything is to be gained by transference of tendons, but rather the method will be brought into unjust disrepute by the failures that should have been avoided. The reinforcing tendon should be taken to the paralyzed tendon or to the periosteal insertion in the most direct manner possible, so that its full force may be obtained without the loss of rounding corners.

In selecting an opponent of a muscle that is paralyzed, it is important to remember that the reinforced muscle is not only gaining power from the opponent, but it is losing its resistance from the normal antagonist.

The parts affected by the transplantation should be so

placed at the time of suturing the tendon in its new position, that tension shall not be present during repair, but upon the restoration to normal posture of usefulness, tension on the tendon shall result that will approach that normally existing. A properly relaxed tendon at the time of the operation will be efficient or inefficient in proportion to the presence or absence of proper tension when the extremity is in proper position for function.

The treatment after operation is of importance equal to that of the operation. The affected parts must be held in plaster-of-paris for a month in such position as may be necessary to secure proper union of the tendon without tension thereon. When the rigid appliance is removed, the patient should be carefully trained in the voluntary use of the parts without weight bearing. This can often be supplemented by having the patient use the corresponding extremity acting in unison with the one operated on.

As the transplanted muscle gradually assumes voluntary motion and as proper control over the affected parts improves, increasing latitude of function may be permitted and encouraged until in the judgment of the surgeon full function may be allowed. It is not desirable to resort to braces of any kind during the stage of development because their use will more or less alter the action of the muscles and thereby modify the remedial physical culture procedures.

Many of the earlier failures were due in part to over-enthusiasm as to the curability, by recourse to transplantation alone and now these failures are often avoided by associating arthrodesis as a supplemental measure. Arthrodesis when properly used, aids very materially in preventing undue strain upon incapable muscles and by preventing this strain enables the muscles properly to exert their full power in producing the necessary balance of power to the extremity involved.

Arthrodesis is the term that is used to indicate the intentional production of ankylosis of one or more joints to overcome or correct deformity. It is generally accomplished by cutting out the articular surfaces of one or other or both bones composing a joint, or by removing a wedge of bone.

The accepted methods of inserting transplanted tendons are conveniently grouped under four headings: 1. Dividing a tendon of a healthy muscle and suturing its central portion to a paralyzed tendon. 2. Dividing the tendon of a paralyzed muscle and attaching its peripheral portion to a healthy tendon is called ascending transplantation by Vulpinus,¹² and by Hoffa¹³ the passive method. 3. Splitting the tendon of a healthy muscle and transplanting only a part into the tendon of a paralyzed muscle. Vulpinus calls this the descending method and Hoffa calls it the active method. In suturing tendons together the quilt suture of Goldthwait has many advantages. 4. Attaching the tendons of transplanted active muscles directly to the periosteum was proposed by Drobnik and advocated by Lange. The last method is greatly to be preferred when possible as the resulting bond of union secured by this means is much stronger and enduring. When the tendon to be transplanted is too short for periosteal attachment Lange's method of using strands of silk to elongate the tendon may be advantageously employed.

It is self-evident that critical asepsis and not antiseptics is demanded in tendon surgery. The skin incision advocated by Vulpinus is a very long one to facilitate inspection of the muscles and form an estimate of their degeneration. Eve advises against unnecessarily long incisions in the skin because of the interference with the venous circulation and subsequent edema. My own experience is that the skin incision should only be long enough to enable the surgeon to transplant the tendons successfully. In case arthrodesis is to be done or when one incision is not sufficient I prefer making several rather than to attempt to accomplish everything through one opening.

In conclusion, tendon transplantation, alone or combined with arthrodesis or other bone operations, offers prospects of materially adding to the comfort, convenience, and usefulness of a very large class of patients otherwise more or less dependent upon forms of mechanical apparatus.

The frequently observed improvement in the action of muscles that previous to operation gave evidence of being paralyzed or atrophied from disuse shows the capabilities of restoration when the offending abnormalities have been removed. It is impossible to estimate properly what the future development in a given case will be. The cooperative, intelligent care of the patient must be depended upon in securing the best permanent results.

Muscles cannot develop when they are used to excess or are under constant strain. The atrophy from disuse, whether caused by tension or relaxation, often presents all of the appearances of paralysis.

The avoidance of overstrain upon incapable muscles is often demanded so that the minimum muscle force may accomplish the maximum of action.

The after-treatment is fully as important as the surgical procedure, and must be given prolonged consideration in order to accomplish the best ultimate results.

Arthrodesis alone possesses advantages in cases incapable of benefit from tendon transplantation.

Various forms of osteotomy, osteoclasts, and other bone operations are available for the removal of deformity and for the prevention of undue strain upon the soft parts around a joint.

I consider it apropos to quote the following from the closing remarks of Dr. Albert Hoffa at the time he read a paper before the American Orthopedic Association¹⁴: "The results in man have clearly proved that results are to be obtained. . . . The result will depend upon the healthy muscle material available. There must be an overcorrection of the deformity before the operation. . . . Arthrodesis has been satisfactory, but tendon transplantation has given better results."

BIBLIOGRAPHY.

- ¹ Albany Medical Annals, April, 1902.
- ² Bulletin de la Société de Chir., Paris, T. xi, 1876, p. 788.
- ³ New York Med. Journ., 1892.
- ⁴ Zeit. f. Chir., Band xliii, S. 470.
- ⁵ Trans. Amer. Orthopedic Assoc., Vol. viii, p. 20.
- ⁶ Brit. Med. Journ., October 15, 1898.
- ⁷ Münch. med. Woch., April 25, 1899.
- ⁸ Münch. med. Woch., January 7, 1902.
- ⁹ Pract., Vol. lxi, p. 260.
- ¹⁰ Pract., Vol. lxi, p. 360.
- ¹¹ Surgery of Paralysis, 1903, p. 120.
- ¹² Wiener med. Presse, 1900, xli, p. 1811.
- ¹³ Berlin. klin. Woch., 1899, No. 30.
- ¹⁴ Amer. Journ. Orthopedic Surgery, August, 1904, p. 48.

EXTRAUTERINE PREGNANCY AT FULL TERM; TOTAL EXTIRPATION OF UTERUS AND PLACENTA BY A NEW TECHNIC: RECOVERY.

BY

HIRAM N. VINEBERG, M.D.,
of New York.

Attending Adjunct Gynecologist to Mt. Sinai Hospital; Visiting Gynecologist to St. Mark's Hospital, etc.

Tubal pregnancy escaping from the tube some time during its development, then becoming abdominal and going to full term is not of frequent occurrence. Still, it occurs often enough to make the report of such a case of general interest. The interest is enhanced in the following instance by the difficulty presented in diagnosis, as illustrated by the fact that the patient, when in her eighth month of gestation, was an inmate of a metropolitan hospital for over a week, where she was frequently examined by several of the attending staff, as being an interesting case, and the true condition was not even suspected. As will be seen later on, the diagnosis was not as easy as might be supposed from a mere narration of the case. Further interest is lent to the case by

the technic adopted, which in my opinion was the only one which made it possible to get the delicate, emaciated and much exhausted patient off the operating table alive. It may also be reasonably claimed that the technic subsequently averted the extreme exhaustion attending an extensive sloughing process, to which the patient would in all probability have succumbed had she passed through the ordeal of the primary operation.

Mrs. R. S., aged 28, married six years. Menses appeared in the twelfth year, regular, four-weekly, amount scanty, attended with pain in both hips; had never missed a period until September 1, 1903, and has not menstruated since then. She had never had either nausea or vomiting; had never felt any fetal movements. She was supposed to have had labor pains of some kind in April; was an inmate of a prominent hospital during May, and had been examined by several of the attending staff, but no conclusions were reached.

The patient was brought to me on July 27, 1904. Her physician said that on June 19 she had pains resembling labor pains lasting the entire day, but there was no discharge of blood from the vagina then or at any other time. The patient had lost a great deal of flesh, her usual weight being 140 pounds, but she now weighs only 112 pounds. The patient said that her abdomen began to enlarge two months after cessation of menses, and the enlargement continued to increase until about a month ago; since then the abdomen has diminished somewhat in size. At the time of her visit to me, she was very anemic, cheeks sunken, and she presented a somewhat cachectic appearance.

On examining the abdomen it was found to be distended to a size corresponding to pregnancy at about full term. On palpation two distinct masses could be made out, the larger one on the right side, reaching to near the liver, the smaller one on the left side reaching about half way between the umbilicus and the ensiform cartilage. No fetal movements could be felt, and no fetal heart sounds heard. In the right lower quadrant a distinct bruit could be heard.

On vaginal examination the whole of Douglas' culdesac was found filled with a slightly nodular mass, somewhat hard and continuous with the pelvic wall; it was not movable. In front of this and projecting above the symphysis, the uterus could be outlined. It was enlarged to the size of a gravid organ at about the tenth week. It was patulous, and as far as the finger could reach, it was found empty, but the finger could not reach much beyond the internal os. The breasts were enlarged, and on pressure milk flowed from the nipples.

The question of diagnosis was not as easy as it would seem from subsequent events. The cachectic appearance of the patient, the loss of flesh, and the hard nodular mass filling the pelvis could readily lead to a diagnosis of a malignant growth with a condition of "missed abortion." However, I was inclined to look upon the case as one of extrauterine pregnancy going beyond term, and advised immediate operation. The patient entered Mt. Sinai Hospital two days later, and was operated upon by me on July 31, 1904.

On opening the abdomen, a dark, bluish membrane was found extensively and closely adherent to the abdominal parietes, so that it was difficult to tell when the peritoneal cavity was entered. Finally, when the peritoneal cavity was entered, the condition was not so easily made out. This bluish membrane covered the two masses described, and the uterus lay in front of them. On palpating the abdominal contents I decided that the head of the fetus lay toward the left side, and accordingly incised the bluish membrane at that point and seized the child's head, which lay deep in the left pelvic fossa hidden in part by the uterus, and rapidly extracted the child. At this time the placenta, which was extensively adherent to the right side of the abdominal wall, was torn in a measure and bled very profusely, so that it had to be clamped. Making a rapid survey of the condition, I concluded that my only chance of getting the patient off the table alive would be to do a rapid hysterectomy and enucleation of the placenta, which occupied the right broad ligament, the entire pelvic cavity, and extended up on the right side to a line with the umbilicus. I therefore began by ligating the left ovarian vessels, the left uterine artery, cut the uterus across at the level of the internal os, then ligated the right uterine artery, rapidly enucleated the placenta from below upward, as one would a large intraligamentous cyst. There were extensive adhesions of the membrane with the intestines; these were in part cut with the scissors and in part torn through, but some of the membrane could not be removed, and it was sutured into the edges of the abdominal wound. The portion of the cervix that was left was quite patulous and readily admitted a strip of iodoform gauze. The abdomen was closed with through-and-through sutures, excepting at its central part, to which the membranes were sutured.

In spite of rapid work, the whole operation not taking more than 35 minutes, the patient had to be given two intravenous saline infusions. She made a satisfactory recovery and was up out of bed at the end of three weeks. The abdominal fistula took about two weeks longer to close entirely.

One would suppose that the diagnosis of abdominal pregnancy at an advanced period of gestation should not offer any great difficulties. There are the usual symp-

toms of pregnancy, then the occurrence, when the full term is reached, of labor pains, without any result. Before this stage, the fetal movements, the ready palpation of the fetal parts, lying as they do immediately beneath the abdominal wall, and a uterus that is empty, should render the diagnosis of the condition an easy matter. But as a matter of fact, errors in diagnosis are frequently committed by the most experienced. Abdominal pregnancy at full term has been erroneously diagnosed in cases of uterine pregnancy, in marked instances of retroflexion of the uterus, when even at the end of pregnancy the cervix has remained unusually long and was mistaken for the entire uterus. I recall vividly a case early in my career that I was requested by one of the most prominent gynecologists in the city to watch until labor pains would set in, when I was to transport the patient to the hospital for operation. The labor pains set in vigorously during the night, the long cervix (supposedly the entire uterus) remained closed for a long time. While preparations were being made for transportation to the hospital, the cervix gradually began to be effaced, the os dilated, and in due time a full term fetus was delivered in the normal way. I know of a case in this city, the daughter of a prominent physician, in which the error was not detected until the abdomen was opened.

In another case a flabby uterus and very thin abdominal walls led the attending staff of a special hospital in this city to diagnose abdominal pregnancy, and operation was urged, which the patient declined. She was afterward sent by her physician to my service in St. Mark's Hospital, as a case of advanced abdominal pregnancy, the patient meanwhile expressing a willingness to be operated upon, as she was suffering so much pain. After a careful examination I felt fairly confident that it was a case of uterine pregnancy, but on the strength of the experience of the men who had made the diagnosis of abdominal pregnancy a short time before, I had the patient narcotized, dilated the cervical canal with my index finger, and with it felt the fetal head distinctly. The patient went to full term, and was delivered normally of a fully developed baby.

I did not fall into the error of the gentlemen who had previously examined the patient, because I was struck with the unusual thinness of the abdominal wall, and by my failure to isolate distinctly on bimanual examination an enlarged and empty uterus. It is not sufficiently emphasized in the diagnosis of advanced abdominal pregnancy that the uterus is always enlarged and corresponds in size to the organ at the tenth or twelfth week of gestation. If in a suspected case such an enlarged uterus exists and it is found empty, the diagnosis can be made with considerable certainty. It was the presence of an enlarged and empty uterus and the existence of milk in the breasts that led me to make the correct diagnosis in my case.

The fetal parts could not be felt, as the small parts of the fetus lay toward the patient's vertebral column, and the trunk and head were covered in part with the uterus and in part with a thick membrane and the adherent intestines. There is a condition, however, that might readily lead to error in diagnosis. In cases of "missed abortion" the uterus may be found enlarged to the size found in full term abdominal pregnancy, and the amenorrhea may persist for several months. I had under observation a patient in whom the uterus remained the size of the gravid organ at the tenth week, and there was an absence of menstruation for over 10 months. At the lapse of this period the woman expelled a mass (a fleshy mole) from the uterus the size of a turkey egg. If this condition is associated with a large papillomatous tumor of the ovary, as occurred in one of my patients, it would be easy to fall into the error of diagnosing abdominal pregnancy. Such a contingency was entertained by me in my case, as on bimanual examination the pelvic cavity seemed filled by

rather a hard nodular mass, apparently fixed everywhere to the pelvic walls. This, taken in conjunction with the marked loss of flesh and the pronounced cachectic appearance of the patient, pointed rather strongly to a malignant growth. The remainder of the history corresponded fairly to that of a "missed abortion." Still, on weighing the probabilities, and especially on being fairly certain that there was nothing in the uterus, I had no hesitation in making the diagnosis of abdominal pregnancy.

The various methods that have been followed in the treatment of advanced abdominal pregnancy may be classified as follows:

1. The fetus alone is removed, everything else is left in situ and the abdomen is closed (an extremely risky experiment).
2. The fetus alone is removed, everything else is left behind, drainage is employed, and the placenta and sac are left to spontaneous expulsion.
3. The placenta is removed in part (so much of it as is easily separated), and the remainder is left to spontaneous expulsion.
4. The placenta is left in situ after removing the fetus; then, after the expiration of a certain time, the placenta is shelled out, when it is hoped that the blood supply is spontaneously cut off.
5. The placenta is removed immediately.
6. The placenta and gestation sac are removed at once; likewise the neighboring organs, *e. g.*, the uterus and ovaries, providing the hemorrhage cannot be otherwise arrested. (Espenmüller.)

A. Sittner¹ collected all cases of abdominal pregnancy from 1813 to 1900. He divided the cases into various periods. For purposes of comparison we may take the period from 1891 to 1900. There were 26 patients in whom the placenta was left in situ, with a mortality of 34.5%. During the same period there were 37 patients in whom the placenta was removed at the time of the operation, with a mortality of only 10.8%. Taking another period, 1896 to 1900, there were 12 patients with placenta left in situ, with a mortality of 33.3%, and 16 patients with removal of the placenta, with a mortality of only 5.5%. In several of the patients in which the placenta was removed, the uterus was also removed when it was extensively adherent to the gestation sac, or in other instances when it had to be done to arrest hemorrhage.

It will be thus seen that the mortality is increased sixfold when the placenta is left in situ, and on analyzing the individual cases, the best results were obtained when the neighboring organs were also removed. In many cases, however, such a radical procedure is not called for. It is only called for when the placenta develops within the folds of the broad ligament and is extensively attached to the pelvic organs. Cases are sometimes seen in which the placenta and gestation sac form a well-defined tumor with a pedicle. These are the simplest cases, from a surgical standpoint, and are as easily handled as an ordinary ovarian tumor.

The procedure that I followed differed from that of other operators, at least so far as I am aware from the published reports, in first ligating the vessels (the ovarian and uterine) on the free side, cutting the uterus across at the level of the os internum without making any attempt to separate it from the mass to which it was most intimately united, and then ligating the uterine artery on the involved side. In this way I cut off the main blood supply before making the attempt to enucleate the enormous placental mass. As a result of this procedure, I was enabled to separate the placenta from its extensive attachments with comparatively slight hemorrhage. Even with this preliminary ligation of the main bloodvessels, the loss of blood was sufficient to depress the vital powers of the already exhausted patient to such an extent that intravenous saline infusion had to be resorted to twice during the

operation. It may, therefore, be safely assumed that had this precaution not been taken, the patient would not have been able to withstand the operation.

The procedure in addition rendered the work of enucleation more easy by being able to work from below upward, as one would in enucleating an intraligamentous cyst when a similar technic is followed.

In some of the reported cases referred to, the reports state that preliminary ligation of the blood supply was carried out. This was done by ligating the ovarian vessels, and the uterine also when feasible, on the side of the placental site, but not as in my case, by first tying the vessels on the free side. I consider this step an important advance, and hence lay such stress upon it.

It may be said that had I waited weeks longer before submitting the patient to operative intervention, thus gaining time for the placental vessels to thrombose naturally, the operation could have been done with less loss of blood, and consequently with less danger. The reply to this is, that the patient was suffering so much from the abdominal tumor, and was rapidly losing so much flesh and strength, that further delay was out of the question.

PATHOLOGIC CHANGES RESULTING FROM PROSTATIC ENLARGEMENT.¹

BY

CHARLES E. BARNETT, M.D.,

of Ft. Wayne, Ind.

Professor Genitourinary Surgery and Surgical Anatomy, Ft. Wayne College of Medicine.

There is still plenty of room in the field of research for the etiologic factors in prostatic enlargement. Of the different solutions today, atheroma, perverted orchidism, and inflammation seem to be the favorite ones.

In atheroma, it seems to me that our French brethren have rather strained a point and have given us a definition so complex in solution that it remains a fact on account of a lack of digestion.

In perverted orchidism, there are several factors to be considered: 1. Orchidism is masculinity. Do a double orchectomy and you remove the masculinity from your subject. 2. In organ therapy, we supply deficiencies in the affected organs; so castration removes the excessive orchidism which produces prostatic hyperplasia. There seems to be a dual action between the testicle and prostate that necessitates an equilibrium in order to prevent pathology. 3. From an analogic standpoint between the prostate and uterus, the fusing of the posterior ends of the müllerian ducts, which form the uterus in the female and the utriculus prostaticus of the male, seems to be the closest. It is here that a matrix of myoblasts might, from stimulation, produce a myoma.

Ricker found frequently in myomas of the uterus, epithelial structures which he believed were derived from Müller's ducts, and, in his opinion, the tumor is adenomatous primarily.

Inflammation, I believe, before many years, will be proved to be the most frequent cause of prostatic enlargement. Yet Thompson absolutely denies it as a factor, and an opinion coming from him is to be respected.

Glandular tissue, in other parts of the body, does not get the attention from a displacement standpoint that the prostate does. An enlargement in any of them will find inflammation or irritation as the cause. Osler describes a remarkable condition of chronic symmetric enlargement of the salivary and lacrimal glands, which may persist for years.

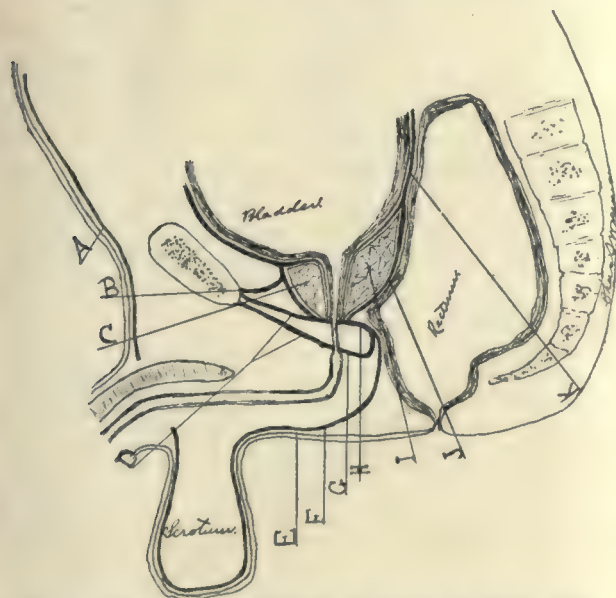
The so-called metastasis of mumps would be more interesting if the testicular, ovarian, or mammary glands surrounded the neck of a bladder, for the atrophy which usually follows these invasions, might have been changed

¹ Archiv f. Gyn., Bd. lxiv, p. 527.

¹ Read before the Mississippi Valley Medical Association, Cincinnati, Ohio, October 11, 1904.

to hypertrophy on account of the stimulation of the ever congested bladder.

Pathology designates "Adenomas as occurring most frequently in organs which are the seat of periodic congestion, such as the mammary and prostate, the uterus and ovaries. The change taking place most frequently between the adolescent and midlife period" (Senn). If this be true, it merely proves that "much of the etiologic obscurity of prostatic hypertrophy, is probably due to the clinical fact that the primary condition that



Sagittal section of prostate, showing its relation to pelvic fascia. A, deep lamina superficial fascia (abdominal); B, puboprostatic fascia; C, anteroposterior prostate; D, deep and superficial layer of levator fascia (triangular ligament); E, superficial layer of superficial fascia (perineal); F, deep layer of superficial fascia (perineal); G, superficial lamina levator fascia (triangular ligament); H, deep lamina levator fascia (triangular ligament); I, retrourethral prostate; J, rectoprostatic fascia; K, vesicorectal fascia.

precedes true hypertrophy is rather exceptionally brought to the attention of the surgeon." (Lydston.)

It is probable that after the prostatic acini become once infected, especially with the diplococcus of Neisser, —on account of a posterior urethritis directly, or indirectly, from anterior urethritis¹ or from the typhoid or colon bacilli from the bowel (transmigration)—on account of their inability to drain themselves, there remains a foci of infection that is ever ready to become congested and this congestion stimulates epithelial cell multiplication. The role played by the component parts of the future tumor, might be called a pathologic evolution metamorphosis from the fibromyoadenoma, to an adenomyofibroma. In any event, we know that after this hyperplasia or hypertrophy has produced a gland weighing more than six drams, changes begin to take place that become pathologic.

The pelvic fascia is responsible for all future pathology after enlargement begins, on account of its inability to accommodate itself to the displacements that occur, and an anatomic review will not be out of place in order to show its relation to the prostate.

The nomenclature of the pelvic fascia has such a multiplication of synonyms that its study confuses the student and makes its understanding unnecessarily hard. If anatomists would name all fascias above the deep lamina of the superficial fascia (Colles), according to the muscles they ensheath or the organs they touch, there would be more simplicity and less confusion; for

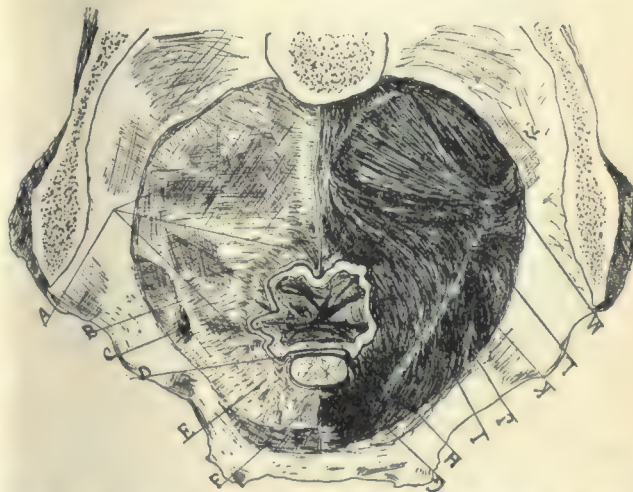
¹ Infection could be carried by way of the lymph vessels which follow the deep dorsalis penis veins, which from the prostatic plexus; the lymphatics emptying into a couple of lateral nodes near the base of the prostate.

instance, the levator ani, obturator internus, coccygeus and pyriformis muscles join with each other to form the floor of the pelvis, the fascia, which covers all of them, splits to receive each muscle, and consequently has a deep and superficial lamina. The triangular ligament is the deep and superficial lamina of the levator fascia, anterior to a line running through the transversus peronei muscles, and the apex of the triangular ligament holding up the prostate on either side, is the puboprostatic portion of the levator fascia (puboprostatic fascia or anterior true ligaments of the bladder). The reflection from the deep lamina of the levator fascia, which forms the so-called capsule and joins the bladder and rectum together, could be called the vesicorectoprostatic fascia, the name being divided to correspond with the region it occupied.

The only fascia in this region attached to the prostate is the deep lamina of the levator fascia and reflections from it. (See cuts.) The apex of the prostate inserts itself into this fascia almost at a right angle, the reflected portion encapsulating it toward the bladder base.

As the prostate increases in size, which always occurs toward its base, the bladder neck and trigon are held upward on account of this prostatic portion of the rectovesicoprostatic fascia, being anchored to the iliac fascia by way of the levator fascia. Thus the trigonum vesicæ is changed from a horizontal plane to a perpendicular position, and the natural drainage of that portion of the bladder is gone. The prostatic urethra is enlarged, presenting a greater surface for irritation, and we all know that the neck of any mucous sac is the most sensitive part of it. For instance, hepatic colic does not occur until the stone is engaged in the duct of the cholecyst. Carcinoma of the pylorus is most frequent in the stomach.

Pain from the prostatic region is interesting from the



Relation of prostate gland to fascia of pelvic diaphragm. A, fascia covering muscles of pelvic diaphragm; B, white line; C, obturator foramen; D, rectoprostatic fascia; E, deep lamina, triangular ligament (levator fascia, deep layer); F, puboprostatic fascia; G, prostate gland; H, rectum; I, obturator internus muscle; J, levator ani muscle; K, white line; L, coccygeus muscle; M, pyriformis muscle.

fact that it not only tells of its own region, but reflects it to the twelfth rib (tenth dorsal) over the posterior iliac spine (eleventh dorsal), and even to the soles of the feet (third sacral). (Treves.)

The enlarged prostate distorts the bladder to such a degree that its level is found below the line of natural drainage, urine is left in the bladder after micturition, and pathology begins in earnest. Cystitis is added as a complication.

The reason that residual urine begins early in the disease is due to the fact that the trigonum is sparingly supplied with muscular fibers, being composed princi-

pally of vesicorectal and rectoprostatic fascia, and is consequently bound down to the rectum, and on account of this hypertrophic change, the contractile force is wanting. It is true, also, that this portion of the bladder receives the major portion of nerve, arterial, venous, and lymphatic circulation, and consequently is the most dangerous to traumatism.

This sacculated condition (eccentric enlargement) removes the valve action¹ from the ureters in the bladder wall and allows them to become infected with pyogenic material. There is also a tendency to ureteral dilation on account of a double pressure from the kidneys downward, and from the bladder downward.

The base becomes infiltrated with that toxic matter which is so destructive to the economy when turned loose into the circulation.² Whether this toxicity resulting from residual urine decomposition inflammation, is due to chemic or bacteriologic pathology, or both, is a subject still free from solution. However, we know that the poison is there, and that it is dangerous.

After the invasion of the ureters, we may have a general ureteritis, which becomes pyoureter, then pyelitis, pyonephrosis, pyelonephritis, and finally renal abscess or suppurative nephritis. This is the stage in which the patient becomes inoperable for anything more than mere bladder drainage. Were it not for the



Relation of pelvic fascia to prostatic gland (transverse section). A, iliac muscle; B, bladder; C, vesical fascia; D, obturator fascia; E, vesicorectoprostatic fascia; F, deep and superficial layers of levator fascia; G, prostatic gland; H, rectum; I, prostatic plexus of veins; J, rectoprostatic fascia; K, vesicorectal fascia; L, levator ani muscle; M, interior pudic vessels; N, levator fascia; O, rectovesicoprostatic; P, white line; R, iliac fascia; S, femoral vessels.

enlarged prostate, a cystoscopy with ureteral and kidney flushings, together with bladder washings, would control the inflammatory action. With some part of all of this pathology present in a case of prostatic hypertrophy, it behooves us to look well toward the magnitude of the attention that this subject deserves.

I have two cases to report which exemplify the dangers of operative procedure, after these pathologic changes have taken place:

CASE I.—Mr. S., aged 68, farmer. Patient was referred to me by Dr. Hall, of Convoy, Ohio. His bladder trouble began eight years ago with hemorrhages; catheter life, one month; weight decreased from 212 pounds to 165 pounds; stomach became troublesome two months prior to consultation; modi-

¹"Two bands of oblique fibers, originating behind the orifices of the ureters, converge to the back part of the prostate gland, and are inserted, by means of the fibrous process, into the middle of that organ. They are the muscles of the ureters, described by Sir C. Bell, who supposed that during the contraction of the bladder, they serve to retain the oblique direction of the ureters, and so prevent the reflux of urine into them"—(Gray). The most plausible solution in my opinion for the valve action of the ureters, is the intravesical urine pressure on the submucous ureter.

²There is a great similarity between the pathology of puerperal eclampsia and prostatic enlargement. The blocking of the genitourinary tract in both from pressure, would account for the toxemia.

fied aphonia has been present for 12 weeks; he urinates 18 to 20 times at night, and 12 to 14 times during the day; residual urine, 18 ounces; rectal examination revealed bilateral enlargement of the prostate, 2½ inches in length. Cystoscopy into prostatic region of bladder, revealed an enlarged middle lobe.

Urinalysis.—Reaction acid; specific gravity, 1.017; no sugar; considerable albumin. Microscopic examination revealed a few tube casts along with bladder epithelium, pus cells, and urinary detritus which is always present in cystitis. After being under treatment at St. Joseph's Hospital 19 days (during which time sterilization of the genitourinary tract was done by medication by the mouth and bladder irrigations) with full knowledge that my best judgment advised him against operative procedures, he was operated upon April 29, 1903.

Operation.—Transverse incision; prostate removed, the right and middle lobe intact, the left lobe by morcellation; bladder drainage was instituted, and the patient put to bed in good condition. On the third day after operation his condition seemed so favorable that the sisters refused to continue a special nurse until after I had insisted upon it. In spite of hypodermoclysis of normal salt solution, erect posture and all things else indicated, uremia began on the fourth day and the patient died May 7.

Necropsy.—Prostatic bladder was found in perfect post-operative condition; bladder wall thick and contracted; right ureter dilated at its insertion into the muscularis, in base of bladder, to the size of a hen's egg. Right kidney showed parenchymatous nephritis; left kidney was a mere shell; pelvis was dilated to the size of a urinary bladder and much resembled a bladder; left ureter was dilated to the size of my finger and emptied into a sacculated portion of the left bladder, just to the side of the prostate.

CASE II.—(Service of Dr. Mentzer, Monroeville, Ind.) Mr. B., a farmer, aged 25; has been married two years; he had typhoid fever two years ago, and retention occurred during a relapse of the fever and has been present intermittently ever since. April 7, 1904, he was placed in Hope Hospital, and at that time the bladder was sounded for stone. No stone being found, a rectal examination was made and an enlarged prostate was discovered.

Urinalysis at this time revealed a trace of albumin, and on account of this albuminuria the patient was placed in the hospital ward for treatment. On April 14 the urine was free from albumin, and therefore we decided to operate on the following day.

Operation.—Median incision; prostate removed; the prostate was found to encircle the bladder neck somewhat like a ring, the median lobe predominating in its hypertrophy. There was very little hemorrhage. Two rubber drainage-tubes were introduced into the bladder, continuous irrigation instituted, and the patient put to bed in good condition. In spite of every care, he died from uremic poisoning on the night of April 18.

Necropsy.—Intense nephritis of the right kidney; abscess of the left kidney with pyoureter; the ureter was four times larger than normal; appendix was adherent to the lower quadrant of the right kidney; peritoneal adhesions were found in the region of caput coli and ileum. These were likely remnants of the typhoid fever. No peritonitis was present at this time. Postoperative condition of the bladder was perfect.

In this man we had a subject that seemed favorable from the standpoint of age, general physique and environment, and the only reason that he did not recover was that two years prior to the operation a diseased condition became present in the bladder, which destroyed the kidneys.

CONCLUSIONS.

The general practitioner should be prepared at least to make a rectal examination of the prostate whenever symptoms point to that region, and if hypertrophic changes are found, and after careful treatment if the tumor does not diminish in size, surgical intervention should be advised and insisted upon.

If infection has not preceded catheter life, it is sure to follow. In this condition the patient's life is most pitiable. I know of no one that is a better prey for quacks, or who is more unsatisfactory for the physician to treat.

Early prostatic operations are not dangerous; late ones are always dangerous, and frequently fatal. The general practitioner has the fate of the prostatic in his hands, either to guide him over his trouble, or to advise him to continue a life of miserable suffering which intensifies itself toward the end.

We are examining old rather than young men, for prostatic enlargement, and in so doing, are getting the big rather than the little end of the dilemma.

ENTEROSTOMY.*

BY

J. W. LONG, M.D.,
of Greensboro, N. C.

By means of an enterostomy, several important measures are accomplished: 1. Drainage of gas and feces from the intestines. 2. In mechanical obstruction, relief of the distention, pain, vomiting and toxemia. 3. In septic conditions, depletion of the inflamed bowel and peritoneum; also the intestinal paralysis and sepsis are overcome. 4. Protection to the peritoneum, as in typhoid perforation. 5. Nourishment to the patient by making an artificial mouth.

As enterostomy is employed only in desperate cases, it is not an exaggeration to say that in any case in which it is indicated, the patient is in imminent peril of speedy dissolution from one or more of the conditions indicated in the preceding paragraph.

The Fecal Current Must be Maintained.—I have never understood why, after an abdominal operation, it is so important that the bowels should move. But the fact remains that without a bowel movement at an early day, the patient's life is in great jeopardy. The same is true at all times and in all conditions, drainage of the alimentary canal must not stop.

Enterostomy for Mechanical Obstruction.—Mechanical obstruction, whether due to accidental or postoperative causes, offers a familiar picture. The majority of these patients die because nature cannot hold out against the painful peristalsis hurling the fecal current against the point of obstruction, the distention, the projectile vomiting, the exhaustion. In such cases, if the obstruction is removable, and the patient equal to the occasion, do ideal surgery; if not, do an enterostomy.

CASE I. Acute Intestinal Obstruction from Carcinoma, Enterostomy, Recovery.—September 10, 1904, J. R. W., aged 22, a patient of Dr. C. S. Gilmer was brought to me at the Greensboro Hospital. He gave a history extending over a year or more of a number of attacks of partial intestinal obstruction. Also a history of a movable tumor, the size of an orange, in the left upper quadrant of the abdomen. This tumor would recede under the ribs when the patient lay down. When brought to me there had been no fecal movement for nearly a week, nor expulsion of gas for several days. Projectile vomiting occurred at frequent intervals, and there was sufficient meteorism to prevent palpation of the tumor. The next day I irrigated the stomach, and an hour later opened the abdomen. The tumor which constituted the obstruction, proved to be a carcinoma of the splenic flexure of the colon. On the proximal side of the cancer, the intestines were thickened, inflamed and distended. The growth was extensive and the patient's condition so extreme, that it was impracticable to do more than to hastily attach the caput coli to the edges of a short incision over the cecal region and close the median incision. The recovery from the operation was in every way satisfactory.

CASE II. Strangulated Inguinal Hernia, Bowel Gangrenous, Enterostomy, Recovery.—The patient, a man about 50, a citizen of Worthville, N. C., had had a right inguinal hernia for 25 years. In March, 1903, it became strangulated. When seen by myself the local symptoms were typical of long-continued strangulation. The urine was scanty and heavily loaded with albumin, and the patient partially comatose. On opening the sac, the contained gut was found to be gangrenous. This, together with the patient's serious condition, precluded the possibility of doing more than to nick the ring, stitch the intestine to the edges of the ring and incise the gut.

I had no opportunity of doing anything further for this man, since shortly after this time the case passed out of my hands, the wife having taken violent offense because any operation was done, claiming that the man would have gotten well if let alone. As it was, he lived two years.

CASE III. Stricture of the Ileum, Peritonitis, Enterostomy, Death.—The first time I did an enterostomy was some 18 years ago, in a country cottage, with no skilled assistance. The patient, a young man, with a tubular stricture of the lower end of the ileum, was in extremis, with the peritoneal cavity full of bloody serum, and the usual symptoms of acute, advanced intestinal obstruction present. A resection was out of the question, but an enterostomy prolonged his life for four days, much to my surprise and that of his friends. If it had been done 48 hours earlier, the ultimate results might have been different.

CASE IV. Obstruction in Colon, Appendicectomy, Enterostomy, Recovery.—On August 19, 1903, C. H. B., aged 32, was

brought to me by his physician, Dr. J. H. Moore, of High Point, N. C. The man had symptoms of intestinal obstruction, but before leaving home he had had two or three stools. On examination, there was so much tenderness in the right iliac fossa, it was thought best to open the abdomen. The appendix, head of the cecum and lower end of the ileum were inflamed. The distention was so great that a satisfactory examination of the entire abdomen could not be made, but the inflammation seemed to be centered around the appendix, therefore it was thought best to remove that organ. For the first eight days the patient's convalescence was uninterrupted. After this time, tympany began to reappear and obstruction gradually developed again. By August 31, he was in a serious condition, pulse 160, great distention, no passage of feces or flatus, and vomiting. Ether was given and a median incision quickly made. The ascending colon and the last several feet of the small intestine were greatly distended and inflamed. The obstruction was located in the colon, but because of adhesions, could not be brought into view. The anesthetist warned me that the pulse was 180 and thready. I quickly reopened the wound in the right iliac fossa, through which I brought iodoform gauze against the intestine about the ileocecal junction. The median incision was closed and every means resorted to, to revive the patient. The next day the gauze was removed and the ileum opened. The subsequent history of this case is too long to narrate in full. Briefly, the enterostomy spared his life. For many weeks the patient was sustained by rectal alimentation, with some nourishment given through the fistula. The bowels finally acted naturally and continued to do so while the patient remained in the hospital. Dr. Stuart McGuire saw this man with me and endorsed the management of the case. Later the patient was taken home, with the understanding that if his fistula did not close, I would close it. The patient was afterward taken to Dr. H. A. Kelly, who, after repeated attempts to remove the obstruction, finally anastomosed the transverse colon with the sigmoid, thinking this the best solution of the difficulty.

Enterostomy in Acute Peritonitis.—Greenough,¹ discussing the advantages and disadvantages of enterostomy, points out with great clearness, that in diffuse peritonitis, the intestinal obstruction is due to several causes, the most important being the paralysis or suspension of peristalsis, which is due to inhibition, distention and toxins. He might have added that a vicious circle is soon established, since, while the distention contributes to the paralysis, the paralysis certainly favors the distention. Greenough says further, that in addition to other operative measures, enterostomy is indicated in the graver forms of diffuse peritonitis. Its greatest advantage in these cases is the drainage of the bowel of the gases and decomposing contents, which is quickly followed by the relief of the paralysis of the peristalsis. According to this author the mortality of diffuse peritonitis is reduced.

Greg Smith, in his "Abdominal Surgery," advocates enterostomy, and describes by text and illustration a method of temporary continuous drainage or siphonage of the intestine by means of a tube introduced through the fistula. I have employed this method with great satisfaction. The Thirty-first German Surgical Congress considered this subject of sufficient importance to discuss it freely after hearing papers, one by Doyen of Paris, and the other by Heidenhain of Worms, both of whom advocated enterostomy in peritonitis for the relief of intestinal obstruction, paralysis, distention, etc. Heidenhain points out that in these cases the obstruction is often due to pressure on or bending of an over-distended, paralyzed loop of intestine, which is relieved spontaneously as soon as the bowel is emptied. The following case illustrates this:

CASE V. Abdominal Section, Removal of Large Cysts, Intestinal Obstruction, Enterostomy, Recovery.—In July, 1902, I operated in a negro cabin on M. J., for double intraligamentous cysts of large size. The operation necessitated considerable manipulation, and it was fly time. Despite our most vigorous protests the flies were allowed to crawl over the sponges, pads, instruments, wound, and would some times light on our hands. The result was sufficient peritonitis to cause intestinal obstruction. By the third day it was evident that the patient was rapidly growing worse. No movement of the bowels or escape of flatus had occurred, while the distention was great, the patient was vomiting, the pulse frequent and weak. Without giving an anesthetic, local or general, I quickly opened the wound and caught up the first distended coil of intestine that presented itself, stitched it to the peritoneum, and after protecting the wound with gauze, opened the bowel. A large quantity of gas and feces escaped. Within six hours from that time, the bowels moved naturally.

* Read before The Southern Surgical and Gynecological Association, December 13, 1901, at Birmingham, Ala.

The subsequent history of this case is quickly told. After the sepsis subsided, I attempted to close the fistula by suturing through the wound. The first attempt was a failure, but I tried again and again, gaining a little on the size of the opening each time, till finally with my stitching, and nature's granulations and contractions the fistula closed.

Unfortunately in many cases, the obstruction is not so quickly overcome.

CASE VI. Hysterectomy, Intestinal Obstruction, Multiple Enterostomy, Recovery.—On August 23, 1904, I did a total hysterectomy by the abdominal route on Mrs. P., aged 56, for carcinoma of the cervix, a patient of Dr. M. E. Street, of Glendon, N. C. Intestinal obstruction supervened, with the usual symptoms of distention, vomiting, thready pulse, prostration, embarrassed respiration, and no passage of feces or flatus. On the fourth day the original wound was opened and a distended coil of intestine caught up, fastened, and opened. So little gas and feces escaped, and the patient was in such extremis, that I was unwilling to depend solely on this opening, fearing that there might be an obstruction above it. Therefore, I caught another distended coil and treated it in like manner. This one gave very little better results than the first one; therefore, I brought up, fastened, and opened a third coil of intestine. Deeming this sufficient, the parts were dressed and restoratives applied. The three fistulas discharged freely. Great care was taken to keep the parts clean, and the bowels were frequently flushed with salt solution. The patient was sustained largely by rectal alimentation, and after a few days, by careful feeding in small quantities by the mouth.

By October 12 the patient had so far recovered as to justify an attempt to close the fistulas, which was done under ether anesthesia. The abdomen was carefully cleaned, an elliptic incision down to the muscle was made around the wound, keeping clear of the infected and by this time cicatricial area. The edges of the incision were whipped over together, thereby covering the old wound and fistulas, into which gauze had been packed. The peritoneum was then opened, taking care to keep far enough away to avoid injuring the adherent intestines. When the peritoneum was opened, it was easy to separate the fistulous area which was done around the greater part of its circumference. There was no peritonitis present, and outside of the coils of intestines containing the three fistulas, there was only one adhesion, and that a thin one attaching a coil of intestine to the adherent bowel containing the fistulas. With extreme care the nearest adherent coil was separated, the tissues around the fistula trimmed away, and the opening closed. The other two fistulas were dealt with in the same manner. The third fistula was so large that in cutting away the diseased tissue, at least four inches of the length of the gut on its outer rim, and all of its diameter, except the narrow strip to which the mesentery is attached, was sacrificed. This, however, was easily remedied by closing the opening after the method of Jeannel, leaving the diameter of the gut at the juncture larger than elsewhere, which, however, is not a disadvantage. After dealing with the fistulas, the excision of the fistulous area was completed and the abdomen closed without drainage. The patient made a good recovery.

CASE VII.—Fulminating Appendicitis, Operation on the Third Day, Intestinal Obstruction, Enterostomy, Death.—In October, 1897, J. H., aged about 23, a locomotive engineer, living at Spencer, N. C., was seized with violent cramps in the abdomen, while running his train. He managed to get home, where he was again taken with most excruciating pains. Dr. W. W. McKenzie and I saw him. The next day Dr. John Whitehead saw the patient with us, but the symptoms had so far abated that he was seemingly nearly well, though no fecal movement had occurred. That night he was for the third time overwhelmed with abdominal pains. The next day I opened his abdomen and removed an inflamed, septic appendix. The intestines were much distended, peritonitis was widespread, and a considerable amount of free pus was in the abdomen. Four days later, failing to secure satisfactory movements, and the tympany becoming distressing, I caught up a distended coil of gut, fastened it to the sides of the wound, and opened it. This gave immense relief, and for awhile it seemed that the man would recover, but peritonitis and sepsis conquered, and he died eight days after the operation.

Enterostomy for Typhoid Perforation.—An editorial writer in *American Medicine*³ calls attention to an article by Escher, surgeon to the City Hospital of Trieste, Austria, who gives an entirely new indication for enterostomy, namely, perforation in typhoid fever. He reports 4 cases, with 3 recoveries. He also cites 10 cases found in literature, with 40% of recoveries, which is better than when the ulcer is resected and sutured. Besides, the fistula drains the bowel and prevents paralytic ileus.

Keen, in a paper on "The Surgery of Typhoid Fever," read before the City Hospital Alumni of St. Louis, June 30, 1904, said: "If the perforation is a small one it should be closed without trimming the edges, with Lembert sutures. If it is very large, your choice

must be between a resection with an end-to-end anastomosis, and an artificial anus. The artificial anus is so much more safely and quickly done that this should be the operation of choice in most cases. This will of itself diminish largely the future mortality rate."

There is perhaps no indication for doing an enterostomy that deserves more consideration than does typhoid perforation.

I have never done an enterostomy for typhoid perforation, but the following case is in a measure similar, in that the peritoneum was infected from fecal contamination:

CASE VIII. Rupture of the Small Intestine Due to Fall, General Peritonitis, Operation on the Fourth Day, Enterostomy, Death.—On January 3, 1902, K., aged about 50, living in Rowan Co., N. C., was thrown violently from his mule. Though stunned severely, he was able to mount and ride home, a distance of three-quarters of a mile, without help. Reaching home, he sent for his physician, who examined especially the left inguinal region, where the patient had an old reducible hernia. There was no descent of the hernia. The third day Dr. A. B. Goodman was called and recognizing the seriousness of the man's condition, sent for me. I could not reach the patient until the morning of the fourth day. There had been no passage of feces or flatus, there was general abdominal tenderness, rigidity, and slight tympany. Both inguinal canals were clear. On opening the abdomen I found general peritonitis, with fragile adhesions centered about the left internal inguinal ring. Gently separating the adhesions, a ruptured intestine was discovered, the rupture being transverse and in length about a third of the diameter of the bowel. Nature had made an attempt to adhere this portion of the bowel to the lateral abdominal wall, but infection and widespread inflammation had taken place, and the intestines for many feet were too much softened to stand closing the opening or resection. It was thought best to make a short incision in the left inguinal region and attach the torn bowel at that point. The median incision was partially closed and gauze drainage used. The fecal fistula acted well, and for a time the patient did fair to recover, but the general peritonitis and general sepsis increased, and he died from exhaustion on the eighth day after the operation.

REMARKS.

It is quite probable that this man had old adhesions about the left internal inguinal ring, and when he was thrown from his mule the sudden tug of the mass of intestines tore the bowel at the point of adhesions.

Enterostomy Fistula May Be Used as a Mouth.—In the fifth group of cases, the patient is dying principally from inanition. The stomach and rectum refuse to retain sufficient food. In these cases an enterostomy fistula may be utilized as a mouth.

Finney⁵ lays special stress on the practicability of using the fistula as a means of introducing food, medicine and stimulants. He says: "The intestinal fistula, once established, should be looked upon more as a mouth than as an anus. The amount of food that can be given and retained in 24 hours is surprisingly large." He cites a number of cases from his own experience in which the patients were saved by utilizing the fistula as a mouth. In one of his cases the drainage from the fistula was so great that his patient was starving. Finney had a nurse sit by the patient to catch the fluids as they escaped and introduce them into the distal portion of the bowel through a funnel and tube.

Greenough also lays special emphasis on the value of feeding through an enterostomy fistula, and says that by enterostomy the surgeon obtains direct control over the intestines for lavage and for introduction of stimulants, nourishment, fluids and cathartics.

For the same purpose, Napalkow⁴ strongly advocates enterostomy in certain cases of gastric carcinoma. He excludes, of course, those cases in which gastroenterostomy can be done, but urges enterostomy in all cases in which the growth is too extensive to admit of gastroenteric anastomosis. By this means, stomach digestion is entirely eliminated, consequently the gastric pains disappear. Napalkow cites his personal experience in favor of this plan, and says feeding can be done quite efficiently by the intestinal fistula alone, while life can be prolonged and rendered tolerable by the operation.

In these cases the fistula is made as near the stomach as practicable.

So far as I am able to recall, I have reported all the cases of enterostomy that I have done in 22 years of practice, and singularly enough, three of them occurred within the last 18 months. Eight cases, with five recoveries from the operation, or 62%, is not a bad showing when we consider the desperate nature of these cases always. As may be readily observed, I have not done enterostomy for all the conditions in which it is indicated.

CONCLUSIONS.

1. Enterostomy is always a life-saving measure, never an operation of choice.
2. Enterostomy is not indicated when a more ideal surgical procedure is feasible.
3. In the hands of an experienced, carefully-trained abdominal surgeon, capable of dealing with grave emergencies, an enterostomy is rarely resorted to; but the better the surgeon, the more quickly will he adopt any measure that will save his patient.
4. Every abdominal surgeon, according to the abundance of his material, must find cases in which only an enterostomy can with propriety be done.
5. When an enterostomy is indicated, to hesitate is to lose your patient; to operate promptly, dextrously, and with celerity, means to tide your patient over the imminent peril and spare him for future consideration.

BIBLIOGRAPHY.

- ¹ Boston Medical and Surgical Journal, May 19, 1904.
- ² American Medicine, April 4, 1903.
- ³ American Medicine, April 22, 1903, p. 305.
- ⁴ Chirurgia, January, 1903.

TWO CASES OF LANDRY'S PARALYSIS: ONE TERMINATING IN RECOVERY, THE OTHER IN DEATH.¹

BY

THEODORE DILLER, M.D.,
of Pittsburg, Pa.

AND

C. L. BILLARD, M.D.,
of Allegheny, Pa.

Both of these cases of acute ascending paralysis pretty closely conform to the clinical symptom-complex—for it ought hardly to be called a disease—known as Landry's paralysis.

The first case is remarkable in that although the involvement proceeded to an extreme degree, the patient fully recovered; while the second case, which terminated fatally, is remarkable in the fact that it was the patient's second attack of acute ascending paralysis, he having recovered from a similar, although much milder attack, two years before.

It is not our intention at this time to discuss any of the many vexed questions concerning Landry's paralysis, as one of us (Dr. Diller) has gone into many of these questions in a recent essay² and expressed his views pretty fully upon them, but simply to relate briefly the main clinical features of our two cases as a contribution to the study of the subject.

CASE I.—A well-developed, healthy white boy, aged 17, while walking to his work, a distance of a mile, on August 4, 1904, felt tired and weak in his legs. Three hours later he noted some weakness in his arms. He worked all day, however, and walked home at night, although greatly fatigued. Late that night he was barely able to move his legs; and the arms too had grown much weaker, but not to as great a degree as the legs. By the next morning the legs were completely paralyzed; and the arms almost so. By the third day the paralysis of the arms and legs was absolute. On the fourth day he developed severe pains in the small of the back. He now experienced great difficulty in breathing; he was unable to cough effectively and had retention of urine. On August 8, the fifth day of his illness, he was admitted to the Allegheny General Hospital,

where he remained under our daily observation until his discharge on October 1.

Examination.—August 8, 1904, a well-developed, well-nourished boy of good color, free from any skin eruption, mentally normal. Temperature normal. There is absolute paralysis of the arms and legs, except for slight movements about the hips and left shoulder. The head is moved in all directions, but not forcibly. The neck muscles are distinctly weak. There is no palsy of the muscles of mastication or of those of the face or eyeballs. The diaphragm is evidently paralyzed as the normal to and fro movements of the abdominal walls are absent and the patient is unable to cough or expel mucus. Contact sense is normal, as is pain sense, but deep, moderate pressure over the calf muscles produces pain. Movements of the body produce pain in the small of the back. The knee and achilles' jerks are absent. The cremasteric reflexes are present. The abdominal reflex is absent. The patient swallows fairly well. His voice is considerably enfeebled. There is no atrophy of the paralyzed muscles. The spleen is not enlarged.

On the day of admission and for four days thereafter the patient was catheterized as he was unable to expel his urine. On August 12 (four days after admission) he exhibited some slight movements in his right arm and the slight power noted in his left arm had distinctly increased. The next day he was able to void his urine voluntarily. This improvement in motion of the arms continued; and three days later (August 16) a slight return of power in the legs was noticeable.

In short he steadily gained power in the arms and legs. Respiratory movements and the character of the voice gradually assumed their normal type; and power to expel mucus gradually returned. There was no elevation of temperature at any time during his stay in the hospital; nor were any mental symptoms observed.

On October 1, when the patient left the hospital he was able to move his arms in all directions; the grasp of his hands was fairly good—perhaps about half the normal and he was, although still weak in the legs, able to walk unaided. The knee-jerks were still absent. When the patient was seen by one of us (Dr. Billard) four weeks later he was apparently in normal condition.

The patient's family history is negative. His personal habits are excellent. He uses neither tobacco nor alcohol and had always been in good health except that he had an attack of typhoid fever at the age of seven from which he made a good recovery. No etiologic factor was discoverable.

In brief then the main features of this case were rapidly ascending motor paralysis which involved the legs, trunk, arms, diaphragm and which by the end of 24 hours was almost complete; partial involvement of neck muscles; later tenderness in the calves and pains in the back; incontinence of urine; maximum of disease reached in four days; absence of fever or mental disturbance; beginning of subsidence of symptoms on the eighth day after their onset and after the symptoms had been at their maximum for four days, followed by steady and uninterrupted recovery. The muscles of the legs which were first paralyzed were latest in recovering power.

CASE II.—An unmarried man aged 20, laborer; of German descent. His mother died of cancer at the age of 65. His father is still living. Three sisters are living and in good health. Two brothers died in convulsions in childhood.

First attack. Nearly two years ago while driving a laundry wagon he rapidly (within a few hours) lost strength in his legs; and in a few hours later his arms became similarly affected. This paralysis increased during the next 36 hours; at the end of which period it had attained its maximum. Five days later he began to improve and steadily continued to do so during the next three months at the end of which period he had fully recovered his strength. There were no sensory symptoms at any time; no atrophy; no loss of control over the bladder or bowels; no mental symptoms.

When the paralysis was at its maximum the patient was still able to stand with little assistance. The knee-jerks were absent. The paralysis in the arms was less marked than in the legs. The weakness in the legs which he first noticed in the morning compelled the patient to abandon his work before evening. He was kept in bed for a period of two weeks.

Second attack. On December 23, 1904, some 20 months after his recovery from this attack (during which period he had excellent health) the patient, returning home from work at 5 p.m., noted, in leaving the street car, that his legs were weak so that he required support to walk to his house. Two hours later he was able to cross one leg over the other with great difficulty. The knee-jerks were absent. The grasp of the hands was considerably enfeebled. By the next morning (15 hours after the onset) the arms and legs were completely paralyzed. Two days later the patient had difficulty in expelling mucus and in breathing.

I saw the patient with Dr. Bush on December 28. The paralysis of the arms and legs was complete. The respirations were at the rate of 40 per minute and the type greatly modified.

¹ Read before the Allegheny County Medical Society, March 21, 1905.

² Journal of Nervous and Mental Diseases, October, 1902.

The sternomastoid muscles could be seen, and felt to be strongly contracting with each respiration; the abdominal muscles were pulled up, but did not move in and out with the respiratory act, as is normal. The knee-jerks were absent. There was no atrophy. The sphincters were intact. The pulse was rapid (150). The temperature was 102.5° F. The pupils were equal—2 mm.—and responded to light sluggishly. The mental faculties were unclouded. Moderate pressure of the great nerve trunks of the arms and legs produced a great deal of pain. Contact and pain sense, normal. Motion of the tongue and face and eyeballs seemed unaffected. But the patient was unable to expel the mucus from his mouth and throat.

The patient died two days later without developing any new symptoms except that a few hours before death paralysis of the pectoral and intercostal muscles was noted. He was able to swallow 30 minutes before death. Consciousness became clouded only a very short time before death which was due to respiratory failure.

An autopsy could not be obtained. No facts of any significance were revealed in a search for the etiology of these attacks, except that the onset of both attacks occurred on wet days—a factor which seems scarcely an adequate explanation.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 1, 1905. [Vol. XLIV, No. 13.]

1. Acute Meningitis. W. T. COUNCILMAN.
2. The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve: A Report of Twenty Cases of Operation of the Gasserian Ganglion, with Anatomic and Physiologic Notes on the Consequences of Its Removal. (Continued.) HARVEY CUSHING.
3. Fluorescence Artificially Produced in the Human Organism by the Röntgen Ray, by Radium and by Electric Discharges, as a Therapeutic Method. WILLIAM JAMES MORTON.
4. The Diagnosis and Treatment of Perforation in Typhoid Fever, with a Report of Nineteen Cases, of Which Sixteen Were Operated on, with Five Recoveries. MORRIS MANGES.
5. Early Diagnosis and Operative Treatment of Gastric Cancer. G. W. MCCASKEY.
6. Some Complete Urine Analyses. J. H. LONG.

1.—Acute Meningitis.—W. T. Councilman describes the conditions of acute meningitis with more special reference to that form produced by *Diplococcus intracellularis meningitidis*, which he believes is constantly occurring in a sporadic form, aside from the not infrequent epidemic aggravations. The infecting organism, he states, is one of low vitality and incapable of a purely saprophytic existence. The statistics fail to give any adequate idea of the frequency of the infection in ordinary years. His experience, however, leads him to believe that with rare exceptions all cases of primary meningitis are due to this microorganism and that it would be impossible without sporadic infections to bridge over the intervals between the epidemics. It is possible, too, that the germ may even inhabit the normal mucous membranes, of the nose, for example, as has been shown in a few cases, where it produces a rhinitis, and infection of the meninges may take place through the lymphatics or by continuity of surface. We can only explain the epidemics of the disease, he says, either by an increase of virulence of the diplococcus or by a decrease in the resistance of the tissues. The underlying causes of epidemics are unknown, and even atmospheric conditions cannot be excluded. He discusses to some extent the relations of meningitis to pneumonia, as shown by the Massachusetts health statistics, and illustrates with a chart. Primary meningitis from the pneumococcus or staphylococcus is rare; secondary types are not so infrequent. The paper concludes with a description of the pathologic conditions in acute meningeal disease.

2.—Extirpation of the Gasserian Ganglion.—Harvey Cushing discusses various operative methods for dealing with the ganglion in cases of major trigeminal neuralgia. The importance of total removal of the ganglion he considers is evident, and were the anatomic difficulties less, it would be the only method free from criticism. This method alone, according to our present knowledge, insures total and permanent freedom from pain. He gives details in full of his method, which is different from that of Lexer, subsequently published and similarly successful, in the management of the meningeal artery, in that Cushing, so far as possible, carefully avoids injury to this artery, and generally with success. He also favors removal of the zygoma for cosmetic purposes, the slight flattening of the face thus produced being less disfiguring than

the prominence of the bone with the muscular atrophy that follows the operation. He has also been able, in many of his cases, to reach the ganglion without much loss of blood, and claims that the small opening made by his method affords advantages in this regard during the removal of the ganglion itself, and lessens the amount of packing required. He has had little success with the use of adrenalin or other methods than packing in checking the hemorrhage. Blood-pressure observations, taken before and during the use of anesthetics, are valuable in this connection as showing the patient's condition, and Cushing thinks that possibly his one fatal case might have been saved had more attention been given to the warnings furnished by this procedure. The clinical histories of his 20 patients thus operated on are given in detail and the results summarized. He remarks that he has not in all cases followed Krause's dictum that the ganglion operation should be performed only in those cases where previous neurectomies have been given a trial. In well-developed major neuralgia, he thinks temporizing inadvisable, even for the temporary relief it may afford. The most important of the postoperative complications are those of the eye, and it is well to have an understanding with regard to this before operation. The commonest sequel is injury to the abducens. For safeguarding the eye, Cushing uses rubber protective, and after the operation, he advises the use of a large watch glass with the edges covered with adhesive plaster, so as to exclude the air, and continued so long as conjunctival irritation threatens. His paper concludes with a number of physiologic considerations on the functions of the nerves and some remarks as regards the pathology. The morbid lesions underlying true trigeminal neuralgia are not yet revealed.

3.—The Therapeutic Use of Fluorescence in the Human Organism.—W. J. Morton discusses the production of fluorescence in the tissues of the human organism by use of fluorescing solutions, electricity, etc. He holds that it is a sort of phototherapy dependent on the same principles for its curative effects. It produces effects by the fluorescent excitation of the absorbed drugs, not due to the röntgen ray or to radium, but probably to the fluorescent light. Morton has found it therapeutically useful in pulmonary tuberculosis, as well as in local tuberculosis elsewhere, and especially in cancer, of which two successful cases are reported.

4.—See *American Medicine*, Vol. VII, No. 24, p. 921.

5.—Gastric Cancer.—G. W. McCaskey points out that in the early diagnosis of malignant gastric disease there is no single symptom or analytic finding, the presence of which is diagnostic or its absence exclusive. The same is perhaps true of any combination of several symptoms, still the diagnostician is not entirely at sea. A thorough study of each case as to the disturbed gastric function, its duration, development, etc., is essential. The external physical examination would be presumably negative. Examination of stomach contents before breakfast, both chemically and microscopic, may afford aid. The presence of lactic acid, of the Oppler-Boas bacillus, of gastric catarrh, or broken-down blood cells are all more or less significant. Then the digestive processes should be studied. The presence or absence of HCl and its amount, if present, the intensity of the biuret reaction or its absence and the presence or absence of the various enzymes are salient points here. All these may strengthen or dispel suspicion, but the patient should be kept under critical study and treatment, the therapeutic tests being of the utmost importance. McCaskey thinks that gastrectomy should be the operation of choice as affording a longer chance of life. If we are ever to get the better of gastric cancer it will be when the internist learns to suspect the condition early and has the courage to act on the suspicion before it becomes a certainty.

Boston Medical and Surgical Journal.

March 30, 1905. [Vol. CLII, No. 13.]

1. The Results of Medical Treatment of Peptic Ulcer at the Boston City Hospital. GEORGE G. SEARS.
2. Angioneurotic Edema: Report of a Case Operated Upon during an Abdominal Crisis. FRANCIS B. HARRINGTON.
3. Observations on Pneumonia with a Report of Two Fatal Cases of Extrapulmonary Suppuration. Suggestions for Treatment. D. E. KEEFE.
4. Eclampsia. WARREN R. GILMAN.

1.—Treatment of Peptic Ulcer.—G. G. Sears, from following the history of medically treated cases for a number of years, reaches the following conclusions, for whose general character a limited knowledge of the end-results of surgical treatment must be the excuse: The strongest argument presented for surgical over medical treatment is the failure of the latter. The immediate results of both medical and surgical treatment are about the same. Until the end-results of surgery are known, conservatism seems the proper course, but when medical treatment has failed, as shown by the recurrence of repeated small hemorrhages, or the persistence of other symptoms, a resort to operation is justifiable. The surgical treatment of hemorrhage is of questionable utility, since in many cases it has continued, or first appeared, after operation, and in some successful cases it is doubtful if the operation had any influence. Surgeon and physician should decide jointly as to the advisability of operation. [H.M.]

2.—Angioneurotic Edema during an Abdominal Crisis.—F. B. Harrington reports the findings at an operation. The first symptoms were strongly suggestive of gallstones, but the history made the diagnosis clear. Exploratory operation was considered justifiable, because of the duration and severity of the abdominal symptoms. The operation was during an attack of colic. There was a good amount of clear fluid among the intestines and in the pelvis. The intestines were so red and engorged that peritonitis was at first suspected. There were no hemorrhagic areas, but a short distance from the ileocecal valve a cylindric enlargement of the ileum two and a half inches long was brought to light, increasing the bowel circumference to twice the usual size. The engorgement and free fluid were explained by the violent peristalsis brought on in the effort to force down the lesion, which was actually in the intestinal wall. [H.M.]

3.—Pneumonia.—D. E. Keefe describes the processes by which pneumonia may in one case remain a local disease and in another become a general infection. The presence of diplococci in the blood gives evidence of the failure of their isolation in the lung, hence we are not to have an abortive pneumonia but an illness of some duration and gravity. If they are many and virulent, we may expect an overwhelming toxemia. Cases of low leukocytic count ending in recovery, suggest local imprisonment of the microorganisms. Absence of leukocytosis early in a severe attack speaks for a large dosage overwhelming resistance, or of a vitiated constitution. It is in the congestive stage we may hope to accomplish results from treatment. Stimulation is then indefensible. The writer instructs patients to lie on the unaffected side, to favor emptying the lung by gravitation, while ice is applied. He gives one active purge, wet or dry cups or leeches, as strong counterirritants as can be comfortably borne, veratrum viride, or bleeding from a vein, followed if need be, by infusion. For the remainder of the disease we are virtually powerless. [H.M.]

4.—Eclampsia.—W. R. Gilman reviews briefly the theories as to its causation. We are able to say it results from faulty nitrogenous metabolism. The pregnant woman is more easily affected by the poisons produced and less able to digest nitrogenous food. For early recognition no single test may be relied on. Neither the test for albumin nor urea is by itself a safe guide, but both tests, with the subjective symptoms, such as indigestion, headache, nausea, disturbance of vision, mental lassitude, tell whether toxemia is present. The importance of furnishing a specimen of urine and of reporting symptoms should be impressed on every patient. An estimate of total solids is simpler than the urea test and may be substituted for it. This may be found by multiplying the ounces of urine passed by the last two figures of the specific gravity and adding 10 to the result. We may expect a woman to excrete about 900 gr. of solids in 24 hours. [H.M.]

Medical Record.

April 1, 1905. [Vol. 67, No. 13.]

1. The Relation of the Nervous System to Visceral and Trophic Phenomena. JOSEPH FRAENKEL.
2. Perineum, Perineorrhaphy, and Prolapse. ARNOLD STURMDORF.
3. Compound Traumatic Separation of the Lower Epiphysis of the Femur. GILBERT GEOFFREY COTTAM.

4. The Value of the Present Quantitative Tests for Hearing: With the Demonstration of a New Apparatus. W. SCHIER BRYANT.
5. The Rapid Bacteriologic Diagnosis of Diphtheria. HENRY A. HIGLEY.
6. The Best Method of Administering Potassium Iodid. MAX HÜHNER.
7. A New Remedy for Ulcerative Processes, Acute and Chronic, Including Pulmonary Tuberculosis. HUBBARD W. MITCHELL.

2.—Perineum, Perineorrhaphy and Prolapse.—A. Sturmdorf says that the keynote in the clinical significance and therapeutic indication of pelvic floor laceration is prolapse, while perineorrhaphy, immediate, intermediate and late, represents respectively the prophylaxis and cure of such prolapse. The normal position of the uterus is maintained by deflection of the force of intraabdominal pressure, which acts on the uterus, poised as a lever with unequal arms on a fulcrum formed by the intravaginal perineal crest. Restoration of the conditions resulting in injury to the perineum can best be repaired by immediate suture, and to facilitate accurate readjustment of original anatomic relations, the preliminary introduction of what may be termed guide sutures, will be found helpful, time-saving, and, to some extent, prophylactic. At some convenient moment, prior to the descent of the fetal presenting part, two to three silk worm sutures are introduced under proper precautions into the structures between vagina and rectum, from the cutaneous base of the perineum to its apex, which serve as efficient landmarks when the severed muscular and fascial layers are to be reunited after delivery. Late operations involve as their surgical objective point the remnants of the anterior loop of the levator ani muscle. Under all conditions of perineal rupture, the pubic attachments of this levator loop present permanent palpable ridges. With these ridges serving as guides to the muscle, the posterolateral mucocutaneous junction of the vagina is severed and the deep seat of lesion exposed by carefully raising the cicatrized vaginal coverings. Utilizable remnants of the levator muscle can thus be readily located, and after isolation and trimming, should be coapted by buried end-to-end sutures.

3.—Compound Traumatic Separation of the Lower Epiphysis of the Femur.—G. G. Cottam reports two cases, both occurring in children, whose legs became entangled in the wheels of moving vehicles. In the first case it was found necessary, in order to retain the displaced epiphysis in position, to resect a portion of the shaft of the femur, but 19 weeks later the joint function was fully restored and the boy could walk and run without perceptible limp. As the boy's growth proceeded, however, a condition of knock-knee on the injured side developed, owing to unequal growth of the inner and outer aspects of the shaft of the femur. The second case dates back only six weeks, so that although recovery has so far been uneventful, it is impossible to predict what the ultimate outcome will be.

4.—Quantitative Tests for Hearing.—W. S. Bryant, points out that the various methods used for testing the hearing are open to serious objections. On account of the imperfections of the voice tests, other means are used, the watch, the acoumeter, the tuning fork, and the Köning rods, but all of these have difficulties in application, and errors easily creep in. The voice tests are of the most practical significance to the patient, but because they are imperfect and unsatisfactory in some respects the expert is forced to employ mechanical tests which are also far from perfect. He has devised a form of phonograph in which the intensity of sound can be standardized and graduated, while at the same time the volume of sound passing to either ear can be controlled. By this means the voice is used as the test sound, but it is reduced to mechanical accuracy of production, and reliable comparative tests at different times, and by different examiners, are possible, and the detection of malingering is made very simple.

5.—The Rapid Bacteriologic Diagnosis of Diphtheria.—H. A. Higley says that by the following method it is possible to make a rapid (fifteen-minute) and sure diagnosis by the examination of stained smears made directly from deposits or false membranes in cases which present themselves for differential diagnosis in diphtheria. The material from which the smear is made is obtained by passing lightly over the false membrane, a sort of curet formed from a wire-looped needle flattened by filing at its curved extremity. The following staining fluids, which should be freshly prepared, are used: No. 1. Five drops

of Kühne's carbolie methylene-blue in 7 cc. of tap water. No. 2. Ten drops of carbol fuchsin in 7 cc. of tap water. (1) Fix smear by passing three times through the flame; (2) apply stain No. 1 for five seconds; (3) wash with tap water and dry with filter paper; (4) apply stain No. 2 for one minute; (5) wash, dry and mount in balsam. When thus stained, the diphtheria bacilli appear as dark red or violet rods, irregularly stained, often containing polar dots. The unevenness of their contour and mode of division are regularly and distinctly brought out, and these characteristics afford the essential differential points, for other microorganisms take varying tints and may appear of the same color as the diphtheria bacilli, so that upon color alone no differentiation is possible.

6.—The Best Method of Administering Potassium Iodid.—M. Hühner says that it should always be given in solution well diluted, and, if possible, never on an empty stomach. Milk is the best diluent. It is essential to have a perfectly pure preparation, as many of the bad effects ascribed to the drug are due to impurities. Strict attention to cleanliness of the skin by daily baths is necessary to prevent the skin eruptions otherwise caused by the decomposition of the iodine excreted with the perspiration by the fatty acids setting free iodine, which acts as an irritant. It is preferable to write for a 50% solution, of which two drops will equal 1 gr. of the drug, as the 100% solution is difficult to prepare, and, as usually dispensed, is under strength. Potassium iodid is incompatible with alkaloids and the ordinary soluble metallic salts. Small doses may produce symptoms of iodism, while larger doses in the same patient may not have this effect. The drug should never be given in pulmonary tuberculosis. Special plans of administration are described for syphilis, locomotor ataxia, chronic endarteritis, chronic endocarditis, asthma, nephritis, lead-poisoning, rheumatism, neuralgia, etc., and the best methods of giving the drug to children are also indicated.

7.—A New Remedy for Ulcerative Processes, Including Pulmonary Tuberculosis.—H. W. Mitchell's fluid, a solution of chlorobromid of sodium, is prepared as follows: To a convenient quantity of water, add 3% sodium chlorid, 0.1% bromine, and 0.5% hydrochloric acid (c. p.). Subject this mixture to the action of an electric current until such chemic action has taken place within the mixture as to connect all free bromine into a compound with the other elements present. The external application of this fluid to ulcerative conditions, such as chronic ulcers of the leg, suppurative buboes, and ulcerative cervical adenitis, gave very satisfactory results, and it was therefore tried in pulmonary tuberculosis. Observations on about 1,000 cases show that the preparation seems to possess a peculiarly healing power in pulmonary tuberculosis, as demonstrated by very rigid and practical experience. From one to one and a half ounces, clear, of the fluid are to be given before each meal and at bedtime, it being imperative to have the stomach empty when the dose is taken. General systemic treatment is to be continued on the customary lines.

New York Medical Journal.

March 25, 1905. [Vol. LXXXI, No. 12.]

1. Medical Progress. J. A. WRIGHT.
2. The Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases, with a Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. DAVID L. EDSALL.
3. On Various Plastic Operations. CARL BECK.
4. Osteoarthritis of the Spine: Report of a Case. H. F. STOLL.
5. Gonococcus Infections in Children, with Especial Reference to Their Prevalence in Institutions and Means of Prevention. L. EMMETT HOLT.
6. A Brief Review of the Action of Some of the Important Somnifacients, with Clinical Notes on a New Hypnotic. A. P. STONER.
7. Indications for Treatment of Gastric Hemorrhage. F. GREGORY CONNELL.
8. The Diagnosis and Treatment of Acute Pelvic Peritonitis of Gonorrheal Origin. BROOKE M. ANSPACH.

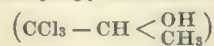
3.—Various Plastic Operations.—Carl Beck reports a number of cases of skin transplantation which proved very satisfactory. Three cases are reported in which thoracic skin was used to cover the fingers, thumb and dorsum of the hand. A cut shows a child with contraction of the elbow, caused by burn, cured by transplantation of thoracic flap, and another in

which contraction of the axillary space, caused by burn, was relieved by an axillary flap transplanted from the back. He also reports a case in which it was necessary to remove the entire os frontis because of necrosis. Later he covered the lacuna by taking an osteoperiosteal flap from the top of the skull and implanting it into the defective surface by turning it forward. [C.A.O.]

4.—Spinal Osteoarthritis.—H. F. Stoll reports a case which he says demonstrates the rather common mistake made in considering the leg pains of osteoarthritis to be sciatica. Such a diagnosis had been made by several physicians. The patient first noticed a "heavy feeling" in the small of his back. Six weeks later he began to have cramps in the back of the right thigh and leg. Soon the pains were almost constant in both legs. There was a double scoliosis, the smaller one with its concavity to the right being in the upper dorsal region, and the large one in the lower dorsal and lumbar regions. Flexion of the vertebral column was much limited. Great amelioration of the symptoms followed spinal fixation with a plaster jacket. [C.A.O.]

5.—Gonococcus Infections in Children.—L. E. Holt says that we must recognize gonococcus vaginitis as a very frequent disease, and one to be constantly reckoned with in institutions for children. It is also very frequent in dispensary and tenement practice, and not uncommon in private practice of the better sort. In its milder forms, and in sporadic cases, it is extremely annoying because so intractable; in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membrane, and in its epidemic form it is a veritable scourge in an institution. The highly contagious character of gonococcus vaginitis makes it imperative that children suffering from it should not remain in the same wards or dormitories with other children. A similar danger, though less in degree, exists with the gonococcus ophthalmia and acute gonococcus arthritis or pyemia. It is practically impossible to prevent the spreading of the disease if infected children remain in the wards with others. They must either be excluded from the hospital or if admitted, immediately quarantined. Cases of gonococcus vaginitis can only be excluded from hospital wards by the systematic microscopic examination of smears from the vaginal secretion of every child admitted. If a purulent vaginal discharge is present, such examinations are imperative, and should be made as much a matter of hospital routine as the taking of throat cultures in children with tonsillar exudates. In the absence of microscopic examinations, a purulent discharge in a young child may be assumed to be due to the gonococcus. The quarantine to be effective must extend to nurses and attendants as well as to children. Furthermore, the napkins, bedding, and other clothing of infected children must be washed separately from that of the rest of the house. Where the gonococcus is found with no vaginal discharge or with a very slight discharge, children should also be quarantined, although it is impossible at present to say to what degree such cases may be dangerous in a ward. One of the greatest difficulties in connection with the gonococcus vaginitis arises from the prolonged quarantine rendered necessary from the fact that these cases are of a very chronic character and very resistant to treatment. The danger to nurses from accidental infection, especially in the eyes, is considerable. Holt says that at the present time they are not sufficiently instructed in this respect. [C.A.O.]

6.—A New Hypnotic.—A. P. Stoner has made use of a new hypnotic which he believes is the peer of chloral in activity, and he says it is without any of the latter's depressing phenomena upon the respiratory or circulatory functions. It is chemically trichlorisopropylalcohol



and is known as isopral. It occurs as a colorless, shining, crystalline powder, slightly soluble in water, and has a burning taste and a characteristic, pungent odor. He says the best results are to be attained in doses of from 0.65 gm. to 1 gm., and it should be taken upon an empty stomach. Several cases are reported. [C.A.O.]

Medical News.

April 1, 1905. [Vol. 86, No. 13.]

1. The Coagulation of the Blood. LEO LOEB.
2. Nephritis Complicating Mumps. JAMES ALEXANDER MILLER.
3. The Status of Suprarenal Therapy. SAMUEL FLOERSHEIM.
4. The "Specific Therapy of Tuberculosis." CHARLES DENISON.
5. Intestinal Ileus with Strangulation. R. R. HUGGINS.
6. Report of a Case of a Large Parovarian Cyst, and Two Cases of Large Ovarian Cysts. FRANK C. HAMMOND.

1.—Coagulation of the Blood.—L. Loeb believes that mechanical factors mainly determine coagulation in blood flowing from a wound. Observation by himself and others has led him to assume a specificity of the active principles of tissue extracts, which he calls tissue coagulins in analogy with the substances obtained by artificial immunization. This makes it possible to distinguish between the muscles of two animals so nearly related as the lobster and the blue crab. Generally, however, we have to deal with class specificity rather than with a species specificity. In the case of the active substances of the blood, specificity exists only insofar as the thrombin of vertebrates is without effect upon the blood of invertebrates. Further differences between these two substances are that thrombin (the blood principle) is more effective than tissue coagulins in coagulating blood plasma deprived of its calcium, and less so in pepton plasma; serum will, and tissue coagulins will not, coagulate fibrinogen; the tissue coagulins are more resistant than thrombin; they lose their activity much more rapidly if the blood plasma is gradually diluted than do the active substances of the blood. The combined action of the two substances causes a decided increase in their efficiency; this depends greatly, however, upon the kind of plasma and fibrinogen on which the combination acts. It is probable that other cellular elements in addition to the blood plates are the source of blood coagulins. It is unlikely that nucleoproteids and nucleohistons are the active principles. [H.M.]

2.—Nephritis Complicating Mumps.—J. A. Miller states that this may occur in either children or adults and is more frequent in males. The parotitis is mild, usually double, and the nephritis occurs generally in early convalescence. The nephritis is moderately severe, lasts less than a week, ending in complete recovery, rarely in chronic nephritis or death. This complication of mumps is infrequent. Febrile albuminuria is probably common, but this, as well as more serious kidney lesions, is probably overlooked. Careful urinalyses and precautions against exposure are indicated in all cases of mumps during the acute symptoms and convalescence. [H.M.]

3.—Suprarenal Therapy.—S. Floersheim recalls the revival of the use of this drug by W. H. Bates in 1892. He discusses its widely varied applications and prefers its administration by dropping an adrenalin solution under the tongue to hypodermic or intravenous methods, absorption often occurring in 20 seconds. He advises its use as a preventive in threatened apoplexy and also before chloroform anesthesia to anticipate cardiac syncope. [H.M.]

4.—Specific Therapy of Tuberculosis.—C. Denison defends the direct toxin as opposed to the serum-therapy treatment advocated by Maragliano. It is unfair to point to the necrotic results of reckless experimentation as representative of the direct method of medication. Maragliano says "The richest in antitoxic materials is the serum of a healthy man." Where, then, is the warrant for expecting any better effect from the antitoxin previously developed in another animal over that slowly created in a given diseased organism? Does a serum of high potency excite a greater amount of defense than the original toxin, properly given? If we need diluents, are there not others more antiseptic, germicidal, and leukocyte producing, and more certain and stable than a blood-serum? Why vaccinate the healthy against tuberculosis, when a peculiar susceptibility is a prerequisite to the disease? If we do not take our punishment for unhygienic living in one form of degeneration we will have it in another. As tuberculosis is eradicated, Bright's disease and cancer will increase. [H.M.]

5.—Intestinal Ileus, with Strangulation.—R. R. Huggins reports four cases to show the marked contrast in the result between early and delayed operative treatment. [H.M.]

6.—Parovarian and Ovarian Cysts.—F. C. Hammond advocates extirpation as soon as the physical condition of the

patient permits, as these tumors may become malignant, or may rupture; torsion, inflammation, adhesions, etc., may occur. The removal of both appendages during pregnancy neither increases the danger to the mother nor the liability to miscarriage. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Zomotherapy in Tuberculosis.—The systematic, continued use of raw meat in the treatment of pulmonary tuberculosis has for a number of years received more or less commendation from the profession, almost wholly upon empiric reasons. Two recent communications upon this subject are of special interest. Dr. R. W. Philip¹ speaks of the very encouraging clinical results obtained in a series of 200 cases in which were used raw meat, beef juice, and raw meat soup. His deductions are very convincing. Of even greater scientific significance, however, are the findings of Dr. J. J. Galbraith,² who, at the request of Dr. Philip, investigated the effects of raw meat upon nitrogen metabolism of tuberculous subjects, and also of healthy individuals. The results of substituting raw for cooked meat may be summarized as: (1) Increased nitrogen retention; (2) improved intestinal metabolism; (3) increased digestive leukocytosis; (4) increase in hemoglobin. Galbraith's tentative explanation of the meaning of this leukocytosis is very suggestive. He regards it as evidence of a functional activity on the part of the leukocyte with the object of secreting a body to link the increased nitrogen to the tissue cells. The leukocytosis is mainly an increase in the lymphocytes, a cell which bears a direct relationship to tuberculosis, in that the histologic tubercle is composed largely of such cells, or at least of mononuclears. The relation of the toxins of the tubercle bacillus to nitrogen metabolism is more complex. "It is at least possible that the amboceptor of one group of the tubercle toxins is identical with the body which functions as the link in nitrogen fixation, which there is reason to think is a secretion of the lymphocyte. If the affinity of the absorbed proteid for the linking body were not less than the affinity of the toxin for the same substance, nitrogen metabolism would not suffer in tuberculosis." Unpublished researches on the direct action of toxins of the tubercle bacillus are said to support this latter contention. A further conclusion is that the antitoxic molecule also contains the secretion of the lymphocyte. This hypothesis explains the failure of raw meat in some cases of tuberculosis, on the basis that the haptophore group is deficient and the meat does not possess a specific stimulus for its secretion. These studies of Galbraith are extremely valuable, even if further investigations show they are not the true solution of the problem. They at least form an important step in the endeavor to place zomotherapy upon a rational basis. If this is accomplished, another means of combating tuberculosis can be employed with a certain degree of precision.

REVIEW OF LITERATURE

Variation of Weight in the Course of Smallpox.—M. Garnier and G. Sabareanu³ have made charts of the daily weights of smallpox patients and have drawn the following conclusions from them: They show the existence of two weight maximums in the course of the disease; both correspond to the fever maximum existing during the fever of eruption and period of suppuration. The fall in weight sets in with the onset of desquamation and therefore the fall of temperature; at this time a large amount of urine is voided; this is followed

¹ The Practitioner, January, 1905.² The Practitioner, February, 1905.³ Revue de Medicine, 1904, xiv, 562.

by a stationary period, during which the weight remains very low in spite of increased alimentation. The rise following this is neither regular nor rapid, at least not as rapid as in scarlet fever and pneumonia, in the course of which diseases the authors have made similar observations. They believe the weight increase during the febrile period to be due to retention of water in the tissues. This retention is an active phenomenon in the fight of the organism against the microbic infection and not a passive phenomenon the result of renal insufficiency. This retention of water brings with it a retention of chlorids; this preserves the osmotic equilibrium of the increased body juices. At the moment of defervescence this ceases, the urinary crisis at the end of the disease producing a sudden and rapid loss of weight. In cases in which the organism is vanquished by the infection, the body-weight diminishes already during the fever, sometimes very rapidly. This is therefore a factor of considerable prognostic importance. [E.L.]

Test for the Motor Function of the Stomach.—Stefan von Pesthy¹ states that a large series of experiments have shown that the tone or elasticity of the gastric wall is in direct proportion to its motor power, and then describes the following test: The width of the stomach is first measured by percussion, a seidlitz powder is then given in two parts, and the width again measured. In health the two differ by from .5 cm. to 3 cm., but in atony they may differ as much as 9 cm. [T.S.G.]

Two Common Causes of Urinary Incontinence in Children.—J. R. Clemens² says the four most common causes of incontinence of urine in children are, in order of frequency: 1. Hyperacidity of urine (a condition persisting by day and night). 2. Adenoids (nocturnal incontinence—true enuresis). 3. Chronic interstitial nephritis (nocturnal and diurnal incontinence). 4. Alkalinity of urine (due to fixed alkalies—incontinence by day and night). Clemens finds histories which leave no other alternative but the diagnosis of chronic interstitial nephritis, of not infrequent occurrence, though this is denied by many clinicians; hence he places it as one of the common causes of incontinence. The other, alkalinity, is independent of the alkaline tide and is due to some fixed alkali. There are never signs of cystitis. The urine is sterile. The only successful treatment is by acid sodium phosphate, which Clemens finds a drug difficult to obtain. In 148 cases of incontinence seen during the past year, he has never had occasion to use belladonna and emphasizes the unwisdom of treating the symptom rather than its underlying cause. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

Puerperal Tetanus.—The case of puerperal tetanus reported by Dr. Roderer in *American Medicine*, March 4, is one of unusual interest because of the recovery of the patient after the repeated use of tetanus antitoxin. Tetanus is a rare disease during the puerperium. In 1882, Garrigues in a paper on "Obstetric Tetanus and Tetanoid Contractions" collected 57 cases; later, Vinay in 1892, collected 106, 47 after abortion and 57 after labor at term; and in 1897, Hancock and Hirst added 13 cases to Vinay's statistics. According to Garrigues, although puerperal tetanus is a very rare disease in Europe and America, it is quite common in India, not only as compared with its appearance in other countries, but also with tetanus from other causes in the same country. The specific cause of this disease is of course the tetanus bacillus and in many cases the characteristic bacilli have been isolated from the uterine lochia. How the microbe has been introduced into the organism is often difficult to determine. The disease is more frequently noted in abortion than in labor at term, and in cases in which some operation such as version, manual removal of the placenta or repair of a laceration of the pelvic floor, has been performed. Retention of a part of the placenta

has been noted in many instances. In one case, in the Prague Lying-in-Hospital, the disease occurred in a woman who had not even been examined internally. Heyse claims that the tetanus infection is always a mixed one and that the way must be prepared for the tetanus bacillus by a preceding pathogenic germ causing a septic endometritis or some other pathologic condition along the birth canal; but this opinion is not accepted by all observers, and the temperature range in Roderer's case would indicate the absence of such mixed infection in this instance. The prognosis in this disease is extremely grave. All of Rubeska's series of 20 cases succumbed, and in Vinay's report only 12 of 106 patients survived, making a mortality of nearly 90%. The only hopeful treatment in the future is by the use of potent antitetanus serum, as the old therapeutic measures were practically useless beyond the controlling of the convulsions; and even the resort to hysterectomy practised by Pawlik and Rubeska in some of their cases was without avail.

REVIEW OF LITERATURE

Adenoma Hæmorrhagica of the Endometrium.—W. Alexander¹ refers to the common ignoring of this condition by the textbooks. He reports 5 cases. The chief symptom in all these was persistent hemorrhage after cureting and after all treatment, sufficient to keep up anemia and invalidism. The size and shape of the uterus were practically normal and the cureting did not present to the pathologist anything abnormal. The glands were perhaps more numerous, but nothing more. One had a child 16 years and another a child 1½ years before; the rest were nulliparous. After removal the uterine cavity showed a thick, semigelatinous, semifibrous membrane, running into folds or polypoid masses affecting the whole mucous membrane of the uterus and the beginnings of the fallopian tubes. Little points of blood appeared here and there in some of the specimens. Sections show the glandular tissue dipping down between the bundles of muscular fibers and it is probably these down growths which produce the disease. [H.M.]

Myomotomy during Pregnancy.—Prof. S. D. Mikhnoff² discusses the management of myoma during the pregnant state. He takes a conservative view of this complication. If the fibromyoma does not produce any disturbances and offers no prospective mechanical obstruction to delivery, it is best left alone during pregnancy. If, however, the symptoms call for intervention, or future obstruction is probable, then a myomotomy may be performed during the first months of pregnancy, provided this can be done without opening the uterine cavity. In such cases where it would be necessary to open the uterine cavity the author advises to wait until the child is viable, unless early operation is very urgently indicated. Artificial interruption of pregnancy for myoma uteri he condemns entirely. [L.J.]

Inoperable Carcinoma of the Rectum as Obstacle to Delivery.—Moritz³ reports a case of pregnancy complicated by an inoperable rectal cancer. After being in labor for 36 hours, an extraordinarily long time for the patient, the head was found in the pelvis, and the os completely dilated. There was no difficulty in extracting by means of forceps, which was resorted to because of the patient's exhaustion. Because of the favorable termination of this case, the author advises in all cases where the pains are strong and the dimensions of the pelvis not out of proportion, to await the entrance of the head into the pelvis patiently and not to at once jump to the conclusion, that cesarean section is the only method of overcoming the obstacle. [E.L.]

Repeated Anencephalic Birth.—D. Rorie⁴ reports a case of a woman eight times pregnant, in which the second, third and fifth children were anencephalic, the three surviving children being normal and healthy. The father and mother are both healthy. [H.M.]

¹ Medical Press and Circular, December 21, 1904.

² Russki Vrach, January 15, 1905.

³ Münchener medizinische Wochenschrift, 1904, 11, 1909, No. 44.

⁴ Medical Press and Circular, January 18, 1905.

¹ Archiv für Verdauungs-Krankheiten, Bd. x, No. 4.

² Archives of Pediatrics, March, 1905.

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Early Infection in Tuberculosis.—Much has been written and denied regarding the possibility of tuberculosis that develops in adults being due to infection during childhood. Certain writers insist upon the frequency of intrauterine infection, though in general this is made less prominent than formerly. There appears a growing tendency, however, to attribute considerable significance to the etiologic role in pulmonary tuberculosis of primary lymph-node or intestinal infection. This brings up the question of latent infection, especially the extent of its duration and the probability of childhood infection. A most valuable communication upon this subject is that of Dr. F. Harbitz,¹ who presents the results of extensive personal study and a summary of Scandinavian literature not hitherto widely known. In Leipzig, Harbitz examined the bodies of 30 children dying before the age of 15 and found tuberculosis in 9, 30%. In Christiania, 275 autopsies revealed tuberculosis in 117, or 42.5% of the subjects. These figures are high, but in the last 142 of the 275 cases, the percentage reached 48.6. Of 117 tuberculous subjects, 72 died of tuberculosis, 21 had latent or obsolete tuberculous lesions, and in 18 latent tubercle bacilli were present. Of these 18, 9 were under 1 year and 14 under 3 years. Of the 123 subjects under 1 year, 25 were tuberculous and 98 non-tuberculous. From a study of these cases, and also of tuberculosis in adults, Harbitz says the duration of latency in chronic tuberculosis of lymph-nodes may safely be placed at 20 to 30 years, and probably is considerably longer. Hence he maintains that pulmonary tuberculosis in adults may be and often is secondary. "The cause is then to be sought in tuberculous foci in other organs, but mainly in the lymph-nodes, and infection of the lungs occurs most likely by way of the blood (from the thoracic nodes the infection might also easily occur through the lymphatics). With my observations in mind (including the latent bacilli in children), I also believe I may maintain that much more stress must be laid upon primary infection through the digestive tract, and not least on infection through the throat than has been done formerly." The entire work of Harbitz bespeaks thoroughness, and his deductions are so well supported by facts, that his paper must be regarded as one of the most authoritative of recent contributions to this subject.

Protective Inoculation against Asiatic Cholera.

—The late epidemic of Asiatic cholera in the Philippines made prominent several difficulties in preventing the disease in those islands. Ordinary hygienic methods were entirely inefficient in Manila. The use of Haffkine's prophylactic was nullified by the fact that the natives, because of the severe reaction, would not voluntarily submit to it and compulsory vaccination did not appear advisable. R. P. Strong, director of the Biologic Laboratory at Manila, then began a search for a practical protective inoculation against the disease; his results have recently appeared,² after being withheld nearly a year to give the devised method a more thorough test, which, owing to the lack of cases, could not be done. Strong found that the injection into man or animals of free bacterial receptors, obtained from the autolytic digestion of carefully killed cholera spirillums in an aqueous fluid, produces high bactericidal and agglutinative blood-serum. Injections produce essentially no local disturbance and but slight general reaction. A thorough test of this serum in checking an epidemic is most desirable. Strong is now endeavoring, by applying to the pest bacillus a slight modification of the

method, to secure a more satisfactory prophylactic against bubonic plague.

REVIEW OF LITERATURE

Relation between Congenital Malformations of the Heart and Acute Endocarditis.—G. C. Robinson¹ has found in the literature 17 fully reported cases of acute endocarditis complicating extensive congenital malformations of the heart. These he tabulates, and adds two personal cases. Congenital malformations of the heart are generally considered to predispose to acute endocarditis; Robinson explains the comparative rarity of the combination by the fact that relatively few cases of congenital malformation reach the age at which acute endocarditis is most common. The form of cardiac malformation most frequently attacked by acute endocarditis is that in which life is most prolonged, namely, obstruction to the pulmonary outflow with openings between auricles or ventricles. For these reasons acute endocarditis more frequently involves the right side of the heart in congenital malformation.

Experimental Measles.—Ludvig Hektoen² reviews the results of inoculations of measles as they appear in literature, and says that almost without exception the recorded experiments for which positive results have been claimed are without real significance. He then records the results of two inoculations made by himself, in which special care was taken to exclude natural infection. From them he concludes that the virus of measles is present in the blood of patients with typical measles, some time at least during the first 30 hours of the eruption; furthermore, the virus retains its virulence for at least 24 hours, when such blood is inoculated into ascites broth and kept at 37° C. This demonstration with the two cases shows it is not difficult to obtain the virus of measles unmixed with other microbes and in such form that it may be studied by various methods.

The Rate of Absorption from Intramuscular Tissue.

—S. J. Meltzer and John Auer³ have studied the rate of absorption of adrenalin, curare, fluorescein, and morphin from muscle when injected into that tissue. For these substances they believe they have firmly established that absorption from intramuscular tissue is incomparably faster than from subcutaneous tissue. In value, such an injection stands very near that of direct injection into the circulation. They believe the fluid does not enter directly into the blood, but is first deposited between the muscle fibers, and thence carried into the blood by some process of rapid absorption. What this process is the writers are not prepared to state. A new field of investigation is opened by this fact, and much is promised in determining certain processes in physiologic and pathologic conditions and in the realm of pharmacology.

Basophilic Granulations of the Erythrocytes in Lead-poisoning.—W. B. Cadwalader⁴ studied the blood of normal individuals, 11 lead workers without subjective symptoms, and 16 cases of lead-poisoning. For studying the granules, the polychrome methylene-blue method of Vaughan was employed, no other being nearly so satisfactory; it is the only method by which granules may be demonstrated in normal blood. Nucleated red cells are found in cases of lead-poisoning and charts of the cases studied show that granular cells increase as the nucleated cells decrease. For this and other reasons, Cadwalader concludes that granular cells are probably the result of fragmentation of nuclei.

A Pathologic Study of Acute Myelitis.—John H. W. Rhein⁵ reported two cases, both in women. The first died at the end of 20 days, the second on the thirty-second day of the disease. In the first case the typical lesion of acute myelitis was found, *i. e.*, the presence of numerous foci of softening, change in the bloodvessel walls, round-celled infiltration, and destruction of the nerve elements. The second case is chiefly interesting on account of the absence of any pathologic change pointing to acute myelitis. There was present in this case some change in the walls of the anterior horn and a moderate degree

¹ Bulletin of the Ayer Clinical Laboratory, No. 2, January, 1905.² Journal of Infectious Diseases, March 1, 1905.³ Journal of Experimental Medicine, Vol. vii, No. 1.⁴ American Journal of the Medical Sciences, February, 1905.⁵ University of Pennsylvania Medical Bulletin, January, 1905.¹ Journal of Infectious Diseases, March 1, 1905.² Bureau of Government Laboratories, Bulletin No. 16, Manila, 1904.

of degeneration in the sciatic nerve. Fifty-two other cases of acute myelitis with autopsy were cited from the literature, and the author concludes that the most frequent pathologic findings of acute myelitis consist of necrotic foci, thickened bloodvessels, round-cell infiltration, small hemorrhages, destruction of the nerve fibers in the neighborhood of the diseased bloodvessels, alteration of the nerve cells, and the presence of granular cells. More rarely there may be degeneration of the nerve elements without evidences of inflammation. There may be cases in which these two processes seem to be associated. Infection plays an important role in the production of acute myelitis, and the cause of acute myelitis may be either a microorganism, the products of a microorganism, or a toxin.

Acute Otitis in Children.—C. G. Kerley¹ reports 51 cases of acute otitis seen during the past two years. The bacteriology is given in full, the organisms found being streptococcus, staphylococcus, pneumococcus, and the colon bacillus. The physical condition of the child appeared to exercise no influence upon susceptibility; two-thirds of the patients were strong, well-nourished children; in none were the tonsils sufficiently involved to require removal; 38 of the cases developed with or followed catarrhal inflammation of the upper respiratory tract. Kerley calls attention to a very interesting condition present in each of the mastoid and sinus cases. The children did not appear very ill, except when the temperature was high. When it was low they staid up, played, and were fairly bright. It was difficult in every instance to make the parent realize the necessity for operative procedure. When practitioners realize the possibilities for serious trouble that the middle-ear affords there will be fewer cases of meningitis, fewer cases diagnosed as typhoid independent of the Widal reaction, fewer cases diagnosed as malaria in the absence of plasmodium in the blood, and fewer cases of paratyphoid.

Pathologic Anatomy of the Plague.—H. Dürck² details an exhaustive study of the plague based on 16 postmortem cases. Buboes were found most often in the inguinal region followed by the iliac, lumbar and retroperitoneal. The nodes were filled with serous, hemorrhagic or purulent fluid. On section was found areas of hemorrhage or necrosis resembling the caseation of tuberculosis. Two types of cells are prominent endothelial cells from the reticulum and large vesicular cells resembling large lymphocytes. The latter are the only ones containing bacilli. The two characteristic features of the disease are tendency to hemorrhages and the necrosis. Pulmonary lesions are of three types: 1. Disseminated hemorrhagic foci of embolic origin. 2. Areas of lobular hepatization. 3. Zones of splenization, reactionary inflammation, around the other two. Dürck says that primary pulmonary involvement is much less frequent than commonly thought, many classed as such being secondary to glandular lesions. The paper is illustrated by many excellent colored plates.

Structure of Vaccine Bodies in Isolated Cells.—James Ewing³ gives the results of studies of vaccine bodies in cells from corneal lesions obtained by the "Klatsch" method, namely, touching the lesion with slides that have been thoroughly cleaned by washing in soap and water and heating in the Bunsen flame. To these the cells adhere, and may be fixed and stained as desired. Ewing fixes by gentle heat, then by absolute alcohol five minutes, then stains by Nocht's method five or ten minutes. Even in these cells, Ewing fails to find in any stage of the vaccine body the slightest definite indication of a protozoan. The possibility of its presence he does not deny; the body may contain a submicroscopic organism, or other methods of fixation may discover it. Some doubt regarding the nature of the vaccine body will probably remain until it is produced apart from vaccinia, but it is doubtful if this can be done.

Coagulation of the Blood.—Leo Loeb,⁴ from comparative investigations of the blood of vertebrate and invertebrate animals, is inclined to believe that both thrombin and tissue coagulin (thrombokinase of Morawitz) act independently upon fibrinogen, converting it into fibrin. E. T. Reichert has

studied a secondary coagulation of the blood due to a substance not identical with fibrinogen. Coagulation of blood defibrinated by heating may be caused by saturating it with neutral oxalates. Although the experiments were made upon animal blood, this feature is possibly common to nearly all bloods. The secondary coagulation may explain many phenomena now imperfectly understood as the occurrence after a time of coagulation in blood containing the usual amount of oxalate to prevent such process; also the differences in fibrin from different species, and even from different vessels of the same animal.

Congenital Lesions of the Kidneys.—J. Castaigne and F. Rathery,¹ from studies upon animals and human subjects, conclude that in human pathology there are certain lesions attributable to renal heredity; they are shown clinically by renal debility, hereditary albuminuria, or by fatal termination. The writers have produced analogous symptoms and lesions by injecting nephrotoxic substances into pregnant females or by producing kidney lesions in females before they become pregnant. The study of a nephrotoxic power of the serum and amniotic fluid of pregnant females has explained the pathogenesis of hereditary lesions of the kidney; these substances circulating through the fetus may give rise to slight or marked involvement of the kidneys, even determining death at birth in those cases where they are severe enough to be incompatible with extrauterine existence.

Studies in Phagocytosis.—L. Hektoen and G. F. Ruediger² summarize their studies as follows: 1. Phagocytosis of many bacteria by the leukocytes of various normal animals, including man, is dependent on the presence in the plasma of special substances designated by Wright and Douglas as opsonins. 2. The opsonins become attached to the bacteria which then for unknown reasons become susceptible to phagocytosis. 3. Opsonins are thermolabile substances of a constitution analogous to that of toxins and complements in that they seem to have two groups, haptophore and opsoniferous. 4. Like complements, opsonins may be neutralized or bound by various salt solutions and other substances so that they cannot act upon bacteria. Antiphagocytic action of this nature may be an important factor in the establishment and progress of various infections.

Dysentery Toxin and Antitoxin.—Charles Todd³ has made a study of the production of toxins by dysentery bacilli and their counteraction by antitoxins. He finds that old cultures of *B. dysenteriae*, Kruse, contain a soluble toxin, which is also contained in the bodies of young bacilli. The horse and rabbit are very susceptible to this toxin, the guinea pig, rat and mouse being very resistant. Immunization of the horse gives rise to an antitoxin. The toxic power of the serum of horses so immunized may reach a very high value, .001 cc. being sufficient to protect a small rabbit against 20 minimal lethal doses of toxin. The Shiga dysentery bacillus and three strains of a bacillus isolated from cases of asylum dysentery in England, by Eyre, were found to yield a similar toxin and this toxin was neutralized by the antitoxin prepared by means of the toxin from Kruse's bacillus. This is considered a strong point in favor of the identity of the above bacilli. Attempts to obtain a soluble toxin from *B. dysenteriae*, Flexner, and from two races of the bacillus isolated from cases of summer diarrhea by Duval in Baltimore and New York, were unsuccessful.

Treatment of Ozena.—M. Craemer⁴ describes his method of treating ozena as follow: The patient's nose is thoroughly cleansed by means of hot water and a syringe; the remaining particles of the crusted mucus are removed with a cotton carrier well covered with cotton; the mucous membrane of the nose is then massaged by thorough rubbing. After the first few days the patient is permitted to do a part of the work himself returning to the physician only for purposes of control and massage. Should the secretion reaccumulate the physician would again take up the treatment. The patient cleanses his nose several times daily with warm water, but before using it always permits warm olive oil to run into the nose and placing himself

¹ Archives of Pediatrics, October, 1904.

² Sixth Supplement to Ziegler's Beiträge, 1904.

³ Journal of Medical Research, February, 1905.

⁴ University of Pennsylvania Medical Bulletin, February, 1905.

¹ Arch. de Med. Exper. et d'Anat. Pathologique, January, 1905.

² Journal of Infectious Diseases, January 12, 1905.

³ Journal of Hygiene, October, 1904.

⁴ Therapeutische Monatshefte, 1904, xviii, 580, No. 11.

into a horizontal position for 15 minutes before using the water, so the crusts will soften well. In some cases an oil saturated cotton tampon is more suitable than the oil alone. The water must be continued each time until it runs off perfectly clean. Within a few days after this treatment is begun, no more crusts will be found to accumulate and of six patients with ozena not yielding to any other treatment all were found to improve very quickly. [E.L.] [Crude petroleum, or kerosene, makes a most excellent application to soften crusts and has good effect on the atrophic process.]

Concerning the Lowered Freezing-point of the Blood in Carcinoma.—Engel, from his investigations, cannot corroborate the views expressed by Israel and Engelmann.¹ In no case examined did he find molecular concentration of the blood if the location of the tumor was not such as to cause kidney insufficiency. The reduction in the freezing-point of the blood cannot be attributed to the carcinoma when the blood is taken in a cyanotic state, and when arteriosclerosis or acetoneuria is present. [J.F.]

The Relation between Hemometer (Fleischl) and Ferrometer (Jolles') Findings.—Jolles ferrometer has been tested by W. Altman² in 30 different diseases, the results being controlled with hemoglobin (Fleischl) examinations. In nearly all instances the two results corresponded very closely, from which he concludes that the ferrometer is a valuable control of various hemoglobin examinations, and that even where differences exist, it is a valuable adjunct in making a diagnosis. [E.L.]

Bactericidal Action of Human Blood-serum Toward Typhoid Bacilli.—The bactericidal action of blood-serum toward typhoid bacilli has been the subject of numerous investigations. It has been found in normal serum as well as in the serum of persons immune to typhoid fever. It is due to the combined action of the so-called complement, found in every normal serum, and the intermediate body or immune body or amboceptor, found in small quantities in normal serum, and in abundance in immune serum. G. Hahn³ has investigated the blood of numerous individuals, who had never had typhoid fever, for the presence of this intermediate body. Its presence or absence was judged by the ability or inability of the serum to kill typhoid bacilli. An active intermediate body was in this way demonstrated in a number of cases. In some serums the bactericidal action was retained even in dilution of 1 to 1,000. Even this, however, is far inferior to the potency of action obtained with serum from typhoid fever patients. In over two-thirds of the nontyphoid serums, however, no intermediate body could be demonstrated even in the strongest concentration, i. e., a dilution of 1 to 1. [B.K.]

Influence of the Toxin of the Tubercle Bacillus upon the Development and Toxicity of Other Bacilli.—L. R. v. Korczynski,⁴ as a result of elaborate experimentation upon guinea-pigs, concludes that the toxin of the tubercle bacillus favors the growth of the staphylococcus, streptococcus, and *B. coli*. These microorganisms grew more rapidly in the culture in which the toxin was mixed than in the pure culture medium. The streptococcus and *B. coli* developed the more rapidly the richer the culture was in the toxin of the tubercle bacillus. Tuberculin exercised a greater influence upon the growth of *B. coli* on agar than the tubercle bacillus on tuberculin bouillon. The toxicity of *B. coli* which grew upon the tuberculin bouillon was greater than when pure agar was used as the culture medium. The amount of the toxin of the tubercle bacillus that was spread upon the culture medium was not without influence upon the degree of toxicity of *B. coli*. A nontoxic dose of the bouillon culture of *B. coli* became fatal when mixed with a certain amount of the tuberculin bouillon, which in itself was not lethal. [J.H.W.R.]

A Differential Stain for Typhoid Bacilli in Sections.—To stain and discover typhoid bacilli in sections, H. Bouhoff⁵ recommends the following procedure: A solution is prepared by mixing 4 drops of a saturated alcoholic solution of methylene-blue and 15 drops of Ziehl's solution, with 20 cc. (5.5 dr.) of

distilled water. The section is removed from absolute alcohol, passed through water and then mounted on a slide; the stain is permitted to act upon it for two minutes; it is then warmed for a few moments over a gas flame; when vapors arise the stain is poured off, the section washed in water, and differentiated with 1% acetic acid solution. This removes some of the methylene-blue; the section is again washed in water and then dehydrated in anilin and xylol, one after the other, for a few minutes; this also removes some of the methylene-blue. All of the section will be of a brilliant red color, with the exception of the typhoid organisms, which will be stained blue. [E.L.]

Action of Formic Acid on the Muscular System.—E. Clément¹ finds that formic acid augments muscular force to a considerable extent, increasing the activity of the muscles and their resistance to fatigue. Involuntary as well as voluntary muscular tissue is thus affected. Remarkable is the action of this substance on the muscular wall of the bladder and on the muscles of the larynx and of respiration. Formic acid, especially in alkaline combinations, is a diuretic. Arteriosclerosis with albuminuria is favorably influenced by its administration. A person who makes use of formic acid rapidly experiences an increase in his muscular force, vigor, and activity. The author believes these facts to be of social importance in enabling the performance of more work without the bad effects of alcohol and other stimulants. The dose recommended is 2 gm. to 3 gm. of the pure formic acid, diluted in a half glass of water and neutralized with bicarbonate of soda. This dose may be taken once or twice a day. The prepared sodium formate may be employed, but is much more expensive. [B.K.]

Experimental Investigation of Aseptic Healing of Directly Produced Necrosed Tissue.—Burkhardt² says if such necrosed tissue is produced under aseptic precaution there gathers around the area, leukocytes and fibrin just as though it were a foreign body; at times the picture presented simulates an area of suppuration, but abscesses never occur. He intimates that such tissue necrosis, even under aseptic conditions, may give rise to disturbances in the primary healing of the wound; it may also produce a point of least resistance, and in that way be instrumental in giving rise to complications. The necrosed tissue, after the cessation of the exudative process, is gradually absorbed and replaced by a firm cicatrix. Absorption is accomplished by the granulation tissue by means of giant cells which are formed through the confluence of connective-tissue cells. A necrosed area the size of a bean requires a few months to be absorbed, absorption beginning about the sixth day. Defects in muscle are replaced by scar tissue, although a few new muscle fibers are formed. [J.F.]

A Simple Method for Staining Spores.—E. Thiesing³ recommends the following procedure for the staining of spores, having found it valuable in the staining of anthrax, hay bacillus, megatherium, tetanus, etc.: 1. Fix air-dried smears by drawing through flame 3 times. 2. Cover with 1% platinum chlorid solution and heat over the small Bunsen until it boils. 3. Wash in water and dry between absorbing paper. 4. Carbol fuchsin or Löffler's methylene-blue is poured on and heated quickly over the small Bunsen until it boils. 5. Drain and wash in 33% alcohol and then in water. 6. Dry in air. 7. Add contrast stain (methylene-blue after carbol fuchsin, safranin or fuchsin after Löffler) and permit to act for 3 minutes without heating. 8. Drain and wash in water. 9. Dry between filter paper and mount in balsam. The whole process takes but 5 minutes and presents excellent contrast pictures. [E.L.]

Balantidium coli.—J. F. Koslowsky⁴ gives in detail a report of a fatal case with pathologic findings. In microscopic sections of the intestinal wall the parasites were found to have penetrated the mucous membrane. [T.S.G.]

Fatigue Toxin and Antitoxin.—W. Weichardt⁵ derives from experiments these results: The functioning muscles of warm-blooded animals form, in addition to the known chemie katabolic products, a toxin, which is separable from the former by means of dialysis. This toxin originates as the result of

¹ Berliner klin. Wochschrft., 1904, No. 81.

² Münchener medizinische Woch., 1904, II, No. 40, 1788.

³ Deutsche Archiv für klinische Medicin, Bd., lxxxii, p. 294.

⁴ Wiener klin. Woch., No. 2, 1905, p. 29.

⁵ Archiv für Hygiene, 1904, I, 217.

¹ Lyon Médical, February 19, 1905.

² Arch. f. klin. Chirg., 1904, Bd. lxxiv, Heft 1.

³ Archiv für Hygiene, 1904, L. 254.

⁴ Archiv für Verdauungs-Krankheiten, Vol. xl, No. 1.

⁵ Münchener medizinische Wochenschrift, 1904, II, 2120, No. 48.

muscle movements, and produces fatigue in the animal. If present in very large amount, it induces a lowering of temperature, stupor, and death, by auto-intoxication. When preparations containing fresh toxins are injected into other animals in small doses, they produce fatigue; when injected in large doses they produce stupor and death, as in the original animal. In the bodies of dead unfatigued animals, this toxin, as a rule, cannot be found; or, if present, only in traces, the product of violent agonal convulsions. Animals into which dialyzed muscle plasma derived from normal animals is injected, remain, as a rule, perfectly well. The fatigue toxin has the properties of a true toxin. It is not dialyzable, and produces, if injected in large doses into the circulation of animals, a considerable amount of a specific antitoxin. Fatigue toxin and antitoxin saturate each other within the body and in vitro, apparently according to the rules of multiples. The antitoxin differs from bacterial antitoxins by the ease with which it may be dialyzed and, therefore, the ease with which it is absorbed from the digestive tract. In contradistinction to the fatigue toxin, the antitoxin is very stable. It displays the properties, therefore of a tonic and invigorant. [E.L.]

Pathogenesis of Basedow's Disease.—Pässler¹ was led by the idea that this disease is due to a specific poison formed in the thyroid gland, to inject into rabbits an extract of a gland removed from a patient with this disease. This even in large dose caused neither rapid pulse nor high blood-pressure. [T.S.G.]

Malignant Pustule.—A. MacCormick and F. Tidswell² report a case with extirpation followed by uneventful convalescence. In addition to anthrax, *S. pyogenes aureus* appeared in the cultures. Infection occurs generally in those in close contact with living or recently dead animals. No case has been recorded in Australia among those who handle wool and hides. Mensural distribution of deaths does not especially implicate the warm weather fly, although these may deposit the germ in their excrement, which may then be conveyed by the patient to an abraded surface. Even while the bacilli are restricted to the neighborhood of the point of inoculation, the patient experiences more or less severe constitutional symptoms. One immediately thinks of toxins. Conradi after searching observations has concluded that anthrax forms neither intrabacillary nor extrabacillary poison. When the bacilli are strictly limited the only other explanation is destruction of the blood. Anthrax produces peptonizing, diastasic, and curdling ferments. Although it does not produce a poison primarily, it may be that the intoxicating substance which appears to be present is formed as a secondary product of the operation of these ferments on the tissues. [H.M.]

Myositis Ossificans.—Busse and Bloch³ differentiate two varieties of myositis ossificans; the primary type arises directly after the injury and at the point of injury; the bony tissue is formed in the injured structures, ossification beginning as early as the eighth day; the second variety is due to chronic irritation of a given point, whether or not preceded by injury. Why this condition arises in some instances and not in others the authors are not able to say, but suppose an individual predisposition, associated with a combination of hematoma and contusion, to be at the bottom of the peculiar injury. It certainly is not a tumor, but rather inflammatory state. They relate five cases in detail: (1) A soldier of 21, with a hemophilic tendency, was found to have a mass in the right quadriceps, which had developed gradually; (2) a soldier of 23 received a bayonet wound in the arm; a bony mass the size of a plum developed. In neither case was the mass connected with the bone, or even with the periosteum; (3) in this case bone developed in the muscle of the thigh as the result of a horse's kick; an ossifying periostitis was associated with it; (4) a boy of 15 bruised the left thigh against a hard edge, and following the hematoma, a hard mass developed over the site of the injury; (5) bony tissues developed in the thigh of a man of 30, who was run over. Microscopic examination showed typical bony tissue, some of which had developed from intermuscular connective tissue, some indirectly from cartilage. The periosteum was involved

in only one case; if the condition is permitted to go on indefinitely the mass will ultimately unite with periosteum and bone. [E.L.]

Intraauricular Transplantation of a Skin Flap after Radical Operation on the Middle-ear.—A. Politzer¹ employs this procedure not immediately after the operation, but waits until the surface of the wound is covered with a layer of granulation, i. e., in from 6 to 20 days. Some hours before the transplantation the ear is washed with sterile water, then filled with 6% peroxid solution and in five minutes washed with sterile water, dried and tamponed. The flap is taken from the thigh or forearm and placed on the perforated end of a glass canula upon the end of which is connected a rubber bulb, in such a way that the epidermal surface lies upon the canula. The tampons are removed, the canula inserted, and the flap blown against the surface of the wound. Finally small tampons are placed within the ear, occupying the entire external canal. Too much pressure induces bleeding which interferes with the growing of the flap to the granulation. The operation was done in 12 cases, of which 5 were at once successful. In 5 cases, areas the size of a lintel or hemp seed remained unhealed. In 3 of these cases these surfaces were covered in 5 to 15 days after treatment with chromic acid solution. In the other 2 cases the results were negative, though in one a second transplantation resulted in partial healing, and later the epidermis spread to the uncovered parts. [J.H.W.R.]

Technic of Iodin Sulfuric Acid Reaction on Amyloid Tissue.—E. Neumann² believes that unsatisfactory results from the action of iodine and sulfuric acid on amyloid substance are due entirely to faulty technic on the part of modern investigators, and cites the methods advised in a number of recent textbooks, which differ materially from that employed by the original discoverers. The iodine solution should be very much diluted, probably to the color of Rhine wine, and the tissues should remain in it just long enough to give them a slightly yellowish color; if stronger solutions are employed, the tissue becomes overstained, and the acid will produce a brown to black color. The specimen should then be mounted, a cover-glass placed over it, and lastly a small drop of concentrated sulfuric acid permitted to run along the side; this will always produce a beautiful blue or violet stain of the amyloid. [E.L.]

Changes in the Circulating Apparatus in Typhoid Fever.—J. Wiesel³ finds distinct changes in the arterial system at the height of typhoid fever. These changes occur principally in the media, and affect the muscular tissue and the elastic fibers. The muscular changes consist of a probable atrophy of the fibers with a cellular proliferation of the intermuscular tissue. The elastic tissue is markedly affected and presents all possible forms of degenerative changes. The author's investigations concerning the changes in the heart merely confirmed Romberg's finding of an interstitial myocarditis. [B.K.]

Atheroma of the Aorta in Rabbits after the Intravenous Injection of Adrenalin.—In the animals into which Rzentkowski⁴ injected intravenously adrenalin solution, three drops every other day, there was present hypertrophy of the heart, many circumscribed areas of calcification in the wall of the aorta, and in some of the animals cirrhosis of the liver and hyperemia of the kidneys. Many of the rabbits were very susceptible to the adrenalin and died of acute dilation of the heart and edema of the lungs. Rzentkowski is not certain that the calcified areas represent patches of atheroma because of the absence of cellular infiltration. He believes he has to deal with a primary calcification. He is certain that the condition lessens the elasticity of the vessels and gives rise to degeneration of the elastica. The changes in all probability are induced by the adrenalin raising the arterial tension. [J.F.]

Modification of Ficker's Diagnosticum.—Tiling⁵ simplifies the performance of Ficker's test by permitting some of the patient's blood to dry on a piece of absorbent paper, later dissolving it out to the desired dilution with physiologic salt solution. He says the red color of the solution does not interfere with the accuracy of the reaction. [E.L.]

¹ Mittheilungen aus der Grenzgebiete, Vol. xiv, No. 3.

² Australasian Medical Gazette, October 20, 1904.

³ Deutsche Zeitschrift für Chirurgie, 1904, lxiii, 388.

⁴ Wiener klin. Woch., 1904, No. 12, p. 328.

⁵ Münchener medizinische Wochenschrift, 1904, li, 2126.

⁶ Zeit. f. Heilkunde, Bd. xxvi, Abth. f. Int. Med., Heft 1, p. 107.

⁷ Berliner klin. Woch., 1904, No. 31.

⁸ Münchener medizinische Wochenschrift, 1904, li, 2129.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 15.

APRIL 15, 1905.

\$5.00 YEARLY.

Working for Self while Others Work for Professional Progress.—Such must be the sentence upon many physicians who will not even take the trouble to write a letter or two to their representatives and helpers in reference to some good bill being killed by the politicians, or some bad one being jammed or tricked through by greed, quackery, and the bosses. Take as an example the osteopathy bills in the two great States of New York and Pennsylvania. One who has been working for the profession to the utter neglect of his practice, writes :

The one thing I have had to encounter in my repeated visits to the capital is that I am acting practically alone, which holds me open to the accusation of grinding an axe for personal reasons. Also, that this opinion is reinforced by the apathy of the medical profession. The question naturally arises, if the profession is so interested, why is it not represented more extensively ?

Of course, there are several reasons for the apathy of the profession. Here is one : While the legislation of the States and of the United States is being shaped by quacks and scoundrels in their interests, many "leaders" of the profession are banqueting, hunting honorary degrees and positions, scattering their newspaper articles and photographs, and above all, watching the sources of their consultation practice. Are you "leaders," Gentlemen, who smile at the great body of the profession sunk in its disorganization, poverty, commercial medical journals, and busy with private practice ? Are you, Gentlemen of the Ranks, satisfied with honoring such "leaders" ? Fighting legislative devilry would be better leadership than still-hunts for professorships and LL.D. degrees, and flatteries at blank dollars per plate. The Ehrhardt bill, to pass which the Pennsylvania machine nearly wrecked itself and its United States Senator, has been dropped. There are limits even to the power of the Pennsylvania bosses—and the Governor is spared the ordeal of signing or vetoing bills to promote the most loathsome forms of systematized vice. Thanks to professional neglect, the Pennsylvania osteopathy bill has passed, and, unless vetoed, will long torment the public and the profession.

The interest of the medical profession in the nursing profession is manifold and sincere. It is self-interest in that the physician's work is so largely dependent upon the nurse ; it is altruistic, because none

can know and honor the nurse's calling so thoroughly and rightly ; it is professional or scientific, because the effectiveness of our struggle against disease depends upon the highly-motived self-sacrifice of well-trained nurses ; it is social and religious, because almost as no other agency, the good nurses bring home to the community, to the lowest and highest, the convincing demonstration that kindness may be directed to social uplifting, and that science may be wedded to sentiment. For weal or woe, both professions depend upon each other ; what harms one will surely harm the other. They are, as it were, united in a marriage, which admits of no divorce. Even if crime or an unchangeable "incompatibility of temper" compel a kind of truce or divorce, it will be worse for both and for the public in whose interests we are all laboring. Should "separation" occur we can only go back, not forward, to any makeshift ; and the retrogression is either to the oldtime crude and ignorant service of relatives, to the nursing of the religious orders, or to the quack nurse. All three will be found to lack much ; but chiefly, of course, the training in science and precision, which alone can transform benevolence into beneficence.

"Betsy and I Are Out."—While not proceeding so far as to suggest any "talking to the lawyers," it cannot be denied that the couple are a bit at outs and are not a little dissatisfied with each other. Should the statement by the husband alone be given or taken, there may be some ground for a claim on the part of the wife that "there are two sides to every question," and that she also must be heard. The neighbors are not gossiping much as yet, but if matters go on much farther they will surely take up the "very pretty quarrel," and the result will be not at all pretty or edifying. At the risk, therefore, of further complicating misunderstandings, perhaps of self-immolation, the friend of both may try to bring about a better state of feeling, and possibly keep the lawyers out of the affair. The medical journalist may surely be counted such a friend ; indeed, he has demonstrated the fact more than once, while not unmindful of the fate of the cloth that comes between the two blades of the "Shears of Fate." In the nursing journals their one side of the question has been presented by the nurses more often and squarely, if, possibly, not more considerably, than ours in medical periodicals. *Mens*

conscia recti, according to the story, was the motto in the window of the village store; not to be outdone, the watchful rival across the way hastily set up a larger sign in his window, telling all customers that he had both *men's and women's conscia recti*! Apply the moral who will!

The movement for State registration of nurses has been checked by certain complaints, criticisms, and facts. It is best to face these frankly and even cordially, by those who favor registration, just as the need of organization and registration should be acknowledged by those who oppose. It will do no good to take sides and become partisan. The issues at stake are too great to permit any prejudices and self-interests to influence the solution which must finally be reached. That solution, as we have suggested, must look to the most thoroughgoing cooperation of both professions in the work of caring for the sick. Jealousies and antipathies must be mercilessly crushed, and if mistakes and wrong habits have grown to abuses they must be cancelled and left behind in order to unite in the common duty. If State registration or license can be brought about without injustice to certain nurses and schools, and agreeably to professional ideals, it is incumbent upon us to help on the movement, because it is most plain that, as in medicine, it may conduce to the exclusion of the unfit, to the increase of dignity and ability upon the part of the registered nurse. Only by such regulation and organization has our own profession made some headway against quackery and ignorance, and replaced them by conscience and education. It is useless to ignore the quack nursing schools, their increasing vogue, and the pernicious influence they will gain if the genuine nurses do not organize and secure the corporate unity necessary to the due recognition of the value of their profession to medicine and to the public.

Some Worthless Arguments against Registration of Nurses.—The first is that Florence Nightingale and other most excellent nurses were not trained in the modern scientific way, and hence it is unnecessary. The statement provokes a smile, and hardly needs rebuttal, although made much of. The argument would, in fact, do away with all special education and organizations of the educated, because geniuses and brilliant examples have arisen without preliminary help or education. Because nursing is chiefly an art, it decidedly has its intellectual and scientific side. Violinists and artists may have come to prominence without school training, but schools of music and art still multiply. It is also said that the nurses generally and many of the best are not supporting the movement. Neither have other educated specialists, neither had the medical profession, movements for higher standards and better organization, when in their incipiency. Theoretically, it is said, the movement toward nursing organization is for the benefit of the public, but the public does not ask for and is wholly careless about the benefit. Does the public care, ask for, or even support the medical profession's great concern, the crushing of quackery? What a silly argument! It is also urged that the nurse now knows too much about medicine, and shows signs of

doing the medical man's work. If it were so, and if a danger, what a comment it suggests as to the physician's scientific and administrative capacity. Nonsense! Lastly, it is said, the movers for nurse organization and legalization show the hollowness of their claim by indifference to the kinds of courses given in older and poor nursing schools, and by taking into the organization, etc., poorly trained nurses. And such an argument is brought by men who most willingly excepted from the need of examination in State licensure those physicians who had been in actual practice for a certain number of years before the passage of the law. By this exception, thousands of arrant quacks were allowed to practise medicine until they should die. How otherwise could the law "get itself enacted"? Anything else would indeed have been unjust. We cannot blame the nurses for doing the same.

No Trades-unionism in Nursing.—The principal objection to the trained nurse pertains to her salary. It is said that the movement for registration and organization is the result of a trades-union spirit, and that the establishing of a minimum fee of \$20 or \$25 per week for a part of the nurses, graduates of certain schools, is the real aim of the organizers. We doubt the accuracy of the statement, but if and so far as it may be true it is doomed to failure. Medical men in their organizations and practices follow no such notion and will not endure it in their helpers. We compete with each other, utterly free to charge little or much, according to a hundred varying conditions, personal or competitive. Moreover, we give about a third of our lives to patients without any pay whatsoever. Our fees differ for the same service to people of different incomes. Whatever machinery the nurses may adopt, each individual shall be left to exercise her own discretion whether she will do her work for much, little, or nothing. To the true professional mind, medical or nurse, the trades-union spirit is intolerable and detested. Individualism is a *sine qua non* of art or benevolence, and the nurse's calling is a skilled art motivated by love and kindness. Her personal character and ability must usually govern the price patients will pay, and any attempt will fail that seeks to give the same pay to the poor nurse, even from the best school in the world, which will be given the good one. A good training and education are necessary for any and all nurses who help the physician or can be commended by him, but all the education and training in the world cannot alone make the best, or even good nurses—a truth the trades-union spirit can never learn.

The nurse's manners and disposition have been criticised. It is said that too often she is self-assertive, demanding, setting a household by the ears, etc.; that she has her "favorite doctors," her piques and jealousies as to other nurses. It is contended that if organization and registration are encouraged these faults will be still more pronounced, and then there will be no getting on with her at all. Our answer to this might be that if the nurses can outdo many of the doctors in this matter of ungraciousness and lack of love and magnanimity they must indeed be "a bad lot." But this

aspect of the affair appears too trivial to notice. Neither nurse nor doctor can be made perfect in character by adopting either calling and by any sort of education. But education can do much to remedy. Manners alone have a vast deal to do with success, but when motivated by noble and benignant feeling, they are irresistible. The methods of training-schools may undoubtedly be improved so as to inspire a sweeter character and disposition in the graduate. Beyond question those chosen for chief nurses and superintendents have not always illustrated the more lovely disposition, and, "like mistress like maid" will apply here as well as to master and man. Anything but gentleness, patience, and true charity in physician or nurse will never come to the best and highest service. Beyond question our hospital training of nurses has been too machine-like, too cold, and sometimes too cruel. If organization and registration perpetuate this unfortunate trend, then it must be disallowed. But will they? Not if the matter is wisely managed, we believe.

Hospitalization among the Nurses.—There is one criticism of the nursing problem which is almost entirely valid: The training is entirely too institutional, the education and life too mechanical. The great majority of nurses must go out into the common and ordinary life of the people, the home life, and attend to the sick under such conditions. The hospital training, while necessary, has become too exclusive. The circumstances in the home and the hospital are different, root and branch. In private homes a hundred problems and conditions face the nurse which are unknown in the institution. This is especially true of nursing in the homes of the middle, lower, and lowest classes. It is a criticism, indeed, which in a lesser degree also applies to the medical profession, with its colleges, laboratories, hospitals, and dispensaries. But with the young medical man the abuses have not and cannot become so marked and general as with the nurses. One of the reasons for the absurd exaggeration of institutionalism and hospitalism among the nurses is a shame for which the medical profession is chiefly responsible, the habit of crushing the life out of the pupil nurse by making her slave for the hospital while getting her education, and in supposed payment for it. It is an evil responsible for many others and must be abrogated. A certain portion of their scholastic period may well, and, of course, must be devoted to nursing, but the injustice which puts the girls into virtual slavery for several years is one that makes an upright man or woman shudder; and the "bossy" superintendent, or chief nurse, doing no work but a pseudoaristocratic commanding, provokes sometimes an unfortunate frame of mind of her graduates.

Financial Aims and Practices in the Nurse's Life.—Probably the one criticism which has become most bitter and which is most warranted, is that which charges avarice and a low ambition for "soft snaps" and engagements by fashionable doctors in rich families. It is a sad truth, but it is largely the logical, direct, and inevitable result of her training. The enslavement in

the training-school, the institutionalizing of her life and education, the neglect of home-life work among the common and poor people have too often made the girl into an impertinent, a snob, a seeker after engagements at a set price among the rich. It has been forgotten that over 90% of the sick are not in, and can never be put into a hospital, and cannot possibly pay \$25, \$20, or even \$10 a week for nursing. The commanding misfortune, blunder, or sin—whichever word may be chosen—of the nurses is that their machinery and education and motive usually ignore this 90% or 95%, and in a measure unfit them to meet this dire need and emergency of civilization. In this respect there must be an out-and-out reorganization. Poor people with far less income than that of the nurse and doctor for all needs and for whole families, will get sick, and must be treated at home. The sin of urbanization is also upon the nursing profession, but the cities do not contain all the citizens. Country people, villagers and farmers, even more than city folk, need nursing service; the country physician especially needs it; there is also the need for a short service, the single visit, the hour's, or the day's duty, both in the city and country. The nursing machinery that ignores these facts has not risen to its duty or opportunity. The nurses and their organizations that forget this must be made to remember it with most significant positivism. Registration is a trivial thing in comparison with this.

Hospital and home (not "hospital or home") must be considered in the nurse's training, and neither can be overemphasized or neglected. In the past the home training has been outrageously neglected, but that gives no ground for the new quackery which is rising—the correspondence school, the six-weeks' course in an office building, the fraudulent quack and "fake" institutions, that like pestilential weeds are springing up all over the United States. Disgust with the old order which turns for help to these parasitic shams is, if possible, worse than the old stupidity of hospitalism. Doctors who indulge this crime will rue their weakness and burden us with a nuisance hard to be uprooted. Scientific nursing must be brought to ordinary and poor people, and in their homes, but it must be the real, not the spurious article. The diploma after didactic lectures and talks and manikin exercises lasting a few weeks or even a few months, must be fought down and out with all the zeal of men and women who hate hypocrisy and quackery. Any coqueting with this despicable nonsense will prove expensive. Let the hospital and training-school be in whatever partnership that may please, it must not absorb more than half of the life and instruction of the student nurses. Work in the home, among the middle and the poor classes, is as absolutely necessary. It will also do the chief nurse much good to go with her pupil, learning and teaching, into the evil conditions of workmen's homes and tenements, of which the hospital aristocrat knows nothing. Saving the baby and mother under the conditions of dirt, ill-ventilation, poor cookery, neglect, ignorance, poverty, is a very different affair from what it is in the organized and mechanical excellence of the hospital.

Special Hospitals and Specialism in Nursing.—Not a little of the opposition to registration has come from those interested in special hospitals and specialties in medicine. Should the graduates of institutions training their nurses only in a single or limited field, be registered and be placed upon an equal standing with those of schools which turn out nurses who have been trained in all departments? The question is a two-edged sword, which may cut the other way from that indicated in the question. But none do in reality give all-round training. The nurse trained in the best general hospital has had no experience in nursing the insane, the weak-minded, those with smallpox, leprosy, and other diseases. Many such will not have had any experience in obstetric cases, in caring for infants, etc. The fact brings out a prime advantage of home nursing over hospital nursing, as almost every variety of disease may be found in three years of visits to the homes. The opposition of the specialist, when closely analyzed, looks as if it was a confusion of poor, all-round training, coupled with a big lenient squint at the old custom of paying for nursing service with the depreciated or counterfeited currency of a partial training. Thus the entire movement as to registration may easily be wrecked by attention to specialism in nursing. Neither side may safely quote or answer the argument, and it would better be dropped. All are, in fact, specialists. The crucial question concerns rather the length and thoroughness of the course, and of efficient training in the fundamental principles and art of all nursing.

Nursing is "an art, not a science," it is contended, but as one must say, foolishly. A most capable and honored correspondent puts it this way:

I believe that nursing is an art more than it is a science. And I believe that the higher qualities—devotion to human helplessness, self-consecration, tact and patience, steadfastness—are vastly more essential qualities in the nurse than knowledge of "materia medica and urinalysis," in which it was proposed, in my State, nurses should be examined before being worthy of the R. N. I believe that these higher and essential qualities can never be shown by a State examination to be either present or absent. Far be it from my intention to decry the advantage of knowledge in the nurse. Indeed, I am perhaps justly accused of spending too much time in our school upon the theoretic education of the student nurses. Nor would I willingly slight the necessity of technical training. And I admit that the State can test and register proficiency in both these departments. But the domain of the heart, wherein the real excellence of the nurse lies, is entirely outside the range of any examining board.

We respectfully suggested to our correspondent that that reasoning would logically apply to physicians just as well. There is no more bitter error than that medicine is only a science; the supreme test of the physician's fitness is as much "the domain of the heart," and is also "entirely outside the range of any examining board." Perhaps nursing is somewhat more an art than medicine, or rather that medicine requires greater science and knowledge, but it is blundering folly not to see that modern nursing absolutely requires intellectual qualities and scientific training as the bases of effectiveness. Emphasize the other as much as one wisely may, the systematic and hospital-ward training are essential. We could well spare a lot of useless attempting to learn

bacteriology, physiology, materia medica, etc., and have these studies replaced by cooking, manicuring, shampooing, etc.

The Waltham method of training nurses offers the advantages of combining the usual didactic and hospital training with visiting nursing and the nursing of private patients in their own homes. It was held that ability to pass the severest examinations of the usual kind showed no proof of capacity for nursing. That could be discovered only by actual trial of the probationer's physical endurance, hardiness, tact, and devotion to high ideals. "We found our opportunities for thus testing the probationers in the home work of the school and in the district visiting nursing of the physically helpless." This combination of study and drill, of theory and practice, is the essential characteristic of the Waltham method. The preparatory course is divided into: 1. Domestic science. 2. Housekeeping. 3. Anatomy, physiology, hygiene, bacteriology, and medical chemistry. 4. District visiting nursing of infants, convalescents, and chronic patients. 5. Personal improvement. 6. The care of the outside of the body, or surface nursing. The most important branch in respect to the amount of stated hours of systematic instruction is that of domestic science, which includes the five subjects of (1) chemistry; (2) dietetics; (3) fermentation, putrefaction and decay, with special reference to their effects on food; (4) marketing; (5) cooking.

The fourth branch of the instruction given in the preparatory course is the most valuable of all, for in the district nursing visits, under an instructor who herself is a model nurse, it is possible both to test the probationer's natural fitness for her chosen profession and also to give to her the first and most important lessons in the art of nursing. For while we fully recognize the importance of discipline in the nurse's training, and also the importance of her acquiring by long drill such habits that nursing becomes her almost second instinct, we nevertheless lay even more stress upon the probationer's learning to devote her whole heart and soul to the care of her patients. This devotion, we believe, can be better taught in the garret than in the ward.

The Waltham method of visiting nursing seems most commendable. Quoting from the report, it is described as follows:

In learning how to do the needed services for the helpless mother and infant, the probationer finds the deep reason for all the drill and didactic instruction of the school. Much of this visiting nursing by the probationers is among the very poor, often where at first, beside the dirt and disorder, there is an almost total lack of materials to work with. If, however, the home is one in which visiting nursing service has been previously given, although the same poverty continues, the conditions are often strikingly improved. The house is cleaner and the necessary materials have somehow been collected. This illustrates not only the good effect of visiting nursing upon the families receiving such service, but the more important effect upon the probationer who thus early in her nursing career realizes that her best chance of really helping is in teaching the families to help themselves. This all-important lesson could never be learned in hospital wards, nor in homes where there is abundance of linen and complete laundry facilities, but only in homes where there are scarcely two changes for either the bed or the patient. In such places the probationers often teach the little girls of the family to wash and iron the clothes, that the baby may be kept sweet and clean. When the probationers are first taken out on this visiting nursing service, the

work is done by the instructor herself. Then one part of the work after another is done by the probationer under the instructor's supervision, and finally, after a few lessons, the probationer is allowed to make these visits alone, and then while at her work, she is visited and criticised by the instructor, or perhaps the instructor visits the patients after the probationer has left, to see if all has been well done. These nursing visits are made only to the patients of the physicians who serve as instructors in the school, whose criticisms are sought for the probationer's benefit. Often a helpful relationship, serviceable to both probationer and patient, is established, which leads to occasional visits afterward and a continued friendship. Much benefit results—the sick poor are helped in their distress and, as most concerns us in our present view, the probationer herself in this opportunity for giving out the best that is in her, becomes more and more fitted for the life of serving the helpless.

The Waltham Baby Hospital.—The report of 1905 of this unique institution shows that 74 babies were cared for from October, 1903, to October, 1904; 59 of the 74 were admitted because of their own sickness; 12 of these died; 2 died on the day of entrance, 5 others died within 5 days of entrance; and only 1 survived after the third week; 34 were discharged well, 8 were discharged improved, and 5 remained in the hospital at the close of the hospital year. The medical service is supplied by members of the staff of the Waltham Hospital, or by other physicians by permission of the directors. This service is gratuitous, except in case of private patients for whom other arrangements have been made previous to entrance. The nursing service is supplied by the Waltham Training-school for Nurses. The charge for patients is \$1.00 per day. The receipts from patients were \$922.59, or a fourth of the total expenses. Here is the report of a case as illustrative of the work done:

On November 15, 1903, a baby girl of 2 weeks, and weighing 5 lbs., 14 oz., was brought in to be operated upon for hare-lip. The patient had been discharged from a Boston hospital after a few days' stay, on the ground of the hopelessness of the case. It seemed impossible to feed the child, on account both of its deformed mouth and of its inability to digest even the little food ingested. In spite of all our efforts, the baby lost a pound during the first month. The anxious parents, 100 miles away, were notified that the physicians could not hold out any hope for the wee girl's life, but at the same time they were assured that the nurses would not cease trying both night and day. The mother's letters were most pathetic; this was her only child, she could never expect another, and she had not recovered sufficiently even to visit her baby. Nourishment was given it drop by drop, every hour of the twenty-four. Surrounded with heaters in her crib, and guarded by the most devoted watchfulness of the nurses, the frail body was barely kept alive. At last the steady loss of weight was arrested. For a week she just held her own and finally on December 20, the scales showed a gain of a half ounce. There was then great rejoicing and renewed determination to save her life. From that time on, she gained. There were frequent setbacks, but, in them, only part of the gain was lost, and, on May 1, 1904, she weighed 9 lbs. 4½ oz. The operation was then successfully performed, and her mouth made as good as any baby's. In June, when she was given back to her mother, she weighed 10½ lbs., and she has since been perfectly well and is growing finely.

A Practical Memorial to a Brave Physician.—The peculiar and pathetic conditions attending the death of Albert B. Craig, of this city, set forth in our editorial columns for March 18, have created a sentiment in favor of a suitable memorial expressing professional feeling in an appropriate manner. In view of the fact that his

sudden death prevented the material realization of the unusually bright prospects attending his career, it is thought best that this memorial take the form of an "endowment fund" for the rearing and education of his posthumous child. For this worthy purpose *American Medicine* will receive any contributions that may be made, from time to time publishing the amounts contributed. The trustees of Jefferson College and Hospital, it is understood, are planning to place a mural tablet in the new hospital commemorating Dr. Craig's work and noble death. This action would seem most appropriate on their part.

BOOK REVIEWS

The Principles and Practice of Gynecology for Students and Practitioners.—By E. C. DUDLEY, A.M., M.D. Fourth edition, revised. Full illustrations. Lea Brothers & Co., Philadelphia and New York, 1904.

The fourth edition of Dudley's work is a valuable addition to medical literature. The contents are divided into six general parts: 1. General Principles. 2. Infections, Inflammations and Allied Disorders. 3. Tumors, Tubal Pregnancy and Malformations. 4. Traumatism. 5. Development of Uterus and Other Pelvic Organs. 6. Disorders of Menstruation and Sterility. The book has been thoroughly revised and includes all the recent advances in gynecology. The keynote of careful antiseptic surgery is struck when the author says that the danger to life in abdominal surgery is determined less by what the surgeon takes out than by what he puts into the peritoneal cavity. The chapter on technic is so well written that even the untrained practitioner by closely adhering to its teaching could understand and possibly be restrained from septic error. The rules in regard to plastic operation are especially clear that the operator should put the parts to be united in such a condition that nonunion would be contrary to nature. In discussing methods of uterine dilation, the use of tents is condemned, because of the danger of infection, and the employment of graduated sounds and divergent dilators is commended. We are glad to note the writer considers dilation a surgical procedure which should always be done at the patient's house or at a hospital, and never at the physician's office, and should be followed by a period of rest in bed. The practice of uterine dilation in the office is pernicious gynecologic tinkering. We can but admire the frankness and candor of a man who has that splendid interest in humanity that leads him to confess his own mistakes for the benefit of his colleagues, so that they may be spared the humiliation of similar errors. This Dr. Dudley has done in discussing how to avoid the leaving of sponges in the abdominal cavity. From personal experience in a similar case, we know how mortifying such an accident is, and how dependent an operator is upon his nurses and assistants for such matters of detail. Drainage is to be employed only when positively indicated. In combating shock, a hypodermoclysis of 0.8% of salt solution should be employed. The parallel tables of differential diagnosis are valuable and graphic aids to the student and, therefore, to the busy practitioner, who is only a postgraduate student. The author's experience with pelvic massage coincides with that of a majority of American gynecologists and shows that its value has probably been overestimated. The author's operation for the removal of uterine appendages has much to commend it, as it shortens and strengthens the broad ligament and secures the uterus against prolapsus and retrodisplacement. Probably more stress might be placed upon the dangers of abdominal myomectomy. However, the description of abdominal hysterectomy and the plates illustrating the operation are exceptionally good. In the treatment of retrodisplacements of the uterus, Dudley condemns instrumental uterine reposition by means of the sound or other instrument which enters the endometrium. Under the head of surgical treatment, Alexander's operation and abdominal hysterorrhaphy are advised, the latter procedure being appli-

cable to the majority of cases. The book contains 419 illustrations in colors and monochrome, of which 18 are full page plates; 300 of these are new ones reproduced from drawings made specially for this book. The volume is of convenient size and the typographic arrangement facilitates easy reference to any desired subject, while a complete index of 26 pages adds to the value of the work.

Biochemistry of Muscle and Nerve.—By W. D. HALLIBURTON, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

This book of 160 pages contains 10 lectures, made up from a series of 8 delivered in London and the 12 delivered in New York, as the Herter Lectures, in 1904. These lectures contain the systematized findings of Dr. Halliburton and his assistants in their numerous laboratory investigations during the past few years. Those who have been fortunate enough to read the various publications of these workers in journal articles, of which a full bibliography is given, will be glad to have them thus condensed and correlated in book form; those who have not this acquaintance with the work will find much that is new and of great value. Five lectures are devoted to the consideration of muscle and an equal number to nerves. The illustrations are very satisfactory and the publishers have made a neat and attractive book.

The International Medical Annual: A Yearbook of Treatment and Practitioner's Index.—New York: E. B. Treat & Co., 1905, twenty-third year.

The new series of the Medical Annual appears in enlarged size and handsome dress. Type, paper and illustrations are all just what they ought to be. The material is well selected and well digested. It affords an admirable review of the work in practical medicine during the year and is among the most useful works on the market for quick reference concerning recent progress.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Surgery of the Prostate, Pancreas, Diaphragm, Spleen, Thyroid and Hydrocephalus. A Historic Review.—By BENJAMIN MEKILL RICKETTS, Ph.B., M.D., Cincinnati, Ohio, 1904.

Twentieth Annual Report of the Bureau of Animal Industry for the Year 1903.—Government Printing Office, Washington, D. C., 1904.

Transactions of the American Surgical Association. Vol. xxii. Edited by RICHARD H. HARTE, M.D., Recorder of the Association. Printed for the Association by William J. Dornan, Philadelphia, 1904.

Blood, Urine, Feces and Moisture. A Book of Tests.—By HENRY EMERSON WETHERILL, M.D. George P. Pilling & Son, Philadelphia, 1904.

The Common Lot.—By ROBERT HERRICK. The Macmillan Company, New York, 1904.

The Vermiform Appendix and Its Diseases.—By HOWARD A. KELLY, A.B., M.D., Professor of Gynecology in the Johns Hopkins University, Baltimore, and E. HURDON, M.D., Assistant in Gynecology in the Johns Hopkins University. With 399 original illustrations, some in colors, and three lithographic plates. W. B. Saunders & Co., Philadelphia, New York and London. Price, cloth, \$10.00 net.

The Urine and Feces in Diagnosis.—By OTTO HENSEL, Ph.G., M.D., Bacteriologist, German Hospital, New York, and RICHARD WEIL, A.M., M.D., Pathologist, German Hospital, New York in collaboration with SMITH ELY JELLIFFE, M.D., Ph.D., Instructor in Pharmacology and Therapeutics, Columbia University. Illustrated with 116 engravings and 10 colored plates. Lea Brothers & Co., Philadelphia and New York, 1905.

Influence of Growth on Congenital and Acquired Deformities.—By ADONIRAM BROWN JUDSON, A.M., M.D., Orthopedic Surgeon to the Outpatient Department, New York Hospital, 1878-1903, formerly president of the American Orthopedic Association, etc. Profusely illustrated. William Wood & Co., New York, 1905.

Practical Pediatrics: A Manual of the Medical and Surgical Diseases of Infancy and Childhood.—By DR. E. GRAETZER. Authorized translation, with numerous Additions and Notes, by HERMAN B. SHEFFIELD, M.D., Instructor in Diseases of Children, and Attending Pediatricist (O.P.D.), New York Postgraduate Medical School and Hospital; Visiting Pediatricist to the Metropolitan Hospital and Dispensary, etc. Flexible cloth, round corners. Price, \$3.00 net. F. A. Davis Company, Philadelphia.

Gynecology: Medical and Surgical.—By HENRY J. GARRIGUES, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City, Consulting Obstetric Surgeon to the New York Maternity Hospital. With 343 illustrations. J. B. Lippincott Company, 1905.

Saunders' Question Compend: Essentials of the Practice of Medicine. Prepared especially for Students of Medicine.—By WILLIAM R. WILLIAMS, M.D., formerly Instructor in Medicine and Lecturer in Hygiene, Cornell University; Tutor in Therapeutics, Columbia University (College of Physicians and Surgeons), New York. 12mo of 461 pages. Philadelphia, New York and London: W. B. Saunders & Co., 1905. Double number. Cloth, \$1.75 net.

AMERICAN NEWS AND NOTES

GENERAL.

The third annual conference of State Boards of Health with the Public Health and Marine-Hospital Service will be held at Washington, D. C., May 15, 1905. It is proposed that the national control of leprosy and the methods of the transmission of fever shall be discussed at this meeting.

Synchronous Publication.—The article in our issue of April 8, by Dr. Th. Diller, was inadvertently advanced a week in publication. It should have appeared in our issue of April 15, synchronously with the *St. Louis Medical Review*, which journal is publishing the transactions of the society before which it was read.

The Fifteenth International Medical Congress will be held at Lisbon, in April, 1906. At a meeting of the National American Committee, held at St. Louis, last September, an executive committee was appointed, comprising Frank Billings, William Osler, Frederick Shattuck, Abram Jacobi and J. H. Musser, chairman. Communications regarding the presentation of papers at this congress, can be sent to Miguel Bombarda, secretary, at Lisbon, or to Ramon Guiteras, secretary for this country.

A device for carrying the wounded is submitted to Surgeon-General O'Reilly by Colonel John Van R. Hoff, of Fort Leavenworth, Kan. The device was tried during the Civil war in the Army of the Potomac. It consists of an arrangement by which a pack animal may carry two wounded people, one on each side. There was objection to this arrangement during the Civil war on account of the country through which the troops were operating, it being found that in practical use the wounded men were often brushed off the litters by the bushes and trees.

Economy in Army Diet Fund.—The Surgeon-General of the army has sent out letters to chief surgeons calling their attention to the disregard of kitchen economy at army hospitals. It is found that too liberal advantage is taken of the existence of the special diet fund and that many patients who might very properly subsist on the regular ration are permitted to draw upon the special diet. It is provided that hereafter there shall be precaution against extravagances of this kind. A circular has been issued by the chief surgeon of the Department of Dakota, based on the admonition of the Surgeon-General.

A report of the railroad accidents in the United States during October and December, 1904, has been compiled by the Interstate Commerce Commission. It shows that, in that quarter, 53 passengers and 189 employees were killed, and 1,430 passengers and 1,868 employees were injured; a total of 242 persons killed and 3,298 injured in train accidents. Other accidents to passengers and employees, not the result of collisions or derailments, bring the total number of casualties up to 14,978—95 killed and 14,027 injured. The report indicates a decrease of 175 killed and 624 injured, as compared with the last preceding quarter.

Pan-American Medical Congress.—The proceedings held at Panama in January, closed with a meeting of the executive committee, at which the following resolutions, proposed by Guatemala and seconded by Peru, were carried: 1. The next Pan-American Medical Congress shall arrange (a) for an international American pharmacopoeia; (b) for an international code of sanitation; (c) for an international code on temperance; and (d) as a sequel to the above, for the establishment of sanatoriums for the treatment of alcoholism; (e) for the formation of lectureships on medicine in the required studies of jurisprudence. 2. There shall be formed at the next congress a section on tropic diseases. 3. There shall be created Red Cross branches, both civil and military. 4. Encouragement shall be given to those engaged in the campaign against tuberculosis.

Personal.—Arthur R. Cushman, professor of materia medica and therapeutics in the department of medicine and surgery at the University of Michigan, has gone to England, to take a similar chair in the University of Medicine in London. Charles W. Edmunds has been chosen as his successor at the University of Michigan.—John H. W. Rhein has been appointed neurologist to the Howard Hospital of Philadelphia.—Professor W. T. Sedgwick, of the Massachusetts Institute of Technology, has gone to Europe on leave for six months.—As a token of their respect, the undergraduates and alumni of the Jefferson Medical College will present to the college the portrait of Professor W. S. Forbes.—Franklin Hinkle, of Columbia, Pa., celebrated his eightieth birthday on November 25, 1904, and is still in active practice. He has been a member of the State Society for many years.—Brigadier-General Robert M. O'Reilly, surgeon-general of the United States Army, was recently appointed by Commissioner McFarland, of the District of Columbia, as a member of the Board of Directors of the Columbia Hospital for Women.

Health Conditions at Panama.—Bowel troubles have been prevailing to some extent, and a number of cases of dysentery have presented at the hospital for treatment. These troubles are undoubtedly due to the bad water-supply. The season has been exceptionally dry, and drinking water is becoming scarce and of poor quality. While the majority of the foreigners can obtain good water, the working and poorer classes are compelled to buy their water from the Panama Railroad, the source of the supply being the Monkey Hill reservoir. It is now being sold at 4 cents a gallon. In the morning and evening, during the hours of delivery, the water stations are surrounded by people clamoring for water. The government, in order to relieve the situation, is endeavoring to arrange with the authorities of the canal zone to bring water to the city in tank cars. Colonel Gorgas' report states that he regards the health conditions existing among the canal employes as highly creditable. He makes an interesting comparison between existing conditions and those under the French regime, which he is enabled to do through the complete hospital records left by the French. The report shows a percentage of only 1.95 of sickness, which would be considered excellent in any part of the world.

EASTERN STATES.

Meningitis is decreasing in Boston and vicinity, according to the local Boards of Health. Stringent rules have been adopted for the preparation of dead bodies, and quarantine rules are closely followed.

Maine's Executive in Trouble over Alcoholic Medicine.—A store at Rockland, Me., owned by William T. Cobb, governor of Maine, was raided last week, and a large stock of a patent medicine, said to contain a high percentage of alcohol was seized on the ground that offering the preparation for sale is in violation of the Maine prohibitory law. The seizure was made as a result of the passage of the Sturgis bill by the last Legislature, empowering the officials to enforce the prohibitory law.

NEW YORK AND VICINITY.

American Gastroenterological Association.—The annual meeting will take place in New York, at the Academy of Medicine, April 24 and 25.

Miscellaneous.—The position of physician-in-charge of St. Chrysostom's Dispensary is vacant. Applicants should apply in person or by letter, to Rev. Thos. H. Sill, vicar, St. Chrysostom's chapel, Thirty-ninth street and Seventh avenue, New York City.

Improvements at City Hospital.—Plans have been filed for the enlargement of the Stricker Memorial Laboratory, adjoining the City Hospital, on Blackwell's Island. A third story will be added, and the bacteriologic and pathologic wards will be remodelled. The cost of the improvements is estimated at \$7,000.

Do Dogs Cause Meningitis?—The possibility that cerebrospinal meningitis may be similar in its causes to the often incurable distemper peculiar to dogs has started the commission appointed by the New York Board of Health on a new line of inquiry. It will study the disease in dogs, and meanwhile will seek to stop the possible spread of the disease by attention to stray dogs and cats.

Great Spread of Spinal Meningitis.—The death report of the Board of Health for last week shows a deathrate of 21.58 per 1,000, while for the corresponding week of last year the rate was 22.84. During the week there were 131 deaths due to cerebrospinal meningitis. For the corresponding week of last year the deaths from the same ailment numbered 31. The deaths from cerebrospinal meningitis for the past eight weeks were: 27, 40, 48, 62, 78, 72, 85, and 131.

Pure Food Law Violations.—Commissioner Wieting, of the State Department of Agriculture, has referred to the attorney-general for prosecution 101 cases of violation of the State Pure Food law. Many more samples of suspected goods have been submitted to the chemists. Should analyses of these foods show that their sale would be a violation of the Pure Food law, they will also be referred to the attorney-general. Goods are examined daily in the markets by agents of the department, and every effort is being put forth to stop the sale of prohibited products.

Abortionist Convicted.—The Appellate Division of the New York Supreme Court has unanimously approved the judgment of the Court of General Sessions in the case of Edward E. Conrad, the advertising abortionist, who was convicted of an attempt to perform a criminal operation. Conrad was sentenced to State prison for not less than one year nor more than two. The case was instituted by the County Medical Society, and the conviction was brought about by means of a trap which had been arranged by its counsel, detectives being present in the apartment where the operation was to be performed.

Few Births in Fifth Avenue.—In the last four months 16,000 babies were born in New York. Figures compiled by the Bureau of Vital Statistics show that Fifth avenue has the lowest birthrate of any street in the city. Less than 10 births were reported in the wealthiest section of that thoroughfare. The heaviest birthrate is on the East Side, near Division street, where the conditions are the reverse of those on Fifth avenue.

A new form of still-birth certificate has been prepared by the State Department of Health, and is prescribed for use after April 1. The blank forms will be furnished to local Boards of Health for distribution to physicians and midwives for use in their practice, and that complete returns of still-births may be made, the boards should embody in their rules a requirement of report thereof, as of births, within 30 days of their occurrence. All births in which no sign of life after birth has occurred will be required on these forms; they constitute a death as well as a birth certificate, but will not be included in the returns of mortality.

Koch Impersonator Arrested.—R. N. Mayfield has been arrested in New York and held in \$2,500 bail on the charge of practising medicine under an assumed name, that of Professor Robert Koch, of Berlin. The arrest was caused by the Medical Society of the County of New York, who accused him of having signed the name of Dr. Koch to a letter given to a woman detective employed by the society. The latter states that on February 3 she called at the office of Mayfield, who said he was Professor Koch. He pronounced her in the first stages of pulmonary tuberculosis, and stated that the charge for treatment would be \$15 a month, in advance.

Scarlet Fever from Milk.—In an outbreak of scarlet fever, some 70 cases, during January and February, at Mount Vernon, it was found that a large majority of the families affected took their milk from one source. An investigation of this supply was made; it was found that milk from a considerable number of dairies was collected into common receptacles. Evidence was secured that in one man was employed for a time in January who had previously had scarlet fever. In the opinion of the health officer the outbreak was traceable to this case. An embargo was placed on the milk supply and the development of new cases soon ceased.

The taking of a sanitary census, the first of the kind ever undertaken in New York City, has been begun by the Department of Health. The statistics that will be prepared from the work of the enumerators will not only give a basis for accurate estimates of the birthrate and deathrate, but will show the prevalence of certain diseases, increase of population in districts and the death, birth and disease rates among people employed in various callings. The Water Department will regulate its supply figures to a great extent on the figures shown by the census, and the laying out of various rapid transit routes by the commission will be influenced by the increase or decrease of population shown; 50 enumerators, all physicians, began work. The work, it is expected, will be finished about July 1.

PHILADELPHIA, PENNSYLVANIA, ETC.

State Examinations before Graduation.—J. W. Holland, dean of the Jefferson Medical College, has introduced a bill into the Legislature, which, if passed, will permit a medical student, at the end of his sophomore year, to take the State Board Examinations in anatomy, chemistry and physiology.

Osteopath Bill Passed.—By a margin of one vote the bill recognizing the practice of osteopathy, which passed the Senate earlier in the session, was passed by the House. The bill permits the osteopaths to undergo an examination conducted by five osteopaths, instead of taking the regular State Board examination.

Hospital Needs Funds.—Among the bills sent to Governor Pennypacker was one appropriating \$15,000 for the West Philadelphia Hospital for Women. Every effort has been made by its officers to have the State provide money for the maintenance of the institution, and unless the Governor signs the bill appropriating \$15,000 for this purpose, the work will be curtailed.

Legalizing Adulteration.—Much to the surprise of those who have taken an active part in the pure food agitation, the House has passed finally these two bills: Permitting the use of certain maximum proportions of sodium benzoate, and of harmless vegetable coloring matter in fruit syrups and fruit products for use in soda water, soft drinks, and ice creams. Permitting the use of harmless coloring matter in the manufacture of butter and cheese.

No State Camps for Tuberculosis.—Governor Pennypacker has vetoed the bill which provided for the erection of two State institutions for the treatment of incipient tuberculosis. The proposed institutions were to be built within the limits of the State Forestry Reservation, one in the South Mountain and the other in the western part of the State. The bill carried with it an appropriation of \$300,000, and provided

for a commission of four persons—two practising physicians and two Commissioners of Forestry—to select the sites and supervise the building of the institutions.

Four Great Hospital Grants.—The contention between the Woman's Medical College and the Woman's Hospital in Philadelphia before the Legislature, results in favorable report to the House of a bill appropriating to the college for its own hospital department \$40,000, including \$15,000 for improvements, and the rest for maintenance. To the Woman's Hospital is allowed \$79,661.89, of which \$40,000 is for maintenance, but upon condition that every reasonable opportunity shall be given to the professors and students of the college for observation and instruction. The Medico-Chirurgical Hospital is to get \$250,000, including \$150,000 for building improvements, and Jefferson Hospital \$300,000, of which \$200,000 is for the new building, according to bills which have passed second reading in the House.

Scarlet Fever and Diphtheria Wards.—Bids are advertised for the scarlet fever and diphtheria hospitals, which are to be a part of the Municipal Hospital plant on the Macalester farm site, in the Thirty-third ward. The erection of these buildings, comprising 16 structures in all, divided into two groups, will involve an expenditure of something like \$900,000, the amount set aside from the \$16,000,000 loan for this purpose. The smallpox hospital has already been built at a cost of \$100,000, and the heat, light and power plant has been erected for \$125,000. The scarlet fever and diphtheria hospitals, however, comprise the greater part of the institution, and these structures will, it is expected, be the best equipped municipal institutions of their kind in the country, if not in the world. A chapel is also to be built for funeral services in cases of contagion, which could not be removed to homes or churches for burial. The greatest attention is to be paid to the protection of the public by complete disinfection of all sewage and garbage from the institution.

SOUTHERN STATES.

To Keep Baltimore Sanitary.—An active campaign has been inaugurated in Baltimore against dirty streets, ill-paved sidewalks and alleys that are in an unsanitary condition. Stringent orders were issued to every member of the force, and the commissioners of police will cooperate strenuously with the other municipal authorities. The general health of the city seems good, however.

WESTERN STATES.

Antivaccination Bill Vetoed.—Governor Pardee, of California, has vetoed the bill by Senator Leavitt, of Alameda, to prevent vaccination being made a condition precedent to the admission of pupils to the public schools of the State. The measure is known as the antivaccination bill, and had the support of organizations at Berkeley, Los Angeles and other places.

Practising Medicine without a License.—The South Dakota Supreme Court has confirmed an opinion by Judge Corson in the case of the State vs. Yegge. Yegge, with a diploma from a "college of ophthalmology," was fitting glasses in Huron, using the title of doctor. He was arrested and fined on a charge of practising medicine without a license, and his appeal results in the sustaining of the lower court.

Denver Rector Says He Is Going to Heal by Mental Science.—Rev. Dr. John H. Houghton, rector of the most fashionable Episcopal Church in Denver, is a convert to the mental and religious healing idea, and has announced that he intends to establish a church guild and clinic for the healing of the people by religious and mental methods. He says that the churches must face the issue raised by Christian science, the healing of disease by faith, prayer and mental purification.

The rapid spread of tuberculosis among prisoners in the Joliet, Ill., penitentiary, attended by largely increased mortality, is to be investigated by the State Board of Health. It is not denied by members of the Board that a "crisis" has been reached in the efforts of the prison authorities to combat the disease under present conditions, that unless better sanitation is established, it will be practically impossible to prevent the spread of tuberculosis to all the prisoners now there and to others who may be sentenced to Joliet in the future.

Chicago Mortality.—The comparative statement of mortality of the first three months of this year and the corresponding period of last year is on the whole favorable to 1905. There were 186 fewer deaths and a decrease of 4.1% in the general deathrate. But the deaths under 5 years of age number 429 more than in 1904, while the deaths among those over 20 are 630 fewer. Among the causes of death showing reduction are apoplexy, 4; cancer, 9; convulsions, 10; heart disease, 65; nervous diseases, 5; pneumonia, 286; scarlet fever, 37; typhoid fever, 29, and violence other than suicide, 11. Among those showing an increase are the acute intestinal diseases, 30; Bright's disease, 7; bronchitis, 8; pulmonary tuberculosis, 14; diphtheria, 6; influenza, 55; measles, 61; smallpox, 33; suicide, 4; and whoopingcough, 90.

FOREIGN NEWS AND NOTES

GENERAL.

Manchester Free from Smallpox.—The medical officer of health announced last week that Manchester is free from smallpox, and this for the first time since the end of 1903. There are, however, said to be about 18 cases in Droylsden on the outskirts.

Meningitis has been raging for several months in epidemic form in Silesia. Much alarm exists among the people, especially the laboring population, and many have fled from the district. The disease is beginning to make its appearance in other parts of the country. The epidemic in Silesia has assumed such an alarming form that the Prussian government has been petitioned regarding the measures taken to check it. About 1,200 cases have occurred in the Oppeln district, with about 50% of fatalities.

Patent Medicines in New Zealand.—The new regulations issued by the health department, requiring that all "patent medicines" must have the formula set out on the label, have caused quite a commotion. In deference to the pressure brought to bear by the newspapers and quacks generally, the regulations have been modified. It is now required that the formulas should be deposited with the Minister of Public Health, and that all mixtures containing poison must have the words "this contains poison" set out in gothic type on the label.

Japanese Sanitary Work.—The Japanese are making every effort to prevent the appearance of disease during the coming warm weather. Thousands of soldiers and Chinese are engaged in cleaning Mukden and the vicinity of the battlefields. The Russians left the city in a very unsanitary condition, and this will result probably in much sickness during the summer, unless the sanitary measures of the Japanese are successful. Strict orders have been issued regarding the maintenance of purity of the drinking water, and other preventive measures will be taken.

The mortality record of Bombay City, India, for the past two weeks has been progressively bad. Plague is reaching a higher level than last year at this time, while smallpox abounds. Owing to the death of five Europeans from smallpox during the past week, there has been a great increase in the number of Europeans attending the vaccination stations. Several prominent individuals were among those who died thus, and it has become known that there is a real epidemic. The great danger lies in the fact that the native does not fear the disease and exposes others quite unconcernedly.

National Hospital for the Paralyzed and Epileptic.—At the annual meeting of the National Hospital for the Paralyzed and Epileptic in London it was reported that while the affairs of the hospital had been run on a more economic basis for the past year and that they were in good running order, yet the hospital was bankrupt. The requirements of the medical staff had been satisfied in every way, the nursing staff had been increased, and investigations were being undertaken by the Nervous Disease Research Association which would be of benefit to the whole world. The management required at least \$25,000 more a year to carry on the work properly. It is hoped that the public will appreciate the work the hospital is doing and will contribute the necessary funds.

Russian Doctors Demand Radical Reforms.—A congress of doctors from all parts of Russia was held in Moscow last week, ostensibly to consider means for combating an expected epidemic of cholera, but its proceedings assumed considerable of the character of a political assemblage. Resolutions were adopted declaring that under existing political and economic conditions it would be practically impossible to fight an epidemic of disease, as doctors and inspectors would not be safe from attack by ignorant peasants angered by the prevalent distress. The resolutions proceeded to demand changes in the system of allotment of lands, reform in taxation, the convoking of an elective constituent assembly, and other articles of the advanced liberal program. Since that time a number of those taking part in the proceedings have been arrested.

The medical statistics of the French army for the year 1902, lately published, are based upon an effective of 485,207 men. The total number received in infirmaries and military hospitals gave an average of 594 men per 1,000, this large number being slightly less than in the previous year. The figures given refer to France. In Algeria and Tunis the proportion rose to 634 per 1,000, but this was notably less than in the previous year. The returns of those received in hospitals and infirmaries are based upon somewhat different conditions, officers being included in one case and not in the other, but the figures are nevertheless sufficiently close to give a good notion of the terrible rate of morbidity. In the case of officers, the proportion is very much less. The deaths were 4.24 per 1,000 in France, and 8.3 in Algeria and Tunis, these figures being much lower than in previous records.

OBITUARIES.

Philip Wesley Lewellen, aged 65, March 19, from cerebral hemorrhage, at his home in Brookfield, Mo.; a graduate of the Medical College of Ohio, Cincinnati, in 1865. He was a member and president of the State Board of Health; trustee and first superintendent of the Clarinda State Hospital. He served as senator from Page and Fremont counties, Iowa, in 1878 and 1880.

William H. Warder, aged 71, March 28, at his home in Philadelphia; a graduate of the University of Nashville, medical department, in 1859, and of Jefferson Medical College, Philadelphia, in 1871; he was a member of the American Medical Association, Medical Society of the State of Pennsylvania, Philadelphia County Medical Society, and other local societies.

Nathan E. Whitehead, March 25, at his home in Greenwood, La.; a graduate of Tulane University, medical department, New Orleans, La., in 1867. Member of the American Medical Association; assistant surgeon of the Eighteenth Mississippi Infantry, and later major and surgeon of the Twenty-first Mississippi Infantry, C. S. A.

Milton Jay, aged 71, March 31, at his home in Chicago, Ill.; a graduate of the Eclectic Medical Institute, Cincinnati, Ohio, in 1859. He was dean and professor in surgery at the Bennett Medical College, and for 20 years chief surgeon of the Chicago and Eastern Indiana railway, and a member of the American Medical Association.

Amos H. Brundage, aged 77, March 20, at the home of his son in Brooklyn, from apoplexy. He was a graduate of the New York University Medical College in 1855; one of the founders of the New York State Medical Association, and a member of the Brooklyn Medical Society.

Jesse F. Myers, aged 48, March 22, from tuberculosis, at his home in Joplin, Mo.; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1884. He served as city physician of his home city and at one time physician of Jasper county.

John Deal, aged 84, March 22, from senile debility, at the home of his daughter in Southfork, near Mora, Minn., formerly of Mount Union, Iowa. He was a graduate of the University of Wooster, medical department, Cleveland, Ohio, in 1849.

Howard Servis, aged 75, March 24, of Junction, New Jersey, from cerebral hemorrhage, at the home of his daughter in New York City; a graduate of the department of medicine of the University of Pennsylvania, Philadelphia, in 1858.

William H. Doughty, March 22, at his home in Augusta, Ga.; a graduate of the Medical College of Georgia, Augusta, in 1855. He is the oldest physician in his home city; member of the American Medical Association.

Lloyd W. Brown, aged 81, March 21, from pneumonia, at the home of his daughter in Decatur, Ill. He was a graduate of the Baltimore Medical College in 1849. He had not been in active practice for the last 40 years.

G. W. Purnell, aged 70, April 4, at his home in Hazlehurst, Miss.; a graduate of the University of Pennsylvania, medical department, in 1858. He served with distinction as assistant surgeon in the Civil war.

Theodore Sittel, aged 76, March 25, at his home in South Norwood, Cincinnati, Ohio; a graduate of the University of Giessen, Germany, in 1854; one of the founders of the St. Mary's Hospital, Cincinnati.

Charles M. Hensel, March 20, from pneumonia, at his home in Lithopolis, Ohio; a graduate of Starling Medical College, Columbus, Ohio, in 1896; a member of the Fairfield County Medical Society.

James R. Murphy, aged 51, March 27, as a result of falling on a sidewalk, at his home in Dunmire, Pa.; a graduate of the University of Louisville (Ky.), medical department, in 1882.

Herman Schroeder, aged 84, March 7, suddenly, at his home in Bloomington, Ill. He was born in Germany and was instrumental in founding the cities of Gilman and El Paso, Ill.

Albert B. Prescott, aged 73, recently, at his home in Ann Arbor, Mich. He was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1864.

Thomas Dale Gilbert, aged 30, of Washington, D. C., March 29, at Liberty, N. Y.; a graduate of the University and Bellevue Hospital Medical College, New York City, in 1900.

John A. Nelles, aged 79, March 25, from cerebral hemorrhage, at his home in London, Ont.; a graduate of McGill University, medical department, Montreal, in 1858.

William Harris, aged 62, March 19, of typhoid pneumonia, at his home in Hamburg, Pa.; a graduate of Jefferson Medical College, Philadelphia, in 1891.

Randolph N. Seaver, aged 60, April 3, of apoplexy, at his home in Corry, Pa.; a graduate of the University of Wooster, Ohio, medical department, in 1874.

John D. Paige, of Savannah, Ga., March 23, suddenly, in Boise, Idaho. He was a graduate of Harvard University Medical School, Boston, in 1888.

Frank D. Wortman, aged 40, March 20, at his home in Gratiot, Ohio; a graduate of the Ohio Medical University, Columbus, Ohio, in 1898.

Charles Z. Bahl, aged 40, March 22, at his home in Philadelphia; a graduate of Jefferson Medical College, Philadelphia, in 1888.

Julian Taintor Williams, aged 76, April 10, from apoplexy, at his home in Dunkirk, N. Y.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 8, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington.....	Mar. 18-25.....	3	
Florida:	Jacksonville.....	Mar. 25-Apr. 1.....	5	
Illinois:	Chicago.....	Mar. 28.....	7	
	Chicago.....	Mar. 18-Apr. 1.....	86	3
Kentucky:	Covington.....	Mar. 25-Apr. 1.....	1	
Missouri:	St. Louis.....	Mar. 25-Apr. 1.....	40	9
New York:	New York.....	Mar. 25-Apr. 1.....	1	
Ohio:	Cincinnati.....	Jan. 6-Mar. 31.....	66	2
	Toledo.....	Mar. 18-Apr. 1.....	7	
Pennsylvania:	Altoona.....	Mar. 25-Apr. 1.....	1	
	Steelton.....	Mar. 25-Apr. 1.....	1	
Tennessee:	Memphis.....	Mar. 25-Apr. 1.....	8	
	Nashville.....	Mar. 25-Apr. 1.....	3	
SMALLPOX—FOREIGN.				
Brazil:	Rio de Janeiro.....	Feb. 28-Mar. 12.....	16	9
Canada:	Hamilton.....	Mar. 1-31.....	1	
China:	Shanghai.....	Feb. 11-Mar. 4.....	3 cases, foreigners; 18 deaths, natives	
France:	Paris.....	Mar. 11-18.....	22	1
	St. Etienne.....	Feb. 19-28.....	Present	
Great Britain:	Bradford.....	Feb. 25-Mar. 11.....	4	
	Cardiff.....	Mar. 4-11.....	1	
	Hull.....	Mar. 11-18.....	3	
	Leeds.....	Mar. 18-25.....	13	
	Leith.....	Mar. 11-18.....	2	
	London.....	Mar. 11-18.....	2	
	Newcastle-on-Tyne.....	Mar. 11-18.....	2	
	Nottingham.....	Mar. 11-18.....	1	
	Sheffield.....	Mar. 11-18.....	2	
	South Shields.....	Mar. 11-18.....	3	1
India:	Bombay.....	Feb. 28-Mar. 7.....	186	
	Calcutta.....	Feb. 25-Mar. 4.....	12	
	Karachi.....	Feb. 28-Mar. 5.....	4	1
	Madras.....	Feb. 25-Mar. 3.....	3	
Italy:	Catania.....	Mar. 2-23.....	7	
	Palermo.....	Feb. 25-Mar. 18.....	42	8
Japan:	Formosa.....	Feb. 1-28.....	1	
Mexico:	City of Mexico.....	Feb. 11-Mar. 25.....	22	9
Russia:	Moscow.....	Mar. 4-11.....	4	2
	Odessa.....	Mar. 11-18.....	6	3

PLAGUE INSULAR.				
Philippine Islands:	Manila.....	Feb. 11-18.....	2	1
YELLOW FEVER.				
Brazil:	Rio de Janeiro.....	Feb. 26-Mar. 12.....	31	12
Mexico:	Coatzacoalcas.....	Mar. 18-25.....	1	
	Merida.....	Mar. 18-25.....	1	1
Panama:	Colon.....	Jan. 23-Mar. 22.....	4	1
	Panama.....	Jan. 1-Mar. 18.....	42	18

CHOLERA.				
India:	Calcutta.....	Feb. 25-Mar. 4.....		39
PLAGUE—FOREIGN.				
Africa:	Cape Colony.....	Feb. 18-25.....	1	1
	East Africa.....	To Feb. 11.....		25
Arabia:	Aden (corrected).....	Feb. 11-18.....	254	244
	Aden.....	Feb. 28-Mar. 10.....	299	268
Australia:	Brisbane.....	Feb. 11-18.....	5	
	Clarence and Richmond River Dist.....	Feb. 4-11.....	1	
Brazil:	New Castle.....	Mar. 27.....	Present	
	Rio de Janeiro.....	Feb. 26-Mar. 12.....	4	1
Egypt:	Suez.....	Feb. 25-Mar. 4.....	1	
India:	(General).....	Feb. 18-25.....	34154	29465
	Bombay.....	Feb. 28-Mar. 7.....		800
	Calcutta.....	Feb. 25-Mar. 14.....		213
	Karachi.....	Feb. 28-Mar. 5.....		60
	Rangoon.....	Feb. 6-13.....		10
Japan:	Formosa.....	Feb. 1-28.....	177	169

Changes in the Medical Corps of the U. S. Army for the week ended April 8, 1905:

COMEGY, Lieutenant-Colonel EDWARD T., deputy surgeon-general, is relieved from duty as chief surgeon, department of the Visayas, and will report to the commanding general, department of Luzon, for assignment to duty as chief surgeon of that department, relieving Lieutenant-Colonel DANIEL M. Appel, deputy surgeon-general.

APPEL, Lieutenant-Colonel DANIEL M., deputy surgeon-general, is relieved from duty in the department of the Visayas and from temporary duty as chief surgeon, department of Luzon, and will report to the chief surgeon of the division for assignment to duty in charge of the medical supply depot, Manila, relieving Major Henry I. Raymond, surgeon.

CARTER, Major W. FITZHUGH, surgeon, is relieved from duty at the convalescent hospital, Corregidor Island, and is assigned to duty in command of the division hospital, Manila, P. I., relieving Major John M. Banister, surgeon.

BOYER, First Lieutenant PERRY L., assistant surgeon, is granted leave for one month and six days, with permission to visit Japan, effective about April 15.

O'CONNOR, First Lieutenant RODERICK P., assistant surgeon, is granted leave for one month, with permission to visit Japan, effective about April 15.

RICHARDS, First Lieutenant ROBERT L., assistant surgeon, is granted leave for one month, with permission to visit the United States, effective about April 15.

COLE, R. KING, contract surgeon, will proceed to his home, Dallas, Tex., for annulment of contract. Leave granted for two months.

CARTER, Major EDWARD C., surgeon, is relieved from further duty in the Philippine Islands, and will proceed to Washington, D. C., and report to the military secretary of the army for further orders.

WELLS, Major GEORGE M., surgeon, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, his retirement from active service, March 31, 1905, under the provisions of section 1251, Revised Statutes, is announced. He will proceed to his home after the conclusion of his treatment at the Army and Navy General Hospital, Hot Springs, Ark.

PEDDICORD, HARPER, contract surgeon, is granted leave for three months, to take effect upon his being relieved from duty in Alaska.

MANLEY, Captain CLARENCE J., assistant surgeon, is relieved from duty at Fort Brady, and will proceed to Fort Yellowstone for duty, relieving Captain Francis M. C. Usher, assistant surgeon, who will proceed to Fort Brady for duty.

Boards of medical officers as hereinafter constituted are appointed to meet on May 1 at the places designated, for the purpose of conducting the preliminary examination of applicants for appointment in the medical corps of the army: At Fort Jay, Major John L. Phillips, surgeon; First Lieutenant George H. Crabtree, assistant surgeon; Fort Ethan Allen, Major Joseph T. Clark, surgeon; First Lieutenant Chandler P. Robbins, assistant surgeon; Army General Hospital, Washington Barracks, Captain Deane C. Howard, assistant surgeon; First Lieutenant Charles R. Reynolds, assistant surgeon; First Lieutenant Frederick A. Dale, assistant surgeon; Fort McPherson, Major William W. Gray, surgeon; First Lieutenant Park Howell, assistant surgeon; First Lieutenant William A. Wickline, assistant surgeon; Fort Sheridan, Captain Charles E. Morrow, assistant surgeon; First Lieutenant William R. Davis, assistant surgeon; Fort Thomas, Major William J. Wakeman, surgeon; First Lieutenant Robert M. Blanchard, assistant surgeon; Fort Des Moines, Major George D. Deshon, surgeon; First Lieutenant Jay R. Shook, assistant surgeon; Fort Ogelthorpe, Captain James S. Wilson, assistant surgeon; Fort Riley, Captain Elmer A. Dean, assistant surgeon; First Lieutenant Charles C. Billingslea, assistant surgeon; San Juan, Major William F. Lippitt, surgeon; Captain Bailey K. Ashford, assistant surgeon; Fort Adams, Major Henry A. Shaw, surgeon; First Lieutenant George W. Jean, assistant surgeon; Fort Leavenworth, Captain Paul F. Straub, assistant surgeon; Captain David Baker, assistant surgeon; First Lieutenant Carroll D. Buck, assistant surgeon; Madison Barracks, Captain Powell C. Fauntleroy, assistant surgeon.

MAUS, Lieutenant-Colonel LOUIS M., deputy surgeon-general, is relieved from duty at Fort Riley, and upon the expiration of his present sick leave will proceed to San Antonio, Tex., and report to the commanding general, department of Texas, for duty as chief surgeon of that department.

EDIE, Major GUY L., surgeon, will report to the Secretary of War for duty as attending surgeon, and to accompany him to the Philippine Islands and return to Washington, D. C.

Changes in the Medical Corps of the U. S. Navy for the week ended April 8, 1905:

DESSEZ, P. T., assistant surgeon, detached from the Kentucky and ordered to the Naval Hospital, Norfolk, Va., for treatment—March 31.

FREEMAN, C. F., passed assistant surgeon, ordered to the Naval Station, Olongapo, P. I.—April 4.

COWAN, J., pharmacist, retired, ordered to the Naval Recruiting Station, New York, N. Y.—April 6.

Changes in the Public Health and Marine-Hospital Service for the week ended April 5, 1905:

GODFREY, JOHN, surgeon, granted leave of absence for one month from April 15—April 4, 1905.

MAGRUDER, G. M., surgeon, relieved from duty at Cincinnati, Ohio, and directed to proceed to San Francisco, Cal., assuming command of the service, and relieving Passed Assistant Surgeon W. G. Stimpson—April 1, 1905.

YOUNG, G. B., passed assistant surgeon, detailed to represent the service at the meeting of the Council on Medical Education of the American Medical Association at Chicago, Ill., April 20—April 4, 1905.

STIMPSON, W. G., passed assistant surgeon, upon being relieved at San Francisco, Cal., by Surgeon G. M. Magruder, to proceed to Port Townsend, Wash., assuming command of the service, and relieving Passed Assistant Surgeon D. E. Robinson—April 1, 1905.

NYDEGGER, J. A., passed assistant surgeon, granted leave of absence for one day—March 6, 1905.

PARKE, H. B., passed assistant surgeon, granted leave of absence for six days from April 2, 1905, under paragraph 191 of the regulations.

BILLINGS, W. C., passed assistant surgeon, granted leave of absence for one day—March 23—April 4, 1905.

BILLINGS, W. C., passed assistant surgeon, granted leave of absence for six days from April 5—April 5, 1905.

ROBINSON, D. E., passed assistant surgeon, upon the arrival at Port Townsend, Wash., of Passed Assistant Surgeon W. G. Stimpson, to report to him for duty and assignment to quarters—April 1, 1905.

WARREN, B. S., assistant surgeon, granted leave of absence for four days from April 3—April 1, 1905.

COLLINS, G. L., assistant surgeon, granted leave of absence for seven days from March 31, 1905, under paragraph 191 of the regulations. Granted five days' extension of leave of absence from April 6—April 5, 1905.

BAILEY, C. W., acting assistant surgeon, granted leave of absence for four days from April 10—April 5, 1905.

BEEK, L. C., acting assistant surgeon, granted leave of absence for two days—April 4, 1905.

BROWN, B. J., Jr., acting assistant surgeon, granted leave of absence for two days from April 4—March 31, 1905.

KEATLEY, H. W., acting assistant surgeon, granted leave of absence for four days from March 29, under paragraph 210 of the regulations.

MCCORMAC, J. T., acting assistant surgeon, granted leave of absence for five days from April 4—April 4, 1905.

STEVENSON, J. W., acting assisting surgeon, to assume temporary charge of the service at Cincinnati, O.—April 3, 1905. Granted leave of absence for thirty days, on account of sickness, from February 27—April 4, 1905.

WALKER, R. T., acting assistant surgeon, granted leave of absence for twenty days from March 30—March 30, 1905.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

EPIDEMIC CEREBROSPINAL MENINGITIS.

BY

H. A. MOODY, M.D.,
of Mobile, Ala.

Professor of Materia Medica, Therapeutics, and Clinical Medicine, Medical Department, University of Alabama, Mobile, Ala.

As cerebrospinal meningitis is so prevalent in various parts of the country at the present time, I would again call the attention of the profession to the remarkably favorable results of a plan of treatment instituted during an epidemic of great virulence, repeated in still another epidemic, and followed in all sporadic cases which have since come under my control. To state the actual results would be to invite incredulity, but some of the most striking are capable of easy substantiation. The notes of these epidemics are not available, so the present account cannot be as accurate as the one published several years ago, but in all important matters the facts remain indelibly fixed in my mind.

Nearly 30 years ago an epidemic of so-called spotted fever prevailed in a certain country neighborhood, attacking black and white alike. Several physicians were endeavoring to control it, and frequent consultations were held. Every standard form of treatment was tried, in which such drugs as calabar bean, calomel, ergot, morphin, chloral, potassium bromid, and free purgation with epsom salts, and the procedures of blistering and bleeding were not neglected. So far as I can recall, not more than two, possibly only one patient, survived. The disease appeared in the spring, and autumn frosts were falling before the last lingering victim was released by death. In the following spring it reappeared, and it was decided to try a variation of the plan that had so disastrously failed the previous year. One of the physicians had a copy of "Tanner's Practice," in which it was stated that certain Russian physicians employed large doses of potassium iodid from the very outset, instead of waiting till there was evidence of exudation and compression, and that their results were better than those recorded after any other treatment.

As previously indicated, we had used the drug in some of these cases, but only in the later stages, but we now began it on the plan of considering it a possible specific. We did not neglect the other means at hand any more than today in a case of tetanus, we would suspend all medication except the antitoxin. The nuchæ and occiput were promptly blistered; morphin was administered to destroy pain. Free purgation with castor-oil, or calomel, or epsom salts, or even croton oil, was secured. If convulsions were present, and this was usually the case, bromids and chloral were freely prescribed. But the principal prescription was potassium iodid with ergotin .065 gm. and .32 gm. (1 gr. and 5 gr.) respectively, every hour at first, then every two, three or four hours—according to the case.

The result was that though the same treatment, aside from the iodid, had been pushed the preceding year with absolutely no success, we now began to have recoveries, and the deathrate was much reduced.

Several years later, about the spring of 1888, a more complete demonstration of the usefulness of the drug became possible. A doctor living several miles in the country sent to town for help. He stated that some new kind of disease had appeared that killed those attacked in a few hours, and requested that a physician be sent from town to see what it was, and suggest some treatment. This duty devolved upon me, and upon reaching the place I found a terrible state of affairs. In the first house I visited there were two lying dead, and two other sufferers were moaning in their beds. Still another began to feel the approach of the headache, which was a marked feature; and a score of terrified, but bravely resolute friends and neighbors were ministering to the sufferers. A brief mention of the conditions preceding the outbreak may be of interest. For several weeks there had appeared here and there sporadic cases of an unusual character, in which severe pains in

the head and back were present, and the fatal end was preceded by convulsions. There was also an eruption of small, pink stains on various parts of the body. The disease was not recognized, and passed for congestion, rheumatism, and other painful disorders. In the immediate neighborhood of the stricken family in question, domestic animals had been dying, with what their owners called "fits." It is therefore evident that some influence predisposing to meningitis was widely diffused, in some unknown manner.

Upon examining the bodies of the two victims first seen the most prominent feature was the remarkable extent of the eruption. On the mother there were purpuric patches as large as the hand, which the physician asserted were not present postmortem; and the body of the daughter showed everywhere a close eruption of a lighter hue. The doctor reported that the two buried on the preceding day showed the same eruption, and the name spotted fever had already been applied by all who saw them. It was requested that this diagnosis be not publicly confirmed, lest some of the sick might be neglected. However, no such result followed.

The patients were all placed upon the treatment described. Fortunately, there was no cause for delay. All persons except those needed to nurse the sick were sent to their homes. Carbolic acid was used freely on fomites and on the premises. Food and water were brought from a distance. No nurse was allowed to remain more than four hours during the same night upon the premises. The same treatment and precautions were instituted at all the other houses where cases had developed. Many families closed their homes and fled to town or adjacent farms, and most of them developed one or more cases in their new domiciles. Such cases were promptly reported, and provided for. The results were so unexpected, so complete, that were it not for the fact that some of the physicians, who were cognizant of the facts at the time, are still living and in active practice, I would hesitate to record them. Up to the time of my visit, no patient had survived over three days, and some had died within 12 hours.

So far as known to me, not another case, treated as indicated, proved fatal. Some patients recovered with the loss of one or both eyes, from suppurative choroiditis, and some deaf, some lame, some paralyzed, but no further deaths are now remembered.

One man, toward the close of the epidemic, had moved to the suburbs, where he acted as housekeeper, mother and nurse to his two children, both severely attacked. During their convalescence, I met him on the street, and noticing the peculiar watery appearance of the eye, so characteristic of the disease, ventured to slide his cuff up the wrist. There were the pink spots. The man acknowledged that he had suffered with severe headache for days, that he had taken the treatment prescribed for his daughter, and was now much better. The incident illustrates the extent of the epidemic, its possible mildness during subsidence, and perhaps also the usefulness of the treatment.

Since that time sporadic cases of cerebrospinal fever have frequently demanded my care, and these have only confirmed my good impressions of the usefulness of potassium iodid, if begun early and given freely, in conjunction with other rational treatment.

One case is particularly noteworthy. The patient was the 18-month-old child of a prominent Alabama physician. When I reached his home, the child was having distinct though mild convulsions two or three times an hour, lying quiet the rest of the time under chloral and the bromids. All the recognized means of treatment had been exhausted. The little boy was directed immediately to have .032 gm. ($\frac{1}{2}$ gr.) of potassium iodid every hour, but there was no response. In six hours the dose was raised to .065 gm. (1 gr.) an hour, when the convulsions began to appear at increasing intervals, finally reaching a point when for 24 hours none was evident. Meanwhile the bromid and chloral were carefully diminished. The spasms showing some evidence of return, the potassium iodid was increased to .1 gm. ($\frac{1}{2}$ gr.) an hour, with the result of controlling them. For a considerable period they returned whenever this amount was diminished, but at last they disappeared. The child is now over 10 years of age, but is entirely deaf.

A few weeks ago a boy of 13 was brought to the hospital in spasms and unconscious. When partially roused he cried out with pain in the head and assumed the position of opisthotonos. No family history was available. He was purged with calomel,

followed by epsom salts, rendered comfortable with morphin, and quiescent with chloral and bromids. Next morning he was placed on large doses of potassium iodid with his other medicines. His recovery was steady and uneventful. The degree of pain he suffered may be estimated by the fact that .032 gm. ($\frac{1}{2}$ gr.) of morphin under the skin was insufficient to relieve him and produced no narcotism. Supposing the case one of tuberculous origin, an unfavorable prognosis was given before the class. It should be stated that no punctures were recommended, but Kernig's sign was perfectly illustrated in this case. The patient was discharged well.

I would earnestly request all physicians who are so unfortunate as to have cases of cerebrospinal fever in their care, to try potassium iodid from the very first, not allowing it to displace any other rational measure. Trephining and puncturing are not often successful and seldom politic. Besides, they can always be held in reserve. However, I would give one caution. Some writers recommend the use of preparations containing bromid, or its substitutes, when the bromids and chloral are needed in this disease. It is entirely possible to give so much cannabis indica in frequent and long-continued doses of these mixtures that a drug intoxication is added to the other undesirable features of the case. It is easy to write for potassium bromid, 1 oz.; chloral, 1 oz.; and simple elixir, sufficient quantity to make 4 oz. This gives 1 gm. (15 gr.) of each to the teaspoonful, the same amount supposed to be in certain preparations. Neither the hyoscyamus nor the hasheesh of these mixtures are needed in meningitis.

SIMPLE METHOD OF DISINFECTING WITH FORMALDEHYD.

BY

D. E. SALMON, D.V.M.,
of Washington, D. C.

Chief of the Bureau of Animal Industry.

To the Editor of *American Medicine*.—In connection with your editorial paragraph in the issue of *American Medicine* for March 18, 1905, page 423, on a simple method of disinfecting with formaldehyd, it may be of interest to your readers to learn of some laboratory tests which I have had made to determine the practicability of this method of disinfection.

My attention was first called to the method of liberating formaldehyd by pouring formalin solution upon crystals of potassium permanganate during the work for the eradication of foot-and-mouth disease in New England, in the winter of 1902-1903. This method of disinfection was described by Dr. G. A. Johnson, of Sioux City, Ia., an inspector of this Bureau, in a paper read at the eighth semiannual meeting of the Sioux Valley Medical Association, at Sioux City, January 21 and 22, 1904, and published in the *Medical Herald* (St. Joseph, Mo.), March, 1904. I do not know who first discovered or suggested this method, but Dr. S. E. Bennett who was in charge of the foot-and-mouth disease work in New England, informs me that he got the idea from a salesman who came into the office to sell disinfecting and fumigating powder. Dr. Bennett investigated this powder and the solution which was used with it, and found that the latter was 40% formalin and that the powder was potassium permanganate disguised with some yellow powder that was mixed with it. This method appeared to me very interesting, and I directed that laboratory tests be made to determine its value for practical use.

These tests were made by Dr. Thomas M. Price, under the direction of Dr. Marion Dorset, chief of the biochemic division of this Bureau. Upon Dr. Dorset's report I make the following statements:

Rosenau, in his work on "Disinfection and Disinfectants," recommends the use of not less than 10 ounces of formalin (40% formaldehyd) for the disinfection of 1,000 cubic feet of space. Some authorities use more than this, even as much as 16 ounces for the same air space. It would seem that we may reasonably adopt the amount recommended by Rosenau as a standard.

Evans and Russell recommend the use of 32 oz. of formalin (40%) to 13 oz. of potassium permanganate for the disinfection of 1,000 cubic feet, or 3.2 times as much as recom-

mended by Rosenau. These authors claim that by their method more than 80% of the formaldehyd present in the formalin is given off in the form of gas.

Our experiments have failed to confirm this conclusion. We find that by using formalin and permanganate in the proportions which Evans and Russell recommend, the greatest amount of formaldehyd given off in vapor is 26% of the amount employed. There remains in the vessel after three hours 41% of the amount used, and 83% is therefore destroyed during the reaction.

If we now take into consideration the original amount of formalin recommended per 1,000 cubic feet by Evans and Russell (32 oz.), we find that the equivalent of 8.32 oz. of formalin is given off in the form of vapor. While by their method a smaller percentage of gas is given off than they supposed, on account of the large quantity of formalin used they get almost as much gas as is recommended by Rosenau, and probably sufficient for disinfection under ordinary circumstances.

As the result of a number of tests in the laboratory of this Bureau, it has been found that if the proportion of permanganate is increased, a greater percentage of formalin will be given off up to a certain point. The most favorable proportions are found to be 6 oz. of formalin (37%, this being the strength of the article usually known as 40% solution) to 5 oz. of pure crystals of potassium permanganate. When formalin and permanganate are mixed in these proportions, 51% of the formaldehyd present in the formalin solution is given off in vapor, while 10% remains in the vessel used for the experiment, leaving 39% consumed by the reaction.

As the report of the State Board of Health of Maine for 1902-1903 was not transmitted to the governor of that State by the secretary of the board until September 12, 1904, it would seem that Dr. Johnson should have priority for publication of this method, so far as the principle involved is concerned, although the quantity of formalin recommended by Johnson was insufficient for thorough disinfection.

While this method of generating formaldehyd gas is not as economic as the method by the application of heat, there nevertheless may be many cases in which it might be more convenient, and some cases in which it would be altogether more desirable, because it does not require the use of a lamp or fire in any form. It is evident, however, that for the disinfection of 1,000 cubic feet of air space, there should be used 20 oz. of formalin and 16½ oz. of potassium permanganate.

NEWSPAPER "ENTERPRISE" IN MEDICINE.

BY

G. N. STEWART AND C. C. GUTHRIE,
of Chicago.

To the Editor of American Medicine:—Recently three Chicago newspapers (the *Record-Herald*, the *Tribune*, and the *Chronicle*) published, without our knowledge or consent, an alleged account of experiments communicated by us to a meeting of physiologists. It is needless to state that this account was quite misleading. We at once sent the enclosed letter to the papers in question. Only one of them (the *Record-Herald*) pursued the fair and manly course of publishing it. The *Tribune* did not deign even to acknowledge receipt of our letter. The *Chronicle* refused to print it, but offered to correct any misstatements in its article, an illusory offer in relation to such a tissue of inaccuracies, and one which we had no desire to accept.

We think it right that the profession should know the attitude which the conductors of some newspapers consider themselves justified in adopting toward scientific workers, and we wish to record in your columns, once for all, that protest which they have not permitted us to make in theirs.

The letter sent these journals follows:

"CHICAGO, April 3, 1905.

"Sir: In yesterday's issue of your paper there occurs a garbled and misleading account of certain experiments communicated by us to a meeting of physiologists of the Central

States. We are entirely opposed to the discussion of such matters in the lay press. If any reporter was present at our meeting, he certainly was there without invitation or permission. We do not know from what source this remarkable piece of copy reached your office. But we cannot think the writer has fully considered how injurious such notices may be to the reputation of scientific investigators; and while we entertain the greatest respect for your paper in its proper sphere, we must beg of you in the future to do us the honor of leaving us and our work alone. We trust that you will give this letter the same publicity as the paragraph to which we object."

"We remain, yours truly,

"(Signed) G. N. STEWART,
"C. C. GUTHRIE."

WAS THE CHARGE EXORBITANT?

To the Editor of American Medicine:—The purpose of Dr. B. C., in publishing in *American Medicine* his private controversy with Mrs. A., is not quite clear. He has charged a big price for an operation anatomically if not financially uncomplicated, and got his price. Spencer Wells charged \$5,000 for an abdominal operation, no less. If the patient could not pay that price, he operated gratis, but he did not ask anybody whether the price was too high. In the West the charges seem to be in inverse proportion to the ability and reputation of the surgeon, and in direct proportion to the financial status of the patient. A surgeon in the East can get \$5,000 for an uncomplicated, common operation. A doctor in Chicago removed an appendix 12 in. long and charged \$100 an inch, to be met by the remonstrance: "Patients in the East can undergo complicated operations, which last for hours and in which the surgeon's life is in danger and which yet only cost from \$100 to \$150, often a bonus being given of a sponge or a pair of forceps in the abdomen." Seen from a geographic standpoint, Dr. B. C.'s price is luxurious.
DR. F. G.

WAS THE FEE EXCESSIVE?

To the Editor of American Medicine:—Some short time ago a surgeon asked and received \$15,000 for a successful appendectomy. On being asked on what basis the charge was made the surgeon answered: "Mr. — lives at the rate of nearly \$100,000 a month, and I think it only fair that he pay for his life as much as his expenses for three or four days." Personally, I fail to see anything wrong in this charge.

M.D., B.Sc., ETC.

VICIOUS LEGISLATION.

BY

HENRY W. CATTELL, M.D.,
of Philadelphia.

To the Editor of American Medicine:—Your able editorial on the "Stench of Politics" is timely, and other methods of preventing vicious legislation than the two mentioned by you, are many. I would add two—a pure ballot, and the withdrawal from participation in politics of such honorable bodies as the University of Pennsylvania and the College of Physicians of Philadelphia.

HOW TO UNSTOP HYPRODOSIS NEEDLE.

BY

R. J. WILSON, M.D.,
of Salem, Ind.

Place needle in tin ointment box. Pour enough sweet oil in the box to cover needle. Boil oil for a minute or two. Unstop by inserting wire at the point of needle instead of at shank. Handle needle with pliers. Unstop while needle is hot. How to prevent needle clogging: After using needle, insert wire first from the point of the needle. A needle always clogs at the point where the needle joins the shank.

ORIGINAL ARTICLES

HYSTERECTOMY FOR FIBROIDS OF THE UTERUS,
WITH A REPORT OF 250 OPERATIONS.

BY

JOHN B. DEEVER, M.D.,

of Philadelphia.

Surgeon-in-Chief, German Hospital, Philadelphia.

The great frequency of uterine myomas, and their tendency to produce sterility in many of the women so affected, renders the subject of their proper treatment one which is ever of interest to the practical surgeon, and one from the discussion of which with his colleagues he is almost always able to gather some ideas of value. It is for these reasons and not because I have anything particularly new to present on the subject that I have asked your attention to it this evening.

According to Bayle, one woman out of every five over 35 years of age is afflicted with uterine myomas; and although at first sight this proportion seems inordinately high, I do not think it is altogether improbable. The more recent statistics of McDonald show very nearly as high a percentage. In 175 autopsies on women over 20 years of age, he found 26 cases in which fibromyomas of the uterus were present, making the incidence of this disease 14.8%; and if these tumors are found in one out of seven women over 20 years of age, they may be expected to be found with even greater frequency among those who have passed their thirty-fifth year. Moreover it is to be recollected that in routine autopsies, such as those to which McDonald refers, it is by no means unusual for small intramural fibroids to be overlooked, so that as a matter of fact it is not improbable that the proportion of one out of seven is slightly below the truth, rather than above it. The relative frequency of uterine fibroid is also great. Williams analyzed the histories of 9,227 females suffering with neoplasms of various kinds, in various parts of the body, and found that among these the uterus was the seat of disease in 2,649, or 28.7%; while of the uterine tumors no less than 883, or 33.33%, were fibromyomatous in character. Beckett in a recent paper reports that of 100 hysterectomies 46 were for fibroid growths, and Swain resorted to hysterectomy for fibroids 31 times out of 50 operations for solid tumors of the uterus and ovaries. It is estimated moreover by Williams that nearly a third of patients with uterine fibroids are sterile, whereas of married women in general only about a tenth are sterile. It remains, however, an open question whether the sterility causes the formation of fibroids, or whether the fibroids are the cause of the sterility. As Williams states, it may be truly said that maternity and child-bearing are the great enemies of myomas.

The mere fact that a woman has a fibroid tumor of the uterus is in no respect, however, an indication for its removal. In my opinion no such growth should be removed unless it causes symptoms. What these symptoms are I shall discuss presently. Kelly, nevertheless, states emphatically that he has several times removed uterine myomas merely to relieve the distressed mental condition of the patients, caused by the knowledge of the presence of an abdominal tumor. But it certainly seems to me that if we undertake a serious operation—and hysterectomy is a serious operation, enthusiastic gynecologists to the contrary notwithstanding—for so immaterial a cause of mental distress, we should at least be convinced that the patient's mental distress will be less when she knows that she has no womb at all in her belly than it was when she possessed a uterus, with a harmless tumor in its substance. I say a harmless tumor, because I am thoroughly convinced that a myoma of the uterus which produces no symptoms is

as nearly harmless as any pathologic change can ever be. I am well aware that some eminent gynecologists, among them Penrose and Noble, have urgently recommended the removal of all such growths at the earliest possible moment, on the ground that they are specially prone to undergo sarcomatous or carcinomatous change; but I am not personally convinced that such changes are so prone to occur. Hirst quotes Olshausen as stating that all the dangerous degenerations taken together (malignant, cystic, telangiectatic, and necrotic) do not affect more than 5% of all cases. McDonald, in his series of microscopic studies of 280 cases of fibroid uteri, found malignant changes in only 12, or in 4.28%, of which sarcomatous changes existed in only 3 cases (*i. e.*, less than 1%), and carcinomatous associations in 8 cases, there being also one case in which deciduoma malignum was found. From the carcinomatous list, however, must be deducted two instances of squamous-celled carcinoma of the cervix which evidently had no connection with the fibroid growths, leaving only six cases of carcinomatous association. It is to be noted that McDonald speaks very conservatively of these malignant changes, and that while he thinks the sarcomatous changes found are true degenerations, he invariably speaks of sarcomatous "associations." His conclusion is, that "while the association of squamous carcinoma with fibroids is accidental, the occurrence of adenocarcinoma may be more or less influenced by the presence of fibroid tumors." Moreover, so great an authority as Bland Sutton makes the assertion that many tumors described as fibroids which had undergone sarcomatous degeneration are in reality tumors which were sarcomas from the very beginning. Hall has recently recorded several instances in which periods of 10, 15, or 20 years have elapsed after the cessation of symptoms at the menopause, when these fibroids suddenly took on malignant characteristics and necessitated operation in the patient's old age. So long an interval, however, would make one incline more to the theory that the malignant tumor was an entirely independent growth. Richardson has also recorded somewhat similar cases. If an author, however, searches the literature, as Sturmdorf has recently done, and collects all the disastrous results that have followed noninterference in fibroid disease of the uterus during the last 20 years or more, I acknowledge that it is easy to frighten a timid or an inexperienced physician into the idea that uterine myoma constitutes a disease most inimical to life, and one which demands prompt operation for its proper treatment. Roger Williams nevertheless considers 1 in 2,000 a conservative estimate for the mortality rate from unoperated uterine fibroids; and if we take McDonald's autopsy figures and make a corresponding calculation, we shall find an even lower deathrate produced in the community by this disease. Among McDonald's autopsy cases of uterine fibroids he considered that the tumor was responsible "indirectly" for the cause of death in only 8% of the cases. If, then, only 8% of women afflicted with uterine myomas die from the disease, it means that in actual figures only 8% of 20% out of every 100 women die as a result of these growths. That is to say, 0.016 women out of every 100 women die from uterine fibroids, or 0.16 women out of every 1,000 women die from this disease, or only 1.6 in 10,000 is the general mortality among women from this disease. I think, therefore, the conclusion is amply justified that operation is not to be injudiciously recommended.

It is possible, however, to err on the side of ultra-conservatism. This is an attitude of mind well represented by the following extracts from Herman's work on "The Diseases of Women." In speaking of the indications for operation in a patient whose attention has been attracted by the size of the tumor, but who does not suffer in any way from its presence, he says: "No drug has any influence upon the growth of subperitoneal fibroids, nor has electricity. The only effective treatment is surgical treatment. The alternative is letting

¹Read before The Section on Gynecology, College of Physicians of Philadelphia, March, 1905.

the tumor alone. Some expert operators have urged that every fibroid should be removed, whether causing trouble or not, on the ground that if it is not causing trouble now, it will by and by. The decision must rest with the patient. Your duty is to put before her the probable consequences of letting the tumor alone, and the probable consequences of having it removed. She must decide.

"What are these consequences?" he proceeds to ask. "Suppose she lets it alone. Her belly will remain big, and it may get a little bigger. It is possible that it may get very big. It is also possible that degeneration of the tumor may set up inflammation, or that it may get incarcerated or adherent in such a way as to interfere with other organs by its pressure. But these things are very unlikely. The chances are that an increase of an inch or two in her waist measurement will be all the trouble her tumor will give her.

Suppose the tumor is removed. Some mishap during the operation may kill her in a few days. This is unlikely, because when the tumor is small and the peritoneum healthy, the operation is easy and safe; but it is possible. In any case, the patient will have three weeks in bed, and it will be months before she regains the tone of her nervous system. The days following the operation will be very unpleasant, marked by vomiting, thirst, pain, and anxiety. . . . None of these things is desirable. What does she gain by submitting to all this? Nothing but a slightly smaller waist, and security against some contingent but improbable dangers. I think a sane woman will prefer to wait as she is.

It appears to me that the judicious and safe course lies between the two extremes—those of ultraconservatism and ultraradicalism. We must, I think, recognize the fact that malignant degeneration or associations do occasionally occur in myomatous growths of the uterus, and that pus tubes, ovarian cysts, and peritoneal adhesions are uniformly found in no insignificant proportion of patients with such tumors; but, on the other hand, we should not forget that there are many women, as proved by reliable statistics and by the personal experience of many thoroughly trustworthy observers, in whom fibroids of even considerable size are provocative of no special discomfort, and in whom death finally occurs from intercurrent and entirely independent diseases. Noble's statement that at least a third of the women, statistics of whose cases he had collected, would have died without operation, I think is to be accepted with reserve, if he means that their lives were saved by the operation from imminent destruction. All women afflicted with fibroid tumors of the uterus must die sooner or later, and my conviction remains firm that when a fibroid tumor is producing no symptoms, the expectation of life is as long, if not longer, without immediate operation than it is when operation is indiscriminately undertaken at that stage of the disease. The life-history of this malady is not, so far as I can see, at all comparable to that of ovarian cysts, and the same arguments do not apply for early operation in the one case that are admittedly correct in the other.

Frequently, however, operation is demanded because of the existence of other affections, and while the fibroid tumor is the change which attracts the patient's and perhaps the surgeon's attention, it is not really the prime cause of the symptoms. It is generally admitted that fibroids predispose to affections of the ovaries and tubes; and I think there can be no doubt that such complications are more often productive of symptoms than are the fibroids themselves.

The symptoms for which in my judgment hysterectomy is required are almost solely those of pressure, with the exception of those submucous growths which cause excessive hemorrhage. In my experience the hemorrhage alone has rarely demanded operation. The majority of women are so accustomed to the periodic loss of blood that the loss of a somewhat greater amount,

or the slightly greater frequency of the bleeding, does not usually alarm them, and they do not consult the surgeon until pain, which is almost invariably due to pressure, has arisen. It is useless to postpone an operation, when hemorrhage is excessive, in the hope that the menopause will bring relief of all symptoms. While this occasionally happens, it is in my experience, and I think in nearly every one's, extremely exceptional for a tumor, which has once become productive of urgent symptoms, ever to subside subsequently into an innocuous condition. The menopause is practically always delayed, and is often permanently postponed by fibroids which have become persistent bleeders.

Although pain, which is, I think, usually the most urgent symptom, is generally caused by subperitoneal fibroids of considerable size, or by those of moderate size incarcerated in the pelvis, yet I have seen cases in which excessive pain was caused by intramural growths of insignificant size. The most prominent symptom in my experience has been increased frequency of micturition; in comparatively few cases have I seen pressure of fibroid tumors of the uterus upon the rectum cause symptoms of difficult defecation or partial obstruction. I have, however, seen one patient in whom obstruction of the bowels was caused by pressure on the sigmoid flexure by a fibroid locked in the pelvis. Hemorrhoids are a frequent accompaniment, and I think it well to lay stress on this point, as unwary surgeons may operate upon the rectal condition without ever examining the uterus, and fail of a permanent cure because the cause remains. Rectal examination is also a means of diagnosis which I am convinced is too often overlooked. When small intramural fibroids exist in the posterior wall of the uterus, their detection by bimanual examination through the vagina may be impossible, whereas by drawing down the cervix uteri with a tenaculum while its posterosuperior surface is palpated through the rectum, they can usually be discovered.

While pressure on and displacement of the bladder not infrequently occur, particularly in cases of fibroids intraligamentary in their growth, and although dragging on the ureters may result, yet in my own experience I have never seen any pressure sufficient to cause obstruction of the ureters with consequent hydronephrosis. Yet in one case, operated upon five years ago, which was complicated by an intraligamentary cyst and adherent appendix, the ureter was injured in separating the cyst from its bed, and death ensued on the ninth day from sepsis.

The form of treatment to be adopted for patients suffering with this disease should be almost invariably operative, unless, as was mentioned before, the growth produces practically no symptoms. Such patients, however, should be subjected to periodic examination by the surgeon, and as soon as symptoms are manifest, or if the tumor is found to be rapidly increasing in size, operation should be no longer postponed. In many instances, moreover, as has already been stated, certain complicating conditions, such as pyosalpinx or an ovarian cyst, may render immediate operation advisable, even although the fibroid tumor *per se* presents no symptoms worthy of attention.

While some few cases of fibroids have been benefited by medical measures, such as attention to hygiene and the administration of drugs, yet for the most part in my experience those tumors which caused symptoms necessitated radical operation for their cure. On several occasions patients have been sent to me with profuse bleeding from intrauterine or submucous fibroids, and some of them have been benefited temporarily by rest in bed and the internal administration of ergot. These patients were subsequently operated upon, and their future welfare secured by radical measures. It is always well to bear in mind that patients with uterine fibroids are more or less anemic and toxemic, and that therefore operation should not as a rule be undertaken immedi-

ately upon their admission to the hospital. They should be well fed, blood tonics should be administered, the heart, kidneys, and intestinal tract should be regulated, and the patient should become thoroughly accustomed to her surroundings, before any operation is undertaken, unless some complication renders immediate operation imperative. It is above all, important that attention be paid to the heart. The great frequency of myocarditis and arteriosclerosis, apparently directly caused by the fibroid growths, is well known; and to sudden heart failure, to pulmonary embolism, or to apoplexy, may no doubt be attributed many a postoperative death occurring at the beginning of an apparently normal convalescence. The average duration of life after operation in 19 fatal cases in my list has been five and a half days, and while some of these deaths may be attributed to shock and exhaustion, and a few to peritonitis, yet I am convinced that in a number death was caused by pre-existing cardiac and cardiovascular diseases.

In selecting the special form of operative treatment to be adopted, I appreciate the great necessity for careful and conscientious study and examination of the conditions present. Although there are undoubtedly cases in which there is only one large fibroid, yet, according to my own experience, they are so extremely rare as to make them of little consequence in deciding upon the operation to be employed; beside which fact, their differentiation from cases with multiple fibroids is, before the abdomen has been opened, almost impossible, since painstaking search of the exposed uterine surfaces so frequently reveals small fibroids entirely undetected theretofore. The experience of Haultain, recorded in a recent paper, accords with my own and with that of the majority of surgeons. Among 63 simple fibromyomas of the uterine body, he found 54 were multiple and only 9 single. McDonald's figures are 110 single and 170 multiple, out of a total of 280. Yet Engeström, among 100 laparotomies for fibroid disease of the uterus, found multiple myomas in so few as 37 patients, while in as many as 63 was there present only a single tumor. Such an experience I am sure is exceptional.

The Apostoli or electric treatment of uterine myomas, to my mind, can be condemned without reserve. Electricity, used for the purpose of controlling the hemorrhage of a fibroid, is, in my judgment, ill-advised, and may cause the patient to lose what may be precious time. To use electricity as a temporary measure until the patient entertains the proposition of operation, is to my mind only dilly-dallying. B. C. Hirst, in his textbook, states that during a period of three years, while he was a member of a committee of the Philadelphia County Medical Society, appointed to investigate this treatment, not a single case was presented to the committee in which a tumor had been reduced in size by the Apostoli treatment.

Curetment is occasionally of value in those cases of sloughing fibroids of the submucous variety in which the object is not so much the actual removal of the fibroid as of the necrotic tissue; it is a procedure which I have sometimes also found of value in those patients who are much debilitated by continuous bleeding and slightly septic as a consequence, and in whom radical operation at that time was evidently inadvisable. By the removal of the septic endometrium, as well as perhaps the outer and more vascular surface of the fibroids, the bleeding is very much lessened or altogether checked for the time being, and the general condition of the patient becomes so much improved as to justify the radical cure of the disease at a later period. In a patient aged 86, with a sloughing fibroid, recently under my care, her general health improved so much after being twice curetted, that I finally did a vaginal hysterectomy with success.

With the various forms of intrauterine applications, such as iodine and carbolic acid, I have had no experience whatever, and cannot think that they can be productive

of anything but harm. Montgomery narrates that in his early experience he injected tincture of iodine into the uterine cavity with the hope of relieving a patient, with a large fibroid tumor, of frequent attacks of bleeding. "Almost before the syringe could be withdrawn, the patient complained of tasting the drug, and within a few moments she had a most violent attack of pulmonary edema, which threatened her life, and from which she recovered only after a protracted illness." For my part, I have given no attention to these methods, knowing that they were merely palliative, and that under no circumstances could they conserve the best purposes as regards the patient's welfare.

Castration for the relief of hemorrhage in fibroid tumors of the uterus, introduced in 1876 by Trenholme and Hegar, is to my mind as irrational and unsatisfactory a procedure as are castration and vasectomy for enlargement of the prostate gland. Hirst says that oophorectomy "may be expected to accomplish satisfactory results in checking hemorrhage and effecting a reduction in the size of the tumor in 75% to 90% of suitable cases." But when, as Hirst further observes, the many cases which are unsuitable have been eliminated, when the many dangers and complications of this operation in patients with myomatous uteri are considered, and when the frequent impossibility of removing every scrap of ovarian tissue—upon which success depends—is recollected, we perceive how very much the field of this operation is narrowed. In a very anemic patient with a large fibroid, in whom I removed both uterine appendages, fearing that hysterectomy at the time would be too much for her, I had, before convalescence was established, to do a supravaginal hysterectomy to save the woman from bleeding to death. Ligation of the uterine arteries, or of all the arteries which it is possible to ligate in connection with the female pelvic organs, is a method of treatment for fibroid tumors that has met success in some hands. Owing to the extremely free blood supply, I feel sure that this measure, even in the hands of the most experienced operators and careful observers, cannot be other than temporary, and the results have in fact been most disappointing.

Myomectomy is an operation which may be considered ideal in conception, yet I feel that in a large percentage of cases it would be impossible to employ it to advantage. Careful and painstaking examination of fibroid uteri is so sure to reveal small myomatous nodules usually interstitial in character, which escape a more cursory examination, and the probability is so great that these small growths will subsequently enlarge and cause a renewal of symptoms after the removal of the most easily detected myomas, that I have in my own practice limited the performance of this operation to a very small number of cases. Hubbard has recently reported the case of a woman who after myomectomy had two pregnancies. The first child was delivered with difficulty by podalic version, and died very soon afterward. For the second labor, cesarean section was done, and it was then positively determined that the dystocia was due to the presence of a subperitoneal fibroid of small size, which had evidently grown since the operation of myomectomy, as well as in no small degree to the torsion in the long axis of the uterus caused by the scar of the previous myomectomy. While these, therefore, are the principles which I think should guide us in the selection of this operation, yet in young women, or in those for whom subsequent child bearing is especially desired, it is well to stretch a point, and to ignore some of the limitations which naturally encumber the operation of myomectomy.

I find that among the 250 operations for uterine fibroids herewith reported, I have considered that of myomectomy applicable in only 13 instances. Eleven times I enucleated the tumors by the abdominal route, and twice by the vaginal, the growths in the latter

instances being large submucous tumors with no distinct pedicle. In a fourteenth case, in which the submucous tumor was pedunculated, I removed the mass by means of Downes's cautery. I have not included in this report the large number of uterine polypi which it falls to the lot of the hospital surgeon to treat. All of these patients treated by myomectomy recovered, and so far as I am aware, none has had a recurrence of the growths. In two of the patients treated by abdominal myomectomy I performed ventrosuspension of the uterus at the same operation, and in one of these two I removed a chronically inflamed appendix as well. In a third case of abdominal myomectomy I removed an acutely inflamed appendix and performed Mann's operation of intraperitoneal shortening of the round ligaments, while in a fourth case, beside the performance of myomectomy and intraperitoneal shortening of the round ligaments, I did a posterior gastrojejunostomy for the relief of pyloric stenosis, and in a fifth case I performed nephropexy for floating kidney after removing several myomas from the uterus. As a rule I do not countenance such shotgun surgery, but when a patient is in good condition, and is eagerly desirous of having all her maladies treated at one operation, the surgeon's temptation may be too strong to resist. Recovery, as already mentioned, was in all these cases uneventful.

Vaginal hysterectomy for uterine fibroids is an operation which I have employed only three times. Apart from the physical impossibility which sometimes exists of removing fibroid uteri through the vagina, there are other reasons which make the abdominal route much preferable. One of these is the fact that myomatous uteri are so frequently found in women whose pelvic outlet is very small and contracted, either because they have borne no children at all, or because they have borne at the most only one or two children, and these probably at a period many years before. But a still more important reason, it seems to me, is the very large number of such cases in which adnexal diseases or other intraabdominal complications coexist. Twombly asserts that tubal disease is present in 50% of women with myomatous uteri, and it is generally admitted that uterine fibroids predispose to the rupture of pus tubes. Moreover, by far the largest number—70% to 90% of fibroids, arise from the corpus uteri, as distinguished from the cervix, and tumors growing toward the cavity of the uterus are notably fewer in number than those which grow beneath the peritoneum. Among my own series of 250 cases, no less than 34, or one in seven, were complicated by gross disease of the adnexa, such as pyosalpinx, hydrosalpinx, tuboovarian cysts, ovarian cysts, and parovarian cysts, while in many more patients chronic salpingitis and oophoritis were present. For these reasons, therefore, it has always seemed to me that vaginal hysterectomy for fibroids of the uterus is distinctly inferior to hysterectomy by the abdominal route. I am happy to say that all three of my patients made good recoveries.

Abdominal hysterectomy may be either supravaginal or total hysteromyomectomy or panhysterectomy, as the respective operations are now usually termed. Of these, I have generally adopted the supravaginal amputation of the uterus, as it is both an operation which I believe is attended by a lower mortality rate, and is also easier of execution in the majority of instances. Bland Sutton quotes Sampson as stating that among 156 panhysterectomies performed at the Johns Hopkins Hospital the ureter was injured in no less than 19 cases. The shorter time required for its performance, with the lessened shock entailed, as well as the less likelihood of vaginal prolapse following the supravaginal operation, are also factors which, to my mind, render its adoption usually more to the patient's interest than the employment of panhysterectomy. This latter operation, however, I have employed 14 times for fibroid tumors, with 1 death, a mortality of about 7%. The fatal case, in which death

occurred on the seventh day, can, I think, be as much attributed to constitutional depression as to the operation itself. I do not mean by this to say that the patient would have died within seven days if no operation had been performed, but what I do think is that any operation for the removal of her fibroid tumors would have been quite as apt to be followed by a fatal issue as was that of panhysterectomy. It has been my principle never to employ this operation unless it seemed distinctly easier of execution, and thus to shorten the time of the anesthesia and lessen the shock to the patient. It has therefore been employed mainly when the myomatous growths extended so far down in the pelvis and so close to the cervix, whether they involved this part of the uterus or not, that it would have been difficult, if not impossible, to find any suitable line of cleavage for performing a supravaginal amputation. In one of my cases of panhysterectomy, secondary hemorrhage occurred from the slipping of the ligature, and the artery, which was in the right pedicle, was ligated on the day after the operation. Recovery of the patient was uneventful thereafter. In two other of my panhysterectomy cases the operation was complicated by the presence of pyosalpinx, and removal of the whole uterus seemed indicated to minimize the danger of rupturing these abscesses. In still another of these cases I adopted this operation because of the presence of a parovarian cyst, which was so adherent to surrounding structures in the pelvis that total hysterectomy simplified the operation.

Supravaginal hysterectomy I have employed for this condition 219 times, with a total of 20 deaths. I regret very much not being able to report a lower mortality than 9.13% for the whole series of hysteromyomectomies, but I am happy to state that my record has improved with the lapse of years, a fact which may no doubt be partially due to an increase of experience in selecting suitable cases for operation, and to an added skill in performance of the operation, but which is also due, I venture to think, very largely to other factors not so much within the control of the individual surgeon. I refer more especially to the habitual resort to earlier operation, before the patient is hopelessly weakened by long-standing pain and hemorrhage, and before the cardiovascular system has become irretrievably diseased by the toxemia frequently attendant upon these conditions; and another factor which I think is of some importance in improving the mortality rate during the last few years, is the almost universal abandonment of the electric and injection treatments, which, as all of us know who have subsequently operated on patients treated by such means, rendered inflammatory adhesions and other intraabdominal affections so very much more serious than would otherwise have been the case. Besides the factors already mentioned, I think the general adoption of intravenous saline infusion during the last four or five years has aided very materially in reducing the death list after this as after all other operations accompanied by shock and sometimes attended by hemorrhage and sepsis. Whatever be the cause, I am happy to say that among the last 105 supravaginal hysterectomies which I have performed, I have had only three deaths, a mortality rate of 2.85%, while among the last 48 such operations there has not been a single fatality. It must be granted that patients coming into a general hospital present more serious aspects than those going into special hospitals, therefore a higher mortality must be expected.

In performing any operation for hysterectomy for these conditions, I have always aimed to preserve the ovaries, or one ovary or even a portion of one ovary, when it seemed probable that the retention of such structure would be of any advantage to the patient. In a woman who has reached the climacteric, or who would already have passed it, had she not had uterine fibroids, I have not as a rule hesitated at removing both ovaries; and in younger patients in whom the ovaries

were distinctly diseased, or in whom the tubes or the uterus were so distorted as to render the dissection of the ovaries or even of one, tedious and difficult, I have usually deemed it wiser to remove the ovaries than to prolong the operation unduly for the preservation of an organ which even when dissected free might be found to be functionless from disease. When one of the ovaries was cystic I have practised excision of the cyst or cysts. I make it my practice to leave one or both ovaries prior to the climacteric if not diseased; while I am aware that many operators do not regard this of any moment, nevertheless my experience has taught me the contrary, and, therefore, I have no hesitancy in setting forth my views plainly. The question of removal of a healthy appendix and of going on an excursion to locate the gallbladder, and if stones are found, to remove them, I am strongly opposed to. I believe the best surgery is the surgery that deals with pathologic lesions only, and leaves the remaining part of the abdominal cavity for subsequent interference should occasions arise to warrant it.

As regards degeneration of the myomatous growths, I find by my records that cystic fibroids were found in two cases, and in one instance a calcified fibroid. There was only one patient in whom the chief fibroid growth was intraligamentary in character. In one patient the fibroid, which was a large one with a long pedicle, was twisted on its pedicle.

Pyosalpinx was present in nine of my patients, and in two of these, both tubes were converted into pus sacs. Among these nine cases of pyosalpinx two deaths occurred, on the fourth and seventh days, respectively, the last case being one of the patients with double pyosalpinx.

Hydrosalpinx was present in three patients, all of them recovering.

There were tuboovarian cysts in two patients, both recovering.

There were 18 ovarian cysts, among which number are included 2 instances of dermoid cyst, 1 instance of an ovarian cyst with a twisted pedicle, 5 intraligamentary cysts, and 1 ovarian cyst complicated by extrauterine pregnancy. In both cases of dermoid cyst the appendix was involved in adhesions, and was removed. Among these 18 cases complicated by ovarian cysts only one death occurred, that being in a patient with an intraligamentary cyst on the right side, with very many and dense adhesions, from whom the vermiform appendix was also removed, and whose right ureter was accidentally injured in dissecting the cyst wall from its bed. Death in this instance occurred from sepsis, on the ninth day after operation.

Among the whole series of 250 cases the appendix was removed 34 times, being acutely inflamed in one instance only, and its removal in the remaining 33 cases being indicated either because the patient had suffered from previous acute attacks, or because it was involved in the pelvic disease. There were two deaths among the patients in whom appendectomy was performed—one in the patient with ruptured ureter already referred to, and the other in a patient with very many and dense adhesions throughout the pelvis.

In two patients a lipoma was removed from the breast, and in one patient a similar tumor from the arm. Although one of the patients with mammary lipoma had a somewhat complicated hysterectomy involving removal of a dermoid cyst of the ovary and the vermiform appendix, yet no deaths occurred in this series.

In one patient upon whom I did a supravaginal hysterectomy, intestinal obstruction occurred three days after operation, and was caused by a knuckle of small bowel becoming adherent to the right stump. Operation for the obstruction was followed by uninterrupted recovery.

In three patients the uterine tumor had grown to such immense size before operation that it caused separation of the recti muscles, and a ventral hernia. One

of these patients, in whose case the operation was long and tedious on account of the numerous adhesions and the large ventral hernia, unfortunately succumbed on the second day after operation.

Beside the causes of death already mentioned, there occurred in my series of operations 1 death on the tenth day from catarrhal pneumonia, 1 from peritonitis, 1 from shock following hysterectomy for fibroids causing intestinal obstruction, and 1 death from secondary hemorrhage. In only two cases did secondary hemorrhage occur. In the first, a patient operated on December 31, 1903, the abdomen was opened the following day, and the hemorrhage checked; but the woman gradually failed, and died of asthenia on January 3, 1904. In the second patient, already referred to, operated on November 16, 1904, by panhysterectomy, the ligature slipped from the right pedicle on November 17; I opened the abdomen promptly, ligated the bleeding artery anew, and her recovery was uneventful.

Prolonged operation, that is, to consume more than three-quarters or at best an hour, is attended by increased danger. Pulmonary edema or pulmonary embolism may be more often looked for under these circumstances when we consider the length of the anesthesia, for these complications are brought about by the troublesome ether or the dangerous chloroform.

I have never resorted to catheterization of the ureters in either abdominal or vaginal hysterectomy, yet I know that this practice is advocated by some very good men, among which number is my friend Howard Kelly. The fact that in 250 abdominal hysterectomies the ureter has never been injured, but once, when it could not have been avoided had there been a catheter in, on account of adhesions, is one of my arguments against the use of this measure. Another, and equally important argument against it is the risk of infection of the kidneys from below upward, by this instrumentation.

A low hemoglobin count, even one of 20, does not deter me from hysterectomy in a patient who is bleeding and in whom any attempt to control the hemorrhage other than by tamponing would mean a loss of time. I have never had a death in hysterectomies under these conditions.

It may be urged that in the use of large clamps a mass ligature is employed, even so my results have been satisfactory. I am a great admirer of neat surgery, which is accompanied, of course, with strict cleanliness; on the other hand, I do not think much of fancy surgery, to which oftentimes can be attributed a mortality. I make it a rule invariably to drain when there is oozing in pelvic operations which cannot be controlled by catgut sutures which do not entail risk to the ureters. One of the ancient principles of surgery is drainage, and he who applies it well, cures well. I consider it bad practice to allow much, if any free blood to remain in the peritoneal cavity with the belief that the peritoneum will dispose of it. My knowledge of the bacteriology of peritonitis tells me that even a small blood clot, while sterile at the onset, does not necessarily remain so, therefore the patient is exposed to the risk of peritonitis, while if the proper drainage is used, this risk is certainly minimized, if not removed altogether.

A word concerning the different operative procedures required to meet the indications in the different types of fibroid referred to in this paper.

The supravaginal is the one most practised. In this operation, however, instead of transfixing the broad ligament on either side, tying the ovarian and uterine vessels separately, I quite often use large clamps, cut and tie; this makes a short operation.

In the operation of complete removal of the uterus by the abdominal route, I invariably use large clamps. In complete removal where the uterus is quite large and the pelvis deep and small, making it difficult to reach the uterine arteries, I make a supravaginal amputation,

then grasping the cervix with a volsella forceps, cut it out of the vagina with a pair of scissors; this makes a rapid operation. I believe it is bad practice to consume two or three hours in any abdominal operation, particularly so simple a one as are the majority of hysterectomies. In a few cases I have had occasion to bisect the uterus (after Kelly) in order to obtain room to work easily and rapidly.

In the vaginal operation I invariably use Pryor's vaginal clamps. I have never injured a ureter but in one case of abdominal hysterectomy, which I report in this series.

In conclusion I may state that my experience with uterine fibroids has led me to hold the following opinions:

Fibroids of the uterus do not require removal unless they are productive of symptoms, but when they do become symptom-producing, they should be removed promptly, before the patient has been weakened by toxemia, hemorrhage, or sepsis.

Abdominal supravaginal hysterectomy is the operation to be preferred in the vast majority of cases.

Myomectomy is applicable only to younger women in whom the tumors are few in number and subperitoneal in character.

Panhysterectomy is to be employed only when intra-ligamentary growths, whether uterine or ovarian, render the performance of supravaginal amputation difficult or dangerous.

The ovaries, or a part of one ovary should be preserved in every woman who has not reached the age of the menopause, unless they are distinctly and indisputably diseased, or unless their retention would needlessly prolong and complicate the operation.

TABLE OF OPERATIONS.

I. ¹		II. ²		
Total.	Deaths		Total.	Mortality percent.
1896	7	2		
1897	12	1		
1898	24	5		
1899	21	5		
1900	22	2		
1901	38	3		
1902	37	0		
1903	35	3		
1904	45	0		
1905	11	0		
250	21		250	8.4
		Supravaginal hysterectomy.	219	9.13
		Abdominal myomectomy...	11	0.00
		Panhysterectomy.....	14	7.14
		Vaginal hysterectomy.....	3	0.00
		Vaginal myomectomy.....	2	0.00
		Vaginal myomectomy		
		(Downes)...	1	0.00

REFERENCES.

- Bayle: Quoted by Williams, loc. cit., p. 112.
 Beckett: Southern California Practitioner, Los Angeles, December, 1904.
 Engeström: Quoted by Williams, loc. cit., p. 63.
 Ford: *American Medicine*, 1904, Vol. vii, 543.
 Haultain: The Lancet, 1905, i, 502.
 Hall: *American Journ. Obstet.*, 1904, Vol. i, p. 678.
 Herman: *Diseases of Women*, Revised ed., N. Y., 1903, p. 833.
 Hirst: *Textbook of Diseases of Women*, Phila., 1903, 341.
 Hubbard: *American Journ. Obstet.*, 1905, i, 817.
 Kelly: *Operative Gynecology*, N. Y., 1899, Vol. ii, p. 386.
 McDonald: *Journ. Amer. Med. Assoc.*, 1904, i, 1344.
 Montgomery: *Practice of Gynecology*, Phila., 1903, Second Edition, p. 641.
 Noble: *American Medicine*, 1904, viii, 451.
 Penrose: A *Textbook of Diseases of Women*, Phila., 1897, p. 241.
 Richardson: *Boston Med. and Surg. Journ.*, 1904, i, 38.
 Sturmdorf: N. Y. Med. News, 1905, i, 262.
 Swain: *British Med. Jour.*, 1904, ii, 1737.
 Twombly: Quoted by Sturmdorf, loc. cit.
 Williams, W. Roger: *Uterine Tumors, Their Pathology and Treatment*, London, 1901.

Congress of School Hygiene. During the first half of June, 1905, a congress of school hygiene will be held at Paris. Among the interesting questions to be discussed are the sanitary inspection of primary schools, hygienic instruction in the families of school children, vacations, and leaves of absent for pupils, tuberculosis in its relation to schools, and the damaging effects of the mental overwork incident to the course of study in the high schools.

¹ Total operations to March 1, 1905, 250. Mortality, 8.4%.

² Last 105 operations gave 3 deaths, a mortality of 2.85%.

THE RADICAL TREATMENT OF GASTRIC HEMORRHAGE, WITH A REVIEW OF A PERSONAL CASE AND 99 COLLECTED FROM THE LITERATURE SINCE 1900.

BY

F. GREGORY CONNELL, M.D.,

of Salda, Colo.

Attending Surgeon Denver and Rio Grande Railroad Hospital; Consulting Surgeon St. Vincent's Hospital, Leadville.

The necessity of radical treatment, and the best time at which to institute this treatment, having been decided upon, the manner or method of operating becomes an important question. This will be found to vary considerably, depending to a great extent upon the character of the conditions found.

The different methods of treatment coming under this heading may be classified as follows:

RADICAL TREATMENT OF GASTRIC HEMORRHAGE.

Direct: Excision of ulcer. Partial gastrectomy, or pylorotomy. Ligation of the principal artery. Cauterization of curetment of the bleeding-point. Ligation of the mucous membrane, en masse. Ligation of all coats.

Indirect: Gastroenterostomy. Pyloroplasty. Gastrotomy.

DIRECT RADICAL TREATMENT.

Excision of Ulcer.—The ideal operation is the one in which the ulcer is removed from the stomach, as this eliminates at once all the possible complications or sequels, such as carcinomatous degeneration, which is now accepted as a termination in 6% to 9% of gastric ulcers; pyloric stenosis, and other contractures; hour-glass stomach, adhesions, hemorrhage, and perforation.

However, serious drawbacks to the routine excision are found in the extreme difficulty of locating the ulcer. The origin of hemorrhages sufficient to cause death has escaped detection in competent hands, even at autopsy. The fact that in at least 20% of the cases there will be more than one ulcer also tends to make excision impracticable; as do also the firm, extensive, and vascular adhesions, which many times complicate the operation. The limits of the ulcer may be quite indefinite, and the sutures placed in pathologic tissue which may be slow to heal. These and other considerations tend toward the belief that the theoretically ideal method (excision of the ulcer) is not always practically ideal.

Partial Gastrectomy or Pylorotomy.—After a careful review of the question, it seems that the ideal method of operating for gastric ulcer and its sequels will be found in a pylorotomy or a partial gastrectomy, as the location may demand. Or, as a further step in radicalism, one might be tempted to say in each instance, remove completely the ulcer-bearing area. This so-called ulcer-bearing area includes the pylorus and all of the stomach to the right of a line drawn from the right side of the esophagus through the stomach.

Mayo says: "Ulcers occur in all parts of the stomach; but in the cardiac end, it is a question if they are often the cause of chronic symptoms calling for operation." However, like so many other ideals, and ideal methods, this operation will be found to be quite impracticable in the hands of the majority of operators at the present day—chiefly on account of the extent of the operation, and its mortality rate, which is quite high when compared with some of the less ideal methods of procedure. But, it can be seen from the literature, that the number of partial gastrectomies is increasing year by year, and that the tendency seems to be toward a more thorough operation. With earlier and less severe cases, with more experience and knowledge of technic, it would seem that Rodman expressed the prevailing opinion when he said at New Orleans: "I feel that in time the treatment of gastric ulcer will be partial gastrectomy, and that the mortality will not be more than 5% or 10%." Taking all the early operations done during the past 15 years, it has not been more than

15%, and surely at the present time it should not be more than a half of that." The force of this statement is well emphasized by Mayo in the *Annals of Surgery*, March, 1904, in which is presented a method of performing partial gastrectomy, that has been performed 13 times with only 1 death, 7.6%. Also by the report of Lambotte, in which he did pylorotomy for hemorrhage in 7 cases, and all of the patients recovered. In 1900, Rodman collected 3 cases of excision of the ulcer with 2 recoveries and 1 death.

Since then we have been able to find reports of excision for hemorrhage 9 times, with 5 recoveries and 4 deaths; and pylorotomy 8 times, with 8 recoveries and no death. Of the 4 deaths, 1 occurred immediately after the close of the operation, another patient died of pneumonia, and the other 2 died on the ninth day after the operation, from causes unknown. Excision, followed by gastroenterostomy, has been successful in the one case in which it was performed.

Ligation of the artery—leading to the ulcer—may be effected from the mucosa or the serosa. In attempting to do so from the mucosa it will be found impossible at times to locate the vessel. The vessel and the mucosa are frequently brittle, and the bleeding is made worse. And even when effected, such hemostasis will be found to be unsatisfactory and unreliable, on account of the condition of the mucosa and the digestive action of the gastric juice.

Double ligation of the artery has been carried out in connection with excision of the ulcer, as done by Roux in the first successful operation for hemorrhage from the stomach. Since 1900, we have noted a case by Moullin, in which excision of the ulcer and double ligation of the gastroepiploic artery was made. Death ensued on the ninth day, and autopsy showed no attempt at repair along the line of suture. The double ligation evidently interfered with the circulation to such an extent as to prevent the occurrence of the plastic peritonitis, necessary for the serous union.

In connection with gastroenterostomy, ligation on each side of the ulcer has been followed by a recovery in one instance. Ligation of the vessel from the serosa, without opening the stomach, is rarely applicable, because of the unknown location of the bleeding-point, and also on account of the profuse collateral circulation of the stomach wall. Kaupe reports a case of Witzel's in which the vessels of the stomach were greatly enlarged, and at one point approached an aneurysm; the situation of the ulcer was further identified by some adhesions. The vessel was ligated on both sides of the dilation, without opening into the stomach. The hematemeses stopped at once, and the result was eminently satisfactory.

Curetment.—Since the occurrence of a perforation following curetment of the ulcer, in the hands of Mayo Robson, this method of treatment has not been in vogue. On one occasion, Keetley "scraped and sutured," the recovery in this instance was satisfactory for a time only, for the symptoms returned and a second operation was necessary.

Cauterization has been employed, with more or less frequency, since the first operation by Mikulicz in 1887. Since 1900 its use has apparently decreased, in one instance being supplemented by pyloroplasty, and in another it failed to arrest the bleeding.

Ligation of the mucous membrane is applicable only in the superficial erosions or ulcerations, and in such cases has been employed repeatedly. In searching the literature, since Rodman's paper, we have encountered 12 such cases, with 11 recoveries and 1 death, 9.9%. But symptoms returned in three of the 11 recoveries, and in the fatal case the patient was operated upon twice in a week, at the second operation the points ligated at the first were found intact, but fresh points were bleeding; these were ligated, but the patient died soon after removal from the table.

Ligature of the mucous membrane, supplemented by

gastroenterostomy, has been employed on 3 occasions, with no deaths.

Ligature of all coats of the stomach from within was first employed by E. W. Andrews, in a case in which the ulcer was located on the posterior wall and adherent to the pancreas, this position precluding excision. Rodman found three such operations, all of which were successful. Since then we have encountered three more which were also successful.

INDIRECT RADICAL TREATMENT.

Under this heading will be included the methods of surgical intervention that do not in any manner directly involve the seat of the hemorrhage. The action upon the bleeding-point is only an indirect one. The most important procedure included in this class is the apparently all-healing operation of gastrointestinal anastomosis, gastroenterostomy. Others which must be included are pyloroplasty, gastrotomy and division of the pylorus, or Loreta's operation and jejunostomy.

Gastroenterostomy is today, without doubt, the usual operation in the average case of gastrorrhagia or chronic hematemeses, as it is in the average case of gastric ulcer. In many cases there will be no choice, as conditions will be met that will place the direct operations out of the question and leave gastroenterostomy as the operation of necessity. In 1900, Rodman collected 63 operations for hemorrhage complicating gastric ulcer, and in these 63 gastroenterostomy was performed 25 times. Since then we have noted 100 cases of operation for gastric hemorrhage, of these 42 were gastroenterostomies. Gastroenterostomy with enteroenterostomy, has been performed four times with three deaths; gastroenterostomy with enteroenterostomy and jejunostomy, has been done once; the patient recovered.

The exact manner in which a gastroenterostomy usually causes a healing of the ulcer is a question more or less debatable. But the explanation usually accepted is, in effect, as follows: The anastomotic opening allows a comparatively free drainage, the stomach is rapidly emptied, and is therefore given rest and quiet; the hyperchlorhydria is diminished, and as the opening is at the most dependent portion of the stomach and to the left of the ulcer-bearing area, the ulcer is not irritated by prolonged contact with the stomach contents. It has also been claimed that the admittance of the small amounts of bile and pancreatic juice that find their way into the stomach exert a beneficial influence upon the ulcer. In certain cases in which the gastrointestinal opening becomes closed, because of the improved and more patent condition of the pylorus, the symptoms of gastric ulcer, and even hemorrhage, have been known to return. Whether this is due to the formation of new ulcers or to a revival of the old, cannot be definitely stated.

As to the stopping of gastric hemorrhage by the performance of gastroenterostomy, such substantial reasons as those stated for the healing of the ulcer cannot be presented. The chief reason for expecting hemorrhage to cease after the operation will be on account of the rest given to the stomach by the new opening, so doing away to a large extent with peristalsis, and at the same time allowing the organ to contract; also the lack of irritation of the bleeding-point by the stomach contents. These conditions, and others, do without doubt favor the stopping of hemorrhage and the formation of a clot. But that there are cases in which these measures are not sufficient to arrest the hemorrhage, cannot be doubted. It would certainly seem unreasonable to expect such roundabout and indirect measures to stop a profuse hemorrhage in instances in which a large artery has been opened laterally. On the other hand, as showing the possibility of cessation of bleeding from such a source, Robson's case is instructive. Death took place as a result of leakage at the site of button anastomosis. He states: "So far as the hemorrhage was concerned, the gastroenterostomy had been com-

pletely successful, and the vessel, though perforated at one side, was occupied by a firm clot." Even in cases in which the bleeding was found to be due to a parenchymatous oozing, the operation has been known to fail to arrest the hemorrhage. It would therefore seem that as a method of stopping hemorrhage from a large artery it cannot be relied upon; and that in cases in which the bleeding comes from the smaller capillaries it is practically, but not always, sufficient.

The amount of the hematemesis will be found to be no criterion as to the size of the bleeding vessel, for in cases that have rapidly terminated fatally, the bleeding-point has been so small as to escape detection at autopsy, even in the hands of the most expert. On the other hand, in cases in which the bleeding vessel has been found to be of such caliber as the splenic artery, life has persisted for weeks after the beginning of the hemorrhage. Therefore, as we are not able to determine with any reasonable degree of accuracy as to the nature of the source of the hemorrhage, it would seem that a gastroenterostomy is indicated only after a thorough search for the bleeding-point.

The exact status of gastroenterostomy as a hemostatic measure in gastric hemorrhage is not definite. This phase of the subject I discussed at length in the *Annals of Surgery* of October, 1904.

The conclusions reached are as follows: Gastroenterostomy is indicated in hematemesis: (1) After a thorough search has failed to reveal the source of hemorrhage; (2) when the source of the bleeding is discovered, but under such conditions as to make direct treatment impracticable or impossible.

The supplementary use of gastroenterostomy after the repair of perforation has recently been considered *pro* and *con* by English before the Royal Medical and Chirurgical Society, November 24, 1903, and he concludes: (1) It increases the length of the operation; (2) it increases the risk of the operation; (3) it is useless. In the discussion Keetley and T. C. Dent agreed with him, H. J. Paterson did not, as he considered gastroenterostomy under such conditions to be advantageous, because: (1) It gave the stomach physiologic rest; (2) it facilitated the healing of other ulcers if present; (3) it was possible to feed the patient earlier.

In the 100 collected cases, a combination of gastroenterostomy with direct measures was found 5 times; all of the patients recovered.

Pyloroplasty.—As pyloroplasty allows of a more perfect drainage of the stomach contents, it has been recommended and employed as an indirect radical method of treating gastric hemorrhage. The improved method of Finney, which should be called a gastroduodenostomy, as pointed out by Mayo, allows of a more ample and perfect drainage than does the Heineke-Mikulicz method, but not so much so as does a gastroenterostomy. After a pyloroplasty by either method, the drainage is imperfect in that it is not at the most dependent part, and the stomach contents will still pass over the ulcer and ulcer-bearing area. This source of irritation is removed after a proper gastroenterostomy. This point constitutes the most important difference between the two operations, and is the most conclusive reason for favoring the use of gastroenterostomy.

Pyloroplasty, alone, has been done for hemorrhage, up to 1900, in eight cases, with three deaths. Since then we have been able to find only two cases; both patients recovered. In one other instance it was employed in conjunction with ligation and cauterization; this case also terminated favorably.

Gastrotomy.—The action of gastrotomy in stopping hemorrhage, if it has any, is exerted in an indirect manner, so indirect, in fact, that of 7 cases collected by Rodman in which nothing else was done, 6 patients died. We have collected 6 additional cases, 4 of which were fatal. The fact that the mere opening of the stomach will sometimes arrest hemorrhage, is

accounted for by the direct action of the air. The severing of muscular fibers of the stomach wall is also advanced as an explanation. But it is seldom, if ever, now employed without some other direct or indirect method being used in addition.

Loreta's operation is but seldom employed in the operative cure of hematemesis. In principle it is the same as pyloroplasty. Keetley performed this operation once successfully, employing a special dilator. He says of another case: "It is probable that if I had fully dilated the pylorus at the time of the first operation I might have been spared the necessity of a second operation." Petersen also employed this method after a gastroenterostomy, in which the hematemesis continued. He dilated the pylorus and also the anastomotic opening, but the recovery was unsatisfactory.

Jejunostomy has been performed in one of the collected cases, and in that instance resulted fatally.

From this survey of the different methods of treatment for gastric hemorrhage, it would seem that:

1. After palliative treatment has failed to effect a cure in a reasonable time, and in all cases in which three or more profuse acute hemorrhages have occurred, that surgical treatment is demanded.

2. Of the various methods of surgical intervention, unless distinctly counterindicated, the direct method should be preferred. The indirect method is indicated when the direct cannot be carried out, and sometimes as a supplementary operation after the direct procedure.

3. Of the direct methods, the choice will lie between ligation of the mucous membrane, excision of the ulcer, or pylorotomy and Andrews' operation.

4. Of the indirect methods, gastroenterostomy will be the operation performed.

The mortality rate to be expected after radical operation will depend upon various conditions, such as the previous history and the present condition of the patient, the number and character of the hemorrhages, and whether the operation is being undertaken as a prophylactic or a life-saving measure.

The percentage of fatalities has been decreasing gradually.

	Cases collected.	Recoveries.	Deaths.	Percent.
Marion—1897.....	9	3	6	66.0
Hartmann—1898.....	12	4	8	51.6
Bidwell—1899.....	12	6	6	50.0
Robson—1900.....				
Acute.....	26	12	14	53.8
Chronic.....	19	17	2	10.5
	45	29	16	32.1
Rodman—1900.....				
Acute.....	32	19	13	40.6
Chronic.....	31	25	6	19.3
	63	44	19	30.0
Connell—March, 1904.....				
Acute.....	57	42	15	26.3
Chronic.....	35	32	3	8.5
Unknown.....	8	3	5	62.5
	100	77	23	23.0

As showing the comparative usage of the different methods of operation and their individual mortality rate, it will be found that in 100 collected cases, direct operative treatment was employed in 34; 28 of the patients recovered and 6 died.

The various operations were as follows:

	Cases collected.	Recoveries.	Deaths.
Ligation of mucous membrane.....			
Acute.....	8	7	1
Chronic.....	4	4	0
	12	11	1
Excision of ulcer.....			
Acute.....	7	3	4
Chronic.....	2	2	0
	9	5	4

	Cases collect'd.	Recoveries.	Deaths.
Pylorotomy.			
Acute.....	7	7	0
Chronic.....	1	1	0
	8	8	0
Excision with double ligation of artery.			
Acute.....	1	0	1
Andrew's operation.			
Acute.....	2	2	0
Chronic.....	1	1	0
	3	3	0
Subserous ligation of artery.			
Unknown.....	1	1	0

Indirect operative treatment was employed 58 times, with 41 recoveries and 17 deaths.

	Cases collected.	Recoveries.	Deaths.
Gastroenterostomy.			
Acute.....	19	14	5
Chronic.....	19	18	1
Unknown.....	4	1	3
	42	33	9
Gastroenterostomy with enteroenterostomy.			
Acute.....	2	1	1
Chronic.....	2	0	2
	4	1	3
Gastroenterostomy with enteroenterostomy and jejunostomy.			
Chronic.....	1	1	0
Gastrotomy.			
Acute.....	3	1	2
Unknown.....	3	1	2
	6	2	4
Pyloroplasty.			
Acute.....	1	1	0
Chronic.....	1	1	0
	2	2	0
Loreta's operation.			
Acute.....	1	1	0
Chronic.....	1	1	0
	2	2	0
Jejunostomy.			
Unknown.....	1	0	1

In six instances a combination of the direct and the indirect methods was employed, in which all the patients recovered.

	Cases collected.	Recoveries.	Deaths.
Gastroenterostomy with ligature.			
Acute.....	3	3	0
Gastroenterostomy with double ligature.			
Acute.....	1	1	0
Gastroenterostomy with excision.			
Chronic.....	1	1	0
Pyloroplasty with ligation and cauterization.			
Acute.....	1	1	0
	6	6	0

In the remaining cases, the operation was done once for a direct traumatism, and in the other a perigastric abscess was opened. Both of the patients recovered.

In reviewing these cases there will be found 100 operations for gastric hemorrhage, with 77 recoveries and 23 deaths. In three cases, two operations were performed upon the same patient; one of these died. In 78 cases, in which age was mentioned, the proportion was as follows:

	Recovered.	Died.
15 to 20.....	3	0
20 to 30.....	24	5
30 to 40.....	15	6
40 to 50.....	12	2
50 to 60.....	7	2
60 to 70.....	1	1

In 77 cases in which the sex was noted, 26 were males, of which 19 recovered and 7 died; 51 were females, of

which 43 recovered and 8 died; 48 of the cases were of the acute symptomatic type, 36 recovered and 12 died; 9 were of the acute, nonsymptomatic variety, 6 recovered and 3 died; 35 were chronic hemorrhages, 32 recovered and 3 died; 8 were unknown, 3 recovered and 5 died.

Ulcer was found 43 times, 34 single and 9 multiple. Erosions were encountered 12 times, 4 single and 8 multiple.

These were noted in the pyloric region, 28 times; cardiac region, 5 times; anterior wall, 4 times; posterior wall, 10 times; greater curvature, 4 times; lesser curvature, 10 times.

External examination of the stomach was noted as being negative 14 times, and on 11 occasions the internal examination was also negative. Ulceration of the duodenum was mentioned 5 times.

While searching for the foregoing 100 cases, we came across mention of 28 instances in which palliative means were employed. This is certainly an unfair and inaccurate proportion of patients treated by these two methods. There is no doubt but what, in actual experience, the number of cases in which palliative measures were used far exceeds the number in which radical measures were employed. This difference between actuality and reported cases must be kept in mind when attempting to draw conclusions. The unreliability of statistics, based upon the literature, and the lack of reports of cases in which medical treatment was followed, will be forcibly brought to mind by the fact that of these 28 cases, in the 21 acute cases, 17 terminated fatally, and 4 in recovery, while in the 7 chronic cases, 5 patients died and 2 recovered.

AUTHOR'S CASES AND 99 COLLECTED FROM THE LITERATURE SINCE 1900.

The literature upon the subject of the surgical treatment of gastric hemorrhage, has increased very rapidly since its origin in 1887. Numerous writers have collected cases. Marion, in 1897, collected 9; Hartmann, in 1898, 12; Bidwell, in 1899, 12; Robson, in 1900, 45; and Rodman, in 1900, 63 cases. Since Rodman's statistical table, published in 1900, there have been many additional cases reported. We have collected 100 cases in which surgical treatment was followed; they are here reproduced in abstract.

G. E. ARMSTRONG.¹—Female, aged 19, gave a history of indigestion, one year ago vomited a pint of pure blood, since then has had distress after eating, repeated hematemesis and melena, within the last few days. Upon opening the stomach a small deep ulcer was found with a spouting artery in its base, this and other similar bleeding-points were controlled by ligation. Two superficially ulcerated oozing patches were touched with the point of a thermocautery. No other bleeding-points being discernible the opening in the anterior wall of the stomach was closed and the pylorus incised and closed by the Heineke-Mikulicz method. Recovery, perfect till the eighth day when she suddenly died. No autopsy, but it was learned there had been no hemorrhage into the stomach or duodenum. Two large thrombi were removed from the two branches of the pulmonary artery. It is possible that these were in process of formation at the time of operation.

H. B. ANGUS.²—Female, aged 19. Indigestion and vomiting for 12 months, never vomited blood till night before operation. At operation ulcer was found the size of a three-penny piece on the posterior wall near the pylorus, with a recent blood clot in it. Ligation of the ulcer with catgut. Recovery, complicated by thrombosis of the saphenous veins.

A. E. BARKER.³ mentions two cases in which posterior gastroenterostomy was performed on account of chronic ulcers, one of the duodenum and the other in the stomach, which were bleeding to a disquieting and perhaps dangerous degree, lasting for a long time in spite of good treatment. Recovery and a marked improvement in health followed in each instance.

A. H. BUCK.⁴—Female, aged 39, had indigestion for six months, with profuse hemorrhages for three days, patient in collapse. At operation, external examination of the stomach was negative. Ulcer found at cardiac end, on posterior wall, by digital examination. It was an acute ulcer with no thickening around the edges. Ulcer excised, closed by pursestring and some Lambert sutures. Recovery, complicated on the thirteenth day by an attack of peritonitis, on the right side.

F. G. CONNELL.⁵—Female, aged 31. Acute nonsymptomatic, multiple hematemesis. Five profuse hemorrhages in the past four days. Laparotomy; omentum adherent to the anterior

abdominal wall; no external or internal sign of gastric ulcer; anterior gastroenterostomy. Death on fifth day, no hematemeses during the interval, but melena was pronounced. Autopsy showed a large single ulcer on the anterior wall, near the lesser curvature, and the pylorus. Microscopic sections revealed an eroded artery.

SIR DYCE DUCKWORTH.³—Female, aged 29. History of repeated hematemeses, with signs of internal hemorrhage. At operation, nothing to be called an ulcer could be found in the stomach, but in the greater curvature, near the pylorus, the mucous membrane over several square inches was pink and different from the rest, which was of an ivory-yellow tinge. At various points on this pink area, were slight excoriations, fissures and oozing of blood. Nine of these points were ligatured. Recovery.

L. FREEMAN.—Posterior gastroenterostomy for hematemeses; hemorrhages returned about three months after the operation, and death, caused by a profuse hematemeses, occurred seven months after.

Posterior gastroenterostomy for hematemeses; stomach showed no external sign of ulcer, external exploration not attempted. Death occurred at the end of 50 hours. Autopsy showed an ulcer the size of a watermelon seed, on the posterior wall, with an atheromatous artery, plugged by a thrombus in the floor of the ulcer.

L. FRANK.⁴—Man, aged 55, gastric disturbance for 4 months, hematemeses for 12 days. At operation an ulcer was found at the lesser curvature adherent to the liver. Performed "gastroenterostomie en Y." Uneventful recovery for four days then had a return of the hematemeses and died. Autopsy showed two ulcers; the bleeding undoubtedly came from an open artery in the base of one.

CRISP ENGLISH.⁵—Male of 63, had stomach symptoms for six months, supposed to be due to carcinoma of pylorus. On third day, 44 hours after admission, had a sudden attack of hematemeses, vomited a pint of dark blood in clots. Nine hours later, while reading a newspaper, felt a sudden pain in right hypochondrium. Operation two hours later disclosed a small pin-hole perforation in the floor of a large pyloric ulcer. Death, of syncope, at the close of the operation.

A. E. GARROW.⁶—Female of 26, gave a history of gastric ulcer for the past five years. First hemorrhage profuse and with syncope, occurred 20 days before entering the hospital. At operation the external and internal examination of the stomach was negative, the pylorus irritable and contracted, and the bleeding-point was thought to be in the duodenum. While sponging the mucous membrane, a dilated vein ruptured; this was ligated with silk. Posterior gastroenterostomy was then performed. Recovery perfect.

J. L. HAMMOND.⁷—Female, aged 28. Symptoms of gastric ulcer, with hemorrhages for eight years, medical treatment of no avail. At operation found ulcer on the posterior wall near the lesser curvature. Ulcer was excised and the wound closed with Czerny-Lembert sutures. Recovery.

HENRI HARTMANN.¹⁰ in discussing Terrier's case mentioned a similar instance in his own practice. He could not find the bleeding-point, did a gastroenterostomy which was followed by death, and the autopsy revealed an erosion from which, in all probability, the blood had originated.

HENRI HARTMANN.¹¹ speaks of two cases of gastroenterostomy for moderate hemorrhages, the patients were well after a lapse of two years.

E. P. JOSLIN¹² cites two cases of gastroenterostomy for hemorrhage and dilation, with recovery from the operation in each instance. But ultimately both patients died of cancer, one month and 20 months after operation. Also two cases of gastroenterostomy with enteroenterostomy; both patients died as a result of the operation; and one case of excision of the ulcer, with perfect recovery two years after the operation.

H. M. JOY.¹³ Female of 24, gave an unsatisfactory history of gastric disturbance for a period of several years; 23 attacks of hematemeses occurred in one night, this was followed by irregular hematemeses for a number of days. Condition of the patient extreme. Operation revealed five eroded points, bleeding very freely, situated near the pylorus. These points were ligated separately with catgut. Recovery.

Female of 28, gave a history of gastric catarrh for six years. Palliative treatment gave only temporary relief. Hematemesis increasing in frequency and amount during the last week. Incision of the stomach revealed an intensely congested mucous membrane, with numerous eroded points in the pyloric portion, which were bleeding freely. These points, 13 in number, were ligated separately with pursestring ligatures. Patient improved for a week, and then a recurrence of the bleeding took place. A second operation showed the points previously ligated in perfect condition, but in the cardiac end some six or eight points were bleeding freely. These were ligated, and as the abdomen was closed the patient suddenly collapsed and died.

W. KAUPÉ¹⁴ says that Witzel operated for hematemeses, and found the arteries of the stomach very much enlarged. The dilation seemed to be almost an aneurysm, at one point distinguished further by adhesions, evidently corresponding to the site of the ulcer on the inner side of the stomach wall. He ligated the afferent gastric artery to the right and left, without opening the stomach. All hemorrhage was arrested at once, and the patient has been in good health for the two years since the operation.

C. B. KEETLEY.¹⁵ Female, aged 28. Six months previous had three severe attacks of hematemeses. She was apparently cured by palliative treatment. Gastric symptoms soon returned, and a severe hematemeses brought her to the hospital. At operation ulcer was found on the posterior wall near the lesser curvature, adherent to the diaphragm and pancreas; it was completely perforated, and was seven-eighths of an inch in diameter. The adhesions were separated, the ulcer scraped and sutured. Patient was well for some months, but the symptoms returned, and 18 months after the first a second operation was performed. No adhesions were found, but the lesser cavity of the omentum was not opened; an anterior gastroenterostomy, with Murphy button, was performed. Eight months after, the result was very satisfactory, except that the button had never been seen, by röntgen ray or otherwise.

Female, aged 39, gave a long history of chronic gastric trouble, with severe hematemeses. Loreta's operation—pylorus stretched to four and a half inches, internal circumference, by means of a special dilator. Recovery perfect.

KRAUSE.¹⁶—Female of 39, gave typical history of ulcer, with violent attacks of hematemeses. At operation a hard mass was found, the size of a dollar, on the lesser curvature. This mass was excised by means of an elliptic incision and the wound closed by suture. Death occurred on the ninth day after operation. In the excised portion of the stomach wall there was found the coronary artery which had been eroded.

Patient, aged 29, for four years had had symptoms typical of gastric ulcer, with hematemeses. Great emaciation. Operation consisted of gastroenterostomy with enteroenterostomy, and in order to nourish the almost starved patient, a jejunostomy was also made. For two days after operation the vomiting of blood continued, and without the jejunal fistula nourishment would have been impossible. For 13 days nourishment was administered in this manner. In the second week the stomach symptoms disappeared and the fistula was allowed to close. Liquid nourishment by mouth was now allowed and tolerated and the recovery of the patient was perfect.

A. LAMBOTTE.¹⁷—Female, aged 34. Five years previous had hysterectomy performed for hemorrhagic metritis. Seven weeks ago had an attack of copious vomiting of blood. Even the smallest amount of liquid nourishment was followed by pain and vomiting, sometimes hematemeses. At operation no adhesions were found or infiltration of the stomach, but a marked thickening of the pylorus and a dilation of the stomach. Resection was made of the pylorus, followed by union of the cut edges of the duodenum and stomach by sutures. Recovery. The resected pylorus showed hypertrophy of the muscularis and the mucosa was normal, excepting some points where the epithelium was eroded.

Female, aged 31, had dyspepsia and eructation of gas since her last confinement, seven years ago. Six weeks ago she had an enormous hematemeses with collapse. At operation stomach and intestine were found practically normal, no adhesions. But there was some thickening of the pylorus. Pylorotomy was done, followed by recovery.

Male, of 56, had stomach symptoms for 27 years, and during the last seven has had frequent hemorrhages from the stomach. At the time of the last hematemeses he fell on the street in collapse. At operation numerous adhesions prevented a pylorotomy or a posterior gastroenterostomy, therefore an anterior gastroenterostomy was made, with enteroenterostomy. Convalescence was complicated by a pneumonia, but the recovery was finally perfect.

Female of 26, had been a dyspeptic from her youth, constitution good, but feeble. Seven years ago had a very severe hematemeses. Since then has had several attacks of vomiting of blood. The last one occurred five months ago. At operation, the stomach was found to be dilated, with a marked development of the veins; there was no evidence of ulcer, no induration nor adhesions. The pylorus was hypertrophied. The pylorus was removed, recovery uneventful.

Female of 30, had marked digestive disturbances for years. Two weeks before operation she had a very profuse and alarming attack of hematemeses. At operation, blood was found in the stomach, but there was no lesion visible; the pylorus was hypertrophied. Pylorotomy was followed by perfect recovery. The resected pylorus showed an ulceration 3 mm. in diameter on the mucosa.

Female, aged 38; with the exception of a chronic gastritis of 10 years' standing, her previous history was negative. Vomiting and nausea were very frequent after meals. Four years ago she had a very abundant hematemeses; a similar attack occurred a few months ago. The diagnosis was either ulcer or carcinoma of the stomach. At operation, no trace of ulcer or tumor could be discovered, merely a simple stenosis of the pylorus. Pylorotomy was done. Recovery, perfect.

Female. Gastric affection for four years, a typical Reichman's disease. Two weeks previous had an acute hematemeses. At operation the stomach was found very much dilated, no adhesions or induration. Pylorotomy. Recovery complicated by pneumonia. On the mucosa of the removed pylorus there were seen signs of ulceration, the muscularis only was hypertrophied.

Female, aged 26. Syphilis four years ago and has had dyspepsia for some years, with frequent hematemeses; her nourishment has consisted of milk and eggs. Six months ago surgical intervention was advised, but was rejected. The

hematemesis returned and she consented to operation. The stomach was found dilated and prolapsed, the pancreas visible above the lesser curvature. The pylorus was thinned, free from adhesions, and the duodenum elongated. Pylorotomy was followed by perfect cure.

C. H. MAYO.—Man of 40, with history of chronic gastric disturbance, and occasional vomiting of blood. At operation, external examination of the stomach gave no evidence of ulceration. A posterior gastroenterostomy was performed, but there was more hemorrhage after it than before and death ensued at the end of four days. At autopsy, the anastomosis was perfect, the intestine was filled with blood, and a few points of erosion were to be seen on the mucous membrane.

A. MILES.¹⁸—Female of 42, four years ago had dyspepsia, after which she was well until the present attack of acute bleeding, which lasted for three days. At operation ulcer was found close to the pylorus, no bleeding-point visible in the ulcer. As invagination or excision was considered impracticable, a posterior gastroenterostomy was done with suture. Recovery perfect.

A. W. MORTON.¹⁹—Male, aged 36. Complained of indigestion and pain for a month; during the past week hematemesis occurred repeatedly. At operation there was no sign of ulcer on the serous coat. Anterior gastroenterostomy with Murphy button was performed. Death occurred on the second day. Autopsy showed the button to be well taken, no peritonitis, with considerable blood in the stomach and bowel. Two large ulcers on the posterior wall of the stomach.

Female, aged 18, was well until four months previous to operation. External examination of stomach negative. Found two ulcers on the posterior surface; manipulation started bleeding. Electric cauterization failed to arrest the hemorrhage. Ulcer ligated en masse, as recommended by Andrews. Recovery.

E. MOSER.²⁰—Patient aged 41. Previous gastric disturbance and hematemesis. Was well for two years, and then the symptoms returned. Hematemesis present till the patient was in a state of extreme exhaustion. At operation no signs of bleeding nor any thickening of the stomach wall could be found. Some fine adhesions along the greater curvature and in the region of the pylorus. Posterior gastroenterostomy performed. Death ensued on the fourth day. At autopsy four small points of hemorrhage were found in the pylorus.

MARTIN.²¹—Acute life-endangering hematemesis. At operation an ulcer was found on the posterior wall with the pancreas adherent. A jejunostomy was done, and the patient died on the ninth day.

MOULLIN.²²—Female, aged 42. History of hematemesis for six years, medical treatment of no avail. At operation, external examination of stomach negative. On posterior wall, nearer cardia than pylorus, two small bleeding ulcers were found. Submucous ligation in two directions. Recovery. Five years after, she is free from pain; has vomited blood in small amounts on two occasions since operation. General health much better.

Female, aged 34. Hematemesis frequently repeated during the last five days; previous history negative. At operation a small bleeding-point too small to be called ulcer was found located on the posterior wall near the pylorus. Treated by submucous ligation in two directions. Recovery. Four years later, reports no pain, bleeding or sickness since operation.

Male, aged 42. Indigestion five years ago, return of symptoms with hematemesis and melena seven months ago. At operation, stomach not opened, abdomen closed, but bleeding continued. Reoperation, after long search, discovered irregular bleeding ulcer an inch and a half long at cardia. Attempts to ligate made bleeding worse, so included all coats in the ligature of Andrews. Bleeding recurred at intervals, but the patient finally recovered. Four years after, general health much better.

MOULLIN.²³—Female, aged 26. History of indigestion for 18 months. Slight hematemesis four months previous, and many attacks in the last few days. At operation, small ulcer found on anterior surface near greater curvature. Ulcer excised down to muscular coat, and gap closed by silk. Recovery; convalescence complicated by parotitis.

Female, aged 28. Hematemesis for four days. At operation an old cicatrix was discovered at cardiac end; this was excised; also, a chronic ulcer was found near by, in the base of which was seen a bleeding branch of the gastroepiploic artery. This ulcer was excised with a double ligature of the artery. Parotitis, suppuration, and death on the ninth day. At autopsy the opening in the stomach was merely held together by the sutures. The edges were sloughing and there was an entire absence of repair.

MOULLIN.²⁴—Male, aged 50. Tight annular stricture at pylorus, with dilated stomach. Pain, vomiting and hematemesis six years before. Pyloroplasty. Recovery, perfect.

Male, aged 23. Pain and vomiting off and on for seven years. Hematemesis once recently. Perigastric adhesions around pylorus. Pyloroplasty. Recovery perfect, with exception occasional attack of pain; no hematemesis.

Male, aged 39. History of stomach trouble for three years. Four attacks of hematemesis, last two very severe. Gastrotomy, nothing found. Result, perfect.

Female, aged 20. History of hematemesis. At operation a small erosion found, which was ligated. Result, vomiting returned and continued after some months. Hysteria(?)

Female, aged 29. Pain and vomiting of pus and blood for

two years. Operation consisted of the opening of a perigastric abscess. Recovery, perfect.

Female, aged 26. Gave history of pain for years. Hematemesis four months before, and also seven times in the last five days. At operation, chronic ulcer found on lesser curvature; this was excised. Recovery, perfect.

Female, aged 30. Indigestion for 12 years, severe hematemesis many times in the last few days. At operation, found an erosive ulcer, which was ligated. Recovery, satisfactory; no more hematemesis.

Female, aged 34. Indigestion all her life, pain extreme, and hematemesis once. Found old ulcer on anterior wall near lesser curvature. Anterior gastrojejunostomy. Recovery, good.

Female, aged 30. Hematemesis many times during the past three years. At operation, pylorus rather tight, no ulcer found, mucous membrane deeply congested. Did anterior gastrojejunostomy. Recovery imperfect; hematemesis once since; otherwise normal; in hospital six months after operation.

Female, aged 27. Very severe hematemesis two years ago and again recently; collapse. Found chronic ulcer on posterior surface; ligatured en masse. Recovery, perfect.

Female, aged 25. Indigestion with hematemesis at intervals for two years. Found numerous erosive ulcers, and also blackened patches. Ulcers ligatured. Recovery, immediate, perfect; but since has had a recurrence of hematemesis as frequently as before the operation.

Male, aged 48. Indigestion and hematemesis for 16 years. Found chronic ulcer near pylorus; did anterior gastrojejunostomy. Recovery, perfect.

MOYNIHAN.²⁵—Male, aged 30, gastric symptoms for 5 or 6 years. Vomited blood once, has attacks of melena. Ulcer of duodenum, many adhesions, scar of gastric ulcer on posterior surface. Posterior gastroenterostomy. Recovery.

Male aged 48. Under medical treatment for gastric disorder for 5 years. Bled freely several times recently. Anemic and prostrated with loss of weight. Ulcer size of florin on posterior surface near the pylorus, scar of smaller ulcer, about 3 inches from pylorus on posterior surface. Posterior gastroenterostomy. Recovery.

Female, aged 24. History of gastric ulcer for 18 months. In bed under medical treatment for last 6 months but has had almost daily hematemesis, marked anemia and prostration. At operation found a thickened ulcer the size of a shilling near pylorus, a dense red area covered with lymph on the posterior surface, and an ulcer, probably the bleeding one, on the posterior surface. This latter ulcer was excised, and a posterior gastrojejunostomy made, uniting the jejunum with the stomach at the site of the excised ulcer. Recovery.

Female, aged 26. Last few months has had stomach trouble, for weeks has had hematemesis and melena. The melena has continued and threatens to end disastrously. At operation found ulcer on posterior wall of stomach and another in duodenum, with many adhesions. Did a posterior gastroenterostomy. Recovery, perfect.

Female, aged 24. Symptoms of gastric ulcer for 15 months, exaggeration of these symptoms during the last 11 weeks. Hematemesis almost daily during the last five weeks, becoming more frequent and profuse; profound anemia. At operation, on the anterior surface near the pylorus, were found two scars the size of a three-penny piece, an inch apart. A few fine adhesions connected these scars with the anterior abdominal wall. On the posterior surface near the pylorus, an incrustated area about one inch in diameter, was seen adherent to the transverse mesocolon. Posterior gastroenterostomy. Recovery excellent.

Male, aged 29. History of "weak stomach" for several years; after an undue exertion, melena set in and continued until the patient was in a very critical condition. At operation, an inch from the pylorus and adherent to the pancreas was found a hard mass the size of a walnut. The removal of this mass was impossible, therefore gastroenterostomy was performed. Recovery, perfect.

Male, aged 32, 6 months' history of gastric disorder, attacks of melena frequent, and on two occasions accompanied by hematemesis. At operation found an ulcer of the duodenum about the size of a walnut and adherent to the pancreas. Removed 1,885 stones from the gallbladder and drained the latter. Posterior gastroenterostomy was performed. Recovery. Operation by Mayo Robson.

Female, aged 28. Irregular attacks of hematemesis for four and a half years. During the last month, symptoms have returned. At operation ulcer found, the size of a shilling and adherent to the pancreas, three or four inches from pylorus, close to the lesser curvature. Also an ulcer in the duodenum. Posterior gastroenterostomy. Recovery.

Male, aged 47. During past year had frequent attacks of hematemesis and melena. Medical treatment of no avail. Hemoglobin 18%. At operation, the stomach was found hypertrophied and dilated, and the first portion of duodenum imbedded a mass the size of a lemon; inflammatory thickening around ulcer. On the greater curvature, near the pylorus, an ulcer the size of a shilling was seen. Posterior gastroenterostomy. Recovery.

Female. Five years' history of indigestion and hematemesis. Medical treatment of no avail. Condition of patient becoming gradually more feeble. At operation, stomach found greatly dilated; at the pylorus and along the lesser curvature an indurated mass; the lesser sac almost obliterated by adhe-

sions. The anterior surface had no adhesions. Posterior gastroenterostomy, but the anterior would have been simpler. Recovery.

Female, aged 40. Five years ago had an attack of hematemesis which was almost fatal. Since then has had chronic indigestion. During the past four days has had two profuse attacks of hematemesis. At operation, two ulcers were found, one near the pylorus, hard, and the size of a shilling, with recent adhesions from the omentum, the other on the posterior surface, about four inches from the pylorus. Posterior gastroenterostomy. Recovery.

Male, aged 18. Symptoms of gastric ulcer for four years, hematemesis persisting for five days. Diagnosis of chronic gastric ulcer, with recent deepening of the ulcer. At operation a hard patch about the size of a shilling was felt in the anterior wall of the stomach, near the lesser curvature, toward the cardiac end. This was cut out between two elliptic incisions. The resultant horizontal wound was closed transversely. A careful examination of the rest of the stomach was negative. Result: For a week the progress of the case was most satisfactory. On the ninth day, immediately after the administration of an enema, the patient complained of faintness, he became collapsed, and died within a few minutes. No postmortem examination was allowed.

PETERSEN AND MACHOL.²⁶—Female, aged 30. History of gastric ulcer for 10 years, during the last week many severe hemorrhages. Marked dilation, with motor insufficiency of the stomach; hydrochloric acid increased and anemia marked. At operation, located ulcer, which was excised. Death on third day as a result of double pneumonia.

Female of 25 had disturbance of the stomach with pain and vomiting for the last two years. For the last month, many attacks of hematemesis, which has increased during the last few days. Slight dilation, with motor insufficiency of the stomach. Hydrochloric acid increased and anemia marked. Operation, a posterior gastroenterostomy. Result, nine months after operation, very satisfactory; patient in excellent health and there has been no more hematemesis.

Female, aged 44. During the past two years has had stomach trouble and at times profuse hematemesis. At operation no ulcer found, but did a posterior gastroenterostomy with button, and at the same time ovariectomy. The vomiting of blood persisted after the gastroenterostomy, and about nine weeks after the first operation a second was done, which consisted of a dilation of the pylorus and also of the anastomotic opening. The hematemesis still persisted after the second operation. The course of the case led one to think of hysteria.

A. W. MAYO ROBSON.²⁷—Man of 45, gave a six months' history of pain after eating, recently accompanied by vomiting of blood, profound anemia. Palpable tumor of pylorus, with dilation of stomach. At operation pylorus adherent to liver and omentum. Pylorotomy, tumor proved to be inflammatory, caused by an open ulcer. Recovery, perfect.

Man, aged 20. Free vomiting of bright blood following a stab wound of the abdomen. It was thought that the stomach had been perforated and that the bleeding was from a ruptured gastric artery. At operation, free blood and clots were found in free peritoneal cavity, but no perforation of stomach. Hemorrhage from the superior mesenteric vein, this was ligated and the abdomen washed out. Recovery, perfect. Robson says that the bleeding was evidently from bruising and possibly laceration of the mucous membrane of the stomach and not from a large vessel as it was arrested by the lavage.

Man, aged 44, history of gastric ulcer for four years. First attack of hematemesis six months previous. Recovered under medical treatment, but the hematemesis returned twice in the previous week; in collapse on admission. Operation, no attempt made to find the sight of the hemorrhage; a posterior gastroenterostomy with bobbin made. Recovery perfect; one year later no recurrence of symptoms.

Female, aged 33. Some slight indigestion for some time, but did not consider herself sick. Has had three attacks of hematemesis in the last week. Operation at once, no external indications as to the situation of the bleeding ulcer, explored interior of the stomach. Found seven bleeding-points, two bleeding freely, these were ligated en masse, the other points stopped on exposure to air. Closed wound in stomach, and did posterior gastroenterostomy with bobbin. Recovery perfect. Six months after, patient was well in every respect.

Woman, aged 28. Acute hemorrhages from stomach for nine days, medical treatment of no avail. Operation, no ulcer found, but several bleeding points, three of which were ligated en masse, the mucous membrane swabbed with tr. hamamelis. Closed the gastrotomy opening and made a posterior gastroenterostomy. Recovery perfect.

Man, of 63, gave five years' history of chronic gastric ulcer, during past year had several hemorrhages, which are apparently increasing. Operation, tumor found on lesser curvature, posterior gastroenterostomy done with bobbin. Recovery perfect. Death from exhaustion, probably due to carcinoma, one year later.

Female, aged 27. Seven weeks previous had an attack of acute hematemesis, repeated two weeks after. Improved under medical treatment, but during past week, symptoms returned. Operation, no definite signs of ulcer found, made a posterior gastroenterostomy. Recovery perfect.

Man, aged 38. Vomiting of blood at irregular intervals for

five years. Operation, small cicatrix of old ulcer found on anterior wall. The wall was thickened and adherent to the head of the pancreas. Gastroenterostomy. Recovery was uninterrupted.

Man, aged 44. History of stomach trouble for nine years, frequent hematemesis during the last four. At operation, found an extensive tumor of pylorus apparently due to thickening around a chronic ulcer. Did not attempt its removal, did merely a posterior gastroenterostomy. Recovery perfect.

Man, aged 58. History of stomach trouble for over ten years; on four occasions had lost blood by bowel, and only once did he vomit blood, the last severe hemorrhage was ten weeks ago. Operation, many adhesions found around thickened and indurated stomach. Posterior gastroenterostomy. Recovery perfect.

Woman of 48 gave history of gastric ulcer. At operation, found scars of several ulcers and adhesions. Posterior gastroenterostomy. Recovery, perfect.

Woman of 42 had five attacks of severe and alarming hematemesis. Operation, tumor of pylorus found with so many enlarged glands that had it been malignant its removal would have been useless. Gastroenterostomy. Recovery, smooth; but at the end of a month, while sitting up, suddenly collapsed and died within a quarter of an hour. Evidently profuse hemorrhage was the cause of death; blood oozed from anus. No autopsy.

ROUX.²⁸—Male, aged 50. Sudden profuse hemorrhage from the stomach. Operation, ulcer found on the greater curvature near the pylorus; the artery was ligated to the left and to the right of the ulcer and a gastroenterostomy was done. Recovery.

REICHARD²⁹ reports three cases of fatal parenchymatous hematemesis for Dr. Lindner:

Man of 56 was deeply icteric and had all the symptoms of common duct obstruction. At operation, nothing to account for the hemorrhage was discovered. Died nicely for five days, then had another hemorrhage and died. Autopsy revealed a chronic interstitial hepatitis, but no ulcer could be found in the stomach or duodenum.

Female, aged 34. Typical ulcer history, severe hematemesis frequently during the last three days. At operation, could find no signs of the bleeding. Patient died two days after, from a continuance of the bleeding. Postmortem examination of the esophagus, stomach and duodenum revealed nothing to explain the hemorrhage.

Female, aged 26. Profuse hematemesis four times during past four days, last night before the day of operation. At operation, could find no bleeding-point or ulcer, a continuation of the bleeding ensued and death from exhaustion occurred on the second day. Postmortem examination negative.

Sections of the stomach wall, under the microscope, in these cases also gave no explanation of the hemorrhages.

RYDIGER³⁰ mentions a case of gastroenterostomy for hemorrhage, in which the hemorrhage continued and caused death, despite the operation.

J. E. SOMMERS, JR.—Mentions a case in which he opened the stomach and found that the hemorrhage came from eight or ten erosions. He irrigated with hot water, which controlled the bleeding for a time, but it subsequently returned and the patient died.

WALTER SPENCER.³¹—Female aged 61. Recurrent hematemesis for six years, during last four months frequent vomiting of blood. At operation, extensive adhesions found; did gastroduodenostomy, followed by a recovery.

J. L. STRETTIN.³²—Female of 24, in whom gastric ulcer had given rise to very profuse hematemesis. At operation external examination of the stomach was negative. Incision made in anterior wall and the bleeding surface was seen on the posterior wall, it was about the size of a florin and consisted of an abrasion of the mucous membrane, showing the mouths of arterioles, from which blood was flowing freely. This portion of the stomach was inverted and several silk sutures were passed under the bleeding area and tied over it. Recovery good. Six months after, no return of symptoms.

TUFIER.³³—Presented the stomach of a female of 26, who had typhoid fever four years ago. One year ago profuse hematemesis occurred, and during the last year she had suffered with gastric trouble. Hemorrhages from the stomach had been profuse during the week before operation. At the operation, at neither the external nor the internal examination was there found anything to account for the bleeding. Gastroenterostomy was made, but the patient died during the following night. Autopsy showed an erosion, but it could not be said definitely that the bleeding came from this.

L. WHEELER.³⁴—Mentions a case of hematemesis (no details given) in which he did gastrotomy and nothing more. Recovery.

S. WHITE.³⁵—Man, aged 31. Operation was done 13 hours after perforation, perforation found and the ulcer excised. Patient was well for 12 days, then had repeated attacks of hematemesis, which continued till the fifteenth day, when he died. A few hours before death gastroenterostomy was performed under cocaine.

BIBLIOGRAPHY.

- ¹ Canad. Jour. of Med. and Surg., March, 1901.
- ² British Med. Jour., March 23, 1901.
- ³ The Lancet, August 23, 1902.

⁴ The Lancet, April 4, 1903.
⁵ British Med. Jour., October 17, 1903.
⁶ Zeit. für Chir., 1902, No. 18.
⁷ The Lancet, December 19, 1903.
⁸ Montreal Med. Jour., December, 1900.
⁹ Phila. Med. Jour., October 12, 1901.
¹⁰ Bull. et Memoirs de la Société de Chirurg. de Paris, No. 28, 1902.
¹¹ Med. News, March 14, 1903.
¹² Discussion of Munro's paper in the Boston Med. and Surg. Jour., August 20, 1903.
¹³ Med. News, August 16, 1902.
¹⁴ Deut. Zeit. f. Chir., January, 1902.
¹⁵ The Lancet, June 8, 1901.
¹⁶ Berl. klin. Woch., November 23, 1903.
¹⁷ Annales de la Société Belge de Chirurg., No. 7, 1899.
¹⁸ The Lancet, January 4, 1901.
¹⁹ So. Cal. Pract., January, 1903.
²⁰ Münch. med. Woch., November 4, 1902.
²¹ Kaupé: Deut. Zeit. für Chir., January, 1902.
²² The Lancet, October 20, 1900.
²³ The Lancet, July 5, 1902.
²⁴ British Med. Jour., February 20, 1904, p. 420.
²⁵ "The Surgical Treatment of Gastric and Duodenal Ulcers," 1903.
²⁶ Belt, z. Klin. Chir., Vol. xxxiii, 1902.
²⁷ The Lancet, February 9, 1901.
²⁸ Kaupé, Deut. Zeit. für Chir., January, 1902.
²⁹ Deutsche med. Woch., May 17, 1900.
³⁰ The Thirteenth Congress International de Med., 1900.
³¹ British Med. Jour., November 17, 1900.
³² The Lancet, April, 26, 1902.
³³ Bull. et Mem. de la Soc. de Chir. de Paris, No. 28, 1902.
³⁴ The Lancet, June 15, 1901.
³⁵ British Med. Jour., February 20, 1904.

PARATYPHOID FEVER WITH REPORT OF SIX CASES.*

BY

JOHN NORMAN HENRY, M.D.,
of Philadelphia.

Clinical Professor of Medicine, Woman's Medical College of Pennsylvania;
Assistant Visiting Physician, Philadelphia Hospital;
Physician to Outpatient Department, Pennsylvania Hospital, etc.

For several years certain febrile diseases have been recognized which are similar to typhoid fever clinically but differ in pathology and in the causative bacterial factor. The bacteria which have been found to be the cause of these so-called paratyphoid fevers are intermediate in their cultural peculiarities between *Bacillus typhosus* of Eberth and *Bacillus coli communis* of Escherich, and their recognition and classification are largely the result of the impetus given to the study of the blood by the serum-agglutination discovery of Widal.

This intermediate group consists of the meat bacillus (*Bacillus enteritidis*) discovered by Gärtner in 1888; *Bacillus psittacosis* discovered by Nocard; *Bacillus paratyphosus*, A and B; *Bacillus cholera suis*, *Bacillus typhi murine*, *Bacillus icteroides* of Sanarelli, and others.

A further division is made of those bacteria pathogenic to man: Group A. Meat poisoning group. Group B. Pneumonic of psittacosis group. Group C. Those causing typhoid-like symptoms in man.

In regard to this last group which alone concerns the cases about to be considered, a further subdivision may be made into Group A and Group B founded again on minor cultural peculiarities: Group A, a distinct species culturally unlike paracolons; Group B, a distinct species culturally like paracolons (Buxton). Members of Group A will not interreact with those of Group B and vice versa; while neither will react to typhoid agglutinins. It is not quite clear whether Group A or B consists of many organisms or but one in each category, as, unfortunately, different bacteriologists have given different names to the particular organism isolated in their particular cases. Thus Cushing speaks of his organism as *Bacillus O* while others are named after their describer without regard to the question of the true discoverer or the identity of the organism. Schottmüller finds small differences in the various organisms which lead him to take the view that there are groups which may be included in the classification previously mentioned.

In regard to the nomenclature, Gilbert suggested, in 1895, the name of paracolon bacillus for the germ which produces typhoid-like symptoms in man. Achard and Bensaude, Widal and Schottmüller later were responsible for the term paratyphoid both as applied to the fever and to the organism.

Expressed in the briefest possible manner, the differences between paratyphoid groups A, and B, and the typhoid and colon bacilli are:

	<i>B. coli communis.</i>	Intermediate.	Typhoid.
Coagulate milk.....	+	-	-
Produce indol.....	+	-	-
Ferment lactose with gas.....	+	-	-
Ferment glucose with gas.....	+	+	-
Agglutinate with typhoid serum.	-	-	+

The paratyphoid groups differ in these details:

A produces gas in glucose media and resembles typhoid bacillus in action on milk. Both produce initial acidity in milk and litmus wheys; with A it persists, with B it becomes a terminal alkalinity. Both reduce neutral red to yellow like *Bacillus coli communis*, according to Buxton; with A the red color slowly returns, while with B yellow persists.

The intermediates also are very actively motile, and possess many flagellas. They have a wide geographic distribution, being found in the Philippines, on the continent, and in the United States. In the body, the organism has been isolated from the blood, urine, feces, vagina, and rose spots.

The course of the disease, judging from a study of the cases reported, as well as from the observation of my own six cases, seems to be more irregular in point of time than that of typhoid, sometimes continuing for but a short two weeks, or as in one case reported, lasting 84 days. These short paratyphoid cases may furnish an explanation of those so-called abortive typhoids which so many physicians really more than half believe in, though denying.

The prodromal stage is shorter than that of typhoid, the actual onset more abrupt, and the acme of the disease more rapidly reached; particularly in the more severe cases may this be noted. Clinically there is no distinction possible between the infections produced by organisms of the A or B group, though the latter are very much more common, and were found in 69 cases out of 84 investigated. All the fatal cases reported have also been of the B group (Prott), 1903; since then the A disease has also been fatal. The classic symptoms of typhoid are very often all present—nosebleed, spots, headache, characteristic temperature changes, and a pulse slow in proportion to the elevation of temperature, while in severe cases there may be great mental dullness, wild delirium, and hemorrhage. The bowels may be either loose or costive. In my own six cases they were not markedly changed either way.

The duration of the disease is usually shorter than that of typhoid fever, and may end by crisis. Brill states this frequently happens, but my own experience leads me to believe lysis is a much more common ending. Hume analyzed 14 cases, and found constipation present in 8, diarrhea in 5 (in 1 there was no note in this connection), termination by lysis in 12, crisis in 2. The average length was 27 days, and in two patients relapses occurred. Clemens gives the mortality as 6%, and the duration 10 days to 22 days. Brion found hemorrhage in 5% of cases, but no perforations have ever been reported. Schottmüller found the specific germs in drinking water, and reports the case of a laboratory assistant who contracted the disease from working with paratyphoid cultures. An epidemic also was supposed to have had its origin from one infected soldier in barracks.

* Read before the Medical Section, College of Physicians, Philadelphia.

The complications are as numerous, and similar to those of typhoid, and include :

Bronchitis,
Pneumonia,
Pleurisy,
Endocarditis,
Thrombosis,
Phlebitis,
Meningitis,
Peritonitis,

Intestinal hemorrhage,
Suppurative cholecystitis,
Cholelithiasis,
Nephritis,
Suppurative orchitis,
Cystitis,
Furunculosis,
Osteomyelitis.

And by no means least, paratyphoid may be complicated by typhoid, as is possibly the case in one of my own cases. Libman reports a fatal case in which the paracolon and typhoid Widal tests were both positive, and in which at autopsy healed ulcers in the ileum were found. The paracolon germ was isolated from the blood, gallbladder, and urine during life, the typhoid bacillus, however, was not found. The pathologic picture in those few cases which have come to autopsy is clearly differentiated from that of typhoid fever.

Wells and Scott sum up four autopsies, and add one of their own. In none are the characteristic changes of typhoid present. In two were found ulcers of the intestine, but this ulceration was of dysenteric type, the solitary follicles and Peyer's patches altogether escaped. Longcope in his autopsy found no involvement of the solitary follicles or of Peyer's patches, and noted the absence of the characteristic endothelioid proliferation of the mesenteric glands. It is quite likely that ulceration of the intestines only takes place in the more severe cases, and that the pathologic changes are, in most cases, those of septicemia.

There is considerable confusion in regard to the division between the A and B organisms, and contradictory descriptions of the distinctions have been made by different writers. The classification at present, which seems the best, is that proposed by Schottmüller, Brion and Kayser, which is founded on cultural differences demonstrated by Schottmüller. To these two groups they suggested the respective titles of A and B.

The A organism, or α as named by some, differs principally from the B or β in its action on litmus milk. After 48 hours, the milk is scarcely cloudy, rust red in color, acidity 1.6%. While B is at first like A, but after the tenth day and onward the milk becomes blue violet in color, and has an alkalinity of 2.8%. To these two germs the names paratyphoid and paracolon have been given at the Pennsylvania Hospital. The first, because of its closer resemblance to the typhoid bacillus, and the latter, because of its similarity to the colon group. At the Pennsylvania Hospital, the first or paratyphoid disease is very much the more common, though Pratt's statistics show a great preponderance of the B organism in an analysis of 84 cases. In my own six patients there was but one paracolon fever, or that one due to the B organism, and five of the A or paratyphoid infection. In Case II, possibly the patient also had typhoid. The incubation stage and onset was, in the majority of the cases, shorter and more abrupt than in typhoid. The duration of the disease in Cases I, V and VI was 15, 14, and 25 days, while in Cases III and IV, in which relapses occurred, the duration was 44 and 30 days respectively.

In Case II, possibly complicated with typhoid, the course covered 30 days. Four of the patients had more or less typical spots, and three had enlarged spleen, while in one patient abdominal tympany prevented a satisfactory examination. The bowels were not materially affected. Every patient recovered, though in Case III the patient was very ill, largely because of the great exhaustion following the wild delirium which was present during the last few days of his illness.

The disease so closely resembles typhoid fever that it is difficult to arrive at a satisfactory diagnosis without the aid of the laboratory. However, in any case of fever giving a negative Widal, in which the onset is too abrupt for typhoid, and in which the typhoid-like state

is arrived at in from three to five days, the presence of one or other of these fevers is likely.

Case II gave reactions not entirely positive, either of paratyphoid or typhoid, and suggested the thought that perhaps we were here dealing with a member of a third group of organisms hitherto undiscovered, which is nearly related to each of the others, or with equal probability the reactions may be regarded as results of group agglutinins. None of these patients lived near each other, though in a general way they dwelt in the same section of the city. This, however, might be explained by the fact that the hospital, as a rule, draws its cases from a certain section.

I am indebted to Dr. James Tyson for permission to report five of these cases which came under my observation while substituting for him at the Pennsylvania Hospital and to Dr. Longcope for the bacteriologic examinations. The fifth case I owe to Dr. Stengel. The ward notes of the cases made by the resident physician follow :

CASE 1.—P. C., aged 34, a peddler, Russian, has been four years in the United States. He was admitted to the Pennsylvania Hospital July 30, 1904. A diagnosis was made of paracolon fever.

Family history, good.

Previous History.—He had measles as a child, but was otherwise healthy and does not remember any other illness except enteric fever about 9 years ago when he was in bed 3 or 4 weeks. He is a moderate beer drinker. Smokes 20 cigarettes daily. Denies venereal disease.

Present illness began with fever, headache and general pains. No epistaxis or chilly sensations. Slight dry cough on second day. Pains still present and he says they are the same all over his body, he does not feel worse toward evening. Bowels are regular. There is no abdominal tenderness. He was in his usual health until 5 days ago.

Physical Examination.—Patient is a fairly well-nourished Russian Jew, lying on back with marked hebetude. Face is flushed, pupils are equal and moderate, conjunctivae injected. "Eyes wet," tongue tremulous, and generally coated with grayish slime. Sordes on lips. Chest expansion good and even. Breath sounds and percussion note good. No rales. The area of cardiac dullness is difficult to define on account of the thickness of the overlapping lung. Apex beat cannot be located. Sounds are very distant. No murmurs heard. No reason to believe that heart is abnormal. Pulse full, strong and dicrotic. Liver dullness begins at fifth space and extends to costal margin in midclavicular line. Spleen not enlarged on percussion and cannot be felt on palpation. Numerous rose spots (?), abdomen normal. No tenderness. No glandular swelling. No edema of extremities.

July 30: Urine amber, flocculent sediment, acid, spec. grav. 1.023. Faint trace of albumin. No sugar. A few hyaline casts. Epithelium and mucus.

July 30: Blood—Widal negative. Leukocytes 9,300.

August 3: Blood—Widal negative. Leukocytes 11,900. There is a general macular rash over the trunk and arms. Some of the spots disappear upon pressure, but the majority do not. He has a moderate degree of conjunctivitis. No abnormal pain.

August 4: Blood—Widal again negative. Very little change in condition.

August 5: Blood—Paratyphoid agglutinations negative. Paracolon positive. Rose spots are fading rapidly.

August 6: Temperature has fallen and eyes are not so bloodshot. He seems a little nervous and asks to be taken into another ward. No abdominal tenderness. Rose spots which were so numerous have almost entirely disappeared.

August 10: Liquid diet today. The patient is gaining strength rapidly. Blood culture taken on August 5 has been reported negative. Culture was not taken until temperature had reached normal.

August 13: Blood leukocytes 9,300.

August 16: Discharged in very good condition.

CASE II.—A. Z., aged 24, a draughtsman, Norway; has been 15 months in United States. He was admitted to the Pennsylvania Hospital, August 3, 1904. Diagnosis: Paratyphoid and typhoid.

Family History.—Father died of pneumonia at 56. Mother, aged 60, has had epilepsy for 15 years; her parents were free from it. One brother died in infancy; one sister at 7 years, in Norway, of enteric fever. His other two brothers are healthy.

Previous History.—As a child he had measles, scarlet fever and chickenpox. Doctor said his heart was weak after the scarlet fever, but later on it was pronounced strong. He had influenza on his arrival in this country, but was only ill a few days. He had bronchitis at 9, for two months. He has not had rheumatism, malaria, pneumonia, enteric fever, etc. He does not smoke, has been a moderate beer drinker. He has always been a healthy, robust man.

Present illness began six days ago with coryza and chilly sensations. He had slight cough and diarrhea. No epistaxis or abdominal pain. He has felt worse in afternoon until 6 o'clock, and then better until midnight. He worked for two days and has been in bed since on liquid diet.

Physical Examination.—Patient is a well-nourished, well-developed man, weighing 160 pounds (in clothes two days before illness), and measuring about 5 feet 11 inches. He lies quietly on his back, but occasionally gives a nervous little jump. Expression is fairly dull. Mind is even. Pupils equal and moderate. Conjunctivas injected; cheeks plump and of rosy color; tongue tremulous and covered with a thick coat of almost white fur in center, through which the papillas protrude in bright pink spots; tip and border are bright pink. No sordes or herpes. Chest expansion is even. Percussion note and breath sounds are everywhere normal. No notes. Area of cardiac dullness and heart sounds normal. Apex beat is faintly palpable in the fourth interspace 2 cm. within nipple line. Pulse is full and rather irritable, but not dicrotic.

Liver dullness, fifth rib to costal margin, in midclavicular line. Splenic area tympanitic; neither organ is palpable. Abdomen is fairly resistant to palpation, but not rigid or tender. No glandular swelling. Extremities normal. No rose spots. Patient was vaccinated successfully seven months ago.

August 3.—Urine: Acid, dark amber. Cloudy and flocculent sediment. Specific gravity, 1.030. Faint trace of albumin. No sugar. Microscopic examination: Few epithelial cells and leukocytes. Occasional granular and hyaline casts. Mucus.

August 4.—Widal, negative. Leukocytes, 10,800.

August 6.—The patient seems a little worried about himself and slightly hysterical. Abdomen gives feeling of fullness to the hand, even after effectual enema. No tenderness. No rose spots. Splenic area still tympanitic. Spleen cannot be palpated.

August 7.—Urine: Special examination for casts. Dark granular casts present in considerable number.

August 11.—Blood: Paratyphoid, 6,240, positive. (?) Paracolon negative. Widal very suggestive.

August 12.—Abdomen still distended with flatus. Rectal tube passed last evening, with good results. He is having turpentine internally and turpentine stupes externally. Temperature has fallen a trifle and he seems less worried.

August 15.—Blood culture negative; (20 cc. of blood distributed among a number of large flasks of bouillon).

August 15.—A number of pale but typical rose spots appeared on abdomen August 9, and are now rapidly fading; temperature is slowly falling and patient is becoming a little brighter.

Blood: Widal and paratyphoid agglutinations, both very suggestive.

WIDAL—1 HOUR.

1-20 good clump, very slight motion.
1-50 good clump, no motion.
1-100 good clump, slight motion.
1-200 fair clump, slight motion.
1-200 fair clump, slight motion.
1-500 fair clump, rather active motion.

PARATYPHOID—1 HOUR.

1-20 good clump, no motion.
1-50 good clump, no motion.
1-100 fair clump, slight motion.
1-200 slight clump, rather active motion.
1-500 slight clump, rather active motion.

August 23: Condition remains very much the same. Abdomen still gives sense of fullness on palpation. Color and expression improving (good). Patient has always been quiet, although he has been a little worried at times. Temperature has touched normal on several occasions of late.

August 29: Blood, paratyphoid suggestive; Widal, negative.

PARATYPHOID—1 HOUR.

1-50 excellent clump, slight motion.
1-100 slight clump, slight motion.
1-200 no clump, active motion.

WIDAL—1 HOUR.

1-100 slight clump, active motion.
1-100 slight clump, active motion.
1-200 no clump, active motion.

August 30: Temperature normal today, on thirty-third day of disease. Condition excellent. Has been constipated lately.

September 5: Blood, Widal positive; paratyphoid positive. Dilutions not reported—probably 1-100. Patient convalescing nicely. Blood tests have been extremely puzzling, but have been done with great care.

September 10: Patient was given oil and had a good bowel movement.

September 12: He has had several good bowel movements. Temperature increased a little, due to gastrointestinal activity.

September 13: Patient is convalescing nicely; is up every day and steadily gaining strength.

WIDAL—1 HOUR.

1-50 slight clump, active motion.
1-100 no clump, active motion.
1-1000 no clump, active motion.

No. 6240, PARATYPHOID—1 HOUR.

1-50 slight clump, faint motion.
1-100 slight clump, faint motion.
1-200 no clump, fair motion.
1-1000 no clump, fair motion.

Again examined after 15 hours in ice chest.

WIDAL—15 HOURS.

1-50 good clump, slight motion.
1-100 fair clump, slight motion.
1-200 faint clump, slight motion.
1-500 no clump, (?) motion.
1-1000 no clump, active motion.

No. 214.

1-50 good clump, fair motion.
1-100 good clump, fair motion.
1-200 slight clump, good motion.
1-500 no clump, active motion.
1-1000 no clump, active motion.

No. 6240, PARATYPHOID—15 HOURS.

1-50 good clump, slight motion.
1-100 fair clump, slight motion.
1-200 slight clump, slight motion.
1-500 no clump, active motion.
1-1000 no clump, active motion.

September 15: Patient discharged, cured.

CASE III.—C. S., aged 20, an Italian laborer, admitted August 7, 1904. Diagnosis, paratyphoid fever.

Family History.—Probably good, but not definite.

Previous History.—He has never been sick in bed before (?). He has not had malaria or rheumatism. Denies venereal history. Later, he said he was sick 6 months 7 years ago, with enteric fever, at which time his hair all dropped out. He is a very moderate drinker and smoker.

Present Illness.—Two weeks ago he became ill with headache and chills. He has had moderate constipation, and anorexia—no cough, epistaxis nor pains of any kind. He has remained in bed on a milk diet.

Physical Examination.—Patient is a well-developed, well-nourished Italian, weighing about 140 pounds. He lies on his back and is in a profuse sweat. There are no signs of hebetude. Pupils equal and moderate. Scleras white, tongue steady and generally gray-coated. No herpes or sordes. Chest a good shape; expansion good and even. Lungs normal. Area of cardiac dullness normal. Beat rhythmic; sounds clear and free from murmurs. No accentuation of pulmonary second sound, radial pulse not dicrotic. Apex beat faintly felt in fifth interspace within nipple line. Liver and splenic dullness normal, neither organ is palpable. Abdomen fairly soft and free from tenderness. No glandular swelling. No rose spots; extremities normal. Urine acid, dark amber, granular red; spec. grav. 1.025. No albumin nor sugar. Microscopic examination shows amorphous urates and epithelial cells, mucus, occasional cylindroids.

August 8: Blood—Widal, negative. Leukocytes 5,650.

August 11: Paracolon No. 215 negative. Paratyphoid No. 6,240 negative. No signs of rose spots. Spleen not palpable. Patient bright and cheery and does not seem very sick.

August 12: Temperature normal on twentieth day of disease and patient looks very well.

August 16: Widal, negative.

August 21: Patient up and convalescing nicely. Has had extra diet a couple of days.

August 22: Temperature has gone up a little. Cause unknown; general condition unchanged.

August 23: Paratyphoid agglutination positive 1-100. Paracolon agglutination negative.

August 24: He had a feeling of fullness yesterday in spite of two natural bowel movements. A turpentine enema was given and resulted in a very large soft yellow stool. He is having a definite relapse. Cause unknown, unless due to accumulation of feces. Patient seems very bright-eyed and excitable.

August 25: Blood culture taken. Pure culture of paratyphoid bacilli in all flasks. Patient does not complain of feeling worse. Becoming more excitable.

August 26: Patient has become wildly delirious. Says he was dead and wants to go home. Family do not understand his condition, and want to take him home. Card of discharge signed, but family finally persuaded to leave him here. Patient tugging fiercely at straps.

August 27: Lungs have been carefully examined by Dr. Henry and others and pronounced free from pneumonia. Heart action good. Delirium continues.

August 29: Patient is still delirious. Lungs and heart clear. No rose spots. Spleen not enlarged. Patient comes of a rather excitable family. This morning he refused all food, but before nose feeding could be tried he took nourishment as usual. He is constipated.

August 31: He has become quiet. Hyoscin seemed effectual. Leukocytes 6,500.

September 1: Patient very quiet now, but not altogether rational. Urine amber, flocculent sediment, acid, spec. grav. 1.027. Faint trace of albumin. No sugar. A few pale granular casts.

September 3: Blood, paratyphoid No. 6,240. Agglutination positive in dilution of 1-500.

DILUTIONS No. 8,240, OR PARATYPHOID.

- 1-50 good clump, no motion.
- 1-100 good clump, no motion.
- 1-200 excellent clump, no motion.
- 1-500 fair clump, no motion.
- 1-1000 no clump, slight motion.

His own bacillus from blood culture No. 1,236 was positive in dilution of 1-1000.

DILUTION No. 1,236.

- 1-50 good clump, no motion.
- 1-100 good clump, no motion.
- 1-200 good clump, no motion.
- 1-500 fair clump, no motion.
- 1-1000 fair clump, no motion.

September 4.—Temperature low all day. He seems perfectly rational. Shows signs of fatigue.

September 7.—Patient lies quietly; although rational, his mind is not so clear as it was previous to his relapse. He is constipated. Abdomen scaphoid and soft. Spleen not palpable. Lungs and heart clear.

September 10.—Patient moderately hungry; convalescing nicely.

September 13.—Doing nicely.

September 16.—Complains of some soreness in legs. Mental condition is rather confused, rational at times, but seems to be weak-minded. Physical condition is excellent.

September 19.—Discharged cured. He is rather vague in his speech at times.

CASE IV.—A. V., aged 25, Italian. Admitted August 7, 1904. Diagnosis: Paratyphoid, relapse.

Patient was discharged six days ago from ward 111, where he had been ill with enteric fever since July 15, 1904. History. No. 1,223. On the second admission he is in his thirty-fourth day of disease. Last Widal taken was negative, July 26, 1904. Leukocytes, 7,400. Heart, lungs, and liver normal. Spleen not palpable. He had rose spots. Urine contained no albumin, but there were some hyaline and granular casts. (?)

Family History.—Mother had edema of legs two years before her death. (?) Father lived to be 70. Cause of death unknown.

Previous History.—Patient has practically never been sick before original attack. Denies venereal disease.

Physical Examination.—See history No. 1,223. Patient is a poorly nourished Italian, being in moderate hebetude. Pupils equal. Sclera white. Cheeks hollow and pale; tongue slightly tremulous and generally gray coated. Area of cardiac dullness very small. Apex beat can be seen in the fifth space, 4 cm. from median line. Rhythm fairly good. No murmurs. Pulse rather weak and compressible.

Liver dullness, fifth rib to costal margin in nipple line. Spleen cannot be palpated. Slightly enlarged to percussion. Slight abdominal pain in umbilical region, but no definite tenderness. No rose-spots. Extremities normal. No glandular swelling.

August 7.—Urine acid, dark amber, cloudy granular sediment. Specific gravity, 1.018. A trace of albumin. Mucin, triple phosphates crystal.

August 8.—Blood.—Widal, negative. Leukocytes, 5,950.

August 10.—Sputum, no tubercle bacilli nor pneumococci found after examining two specimens. Sputum was a rusty color, but is now gray, mucopurulent.

Blood, paratyphoid agglutination positive in dilution of 1 to 100. Paracolon negative. Blood culture taken.

August 12.—Patient is doing very nicely. A rose spot which appeared for the first time today was cut out after being frozen with ethyl chlorid and planted on culture mediums. Culture negative.

Urine, amber, flocculent sediment, acid, 1.021. Very faint trace of albumin.

August 14.—No sugar. Hyaline casts, leukocytes. Temperature normal, on twenty-ninth day of illness and eleventh day of relapse. Patient has had several typic rose-spots, which almost entirely faded. He is thin, and has been somewhat nervous (excitable, stuttering speech). He is now more quiet, and is doing nicely.

August 16.—Blood, paratyphoid agglutination again positive in following dilutions:

- 1 to 20; 1 to 50; 1 to 100; 1 to 200. Good.
- Clump, no motion; 1 to 500. Good.
- Clump, slight motion.

August 20.—Patient is convalescing nicely.

August 23.—Patient is up, and seems fairly strong.

August 26.—Discharged in good condition. He has not been very ill.

CASE V.—S. L., aged 30, an Austrian, was admitted October 2, 1904. Diagnosis, paratyphoid.

Family History.—Father died of appendicitis.

Past history is unimportant; no typhoid in history.

Present Illness.—He became ill about three days ago, malaise, extremely weak, unable to stand up, anorexia, nausea, no vomiting, cough, no expectoration, no headache, chill, fever, sweats, some pain in abdomen, no epistaxis, severe diarrhea.

Physical Examination.—No emaciation, face flushed, expression dull and worried, pupils equal, greatly dilated, sclera

white, conjunctivas normal. No anemia or jaundice, lips and mouth dry, complains of bad taste, bad breath, tongue is coated, white free edges and tip. Tongue slightly tremulous, no respiratory distress, apex beat not visible.

Lungs, slight impairment of resonance at base, vocal and tactile fremitus increased—no bronchial breathing.

Pulse is rapid, full, and dicrotic.

Liver is negative. Spleen enlarged to percussion; not palpable.

Abdomen is not tender or painful, tympanitic, rigid, no rose spots.

Urine, negative.

October 4.—Widal, negative. Leukocytes 8,300.

October 9.—Widal, negative. No spots. Temperature descending.

October 16.—Temperature is normal. Condition good.

October 19.—Widal paratyphoid positive, spleen distinctly palpable. At first the patient seemed rather ill. Pulse range, 112 to 68.

October 24.—Discharged cured.

CASE VI.—A. M., an Austrian, was admitted October 27, 1904. Diagnosis: Paratyphoid fever.

Patient complains of headache, anorexia and hebetude.

Family History.—Negative.

Previous History.—Negative.

Present Illness.—He was taken sick nine days ago with chilly sensations in the back. Five days ago he went to bed. Has had slightly dry cough and anorexia. No epistaxis or vomiting. Had a hard bowel movement this morning. None yesterday.

Physical Examination.—Tongue coated with gray fur on central portion; no sordes or herpes. Lungs and heart normal. Liver dullness increased in area. Spleen is readily palpable; inguinal, epitrochlear and postcervical glands enlarged. Urine, negative.

Blood: Widal slightly suggested; leukocytes, 5,300. A number of typic rose-spots on admission.

November 1.—He does not seem very ill. Symptoms are mild.

November 4.—Rose-spots have disappeared. Temperature averages about 101° since admission.

November 8.—Widal negative. Paracolon agglutination negative. Blood culture negative.

November 11.—Paratyphoid agglutination suggestive.

November 21.—Thirtieth day of illness. Paratyphoid agglutination very suggestive.

November 22.—Paratyphoid agglutination positive in dilutions up to 1 to 500. Good clumping and no motion after an hour.

November 28.—Discharged well.

BIBLIOGRAPHY.

- Pratt: Boston Med. and Surg. Journal, 1903, 148.
McLaughlin: Postgraduate, New York, 1903.
L. Jermain: Wisconsin Med. Jour., Milwaukee, 1903.
R. T. Hewlett: Jour. State Med., London, 1903, xl.
G. B. Smith: Jour. Amer. Med. Ass'n, 1903, xli.
J. W. Walker: Jour. Amer. Med. Ass'n, 1903, xli.
Buxton: Jour. Med. Research, June, 1902.
Clemens: Deutsch. med. Wochens., 1904.
Wells and Scott: Jour. Infect. Disease, January 2.
Achard and Bensaude: Soc. Med., November, 1898.
Widal and Nobecourt: La Semaine Méd., August, 1897.
Gwyn: Johns Hopkins Bull., 1898.
Schotmuller: Deutsch. med. Woch., 1900.
Schotmuller: Zeitsch. f. Hygien., etc., 1901.
Brion and Kayser: Münch. med. Woch. No. 15.
Coleman and Buxton: Amer. Jour. Med. Sc., 1902.
Libman: Jour. Med. Research, vii.
Johnson: Amer. Jour. Med. Sc., 1902.
Hewlett: Amer. Jour. Med. Sc., 1902.
Longcope: Amer. Jour. Med. Sc., 1902.
Brill: Jour. Amer. Med. Assoc., 1902.
Gilbert: La Semaine Méd., 1895.

CHRONIC ECZEMA AS A COMPLICATION OF THE SENILE DEGENERATIONS.

BY

MEDWIN LEALE, A.B., M.D.,
of New York.

Physician to the Roosevelt Hospital, Outpatient Department, New York.

It is not an infrequent occurrence for the general practitioner to encounter cases of chronic eczema in the aged, and especially in those in whom the senile degenerations are well marked. By the senile degenerations I mean especially the changes in the circulatory system, arteriosclerosis, atheroma, enlarged, and often dilated heart, etc., for the other degenerative changes are to a great extent dependent on these pathologic conditions. It has been my lot to meet a number of these cases in which the lives of the patients have been rendered more

or less intolerable by the incessant cutaneous irritation. I have noticed in the majority of these cases that the lesion is an eczema erythematousum. There is very little exudation at any time, nor is there a tendency to cracking, but scaling is usually present although it may not be a marked feature. I have yet failed to see furunculosis complicate these senile cases.

We are cognizant of the fact that in considering the etiology of this form of eczema other factors apart from the so-called senile degenerations are to be taken into account as predisposing causes, namely, gout, diabetes, the lymphatic diatheses, anemia, cachexia, vasomotor neuroses, etc., but when these latter predisposing causes are most operative we should rather expect to see the skin lesions coming on earlier in life than is the rule in those cases in which I attribute as the predisposing cause the senile degenerations. Leloir declares that there are certain forms of eczema in which lesions of the peripheral nerves are found, and these forms of eczema he characterizes by the name of the *eczematous dermatoneuroses*. Hebra, Neisser, and others, also believe that there is often a strong relationship between nervous disorders and eczema which is of vasomotor origin. However potent these factors may be in other forms of eczema, I think that in the eczema having its initial onset during old age and accompanying that period of life the cause must be regarded as due to the senile changes especially found in the circulatory system. In considering the pathology of this condition it seems there is an alteration in the epithelial layers associated with a dekeratinization in the upper layers, some edema, and an immigration of exuded cells due to deficient nutrition of the skin, brought about by the changes in the circulatory system.

The symptoms are those of the classic eczema erythematousum—a red swollen skin, which feels dry, thickened, and somewhat stiff, some scaling, at times edema, extreme burning and itching; but on account of the very poor general condition in which the patients are usually found, and especially their inability to sleep, I think they are unusually pronounced. Before treatment is instituted any continued sleep in most cases is an impossibility without the resort to hypnotics, and in fact only the stronger ones seem to have the slightest effect. These symptoms added to those of the circulatory changes, and the accompanying renal, respiratory, liver and other disorders, render the condition of the patient most pitiable, and one for the relief of which the physician should resort to every available expedient.

Although these cases often prove very resistant to treatment, yet I have found in the majority of cases that a more or less permanent cure, and in all cases a great amelioration in the symptoms can be effected by care and perseverance in a rational line of treatment.

In the first place the mode of life, habits, diet, etc., of the patient must be carefully ascertained, and any errors corrected. Then after a painstaking physical examination any disease must be met by its appropriate treatment. This pertains especially to maintaining properly the circulation, high tension must be moderately reduced (remembering always that a certain amount of increased tension is a safeguard in these senile cases), and the force, frequency and rhythm of the heart's action must be carefully watched. The emunctories must receive careful attention, the urine being measured regularly and repeated examinations made, and regular and easy intestinal evacuations secured. Water must be taken freely, preferably at frequent intervals and in small quantities to avoid overdistention of the heart, which in many cases is dilated and not compensating, in order to obtain a constant flushing of the kidneys. In fact, the patient's general condition should be carefully watched and improved in every way possible. I think most of these patients are better if they are up and dressed during the day, for if kept in bed their minds are not so easily diverted, and therefore the irritation is

much exaggerated, also the moderate amount of exercise in moving about seems advantageous.

The local treatment resolves itself into stimulating and thereby improving the peripheral circulation of the blood and lymphatics. These conditions can be met by carefully regulated rubbings and frictions, and this can only be done effectually by the physician himself or by an experienced masseur under the direct supervision of the physician, the latter probably being the better plan, for in the well-trained masseur (a rarity to be sure) the special muscles employed are better developed and fitted to meet the conditions quickly and efficiently. Apropos of this I will quote from Douglas Graham's "A Treatise on Massage":

The highly sensitive and vascular papillæ on which the deeper layer of the cuticle fits so accurately gratefully respond in agreeable sensation to judicious friction and manipulation, or unhesitatingly complain when the skin is pinched too strongly, or when the cuticle suffers abrasion. . . . The soothing effect of gentle stroking transmitted to the sensorium is well known. . . . The principal seat of the sense of touch, there is perhaps no sensation that can be felt by the skin so delightful as that arising from the contact of the hands in properly done massage, or none so disagreeable as that from improperly applied massage.

Using the greatest amount of surface of the palms of the hands and fingers as can be well adapted to the affected surface at the same time assuring ease and accuracy of movements, I adopt a combination of *effleurage* and *massage à friction*, the strokes of the hands following as nearly as possible the course of the veins and lymphatics. For lubrication, I use a fine quality of olive oil, and with this, for medication, a pure, finely powdered zinc oxid. This is to be done perseveringly, adding the olive oil and powdered zinc oxid, the latter rather sparingly, as required, taking from 20 to 40 minutes, according to the area involved and the effect on the patient, and it will be found that considerable strength will be required to do it properly. It should be repeated once a day, at first preferably just before retiring. In this way, at the outset of the treatment it will be found that the patient will be able to enjoy a good night's rest, when, if it had been done earlier in the day, this would have been impossible, owing to the return of the cutaneous irritation before the onset of sleep. Some areas where the skin has become infiltrated to a greater extent will require more energetic stimulation. This can best be accomplished by the method adopted by Pick, namely, by making a strong tincture of *pix liquida*, the latter 40 parts and alcohol 20 parts, painting on three successive coats of this, allowing each one to dry before the succeeding one is applied. Over this is applied gauze in several thicknesses spread with a very thin layer of zinc oxid ointment. Every second night before retiring the patient is given a warm bath at about 94° F., using a pure olive oil soap, and after this dried carefully without irritation from the towel.

This helps very materially in keeping the skin active, and also aids the kidneys on which in this condition an increased amount of work is thrown. These measures, together with the mechanical irritation, will usually bring about a more or less complete absorption of the infiltration. This line of treatment should be continued persistently for a period varying from two to eight weeks, and in the majority of cases, if in conjunction with careful and judicious constitutional treatment as suggested in this article, will be crowned with success.

By way of illustration I will cite one case which is more or less typical of the condition as found in my cases:

Mr. —, aged 77, an American, twice married, children by both wives, a prominent banker and philanthropist of the middle West, came to my office with the following history: He comes from a long-lived family with no hereditary taint. His habits have been excellent throughout his long career, having been very temperate, not a smoker, and as a rule observing carefully the laws of health in regard to diet, exercise, relaxation, etc. He had always been a strong, healthy and active business man, until about fifteen years ago, when he

was thrown under considerable financial strain, being involved in large interests, which told on his physical strength. During the last ten years he has had several attacks of angina pectoris, and has been troubled with attacks of vertigo. For three years past he has suffered from a skin eruption, which has caused him great annoyance from the incessant itching. He has also noticed that his general health has been failing steadily, until at present he feels obliged to have some one accompany him when he goes out.

On January 9, 1902, I made the following physical examination: A man well advanced in years, fairly well nourished, of moderate height and build, and of great intelligence. The lungs showed rather hoarse resonance, with breath sounds feeble, and prolonged expiration; no rales. The heart showed the apex beat in the fifth interspace, two inches outside the midclavicular line, not being appreciably enlarged upward or to the right of the sternum; sounds rather feeble with the exception of the second aortic, which was markedly accentuated and of ringing quality. No murmurs were heard, but there was a faint roughening of the first sound over the aortic interspace. The pulse was regular, of good frequency, but showed considerable increase of tension. The arteries, especially the temporal, radial, and axillary, were very much thickened, elongated, and tortuous. Arcus senilis was well marked. The liver gave no signs of increase or diminution in size, and the spleen could not be palpated. There was no abdominal distention, no ascites, no edema. Urinalysis showed reaction acid, specific gravity 1.010. No albumin. No sugar, and otherwise negative, a fair amount of urea being excreted in proportion to the amount of urine passed, which was somewhat increased in amount. Cutaneous examination: Over the face, neck, back, abdomen, and thighs, a rather bright red erythematous eruption, dry, thickened, and stiff to the palpating hand, with very slight edema in a few localized patches. No tendency to cracking, moderate scaling, and some slight additional irritation from scratching. The infiltration of the skin seemed especially well marked.

Treatment.—I put him on careful constitutional treatment, as already indicated, meeting special indications as they arose, and started him at once with the external treatment as outlined. The first external applications were given at 10.30 p.m., taking about 30 minutes. The result was that the patient enjoyed the first real good night's rest that he had had in several months. His general and local condition improved steadily for the next two weeks, the applications and frictions being given every night. At the end of this time there were some isolated patches on the abdomen and thighs. The treatment was continued until on January 27, just two weeks and four days after the beginning of treatment, the eruption had entirely disappeared. From this time on for one week the rubbings and applications were made every second night. On February 14, a few isolated patches appeared on the abdomen and legs, but after resuming the treatment for a few days disappeared. From this time on until his death, which occurred in September, 1903, he had not been troubled with the eczema. His death was caused by an attack of apoplexy, due to his marked arteriosclerosis. He had had one previous attack while under my care in New York, from which he entirely recovered. The last 18 months of his life had been relieved of the torture he had endured for the greater part of the three preceding years, and his death at the good old age of 78 had been brought about by the hand of time, the senile degenerations.

In conclusion, I would say that in my experience this form of eczema is frequently met in senile patients; that it is an exceedingly troublesome complication, and that much can be done to relieve the patients and render their last days more comfortable.

POSTPARTUM HEMORRHAGE.¹

BY

H. H. LOVELAND, M.D.,

of Syracuse, N. Y.

Postpartum hemorrhage is without doubt one of the most serious complications that the obstetrician is called upon to meet, and one for which he should be always prepared, and yet I venture to say that it is an accident which the average practitioner is generally poorly prepared to cope with. Postpartum hemorrhages may be divided into two general classes: (1) Those caused by severe lacerations of the cervix, or of the vaginal vault, with consequent rupture of bloodvessels; (2) those dependent on uterine inertia. In the former class the remedy is evident. Bring the torn parts into view by means of a speculum and volsellum forceps and introduce sutures, at the same time repairing the injury and

stopping the hemorrhage. It is to the second class, which is the one generally referred to under the head of postpartum hemorrhage, that I desire to call attention as the cause is not always evident, and the hemorrhage is not so easily controlled.

Etiology.—As stated before, the immediate cause of the hemorrhage is uterine inertia, but there are also predisposing causes, as overdistention of the uterus as in hydramnios, twin pregnancy, relaxation of a fatigued uterus after an unusually protracted labor; prolonged anesthesia; albuminuria; hemophilia; defective muscular development of the uterus; adherent placental tissue or membranes; fibroids or polypi; placenta prævia; and precipitate delivery, instrumental or otherwise. Tarnier says, "in all cases of instrumental delivery we should expect postpartum hemorrhage, as forceps are used for uterine inertia more than for any other reason."

These hemorrhages may occur immediately after the expulsion of the fetus, or of the placenta, or may be delayed for hours or even days; those occurring within the first 12 hours (some say 24 hours) are classified as primary, those at a later period as secondary. The hemorrhage may be of such a type as to cause death in a very few minutes, if not attended to, or the blood may drain away so gradually as to arouse no suspicion or alarm on the part of the medical attendant until extreme anemia is present, and the patient complains of "ringing in the ears," or that "everything is turning black before the eyes."

Frequency.—The "American Textbook of Obstetrics" states: "Severe hemorrhage during, or after the third stage of labor is rare, and many a careful and intelligent obstetrician will pass his professional life without witnessing a case. The statistics of Guy's Hospital show one case of dangerous postpartum hemorrhage in every 2,040 labors, St. Thomas Hospital one in 2,172, and in Prussia they have but one in 3,131." Contrary to this, Lusk says, "unlike other grave complications of childbirth, postpartum hemorrhage is not an uncommon event; it may follow the simplest labor, coming suddenly and without warning." This statement would seem to oppose in part that of Spiegelberg who asserts that "severe postpartum hemorrhage is almost without exception the fault of the attendant." I believe there is no doubt that severe postpartum hemorrhage, as viewed by the general practitioner, occurs oftener than once in 2,000 or 3,000 confinements, though it may be true that some of the cases reported as such might have been easily avoided by intelligent and careful management of the third stage of labor. In my own experience there has been one in practically every 100 cases.

Diagnosis.—In the rapidly exsanguinating variety, the diagnosis is clear. The blood pours from the vagina in a stream that seems limited only by the pressure of the vaginal walls, and one must think and act very quickly if he expects to save the patient. In other cases the hemorrhage is not rapid, and it may be concealed, or internal, the easily distensible uterus filling with an immense coagulum, until it occupies as much room in the abdomen as it did before labor, provided nothing is done to prevent such a result.

Prognosis.—The earlier the hemorrhage appears, the more severe it is likely to be. However, the patient will recover, unless the blood dyscrasias render the blood noncoagulable, if treatment is begun soon enough.

Treatment.—Every effort should be made to bring about contraction and retraction of the uterus, in order to check the hemorrhage in nature's own way. Many times this may be brought about by prompt and energetic manipulation and compression of the uterus through the abdominal wall. It should be routine practice to see that the organ is firmly contracted after the third stage of labor. Should this be conscientiously done, very many cases would be avoided or aborted. It is also good prophylactic treatment to administer a full dose of ergot in all cases after the completion of the

¹ Read before the Syracuse Academy of Medicine, November 1, 1904.

third stage. In case contraction is not obtained readily, and especially if the case is one of the rapidly exsanguinating variety, one hand is placed in the uterus, while the other manipulates the fundus externally. The hand within ascertains if there are any pieces of placenta or membranes remaining, and stimulates contractions. In most cases, the conjoined manipulation and compression will cause the uterus to contract, temporarily at least. If this is not effective, the hypodermic use of ergot and strychnin and other stimulants is recommended. The utility of packing the uterus with iodoform gauze, is still a subject for considerable discussion. Hirst, Grandin Jarman, and Lusk commend it, while the "American Textbook" says "it should rarely be needed or used." The argument against it is, that if used carefully, and with antiseptic precautions, it is a slow process, and it does not always stop the hemorrhage, but on the contrary, absorbs and hence conceals a large amount of blood, thus furnishing an excellent pabulum for the bacteria of decomposition, which are not overcome by the antiseptic incorporated within it. The advantage claimed for the gauze is, that we have in it an antiseptic foreign body that may be left in the uterus 24 hours, thereby causing a continued stimulation to contraction and retraction of that organ. That it does not act by pressure, as some have thought, is evident, when we come to consider the soft, flabby organ with which we have to deal, and that it would be manifestly impossible to pack such a cavity sufficiently tight to make pressure that would control the hemorrhage. In the cases here reported, it was used, and with very fair results, but later experiences have convinced me that better results might have been obtained had I not used it. I believe it to be impossible to leave any absorbent material in the uterus for 24 hours without setting up at least a mild infection. Schaffer objects to an absorbent gauze, but uses and recommends a nonabsorbent gauze, made by impregnation with guttapercha, with or without antiseptics. This would seem but a step in advance of the other, for without doubt, blood coagulums would form in its folds and meshes, and we would have the same tendency to decomposition as before.

Compression of the abdominal aorta is an ancient practice and has many warm advocates. The practical use of this method seems to be for the quick though temporary checking of a critical case until other measures can be brought into use. Jacoby reports a case controlled by aortic compression for a half hour, but hot lysol douches and ergot were also given. The question arises whether the hot douching and ergot would have accomplished the same result had they been at hand at the outset of the difficulty, and the aorta compressed for a very few minutes, if at all. Sheets reports a case of severe hemorrhage before the removal of the placenta, controlled by aortic compression until manual detachment of the placenta could be accomplished and then compression of the uterus through the abdomen. Bishop says that he "uses aortic compression until the fatigued uterine muscle is rested and begins to contract of its own accord," but he meantime turns his attention to the uterus, cleaning out blood clots, bits of placenta, membranes, etc., the very thing that others recommend and use to stimulate the uterus to contraction.

The question of how aortic compression works is a disputed point, the original and natural supposition being that it was by direct pressure, shutting off the blood from the vessel below the point of compression. This, however, is affirmed by others to be an impossibility, and is rendered negative by the closing of the vena cava at the same time, hence the action must be by reason of pressure upon and irritation of the hypogastric plexus of the sympathetic. This latter seems the more reasonable to me, but in any case it is certainly worth trying as a temporary expedient in a severe case, until other measures can be made ready. Vinegar, lemon juice, solutions of iron salts, turpentine, etc., have been used

and good results claimed for each. No doubt, under certain conditions, each has its place; but it is doubtful if any one of them will ever command universal use. Some obstetricians pull the uterus down to the vulva with volsellum forceps, thereby kinking and compressing the uterine arteries and so stopping the hemorrhage. This is also a temporary measure and used only until such time as the hot douche or other intrauterine treatment can be instituted. I believe the simplest and most effective method is hot-water douching of the interior of the uterus. This is easily and quickly applied, is cleanly, and practically sure in its results. Some add mild antiseptics to the hot water, but in my opinion this is not necessary, is of no real value, and therefore is inadvisable. I would add nothing but a little salt, and even this may be dispensed with if not convenient.

The following cases occurred in a small mining town in northern Michigan:

CASE I.—Mrs. H. L., a multipara, of Finnish nationality, was confined July 8, 1894. She gave a history of more or less hemorrhage for three days previous to labor. I found the case to be one of placenta prævia marginalis, with a prolapsed cord and breech presenting. This was one of my first confinements and seemed rather a bad combination for a novice. However, I endeavored to replace the cord, but was unsuccessful; the labor progressed very slowly, and I finally sent for Dr. E. E. Lamb, with whom I was then associated, to assist me. A still-born child was finally delivered by catching a foot and pulling down the breech, and later the forceps were applied to the after-coming head. A severe hemorrhage followed the extraction of the placenta; ergot and strychnin were administered hypodermically and by the mouth; a hand was placed in the uterus, and every effort made by manual compression to bring about uterine contraction. The uterus was then packed with gauze, which was left in place 24 hours. When the gauze was removed a slight discharge and a foul odor were noted. Temperature was 99.5° to 100°; uterus was tender and sore to the touch through the abdominal wall. Intrauterine hot-water douches were administered twice a day for two or three days, with the result that the temperature fell quickly to normal, and no further trouble was experienced.

CASE II.—Mrs. G. S., multipara, Finn. This was a case of hydramnios with immense abdominal distention. When the sac ruptured the bed was soaked and the fluid ran in a pool upon the floor. The woman had been walking about, but as the head began to work down and very soon became engaged in the pelvis, I directed her to remain in bed. After being in bed a few minutes she insisted on getting up to urinate. A severe pain came on and the child was precipitated upon the floor with the cord broken about six inches from the body. There was no hemorrhage from the torn cord and no damage done. The placenta was delivered promptly, followed by an extremely severe hemorrhage. I placed one hand in the uterus and the other on the fundus externally and obtained a temporary cessation by the combined manipulation, but this was possible only so long as my hands remained in place, for on attempting to withdraw them the hemorrhage would begin. I sent to my office for a fountain syringe and some iodoform gauze and then flushed the cavity of the uterus with plain hot water. The result was all that could be desired, the hemorrhage was checked at once; but fearing to go away without further precaution, the uterus was packed with gauze, which was left in place for 24 hours. The result was foul odor, discharge, and slight rise in temperature, which disappeared by the help of a few hot-water douchings.

CASE III.—Mrs. C. L., a French Canadian, aged 40, the mother of 13 children, with a history of complications of some kind with nearly all of her confinements, was confined May 20, 1901. She had been near death from hemorrhage several times before, and had been warned by her physician not to allow another pregnancy, according to the statement of her husband and other friends. Severe hemorrhage occurred before the removal of the placenta. Efforts to remove the placenta by the Crédé method proved fruitless, and as the condition would not admit of delay, a hand was placed in the uterus and the placenta removed in pieces, while manipulation of the fundus was continued externally. The uterus was packed firmly with gauze, but with no result, the blood soon soaking through, and the hemorrhage continued. Ergot and strychnin were administered hypodermically, but the pulse grew weak and thready, the face blanched and anxious, and the outlook was very gloomy. An infusion of salt solution was given, a quart or more being passed into the tissues under the breast. The result was very satisfactory: the volume and strength of the pulse increased and soon also the uterine tone improved and hemorrhage ceased. The further progress of the case was uneventful and only delayed by great weakness caused by loss of blood and the shock to which she had been subjected. In this case two points are noteworthy: 1. The gauze packing did not stop the hemorrhage readily, if at all. 2. The great value of the saline infusion in cases of extreme loss of blood and impending death therefrom.

CONCLUSIONS.

1. Postpartum hemorrhage is one of the most serious complications found in obstetric practice.
2. It is not always preventable by careful management of the third stage of labor, as some authors seem to believe.
3. The first step in the treatment of a rapid and severe case is the insertion of a hand in the uterus, the other meanwhile manipulating the fundus through the abdominal wall.
4. Of all intrauterine treatments except the first mentioned, hot-water douching is the most convenient, the most cleanly, and the most effective.
5. No obstetrician's outfit is complete without apparatus for the infusion of salt solution and for intrauterine douching.
6. The benefit to be gained by packing the uterus with gauze is doubtful, the danger is evident. Later experiences, not only in postpartum hemorrhage but in other conditions in which uterine hemorrhage is feared, as after curetting for abortion, or miscarriage in the early months of pregnancy, have firmly convinced me that it is not wise to put anything into the uterus that is not necessary, nor to leave anything there that can be avoided, even though impregnated with antiseptics.

A CONTRIBUTION TO THE PATHOLOGY OF SCIATICA.*

BY

J. RAMSAY HUNT, M.D.,

of New York

Chief of the Clinic for Nervous Diseases and Instructor of Nervous Diseases in the Cornell University Medical College; Neurologist to the City Hospital; Assistant Physician to the Montefiore Home.

(From the Pathologic Laboratory of the Cornell University Medical College, New York.)

Although sciatica is one of the commoner forms of nervous disease, it is rarely that an opportunity has been afforded to study the underlying pathologic changes, more especially as the affection itself is never a menace to life. In the literature of this subject, which has now attained enormous dimensions, one is surprised to find on what meager anatomic facts our knowledge of the pathology is based.

I have been able to collect only 11 cases in which the condition of the nerve was noted postmortem, the majority of these observations emanating from the older writers.

Of this number, three only received histologic study. During the past 15 years, a period distinguished by great activity in the field of neuropathology, I can find no record of a postmortem examination.

The knowledge gained from the study of these few cases, has been further supplemented by the inspection and palpation of the nerve trunk during the operation of nerve stretching, formerly so popular, and the occasional examination of excised fragments of the sheath.

Clinically speaking, sciatica may occur in two forms: The neurotic, a pure neuralgic form, in which pain is practically the sole symptom, and the neuritic, in which other symptoms are present, indicating inflammation of the sheath and involvement of the nerve fibers.

That the nerve in this group of cases is actually the seat of structural alterations, may be inferred from the tenderness and the accompanying motor, sensory, and vasomotor disturbances, usually slight in degree, but often persisting for a considerable time or even enduring permanently.

To this latter group must be reckoned the great majority of cases, so that the so-called sciatica is regarded as an interstitial neuritis or perineuritis.

Sciatica, as is well known, has its analog in the upper extremity in the brachial neuralgia or the brachial perineuritis, and Hutchinson has even described an optic neuritis of gouty origin.

The relationship existing between these forms of neuritis and the gouty and rheumatic diatheses, has long been recognized clinically, and was first emphasized by English observers.

It is supposed that the fibrous sheath of the nerve trunk suffers in the same manner as do the fibrous structures of the muscles and joints, constituting a neuritis of gouty origin.

One English writer, Buzzard,¹ has even gone so far as to attribute the symptoms to a local deposit of sodium urate in the perineural lymph spaces. This attractive theory, however, has never been confirmed by actual observation.

It is interesting in this connection to recall the finding of a fine powdery deposit of sodium urate in the smaller nerves surrounding old gouty joints by Charcot and others. These nerves lay in the midst of tissues saturated with sodium urate, and the deposits were evidently secondary.

Before proceeding to a detailed description of my own case, I will summarize briefly the more important facts gleaned by postmortem study of the nerve by other observers.

The first description is found in the classic monograph of Cotugno,² published in 1764, who noted an edematous infiltration of the nerve sheath, from which 15 cc. ($\frac{1}{2}$ oz.) of serum was removed by puncture. Chaussier,³ in 1803, found the nerve enlarged and more voluminous than normal, the perineurium edematous, and the bloodvessels of the sheath dilated and varicose.

In 1818, Martinet⁴ described the nerve as edematous and of a reddish hue, with hemorrhages into the sheath. In another case the nerve was enlarged (hypertrophied) and infiltrated with a serosanguineous fluid.

Gendrin⁵ (1826), in a case of relapsing sciatica, found the affected nerve more voluminous and of a reddish hue as compared with that of the sound side; the redness and swelling extending from the sciatic notch to the popliteal space. In the upper portion, the nerve fibers were separated by a sanguinolent edema which could be expressed by pressure, rendering the nerve substance less dense. The cut end of the nerve trunk was also of a reddish hue.

In another case of 15 days' duration, Gendrin found the nerve trunk from the plexus to the popliteal space, reddened, swollen, and the seat of a serous infiltration. Its volume was increased threefold in comparison with the sound side. On section the white nerve bundles stood out on a reddish background.

Rousset⁶ (1819), in a sciatica of 14 years' duration, found the nerve sheath looser in texture than normal, and the veins of the perineurium dilated, but without evidences of edema or sclerosis.

In a case recorded by Gubler and Robin⁷ (1860), of old sciatica with atrophy, the nerve was carefully examined macroscopically and microscopically with entirely negative results.

Hasse⁸ (1864) simply states that he examined the nerve in a case of sciatica without finding any material change.

Leudet⁹ (1873), in a case of old sciatica without atrophy, describes the nerve as more voluminous than on the sound side, with thickening of the sheath and an increase of fat in the interfibrillary spaces. The nerve fibers were unaltered.

Fernet¹⁰ (1878), records a typical case of 15 days' duration. The nerve was of a reddish hue, and the vessels of the neurilemma were injected. The volume of the nerve trunk was increased, giving it a cylindric appearance, so that when laid upon a table it did not flatten out, as that of the sound side. The consistency was also increased, and firmer to the feel, so

* Read before the New York Academy of Medicine, February 16, 1905.

that on palpation the individual nerve bundles were not felt so distinctly as on the sound side. These changes were most apparent at the point of exit from the sciatic foramen.

The microscopic examination was carried out in the Laboratory of Vulpian, by Déjérine and Raymond. Both nerves were examined without detecting any evident alterations in the nerve sheath or its fiber. Fernet maintained, however, even in the absence of histologic changes, that the gross appearance of the nerve clearly indicated a neuritis.

To recapitulate briefly: From the year 1764 to 1878, 11 pathologic observations have been recorded. Of this number, 3 were negative, including 1 case with microscopic examination (Gubler et Robin). In 8 cases the result was positive, the nerve was found enlarged, redened, and edematous. This group included only two microscopic examinations, both negative, that of Leudet, who simply described the nerve fibers as unaltered, and that of Fernet (Vulpian's laboratory), in which careful examination failed to reveal any histologic changes.

CASE REPORT—SUMMARY.

A man aged 59, presenting the typical symptoms of sciatica of one month's duration, affecting the left leg. Death due to croupous pneumonia. The nerve trunk in the popliteal space and below the sciatic notch was distinctly enlarged and thickened. This increase in size due to the deposit in the epineurium and epineural fat of a firm translucent substance of gelatinous consistency. Histologic examination of the nerve trunk was entirely negative.

History.—The patient was a laborer by occupation. He had indulged freely in alcohol. In November, 1902, he had an attack of sciatica on the left side, ushered in by lumbago, all symptoms disappearing in about 6 weeks.

In the latter part of February, 1903, sciatic pains recurred in the left leg, typical in character and distribution, and very severe. He applied for treatment at the neurologic clinic of the Cornell Medical School.

At this time movements of the leg were attended by great pain and the sciatic phenomenon was exquisitely marked.

The usual tender points were present along the course of the nerve, a spot of especial acuteness marking the exit of the sciatic from the pelvis. The achilles jerk was diminished on the left side. The knee-jerks were present and equal.

There were no demonstrable objective disturbances of sensibility, although a feeling of numbness along the outer side of the left leg was remarked by the patient.

In the posterior muscles of the left thigh, buttock and left leg, irregular muscle waves and coarse fibrillary twitchings were noted, the so-called myokymia. The urine was free from albumin and sugar. Signs of general arteriosclerosis were apparent, otherwise the examination was negative.

As the symptoms were severe and acute, he was referred to Bellevue Hospital, Cornell Medical Division, for treatment and was admitted to the service of Dr. W. Gilman Thompson. After 3 weeks' hospital treatment, the symptoms abating in their intensity, the patient was allowed to return home.

During the next two weeks he visited our clinic twice and except that the intensity of the pain had subsided, presented practically the same symptoms as were noted in the first examination.

Both on standing and walking the left leg was favored. It was held slightly flexed at the knee in the erect posture, with the left gluteofemoral furrow directed upward and to the right. No curvature of the spine was noted.

Active myokymic twitchings of the whole posterior aspect of the left leg and buttock were visible, increased by exposure and irritation of the skin and by percussion of the muscles; also by the recumbent posture.

Similar twitchings, although of lesser degree, were present in the homologous muscle group of the opposite side.

The left achilles jerk was considerably diminished in intensity and the tendo-achillis in the recumbent posture appeared relaxed on the affected side (Oppenheim's symptom). Tender points were still present along the course of the nerve.

The left thigh and leg had undergone a slight but visible atrophy. Although paresthesia along the outer side of the left leg still persisted, no objective disturbances of sensibility were demonstrable.

A few days later the patient developed croupous pneumonia and was readmitted to Bellevue Hospital in the service of Dr. Wm. K. Draper, dying March 23, 1903.

A complete autopsy was refused but permission was granted to examine the affected nerve.

Pathologic Examination.—The left sciatic and internal popliteal nerves were exposed throughout the greater part of their course.

From the sacrosciatic notch downward for a distance of about 8 inches, the trunk of the nerve is thicker and more vol-

uminous than normal. This enlargement in the circumference of the nerve is due to the deposit in the perineural areolar tissue and fat of a substance which in feel and appearance resembles a firm gelatin. A similar deposit is noted in the popliteal space above the bifurcation, extending upward for several inches. The bifurcation itself, the internal popliteal, and that portion of the sciatic occupying the middle of the thigh present a normal appearance.

In those portions of the nerve trunk occupied by the gelatinoid deposit, signs of inflammation, such as redness or congestion, are wanting.

This increase in the circumference of the nerve is not due to an edema, which drips or may be stripped out after removal, but is dependent upon a firm, homogeneous, translucent substance deposited in the epineurium and having the consistency of a firm jelly. No urate crystals could be demonstrated in the fresh state.

Microscopic sections of various levels of the sciatic and internal popliteal nerves from the sciatic notch to the internal malleolus were prepared according to the following methods: Osmic acid, counterstained with Rubin S., hematoxylin and eosin, Van Gieson, Marchi, Weigert, Weigert-Pal and counterstain, and the Weigert fibrin stain. In none of the sections examined were there any evidences of round-cell infiltration or other signs of acute inflammation. Those portions of the nerve, the seat of the gelatinous swellings, presented no evident histologic changes, the epineurium containing only areolar tissue and fat of normal appearance.

No fibrin could be demonstrated in these areas by the Weigert fibrin stain.

The nerve fibers, so far as could be determined, were free from any degenerations.

The perineural connective tissue of the individual nerve bundles is thickened and coarse.

The arteries of the sheath, both the larger vessels of the epineurium and perineurium, and the smaller vessels of the endoneurium, are markedly sclerosed and thickened, but nowhere occluded.

Small extravasations of blood are found in the loose areolar tissue of the sheath at all levels examined. These do not stand in immediate relation to the bloodvessels, and were probably artificially produced in removal.

Portions of the biceps, gastrocnemius, flexor longus digitorum adjacent to the nerve trunk were removed and subjected to histologic examination, with negative results.

Remarks.—In the foregoing case there can be no question as to the diagnosis of sciatica. The onset with lumbago, the relapse, and the subsequent course and symptoms are typical.

The case was also of an intensity and duration sufficient to warrant the full development of inflammatory or other structural changes if such exist in this affection. We find only a firm, jelly-like deposit in the nerve sheath, quite structureless histologically, and unaccompanied by inflammatory changes.

The sclerosis of the neural bloodvessels and the thickening of the nerve sheath are natural concomitants of the age of the patient and the general arteriosclerosis.

It will be remembered that in 8 of the 11 recorded cases the nerve was noted as enlarged and thickened; 3 of these subjected to histologic examination revealed no structural alterations.

Furthermore, the three cases described as negative were of many years' duration, when any transudate or active inflammatory changes would naturally have subsided; they also date from a period (1819, 1860, 1864) when pathologic technic was far from perfect. I think we must therefore recognize a perineural deposit as the essential and underlying condition in this group of cases, in which the ordinary cellular evidences of inflammation are entirely wanting.

The nature of this transudate and its origin are still uncertain, but a large mass of clinical evidence indicates a probable relationship to the gouty and rheumatic states.

As is well known, the fibrous sheath of the nerve contains lymph-spaces and channels lined by endothelium and continuous with the subdural and subarachnoid cavities, thus furnishing the histologic elements of a serous membrane, so that one might speak of a *neural gout* or *neural rheumatism*.

The further elucidation of this problem belongs properly to the field of chemic pathology.

A pathologic anatomy such as has been described harmonizes very well with the clinical facts; acute course and eventual complete restoration of function, the symp-

toms resulting from compression of the nerve fibers and the nerves of the sheath (*nervi nervorum*).

The acceptance of a lesion of this nature, does not however exclude the possibility of a true interstitial inflammation, with cellular infiltration, organization and permanent damage to the nerve.

It would seem fitting, however, to discriminate between this form, which is properly speaking a neuritis, and that under discussion in which the sheath is the seat of a structureless deposit of obscure origin.

REFERENCES.

- ¹ Buzzard: *Harvelan Lectures*, 1885.
- ² Cotugno: *A Treatise on Sciatica*, 1775.
- ³ Chaussier: Quoted by Fernet, *Arch. Gén. de Méd.*, 1878.
- ⁴ Martinet: *Thèse de Paris*, 1818; *Revue Médicale*, 1824.
- ⁵ Gendrin: *Hist. Anat. des Inflamm.*, 1826, p. 145.
- ⁶ Rousset: *Dict. des Sc. Méd.*, Vol. xxxv, 1819, p. 504.
- ⁷ Gubler et Robin: *Traité de Méd.* (Bouchard).
- ⁸ Hasse: *Virch. Handbuch der Path. u. Ther.*, *Krank. der Nerv.*, p. 884.
- ⁹ Leudet: *Nouv. Dict. de Méd.*, Vol. xxxii, p. 565.
- ¹⁰ Fernet: *Arch. Gén. de Méd.*, 1878, p. 383.

MISCELLANEOUS

RETIRING ADDRESS OF CHAIRMAN OF NORTH BRANCH OF PHILADELPHIA COUNTY MEDICAL SOCIETY.¹

BY

SAMUEL WOLFE, M.D.,
of Philadelphia.

Mr. Chairman, Ladies and Gentlemen:—I have become convinced, to such a degree, that this is a working, scientific body, that I dared not, until this moment, which seems in a measure set aside for that purpose, infringe on your official time long enough to acknowledge, respectfully and sincerely, how honored I have felt by the confidence which made me your chairman a year ago. The work done within the year may be contemplated with laudable pride, in which I wish to share, but the main credit belongs to you, who have faithfully attended the meetings; who have written and discussed the papers; and especially to the Committee on Scientific Business, which has shown rare judgment in the selection of men and themes, and untiring zeal in their presentation and development. And of what has this work consisted? There has been the full quota of ten regular, largely attended, and enthusiastic meetings. At these were read 25 papers, with the exception of the address of the retiring chairman, a paper by a member of the bar, and two others connected with professional business methods, all were of purely medical character. Beside the papers read, 12 persons discussed the subjects under previous appointments, thus presenting more or less elaborately prepared addresses. I have no record of the number who entered into the discussions extemporaneously, but there were always enough to occupy all the time at disposal.

Of all the persons who had been regularly listed to furnish papers, or open discussions, but two failed in the former, and one in the latter, and in each case a reasonable excuse was furnished. In the case of one of the papers a volunteer address on the subject was substituted. At five of the meetings the symposium idea was carried out, the subject being presented by several of the members from different standpoints, and then exhaustively elaborated. At one meeting a prominent member of the Philadelphia bar entered most enthusiastically into the proceedings. From these there culminated an organized method of dealing with detection of the crime of abortion. Too often have vile men and women sought shelter either under the name of our noble profession or behind the sacred regard for confidence of its members, and here let me say that I am firmer in no conviction than in this, that by none is more fully appreciated the moral degradation, and the legal responsibility of individuals concerned in this debasement, than by the great mass of the medical profession. At one meeting a prominent visitor from Baltimore read a paper.

Of the wide range of subjects I shall not speak, except to say that while mainly framed in their presentation to the inter-

est of the general practitioner, specialists in almost every field were also generously appealed to.

Faithful, although necessarily condensed reports of papers and discussions have been regularly appearing in several of the leading journals of the country.

When what we have done is taken in connection with the scientific work of the other three branches, and added to that of the central body, which has in no way diminished on account of the activity of the branches, we have a total for the Philadelphia County Society, which makes a very good showing. It is possibly a relevant question whether the society is doing itself justice in issuing as a publication what it has decided to style its "Proceedings," which yet contains by no means half the matter entitled to appear therein.

I am sure that all will agree that it is not necessary at this stage to defend the branch movement. It is probable that a further extension of it will be made, and that useful and efficient as it has already proved, there will be developments which will go beyond the dreams of those now most enthusiastic in its support; which will ultimately result in that complete organization of the profession which has so long been the desire of leaders in medicine everywhere.

Within a few years there has been such broadening in the plan of organization, in our national and State societies, that great results have already been achieved. Membership in a county society now gains, without further process, all the privileges of membership in these bodies. The county society thus becomes the unit, and at first glance it would seem as if this was as far as extension and elaboration could be carried in this direction. Closer investigation may lead to a different view, in fact, it may show that the greatest and most sweeping step still remains to be taken.

Fearing that you may regard what is to follow as unwise or untimely agitation, I beg leave to declare that it is in no wise meant to recommend a substitution for the present system. My regard for what it has already accomplished, and my expectation of what without any radical modification is still to follow in the way of increased literary and scientific and ethical culture and expansion, is indeed too great for any such intention. I think it judicious to let well enough alone and to conserve and expand rather than to revolutionize. But in the spirit of prophecy, as to what will exist when our fullest ideals have been attained, let me proceed.

With the great mass of physicians, the nature of their work is such that anything of a public-spirited nature in which they engage must afford its opportunities to the immediate section in which they live. The exigencies of their visiting rounds and office hours leave but little time, and possibly less inclination, for repairing to anything outside of their homes that is in any sense far away. They will run around the corner, or take a 10-minute trolley ride, or a 15 minute walk, and consider it a privilege to attend a society meeting. But they will not go from one end of the country to the other, nor even from its farthest boundary to the center, except under the most unusual circumstances.

The proper extension of the present branch movement, will, it is true, provide for their literary and scientific wants, and this as I have said, is highly commendable. But is this the only, is it even the main purpose of professional organization? Can we regard the work as completed before we have interested and engaged every respectable member of the regular profession, in the consideration of every movement contemplated? Educational requirements, legal enactments, ethical standards, certainly affect all, and should adequately represent the sentiments of the masses. For such consideration the branch must become the medium. The system must not only be extended in cities, but in rural sections, so that no unnecessary difficulties shall be in the way of anyone inclined to speak or vote. Instead of the county society, as now, being the unit, the branch will then be the original cradle of sentiment and progress, while the county will be relatively as the State now is, the first step toward concentration and arrangement.

Let me present this hypothetically. Philadelphia is divided into 10 districts. The members of the county society, residing in each district, constitute the district or branch society. They meet bimonthly, have a full complement of officers and com-

¹ Read at February meeting.

mittees. One of the bimonthly meetings is for scientific business only, the other for general business. To the latter all ethical and other questions are referred which need consideration, and also the election of members. Each branch elects annually one delegate for, say, every 10 members, and these delegates meet quarterly, to represent the sentiment and position of their respective branches and also to exercise a censorship over the members of the branches, or the applicants for admission. From this association of delegates, proper representation in the State and national societies is provided.

With such a plan fully elaborated, questions of interest to the profession would be brought more thoroughly to the minds of all its members. Out of it would soon grow an activity in molding and shaping sentiment and policy which might truly be said to be representative. Too often as things now go, what passes for professional sentiment is in reality only the product of a few overambitious zealots. Stamped as such it usually fails in securing support in the legislative bodies, and might therefore be considered innocent, but it may divert the attention from what is essential, and therefore retard progress. Sometimes by forcing questions for which there has not been proper preparation, it may lead to very mischievous results.

But in conclusion, let me say again, if such a status is really desirable for the branches, it cannot or should not be brought about by a sudden revulsion. Such an attempt would only awaken antagonism where there must be cooperation. In the fulness of time it will work itself out if such bodies as that which I have the honor of addressing proceed with their present vigor along rational and conservative lines. Let me urge you to continue, as in its past brief but eventful history, your generous support, by attendance and participation. From a lusty branch shall spring not only leaf and blossom, but fruit and seed. And who shall say that this latter may not find fertile soil in which to take root, from which a new and even better stock may grow?

Health and Water-supply.—Pennsylvania lacks the State machinery for protecting health, enjoyed by every other Eastern Commonwealth. Where New Jersey spends \$60,000 a year and Massachusetts nearly \$80,000 in the protection of the health of their citizens, Pennsylvania expends \$6,000, a third as much as goes to fish culture. Even this is less serious than the complete absence of legal authority and control in the Board of Health. The State Board is powerless. Its head has no authority, except to advise and to consult. He can deal with nuisances under certain conditions, but the sanitary regulation enjoyed in every other State is denied. This lack of authority in the guardianship of health is accompanied by a carelessness as complete over the water-supply of the State. Typhoid furnishes in Pennsylvania 20,000 cases a year, of which 2,000 are fatal. For lack of a general State supervision, Harrisburg has just had over 50 houses quarantined for smallpox. In a town near Altoona, with 1,000 inhabitants, 100 cases have appeared. Over 4,000 deaths and 20,000 cases of diphtheria annually in the State would be prevented if the State Board of Health had the means and authority to provide antitoxin and organize local quarantine where local authorities are careless. Two measures now before the House meet these conditions, one by creating a State Department of Health, introduced by Senator Roberts, and the other, also introduced by him, to preserve the purity of the drinking water of the State. The first of these measures creates a new department, with a commissioner appointed by the Governor, holding for four years, aided by an advisory board, with the authority to enforce quarantine orders and regulations, to examine nuisances and suppress them, to secure a State registration of births, marriages, deaths and diseases, to organize the State into districts and by appropriate regulation to improve its sanitary condition. In order to protect the water-supply of the State every corporation, private or public, providing a water-supply is required by the other measure to notify him of its source, and in future no municipality is permitted to discharge its sewage into drinking water, existing rights being protected. It is unfortunate that it should be necessary to treat typhoid as a vested right, but no better path offers than to recognize existing pollution and endeavor to pre-

vent its growth in the future. These measures ought both to be passed. The public health demands this. Pennsylvania ought no longer to remain the one State which makes no adequate provision to maintain and protect salutary conditions. It is idle for our great cities to endeavor to suppress contagious diseases and preserve the purity of the water-supply within their own boundaries when great rural areas of the State are today as carelessly administered with reference to health as China.—[*Philadelphia Public Ledger*.]

The Early Publication of the Results of Original Research.—Of all the various kinds of articles published in medical journals, the most important, all things considered, is the article embodying results of real investigative work, whatever the field occupied may be, in which a real effort has been made to enlarge the bounds of knowledge concerning the problems studied. This is the kind of article that the great American medical public as yet appreciates the least, and we fear that sometimes even medical editors are a little slow in grasping its value. In this country, in particular, medicine needs work of this kind, because we have been so much occupied with organization and with the necessary teaching of old knowledge that there has not been energy and opportunity enough to furnish what would seem to be a creditable share of new knowledge. Consequently we have become good compilers and facile writers, which at times may be detrimental to critical penetration. It may be taken for granted that no well-educated physician will ever doubt the ultimate practical value of "the knowledge that ripens on the tree of medical science." It takes so long before the new fact, the new point of view, become part and parcel of general medical knowledge that no time should be lost in starting the new fact, or the new idea, on its career of increasing the usefulness of the medical profession. In many quarters doubt, uncertainty, and opposition may be aroused by the publication of new work, and this may result in quickening of the investigative activities in many laboratories and clinics. Almost without exception, good new work is sure to prove of direct benefit to other workers in the same and in related fields. A large share of excellent, often epoch-making, investigative work in medicine has been done, and no doubt will continue to be done, by comparatively young investigators. To many of them, the satisfaction incident to publicity may be the sole immediate reward for many hours of patient toil in some obscure corner. Consequently, there is no good reason for unnecessary delay in the publication of the results of investigative work carried to a proper and natural finish. Everything speaks in favor of prompt publication, and in the case of general medical journals, articles of this kind, especially when they concern problems in preventive and practical medicine, should have the right of way over those that do not present original work at first hand.—[*Journal American Medical Association*.]

The patent medicine man has at last secured a place in the church in Manhattan, remunerative to both, although the former in the end gets the larger share. Permission to give a lecture to the ladies of the church is secured, and a date set. Of course, the lecture may be interesting, but when, at its close, literature of a patent medicine is passed among the audience and the speaker tells her hearers that Dr. ——— would be pleased to have a consultation with any one present at his office, the lecture loses its charms, and many of those present depart wondering how combination of church and patent medicine had its inception. But when it is afterward learned that the treasury of the church is enriched by ten cents per head for each one present, paid by the good Dr. ———, the audience becomes more enlightened.—[*New York Evening Post*.]

Legacy to a Russian Medical Body.—The Conference of the Russian Military Medical Academy has decided to accept the legacy made in its favor by K. R. Nedatsk, consisting of two sums—one of 16,000 roubles (\$8,000) to found a treasury in the name of the testator and the other of 50,000 roubles (\$25,000) for treatment by means of serotherapy. It is the testator's desire that the capital should be kept intact, the academy simply disposing of the interest.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 8, 1905. [Vol. XLIV, No. 14.]

1. Hepatic Insufficiency in Obstetric Practice. J. CLIFTON EDGAR.
2. Ocean Bathing. PHILIP MARVEL.
3. How May Typhoid Fever be Eliminated? A. ROBIN.
4. The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve: A Report of 20 Cases of Operation on the Gasserian Ganglion, with Anatomic and Physiologic Notes on the Consequences of Its Removal. (Concluded.) HARVEY CUSHING.
5. Normal Salt Solution and Other Local Analgesics in the Office Treatment of Anorectal Diseases. J. RAWSON PENNINGTON.
6. The Application of Laboratory Methods to the Diagnosis of Variola. WILLIAM TRAVIS HOWARD, JR.
7. Treatment of Intestinal Amebiasis in the Tropics. W. E. MUSGRAVE.
8. Dissemination of Streptococci through Invisible Sputum in Relation to Scarlet Fever and Sepsis. ALICE HAMILTON.

1.—Hepatic Insufficiency in Pregnancy.—J. Clifton Edgar, New York City, comments on the mortality occurring during pregnancy, aside from known and preventable causes. He has examined the postmortem findings of women who have died during gestation from toxemia of pregnancy, and he insists on the importance of the study of the symptoms of this condition. Certain women have a predisposition to hepatic insufficiency, and heredity should be considered. The excretions should be carefully examined, the mental state and nervous symptoms should be studied and the possible periodic exacerbations should be looked for. If the symptoms of toxemia are found, the examination should be still more detailed and thorough, and if the symptoms should indicate a progressive condition, with structural disease of the liver, the chances are against the patient. He discusses the interruption of pregnancy, and the probability of an abnormal puerperium after pregnancy is successfully terminated. He concludes that the preventive treatment of much of the morbidity of pregnancy and of the puerperium depends on an early recognition of autotoxemia as it shows itself in the clinical picture of hepatic insufficiency. No one of large experience can fail to observe that many pregnancies are really pathologic, and he thinks that the specific toxemia of the condition will soon be generally admitted. There may be more than one toxic condition, but in any case, hepatic toxemia should be kept in mind. It is important that a woman in this condition should be kept under the observation of the physician.

2.—Ocean Bathing.—Philip Marvel, Atlantic City, N. J., calls attention to the effects of ocean bathing. Sea water is really a mineral water containing large quantities of salts in solution. He calls attention also to the effects of temperature; to the depression of the system due to long exposure in cold water, showing itself by a drop of from 1° to 2° of body temperature and in lessening of the pulse-rate from 15 to 20 beats. If after a bath there is a general glow of the surface succeeded by a pleasing warmth internally and accompanied by a sense of general invigoration, the effect is salutary. If, on the other hand, there is chilliness, depression and languor, the reverse is the case. In his opinion, ocean bathing, as carried on in the Atlantic coast resorts, does more harm than good, and physicians should warn patients of the dangers of too long immersions and of exposure in wet clothes on the sand. The practice of promenading the beach in scanty and wet clothing after a long exposure in the surf is to be condemned. An important feature in sea bathing is the impact of the waves on the body, and to this may be added the thermic stimulation of the cold, the chemic irritation of the salt and the mechanical effect of the forced activity, all producing a combination of the stimulating influence of a brine bath at low temperature with the effect of a stimulating hydrotherapeutic procedure. These effects are admirable for stimulating functional activity in weakened conditions in which normal metabolism is inhibited or in which a condition of perverted nutrition exists, as in some functional disturbances of long standing.

3.—See American Medicine, Vol. VIII, No. 4, p. 143.

5.—Anesthesia by Water Injections.—J. Rawson Pennington, Chicago, in selected cases has used normal salt solution and sterile water for local analgesia in minor rectal operations. Following the suggestion of Heinze, of Dresden, he has used normal salt solution instead of pure water to avoid the irritation sometimes caused by the latter. In some cases he has

added eucaïn lactate and adrenalin to intensify and to prolong the analgesia. He also had tests made to determine the influence of such solutions on normal tissues, and finds that when isotonic with the blood the best effects are produced. He gives a formula and method of making up the solutions. He has employed them in operations for various types of hemorrhoids, polypi, anal prolapse, fissure, fistula, ulcerations, abscesses, sacral dermoids, lipomas, condyloma, and secondary operations for colostomy. He has operated altogether in about 75 cases with local analgesia, and the pain has been usually less than under general anesthesia.

6.—Variola.—W. T. Howard, Jr., Cleveland, Ohio, has followed up the study of the organism found by Councilman, McGrath, Brinckerhoff and Tyzzer in variola and its life cycle. He finds that these bodies in their various stages are constantly present in the skin lesions of vaccinia and variola, and gives the technic of their study. A second cytoplasmic stage recognized by Howard and Perkins is found only in well-established variola vesicles, never in vaccinia, so far as known. The other stages are the intranuclear ones, already described by Calkins, with the exception of one which was not found by Howard, and which appears in the later stages of the eruption. It is useless to look for cytoplasmic forms (excepting in local autoinfections) in late lesions or for the intranuclear forms in early ones. The importance of these findings is in the service they may render in the early diagnosis of variola and vaccinia. Howard believes that this can be made in doubtful cases with the result of cutting short variola epidemics in their beginnings.

7.—Tropic Amebiasis.—W. E. Musgrave, Manila, P. I., gives the results of his experience with tropic amebic dysentery in Manila, where it causes more than 50% of the invalidism of public, and especially of civil, employes. In the military service there is a smaller percentage, on account of the stricter regulations and the medical oversight. The use of cold drinks, and especially of ices containing encysted amebas, is specially dangerous. Fresh vegetables are responsible for some cases, and others come from lack of cleanliness of the hands. He condemns the tendency to routine treatment. Patients with acute cases should be kept in bed, on fluid diet, pain being controlled by opiates or by local applications; calomel and salines and enemas are useful. After the acute symptoms subside, strict confinement is no longer required, because the patient usually can be treated at home and can have the benefit of carefully directed moderate exercise. Musgrave advises a liberal diet, except when there is disturbance of the stomach and the small intestines. While change of climate is desirable, especially in old, obstinate and emaciated cases, it should be preceded and followed by careful local treatment. He thinks that the routine use of bismuth has worked harm, at least in a negative way, by interfering with the effects of other drugs. Ipecac, as sometimes prescribed, is apt to be dangerous, but in small doses it may act beneficially. Salines should be used with caution for catharsis only. Musgrave favors the hydrochloric acid and pepsin combinations. Strychnin, while a valuable general tonic, is too stimulating to the bowels to be used simultaneously with enemas. Local treatment is important, and he goes at length into the directions for the administration of injections. The various salts of quinin have been the most satisfactory agents in this method of treatment.

8.—Dissemination of Streptococci.—Alice Hamilton, Chicago, reports the results of an investigation, conducted in the Memorial Institute for Infectious Diseases, Chicago, of the dissemination of streptococci through the breath, especially in scarlet fever and sepsis. She found that these organisms are expelled in invisible droplets of sputum in coughing, speaking, whispering, crying or breathing forcibly through the mouth, to a distance of at least 36 cm. This was observed in 33 out of 50 scarlet fever patients, and in 42 out of 50 normal individuals, and Dr. Hamilton concludes that when these germs are inhaled, or when they fall on exposed tissues, they may cause disease or suppuration. It is probable, also, that their virulence may be increased by passage from one individual to another, and this would explain the conversion of a simple case of scarlet fever into one of scarlatinal sepsis, and it also would explain the cases of surgical sepsis that occur, and which otherwise cannot be

accounted for. Dr. Hamilton suggests the isolation of cases of scarlet fever with streptococcal complications, and the employment of a mouth guard by surgeons and nurses, during operations.

Boston Medical and Surgical Journal.

April 6, 1905. [Vol. CLII, No. 14.]

1. Surgical Treatment of Nephritis: A Review. PAUL THORNDIKE.
2. Diet in Nephritis. HENRY JACKSON.
3. Some Further Observations on Leukocytotoxins. HENRY A. CHRISTIAN and THOS. F. LEEN.

1.—Surgical Treatment of Nephritis.—P. Thorndike states that Edebohl performs fixation after decapsulation only when there are symptoms due to mobility. Enough fixation is furnished by the infiltration. Operation on both sides is indicated unless the renal symptoms point specially to one organ. We must wait from two to five years before we can know what the operation can accomplish in chronic nephritis. Cases deemed suitable for operation are those with albumin and casts associated with movable kidney, cases of true nephritis associated with movable kidney, chronic interstitial nephritis, and diffuse nephritis. In general anasarca with grave cardiac disturbance it is doubtful if operation should be attempted. So long as a patient with chronic Bright's disease is comfortable he should be let alone. Evidence shows that a new capsule forms a few weeks after operation, but it is doubtful if enough collateral circulation is established to materially affect the renal tissues. The clinical facts, however, make us hope for much from surgery along these lines. [H.M.]

2.—Diet in Nephritis.—H. Jackson states that postmortems show our inability in many cases to diagnose even serious kidney lesions, and in others to decide to what type they belong. In acute nephritis, proteids must be reduced. Carbohydrates do not irritate the kidney, and they prevent the formation of large curds from the milk taken and render it more palatable. Chronic nephritis requires the greatest care in diet. Protein must be fairly abundant, and meat and eggs strain digestion less than large quantities of milk. Condiments must be avoided. The withdrawal of salt often lessens the edema. Rich meat broths, on account of the extractives they contain, are irritating to the kidneys. Patients should eat as much butter and cream as possible. In the interstitial type the diet should be moderate in quantity and quality. [H.M.]

3.—See *American Medicine*, Vol. VII, No. 25, p. 973.

Medical Record.

April 8, 1905. [Vol. 67, No. 14.]

1. The Treatment of Pyelitis. HOWARD A. KELLY.
2. Etiology of Enlarged Prostate. L. BOLTON BANGS.
3. Microscopic Examination of the Fasting Stomach Contents and Its Diagnostic Value. WILLIAM ACKERMANN and LOUIS M. GOMPERTZ.
4. Acute Cholecystitis in the Puerperium. Report of Two Cases. Cholecystotomy. Recovery. HIRAM N. VINEBERG.
5. Conservative Treatment of Protracted Cases of Acute Otitis Media Purulenta, with Its Complications. ALFRED WIENER.
6. A Modification of the Heller Test for Albumin in the Urine. ABBOTT SMITH PAYN.

1.—The Treatment of Pyelitis.—H. A. Kelly points out the great importance of recognizing and treating early and mild cases of pyelitis so that the disease may be checked before it has progressed to a serious degree requiring radical operations. The following practical deductions are offered: 1. It is important to take cognizance of a pyelitis of any grade whatever, as it may at any time become a menace to the functional value of the kidney, or even to life itself. 2. The severer grades of the affection are often the sequels of a milder pyelitis of long standing. 3. The first step in the investigation is to determine the extent of the affection by estimating the amount of pus in the urine and the relative number of organisms. 4. It is important to determine the cause of the infection, which is often of a mechanical nature, and therefore easily relieved. 5. By removing the cause, the disease may either be cured or so far benefited that a subsequent complete relief by means of local treatments is easily brought about. 6. The milder forms are best treated by rest, abundant water, urotropin. 7. If there is not a speedy improvement, the next simplest plan of treatment is the catheterization of the kidney every two to four days for the pur-

pose of evacuation, distention of the pelvis, irrigation, and instillation. Boric acid and nitrate of silver are the best drugs in this connection. 8. Improvement should be measured by the disappearance of pus from the urine and the diminution in the organisms, taking, say, three platinum loops as the measure in conveying the infected urine to the agar. 9. A patient improved but not cured (complete absence of bacteria) should be watched in the intervals of treatment and guarded with especial care in case of any intercurrent disease. Should such a disease supervene, urotropin is a good prophylactic. 10. The severer forms of the disease may be treated by irrigation, which often brings great temporary relief. As a rule, however, the kidney must be opened and drained; if it has been extensively diseased, remove it.

2.—Etiology of Enlarged Prostate.—L. B. Bangs considers that the inflammatory theory appears to be the one which accounts for the onset of this malady, which explains the changes in the gland, and which has the most and the strongest evidence in support of it. According to histologic examinations, the point of origin seems to be in the prostatic urethra, extending thence along the gland ducts from the urethra toward the periphery of the prostate, the round-celled infiltration being most marked in the vicinity of the verumontanum. The early involvement of the verumontanum is in accord with the clinical observation that excessive sensibility and congestion of this region are very often noted in individuals who have practised some form of sexual irregularity. Hypertrophy of the prostate is not a senile disease, but begins in early manhood and is dependent on unphysiologic sexual life leading to abnormal hyperemia of the gland. A careful analysis of the histories of 300 patients of all ranks having unmistakable enlargement showed that over 85% were subjects of abnormal or unphysiologic sexual indulgences which were excessive in degree and continued for years. In the 15% remaining the primary prostatic congestion was apparently due to a disarrangement of the portal circulation. Gonorrhea alone is not sufficient to produce the malady. The following prophylactic rules are given: (1) Sexual instruction in boyhood; (2) chastity in youth; (3) sexual self-restraint in early manhood, and (4) the physiologic sexual relations in the married state.

3.—Diagnostic Value of Microscopic Examination of the Fasting Stomach Contents.—W. Ackerman and L. M. Gompertz call attention to this method of examination in gastric disease, which they consider equal if not superior to chemic analysis of the stomach contents in furnishing diagnostic information. The various structures likely to be encountered in health and disease are enumerated and figured, and the following conclusions are reached: (1) The presence or absence of hydrochloric acid can be determined by a microscopic examination of the fasting stomach contents; (2) the origin of mucus can be determined only by a microscopic examination; (3) by the microscopic examination mild cases of pyloric stenosis can be differentiated from simple gastrosuccorhea; (4) constant presence of pus, blood, and possibly infusoria in the fasting stomach contents is absolute evidence of extrapyloric carcinoma; (5) benign obstruction can be diagnosed early by the finding of sarcinas, yeast cells in chains, or food remnants; (6) the early diagnosis of malignant obstruction of the pylorus can be made by the finding of the Oppler-Boas bacilli.

4.—Acute Cholecystitis in the Puerperium.—H. N. Vineberg says that, taking into consideration the frequency with which women suffer from gallstones, and bearing in mind the statement made by reliable authorities that pregnancy and labor favor the occurrence of biliary colic, acute cholecystitis in the puerperium ought to be a more frequent occurrence than the literature would seem to warrant. It is probable that the disease is often overlooked, or is mistaken for puerperal sepsis. After a search through the literature of the past 10 years the author has been able to find records of only four cases in which cholecystotomy was done during the puerperium, and of two in which the operation became necessary during pregnancy. In the author's two cases symptoms of acute abdominal inflammation, occurring on the ninth and tenth days after delivery, respectively, were ascribed to sepsis by the attending physicians, but in operation, Vineberg's diagnosis of acute cholecystitis was confirmed.

5.—Acute Otitis Media Purulenta.—A. Wiener expresses the view that the modern tendency is to be over-hasty in performing radical mastoid operations in acute otitis media, and describes six cases in which paracentesis of the membrane and careful treatment served to render more severe measures unnecessary. He makes a free incision through the posterior superior portion of the canal and the entire posterior portion of the drum, using a sickle-shaped knife for the purpose.

New York Medical Journal.

April 1, 1905. [Vol. LXXXI, No. 13.]

1. Concerning the New Electrocystoscope. WILLIAM K. OTIS.
2. The Treatment of Acute Tuberculous Spondylitis in Infants and Young Children. DEXTER D. ASHLEY.
3. Recent Advances in Electrotherapeutics. WILLIAM JAMES MORTON.
4. Two Dipsomaniacs: Illustrating Two Dipsomania Phases. T. H. EVANS.
5. The Management of Pneumonia in Infants and Children. CHARLES GILMORE KERLEY.
6. The Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases: With a Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. DAVID L. EDSALL.
7. Some Clinical Deductions from the Performance of 90 Alexander Operations with Abbe's Modification. H. B. EPSTEIN.
8. Cerebrospinal Meningitis in Cattle. PAUL SHEKWANA.

2.—Tuberculous Spondylitis.—D. D. Ashley gives cuts illustrating his method of treating the kyphosis in this condition. The chief dependence should be upon fresh air, diet, and immobilization in superextension. In addition to the advantages obtained by the use of the Whitman frame, he claims the following advantages for the use of the plaster-of-paris jacket and the modified Calot procedure in the cases under consideration: 1. The deformity and the spasm are immediately overcome and the spine is at once placed in the position which is most conducive to the healing process. 2. The spine is securely held in this position, the pressure pads are adjusted by the surgeon, and remain in the desired relation. 3. No lateral motion of the spine is permitted nor any undue flattening of the pelvis. 4. The necessary handling of the child is done with the least possible disturbance to the spine. The skin may be kept clean by means of the rubbing cloth. 5. It conserves the labors of the surgeon and permits the treatment of patients from a distance, where frequent observation is impossible, it being sufficient after the treatment is well established to see them once in from one to three months. 6. By the modified Calot procedure we increase the capacity of the thorax, relieving pressure upon vital organs. 7. Paraplegia becomes less or entirely disappears. 8. In marked deformity, where the angle of flexion is so great as to render the supine position almost intolerable, the reduction of the kyphosis makes this position at once comfortable. [C.A.O.]

6.—Infected Milk in Sickness.—D. L. Edsall mentions the chief forms of infection known to be produced by milk. In addition to these it is recognized that milk may be the cause of toxic symptoms that are sometimes exceedingly violent and are not directly due to the bacteria present, but to poisonous substances produced by these bacteria. He takes up another class of cases, in which the milk does not itself produce grave and evident infection, but in which it succeeds in making worse a disease that is already more or less bad; and in which the symptoms are likely to be attributed to the disease rather than to the food. He describes in detail such a condition occurring at the Episcopal Hospital. In the patients under discussion, not only was intestinal disturbance, from slight looseness of the bowels up to severe diarrhea, almost the rule rather than the exception, but other abdominal symptoms were also marked and common. The milk was thought to be the cause of the trouble, and these patients were all given pasteurized milk. The pasteurizing was done as soon as the milk was delivered at the ward. The results were very satisfactory, and left no doubt in the minds of the investigators as to the cause of the trouble. [C.A.O.]

7.—Alexander Operations.—Of the series of 90 cases Epstein has delivered 18 women without a relapse in any case. In 76 cases he has had the opportunity of seeing the patients for other illnesses, or they have reported for examinations, and in no case has relapse occurred. In 42 cases the operation was per-

formed for simple retroversion; curetage was supplemented for the attendant endometritis. In 20 cases retroversions were accompanied by prolapse in which, in addition to curetage, anterior and posterior colporrhaphy was added; in eight cases excision of hemorrhoids was done, and four divulsions for fissure in ano were done. The writer heartily endorses this method. [C.A.O.]

8.—Cerebrospinal Meningitis in Cattle.—Paul Shekwana reports that cattle had been dying near Colfax of an epidemic of a perplexing disease, which was thought to be some form of meningitis. A rabbit was inoculated with 1 cc. of an emulsion made from the brains of cattle. The animal died after 36 hours, showing before death and at postmortem examination all the signs and symptoms of cerebrospinal meningitis. The slide preparations from both the original brains and from the brain of the rabbit showed a great number of *Diplococcus intracellularis meningitidis*. [C.A.O.]

Medical News.

April 8, 1905. [Vol. 86, No. 14.]

1. Further Notes on the Function of the Parathyroid Glands. W. G. MACCALLUM and C. F. DAVIDSON.
2. Two Cases of Pernicious Anemia Due to Dibothriocephalus Latus. ALFRED MEYER.
3. A Case of Dibothriocephalus Latus Infection, Causing Pernicious Anemia: With Complete Recovery. W. GILMAN THOMPSON.
4. Symptoms and Diagnosis of Cerebrospinal Meningitis. HENRY L. ELSNER.
5. Eye Symptoms of Cerebrospinal Meningitis. A. EDWARD DAVIS.

1.—Function of the Parathyroid Glands.—W. G. MacCallum and C. F. Davidson record a number of experiments aiming to define the function of these glands. The tetany resulting from their extirpation seems to be due to the action of a circulating toxin on the higher nervous centers. The nature of the food taken has but little influence on the course of tetany. It is hard to say whether brain emulsion acts just as so much salt solution in lessening it or not. Animals may die of the tetany or sink into an extraordinary cachectic condition. The first is the commonest stupor and cachexia are as common in parathyroidectomy as in thyroparathyroidectomy. Life can be maintained only with the greatest difficulty by injection intravenously of large quantities of parathyroid material. When small doses suffice there has probably been incomplete extirpation of the glands. The writers have not found the course milder after thyroparathyroidectomy than after parathyroidectomy for in half of their cases the symptoms were of maximum severity; nor do they find that a subsequent thyroidectomy stops the tetany for in four out of six cases it had no effect. They regard tetany not as resulting from a disturbance of the thyroid, but as the direct result of the loss of parathyroid function. [H.M.]

2.—Pernicious Anemia Due to Dibothriocephalus Latus.—A. Meyer emphasizes the importance of seeking the cause of anemia instead of being satisfied with the routine administration of iron and arsenic. In his cases it disappeared after the use of anthelmintics. [H.M.]

3.—Dibothriocephalus Latus Causing Pernicious Anemia.—W. G. Thompson thinks the theory of special toxemias satisfactorily accounts for the varied symptoms caused by the presence of these parasites and also for blood changes. A specific precipitin reaction has been obtained by adding extract of fresh proglottids to the blood-serum of a patient harboring the parasite. Serious anemia may be produced in a dog by inoculations of this extract. Eosinophilia is absent in this infection, though common with other intestinal parasites. A few cases have been reported among immigrants in the United States. The special features of the blood-examination in the author's case were an increase in red cells from 608,000 to 5,980,000 and of the hemoglobin from 20% to 98%; the early high color index (1.6); the absence of eosinophiles in the earliest examinations; the early high percentage of macrocytes; the early presence of normoblasts and megaloblasts; and the early leukopenia. These entitle the case to be classed as one of extreme pernicious anemia, with complete recovery. [H.M.]

4.—Symptoms and Diagnosis of Cerebrospinal Meningitis.—H. L. Elsner, states that sporadic cases are generally much more fatal than the epidemic meningococcic form. It is

rare after 40. Headache, hyperesthesia, photophobia, and insomnia are the rule. Knee-jerk is absent in a sixth of the cases. Bronchial catarrh is frequent. The pulse and temperature are not characteristic. The abdomen is retracted, there is constipation, there may be albuminuria or glycosuria. The skin lesions are herpes, erythema, roseola, and hemorrhage. Convulsions are common in children; rare in adults. Vomiting, joint inflammation, and enlargement of the spleen may be present. Kernig's phenomenon is generally present, but is not pathognomonic. Lumbar puncture is valuable in diagnosis, prognosis, and treatment. The epidemic form is due to the meningococcus. The pneumococcus may cause it in the absence of pulmonary inflammation. When it occurs with pneumonia it is uniformly fatal. Few errors in diagnosis will be made if bedside and laboratory examinations are combined. Sometimes the typhoid bacillus is the only organism present in the spinal fluid. [H.M.]

5:—Eye Symptoms of Cerebrospinal Meningitis.—A. E. Davis discusses the paralyses of the third, fourth, fifth, sixth, and seventh nerves and the occasional ptosis and conjugate deviations and nystagmus; also the optic neuritis, retinitis, optic atrophy, choroiditis, conjunctivitis, and keratitis, common in various epidemics. Inequality of the pupils with squint should place the general practitioner on his guard. The prognosis when there are eye lesions, especially when the fundus is affected, is always graver than when there are no eye symptoms. In optic atrophy following meningitis, vision is sometimes restored, although a white atrophy remains. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Cerebrospinal Meningitis.—A great deal has been written in the newspapers about epidemic cerebrospinal meningitis, and the public has become thoroughly alarmed. This alarm, however, is both unwarranted and unnecessary. Some of the newspaper articles are gems of misinformation, and it seems scarcely possible that a leading paper could print such stuff as the following:

PITTSBURG, April 9.—City Bacteriologist Matson today announced that he had at last located a spotted-fever germ, and that he would also consult with the New York authorities on it; as the victim from whom the germ was taken came from New York. Pasquale de Costa, aged 15, died yesterday of the disease, he having been but a trifle over a week in Pittsburgh. When Dr. Matson saw on Saturday night that the boy could not live, he sank a hypodermic syringe into the spinal column of the boy and extracted some fluid, which was examined today, and the germ was located. It was of a blue color. The bacilli discovered was shaped something like a coffee bean and was of a blue color.

This illustrates the necessity for which we have long contended, that every newspaper should have on its staff a medical editor, whose province it would be to revise all news items and editorials dealing with medical matters; and if he should also exercise an authoritative supervision over the advertisements, it would still further redound to the advantage of the organ employing him. Undoubtedly, cerebrospinal meningitis is a mysterious disease. Its cause, although generally acknowledged to be the meningococcus—or, as it is also called, *Diplococcus intracellularis meningitidis*,—is not so definitely fixed as to be beyond dispute. That cerebrospinal meningitis is an infectious malady, none can doubt; as to its contagiousness, the evidence is contradictory. In 1899 the disease was epidemic in Philadelphia. There were 235 cases during the year, of which 195 occurred during the months of March, April, May and June. At that time there were ten instances in which two, three or four members of the same family, living in the same house, had been taken ill with the disease. While the health records read as if the members of each of these groups of cases were stricken on the same date, it is improbable that this was so; it is

more likely that there was an interval between the onset of the disease in the different individuals of each group. The occurrence of the disease in ten families, involving 26 persons, seems rather in favor of its contagiousness. During the present outbreak in Philadelphia there have been 51 cases within the last nine months. These have been so widely distributed that contagion seems an improbable explanation of the transmission of the disease; nevertheless, the decision of the Board of Health of Philadelphia to treat cerebrospinal meningitis as if it were contagious is justified, until more is known of the character of the affection. The mortality varies in different outbreaks, which is true of every other epidemic disease. In 1899, in Philadelphia, 135 out of 235 patients died, a mortality of 57.4%. At the present time the mortality is 42%. The disease is more prevalent in New York City than it is in Philadelphia; indeed, during the last decade the metropolis has not been free from it. The number of deaths has varied from 178 in 1896 to 1,010 in 1904. As erratic as is the distribution, so are also the symptoms of cerebrospinal meningitis. There are typical cases in which it is impossible to err in the diagnosis, and there are others in which the diagnosis can be made only after every other infection has been excluded. Lumbar puncture is of great value for diagnostic purposes, and is quite a simple procedure. The writer has found that a line joining the crests of the ilium constitutes the best guide. The puncture is made in this line, a little to the right or the left of the center, while the patient is lying on his side, with his back toward the light. The needle, which should be of good size, is directed inward and slightly upward for a distance of about two and a half inches. Regarding treatment, there is, of course, no specific, and our consequent helplessness in combating the disease has been frequently, if not unduly, emphasized in the public press. Aufrecht has recommended the hot bath, and many reports favor this treatment. At any rate, the procedure is harmless, and is usually followed by a relief of the symptoms. Morris Manges attributes the recovery of some of his patients to lumbar puncture with the subsequent injection of lysol, of which he employs 10 cc. of a 1% solution. Nammack, with the same treatment, but employing a stronger solution of lysol, has, however, lost four out of five cases. The physicians at the Municipal Hospital in Philadelphia, seem to feel that lumbar puncture has more than merely a diagnostic value, and that it exercises a distinctly favorable influence upon the disease. If the nervous symptoms are marked, the bromids and chloral are indicated. The older practice, strongly advocated by Stillé, of using opium or morphin, is not so popular as formerly; yet there are those that employ it. Stockton believes that antipyrin is of value, not only in controlling the fever, but also in relieving headache, hyperesthesia, and delirium. He likewise advocates intraspinal puncture—with drainage, when necessary—to relieve severe pressure symptoms. This should be repeated if the symptoms recur, and if benefit has followed the first puncture. The present excitement concerning the disease in this country and also in Germany, where, in certain parts, especially in Silesia, it has assumed the character of a dangerous epidemic, ought to lead to important scientific and practical results.

REVIEW OF LITERATURE

Syphilis of the Liver in the Diagnosis of Abdominal Tumors.—König¹ reports three cases in which the patients suffered, some for a short time, and others for a longer time, from pain in the hepatic region. No functional disturbances of the liver were demonstrated. The patients lost their appetite and decreased in weight. Examination of the painful area disclosed a tumor, which was sometimes movable, and sometimes adherent to the liver. Laparotomy showed the tumor to

¹ Berliner klinische Wochenschrift, February 6, 1905.

involve a lobe of the liver, the surface of which, as well as the remainder of the liver, presented large and small round grayish-white patches. König states that the interstitial as well as the gummatous form of syphilis may cause tumor formation. Syphilis first involves one lobe of the liver, and later the whole organ in the form of a diffuse hepatitis. Luetic growths of the liver may occur as flat, usually hard masses, which lie within the percussion limits of that organ. They may also occur as movable and knotty, usually round or kidney-shaped growths, which are united with the liver by peduncles. The author states, furthermore, that it is impossible, even though one is acquainted with the above symptoms, to be able to positively diagnose the condition as syphilis. Syphilis of the liver may be mistaken for tuberculosis or carcinoma of that organ. When in doubt, an exploratory incision should be made. Whether, after the condition has been diagnosed as syphilis by laparotomy, it should be removed by operation, depends upon varying factors in each individual case. [W.E.R.]

Red Urine after Pyramidon.—E. Apert¹ very frequently observed that a short time after the administration of dimethyl-amidoantipyrin the urine assumed a reddish coloration, varying from a salmon to a cherry red. This discoloration, he found, does not indicate either an intoxication or an abnormal modification of the organism. It is due to an elimination by the urine of rubazonic acid, a product of decomposition of pyramidon. It is produced from the salts of pyramidon as well as by the base itself. In sensitive individuals, small doses may call it forth, while in patients with considerable resistance, even large doses have no influence. The explanation for this is as difficult as that for other idiosyncrasies. The elimination of the coloring material reaches its maximum six hours after the absorption of the drug and terminates about 12 hours after. The redness may be mistaken for hematuria, but without making clinical and spectroscopic examinations, its solubility in chloroform serves to differentiate hemoglobin from rubazonic acid. [E.L.]

Summer Diarrhea in Infants.—G. H. Weaver, R. M. Tunnick, P. G. Heineman, and May Michael² report on studies made to determine if the bacteriology of intestinal diseases in children in Chicago corresponded with that determined by investigations in the eastern cities. This was important, as physicians were asked to employ antidyenteric serum in such cases. Drs. Weaver and Tunnick conclude that in view of the presence of dysentery bacilli in normal milk stools, and their absence or presence in small numbers in the stools of a large proportion of children with summer diarrhea, it is not safe to assume that their presence is connected causally with the majority of cases of summer diarrhea. Dr. Michael made a clinical study of 97 cases. Dysentery bacilli were not found in all cases characterized by mucus and bloody stools. Cases from which dysentery bacilli were isolated from the stools presented the clinical picture of ileocolitis and did not differ clinically from cases of ileocolitis in which these bacilli were not found. [A.G.E.]

Sprue.—Knud Faber³ states that chronic tropic diarrhea is confused by many with dysentery, and reports a case, together with the pathologic findings, which helps to clear up its identity and relationships. The case began in the usual way, with monthly attacks of diarrhea, which gradually became more frequent, until at the time he came under observation six years after the beginning of the disease, he was having daily five or six thin fetid stools, which contained neither blood nor much mucus, but had a sour, fetid odor. In the stools were a number of small drops of mucus which contained a pure culture of a small diplococcus. Beside extreme emaciation, the only symptoms were tenderness along the colon and local excoriation of the root of the tongue. Death occurred a few days after admission in an attack of abdominal pain. Immediately after death, formalin was injected into the abdomen to preserve against postmortem changes. Autopsy showed beginning diffuse peritonitis as the immediate cause of death. Macroscopically, the only changes found were in the lower part of the small intestine, where 16 ulcers were found involving

Peyer's patches, and somewhat resembling typhoid ulcers, but evidently chronic in character. These ulcers increased in size and depth as the cecum was approached, and three of the lower ones were perforated. In the colon, the solitary glands were swollen, but there was no ulceration. Microscopic sections showed throughout the whole extent of the alimentary canal, inflammatory changes, involving especially the superficial layers, and consisting mainly in a profuse round-cell infiltration. This process was most marked in the ascending colon and lessened in both directions, involving, however, both the rectum and esophagus. The atrophy and thinning of the wall, found by most observers, were not present anywhere, and the author believes it to be a postmortem change. The villi of the small intestine were unchanged. A bacteriologic examination showed a vast number of organisms, among which a small diplococcus found in the balls of mucus was most characteristic. [T.S.G.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Intraabdominal Hernia into the Lesser Cavity of the Peritoneum, the Foramen of Winslow Being Closed.—E. Schwalbe¹ reports the case of a woman of 34, who died of parenchymatous nephritis, associated with aortic and mitral disease. The following condition was discovered, while dissecting the abdomen, and which had not revealed itself during life by the slightest symptom: The small intestine, from the duodenojejunal flexure down as far as the ileocecal valve, with the entire mesentery, was found in the omental bursa (lesser cavity of the peritoneum), the hernial opening being formed by an orifice in the transverse mesocolon behind the transverse colon. The foramen of Winslow was completely closed by peritoneal adhesions. The transverse colon had fallen into the true pelvis. The omentum showed multiple adhesions and irregular thickenings. The right side had formed a recess similar to a hernial sac, but it was empty. The hernia was not retroperitoneal, and the duodenojejunal recess was absolutely empty. The author considers the cause of this rare form of hernia to have been a congenital defect in the transverse mesocolon, and not an acquired atrophy of this spot. This defect was complicated by a congenitally increased length of the colon. [E.L.]

Multiple Hernias.—W. S. Bainbridge² reports the case of a woman of 45, who had the symptoms of chronic appendicitis and retroposition of the uterus, together with a femoral and an umbilical hernia. Operation revealed 4 hernias not showing externally, 1 immediately above the umbilical protrusion and 3 in the median line between the umbilicus and the symphysis. These were all reduced. At the one sitting 10 operations were performed upon the patient: 1, divulsion; 2, curetment; 3, radical cure for femoral epiplocele; 4, for hernia epigastrica; 5, for umbilical enteroepiplocele; 6, for paraumbilical epiplocele; 7, for paraumbilical enteroepiplocele; 8, for lipoma and epiplocele; 9, ventral fixation; 10, appendectomy. The patient made a good recovery and is now free from all symptoms. The latter statement is particularly emphasized regarding acute attacks of epigastric pain. [A.G.E.]

Intestinal Strictures from Interruption of Blood Supply.—Schloffer³ made a number of experiments to determine the cause of intestinal stricture after injury, and found that injury to the muscularis and mucous membrane was always repaired without stricture, but that ulcers caused by necrosis from interrupted blood supply left strictures in healing. In rabbits, if the mesentery is divided along the bowel for a distance of less than 2 cm. there is no ulceration, if for more than 5 cm. perforation or fatal peritonitis occurs, but between these limits there is always ulceration which heals with stricture, and although local peritonitis occurs, this does not prove fatal. [T.S.G.]

¹ Archives generales de Medecine, 1904, II, 1665.

² Journal of Infectious Diseases, January 12, 1905.

³ Archiv für Verdauungs-Krankheiten, Bd. x, No. 4.

¹ Virchow's Archiv, 1904, clxxvii, 561.

² The Postgraduate, February, 1905.

³ Mittheilungen aus der Grenzgebiete, Vol. xiv, No. 3.

Gangrene of the Extremities after Infectious Diseases.

—S. Barraud¹ reports the case of a woman of 20, who had injured one of her finger-nails in the course of her work. A felon developed, and within a few days the glands of the axilla became enlarged and painful. She developed violent pains in different parts of the body, and within six weeks of the injury, gangrene of the left lower extremity developed. This was followed, within a short time afterward, by the same process in the other extremity. Three months and a half from the beginning of the process, the patient died with symptoms of sepsis. The autopsy revealed, as the cause of death, a thrombus filling the aorta, the upper part of the thrombus extending 3 cm. above the diaphragm. The inferior vena cava was filled with a similar thrombus, as were also the arteries and veins below the point mentioned. From one of the axillary glands, *Staphylococcus aureus* was cultivated. The author sees in an embolism of this pus-producing organism in one of the vasa vasorum of the aorta, the probable cause of the thrombosis. In the second portion of his paper he publishes the details of 102 similar cases gleaned from literature. In all these, the extremities of young persons were affected; and in all, an infection of some kind had preceded the lesion. In 62 out of 68 of these cases there was arterial thrombosis, with or without simultaneous venous thrombosis. The aorta with all its branches was affected 11 times; 1 femoral artery, 13 times; 1 popliteal artery, 12 times; and 1 common iliac artery, 8 times. In discussing the etiology the author finds the most frequent cause to be typhoid fever; it was responsible for 44 cases. In 11 cases, typhus fever was the etiologic factor; in 9 cases, puerperal fever; in 6 cases, measles. Scarlet fever, pneumonia, and acute inflammatory rheumatism were each responsible for 5 cases; and a number of other diseases, for the remaining cases. Embolic gangrene was found in cases of typhoid fever, pneumonia, scarlet fever, puerperal fever, and acute inflammatory rheumatism; in all, 11 cases out of 103. In 2, pure venous thrombosis was the cause, while in the remainder, autochthonous arterial thrombosis existed. Of the patients 51.6% died, the most of the fatal cases being due to acute inflammatory rheumatism and typhoid fever. The treatment should consist in waiting for a line of demarcation and in amputation. In cases of general sepsis, an early operation may seem indicated. [E.L.]

The Functional Value of the New-formed Capsule after Decapsulation of the Kidney.—Zaaijer² performed a number of experiments on rabbits to determine the value of the blood supply to the cortex before and after decapsulation. His conclusions are: 1. The blood supply from the normal capsule is slight. 2. From the cortex, immediately after decapsulation, poorer than normal. 3. From the cortex, four weeks after decapsulation, no better than normal if kidney is uninjured, but better if the kidney tissue was exposed. All experiments were made by tying the renal artery close to the kidney and removing the kidney a few days later, only one side being operated on. [T.S.G.]

Blood Changes Produced by Ether Anesthesia.—J. M. Anders and L. N. Boston³ detail the result of studies upon animals and human beings. In general their results coincide with those of other observers along the same lines. The hemoglobin is reduced in every instance, half or more of the fall occurring during the first 20 minutes of the anesthesia. Usually the red blood cells are increased at the end of this time. As a rule, animals show less decided loss in hemoglobin during second and third etherizations, and this loss is commonly restored in less time than is required after primary etherizations. Polycythemia was found to be more or less the result of cyanosis. That there had been an actual loss in the number of red cells appeared certain, yet this could not at all times be satisfactorily demonstrated. Changes in the red cells, as pallor, abnormal staining, loss of biconcavity, and increase or diminution in size, were present in all instances. The hemoglobin reached its lowest point 24 hours to 30 hours after anesthesia. Leukocytosis developed in most cases, but the leukocytes returned to the normal 12 hours to 30 hours after ether was given. [A.G.E.]

The Operative Treatment of Spina Bifida.—E. R. Secord¹ believes that there are no absolute contraindications to the operative treatment of spina bifida. The worse the case, the more marked becomes the futility of other than operative measures, and the greater the probability that the child will die if left alone. Paralysis, hydrocephalus, and marasmus often spoken of as contraindications, should not be so considered. Each has been and may be improved. The author advises, in cases of meningocele, dissecting of the skin with a pair of lateral incisions, opening the sac, removing the redundant tissue, and suturing the neck. In myelomeningocele and in syringomyelocele, he advises the same method combined with loosening the nerve cords and returning them to the spinal canal. Meningoceles, with more extended experience, should yield practically uniformly favorable results. In cases of syringomyelocele and of myelomeningocele, owing to nerve involvements, the results will not be so encouraging. Absolute asepsis, combined with as little handling of the nerve tissue as possible, will give the best results. A loss of cerebrospinal fluid in moderate amount is not important. Operating on an inclined plane is not necessary. The use of bony flaps is rarely, if ever, essential. [E.L.]

Palpation of the Appendix and Appendicitis Larvata.—It is commonly believed that the vermiform appendix in a healthy condition cannot be palpated, but T. Hausmann² agrees with a number of wellknown specialists that the normal appendix may be felt without much difficulty in many cases. He states that he was able to do so in 36 cases, in all of which that organ was undoubtedly healthy. Much practice is, of course, necessary, and even then it is impossible to succeed when the abdominal walls are resistant and contain a thick layer of fat. It is also important to have the patient breathe properly, so that the palpating hand can be gradually forced down to the brim of the pelvis during expiration. All of the other neighboring structures, like the cecum, ascending colon and ileum, must be first eliminated. During examination, the patient should raise his legs in order to relax the psoas muscle. No pressure should be exerted by the palpating hand, for contraction of the muscles interferes with the tactile sense. Hence, the one hand should be kept relaxed and employed only in palpating the appendix, while pressure is exerted upon it by the other hand. In this manner it is often possible to discover an enlarged or tender appendix, which has not given any symptoms, and thus the diagnosis of appendicitis larvata may be made. Hausmann discusses this diseased condition at some length, and reviews the existing literature on the subject; he states that masked appendicitis is more frequently overlooked than is commonly supposed, but he hopes that in the future, through the development of greater skill in palpation, this error will occur less often. [W.E.R.]

An Apparatus for Obtaining Narcosis during Operations under Plus Pressure.—The anesthetizing methods recommended in operations to be performed under plus pressure are: 1. A diver's helmet air tight about the neck, and kept under plus pressure. 2. A mask air tight about nose and mouth, and connected with a plus pressure apparatus. 3. Tracheotomy and plus pressure. 4. Peroral intubation and plus pressure. H. G. Engelken³ from Czerny's clinic advances a fifth method, which he says is devoid of any extraordinary danger, such as aspiration pneumonia, possibility of tracheotomy, or lesion to vocal cords. He devised a large box in which the anesthetist sits and into which the head of the patient extends; it is made air tight about the neck. Special ventilation connected with the mask carries off the chloroform vapors so the anesthetist is not troubled by them. Automatic ventilation changes the ordinary air, and an electromotor within the cabinet produces a plus pressure of 13 cm. water. The apparatus has been used several times, and it was found that the patient and anesthetist are safe and comfortable, and the operator and his assistants are able to work under ordinary circumstances, and without being hampered; the operation can be viewed by an audience. The article is illustrated by photographs and diagrams. [E.L.]

¹ Deutsche Zeitschrift für Chirurgie, 1904, lxxiv, 237.

² Mittheilungen aus der Grenzgebiete. Vol. xiv, No. 3.

³ Therapeutic Gazette, November, 1904.

¹ Canada Lancet, 1905, xxxviii, 408.

² Berliner klinische Wochenschrift, February 13, 1906.

³ Deutsche medicinische Wochenschrift, 1904, xxx, 1879.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Specific Medication in Pulmonary Tuberculosis.—After discussing immunity and cure of infectious diseases by means of the various laboratory products—antitoxins, agglutinins, precipitins, etc., F. M. Pottenger,¹ of California, considers tuberculosis and the specific method of preventing and curing it. He differentiates sharply between tuberculosis and consumption, the former being an invasion of the body tissues by tubercle bacilli, giving rise to tubercles, which by their presence and that of their toxins, cause irritation of the adjacent tissues. Very few clinical symptoms accompany it; they are chiefly a disinclination for work, a variable appetite, slight dyspeptic symptoms, a slight loss in weight, a slight rise of temperature, etc. This condition is nearly always curable. In consumption the tubercles have broken down, other germs have entered, and a wasting of lung tissue takes place. This is accompanied by the wellknown symptoms of cough, expectoration, fever, chills, sweats, etc. To be able to prevent the latter, the early detection of the process is necessary; the discovery of tuberculin and the phenomenon of the tuberculin reaction make this possible, and once discovered, it is as readily cured as other infectious diseases. We have no absolute specific in the treatment of this disease, which like diphtheria antitoxin, will free the organism from the effects of the disease in a short time; but tuberculin and its allies must be considered as specifics when injected into organisms affected with the disease, because of their peculiar selective action upon tuberculous tissues, and because of their immunizing and curative action, which has been well demonstrated in the laboratory. Inoculated animals if treated early will always be restored to health or have their lives prolonged. Of 1,200 cases of incipient pulmonary tuberculosis collected by the author, 589 were treated with culture products and of these 84.2% were apparently cured. The other 611 were treated by ordinary hygienic measures without culture products, and of these 64% were cured. There is also a greater permanency of results and a slighter tendency for the disease to invade new areas when the culture products are used. All the specific remedies, whether those that aim at active, or those that aim at passive immunization, must be employed only in the early stages, or in such advanced cases as are not running a high fever. Maragliano's serum can be employed to greater advantage in the advanced cases than the tuberculin, but it also is of more value in early cases. In all instances, however, it must be remembered that the specific remedies should be reinforced by every other measure of recognized worth. The causes, which are operating to lower vitality, must be removed; the cells must be restored to their normal resisting power; for these purposes we must advise careful hygienic living and tonic measures. The germicidal, antitoxic and other immunizing elements of the tissues must be increased and the results of the disease must be removed; these conditions can be brought about by the employment of tuberculin and its allies. Consumption he advises to treat with antistreptococcal serum and assists it with the various other measures demanded. [E.L.] [Tuberculin does not cure and does not help recovery. After all said and done, there has been no advance in the treatment of tuberculosis or consumption over the successful plan advocated from the old days to this by Sydenham, Beddoes, Rush, Graves, Brehmen, Bodington, R. W. Richardson, J. Solis Cohen (to mention one in each of several medical generations)—sunlight, air, food, water, rest, exercise, and auxiliary medication adapted to the individual case. S.S.C.]

Treatment of Leukemia with Röntgen Rays.—E. Schenck² reports the case of a woman of 53, suffering with lymphatic leukemia; anemia was present to a marked extent, many of her lymph-glands were swollen, the sternum was tender to touch, the spleen was hard and reached to the median line below the umbilicus, and there were ophthalmic changes.

She was treated by exposing her splenic and sternal areas to the röntgen rays for variable periods of time. The patient's general condition improved markedly, but the author does not believe that the röntgen rays deserve the credit for this. After 35 treatments the spleen did not reach the median line by three inches, and was markedly softer; the improvement did not begin until after the twentieth treatment. The red corpuscles diminished progressively during the radiations, falling to 635,000 from 1,500,000 before the treatments were begun; the leukocytes diminished also, falling from 140,000 to 46,000; their relative proportion did not change, the lymphocytes being present to the extent of 90%. A few days after the interruption of the treatment the patient died suddenly of cardiac weakness. Cahen³ reports a case in which the spleen returned to its original proportions, and the leukocytes diminished from 98,560 to 4,375, the proportion changing from 1 to 40 to 1 to 1,073. The patient's general condition also returned to normal. [E.L.]

Fissures of the Anus.—Katzenstein¹ employs the following ointment in the treatment of fissure of the anus:

Cocain hydrochlorate	0.05 gm. (1 gr.)
Extract of belladonna	0.05 gm. (1 gr.)
Ichthyol	6.0 gm. (90 gr.)

[L.F.A.]

Local Alcohol Therapy.—K. Walko² reports the results of his tests with local application of alcohol in a large series of cases of which the histories are given. For the alcohol compresses, he employed 50% of alcohol in some cases and 96% in other cases, poured on a piece of hydrophilous gauze, folded into eight layers. Most of the patients suffered from erysipelas, while the remainder included tuberculous peritonitis and appendicitis. In erysipelas excellent results are reported. The swelling of the eyelids, the lips and cheeks was favorably and rapidly influenced, and in none of his patients did severe complications set in. In the case of erysipelas a 50% solution of alcohol should be used, for the more concentrated solutions harden the superficial layers of the skin and prevent its absorption. The author states that in tuberculous peritonitis the alcohol treatment is especially indicated when the disease is accompanied by other forms of tuberculosis, or when an operation is impossible for any reason. The results obtained in appendicitis are most favorable. Walko agrees with Filatow as to the therapeutic value of alcohol in this condition, and concludes that in many cases which fail to respond to opium and ice, alcoholic compresses may lead to rapid recovery and assist in preserving the strength of the patient. A compress of 96% alcohol is well borne by the skin, but only when it is covered with flannel instead of wax paper, for the latter excludes the air. An ice-bag should be laid upon the flannel. When the skin is tender, as in young children, thin compress of two layers should be employed, and in every case the flannel should be covered with an ice-bag. It was observed that the application of alcohol, aside from its pain-alleviating and resorptive action, succeeded in many cases in aborting abscess formation. [W.E.R.]

Treatment of Acute Pruritus.—M. Gaucher³ recommends that patients suffering from acute pruritus shall be submitted to a purely milk diet at first, and later to a milk-vegetable diet. To calm the itching, he employs acetic acid lotions, then ointments of menthol and guaiacol, 1% or 2%; guaiacol which is made synthetically should not be used. The acid lotions should be applied morning and evening, followed by this ointment:

Pure guaiacol } of each	1 gm. (15 gr.)
Menthol	
Pure vaselin	100 gm. (3½ oz.)

The pruritus may sometimes be controlled with hydrogen dioxide water incorporated in an ointment, as follows:

Hydrogen dioxide water } of each	20 gm. (5 dr.)
Anhydrous lanolin	
Pure vaselin	
Talc powder	

This is especially useful in cases of urticaria. [L.F.A.]

¹ Zeitschrift für Tuberculose und Heilstättenwesen, 1904, vi, 401.

² Münchener medicinische Wochenschrift, 1904, ii, 2135.

³ Bulletin Général de Therapeutique, Vol. cxlviii, No. 8, 1904, p. 320.

² Berliner klinische Wochenschrift, February 13, 1905.

³ Bulletin Général de Therapeutique, Vol. cxlviii, No. 6, 1904, p. 239.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 16.

APRIL 22, 1905.

\$5.00 YEARLY.

The mental deterioration of old alcoholics is so well known to every physician, and is so often brought to his notice in daily practice, that it occasions some surprise to learn that it is not generally recognized by the public who are more concerned with the results of the acute poisonings. They know of the loss of judgment due to even slight over-indulgence, and in self-defense are now insisting upon total abstinence in their employes. The traveling public in particular demand that the engineer or ship's officer shall be clear-headed and free of alcohol, and the merchant or manufacturer needs clear-headedness in his agents. But they all have failed to realize the seriousness of the mental changes due to long-continued over-indulgence simply because these cases are gradually thrust aside in the struggle for existence, and are never given an opportunity to show incapacity in great affairs needing well-balanced judgment. The elderly men in control of the great affairs of modern times are temperate or abstainers, as a rule, and have retained their mental vigor by reason of those habits.

Chronic alcoholism among the Russians may explain, in part, at least, some of the results of the war in Manchuria. On the Japanese side the reports are all of one tenor, and depict an almost universal abstinence. What drinking is done is in extreme moderation. Upon the Russian side we hear of immense stores of vodka, champagne by car-load lots, and orgies innumerable. The Russian officer is notorious, by general report of course, for the large quantities of alcohol he daily consumes, and it is impossible for any brain to submit to such insults without undergoing the changes long known to take place in heavy drinkers. It is not remarkable then that the older officers, who are managing the campaign, are constantly outwitted by the healthy-minded Japanese. It is apparently not so much a question of drunkenness as it is one of the pathologic results of long-continued excessive drinking without drunkenness.

The alcoholic lesson of the Japanese war will no doubt be appreciated by the American people, who are particularly sensitive to such matters. They will take it to heart and will speak in no uncertain terms when they learn how dangerous to the nation's welfare it is to trust military power to a chronic alcoholic. Par-

ticularly in isolated places are the false ideas, perverted reasoning powers, and enfeebled judgment of such men sure to bring disaster when coupled with arbitrary authority. The universal commendation showered upon the President for the promptness with which he dealt with the incompetence in the Panama Commission, though it had no possible relation to alcoholism, shows how the people think on the subject of obtaining vigorous-minded public servants, and like commendation will follow any efforts to rid the government services of the old alcoholics. Should any such incompetents be retained in any place to hamper or destroy efficiency, such as they have done in Manchuria, there is apt to be complaint from an indignant people.

The modern temperance movement is practical and does not concern itself with the theoretic damage done by a single glass of beer. It is purely a matter of self-defense against the alcoholic, and it will accomplish the end, in spite of the ridiculous "alcohol books" thrust on the public schools by well-meaning but mistaken fanatics. The physician has a patriotic duty in this, no matter what his views may be on the question of total abstinence, or moderate drinking, or prohibition. He should harp upon the mental results of chronic overindulgence, to the end that old men of such habits can be thrust aside where they can do no harm. The law already directs the removal of military officers who are drunk on duty, and it is now possible to go a step further, and direct that the chronic alcoholic shall be given no position of authority, either civil or military.

Vigorous minds are essential in any navy, but in the British navy the matter is vital, as the prosperity of millions of people and the existence of the nation itself depend upon naval power. Hence, every other consideration must give way to naval efficiency, and the personnel receives the major share of attention to eliminate the unfit. The alcoholics are invariably thrust to one side without pity, for they are really a menace to the nation's welfare. The government has gone to the extreme of elaborating a system whereby an officer is retired even if he does not attain promotion before a certain age, whose maximum is fixed for each grade. The results are most excellent, for it secures a wonderfully vigorous body of men, fully accounting for the

proverbial efficiency of the British navy. In every grade, from the boyish midshipman to the experienced admiral, there are no men too old to do the duties, and none whose mental powers are not healthy and vigorous. It is expensive, of course, to secure this survival of the fittest, as the eliminated ones must be cared for, and there is a tremendous list of healthy retired officers, but it is necessary.

The "forty-year limit" has been given a successful practical test in the British navy for a long time. Until the officer is about 35 he is learning and creating details and makes those revolutionary inventions which cause such a rapid evolution in warships. He has little chance of carrying larger affairs into effect until after this age when he is placed in positions of responsibility to execute his ideas while he has the vigor and decision. After 45 his promotions gradually relieve him of details and he is occupied with general control and after 60 there are but few trusted at sea no matter how great their learning or ability. Even the admiral is surrounded by a staff of men in the fullest vigor of their mental powers. There is a lesson here for the American nation and physicians can emphasize it. The present administration is apparently working along these lines to secure the most vigorous naval personnel possible for the future protection of our trade. The far-seeing confidently predict serious trouble on the Pacific which can be managed solely by men in the prime of their powers. Ships alone would be as worthless to us as they are to the Russians.

Mark Up the Age of Usefulness.—Dissensions from the dictum that the best work of the world is done by men below 40 still multiply apace. There is a decided tendency among writers on this subject to place the decade between 40 and 50 nearly on the same level as that between 30 and 40, during which, of course, the great bulk of constructive work before 40 is accomplished. Clyde Furst, in a note to *Science*, cites more than a score of examples from American literature to show that in both poetry and prose many of the most lasting works have been produced by men above 40. He states that if one were to generalize from his study, the conclusions for American literature would be, not that no work of the first rank had been done by men above 40, but that the period of life conspicuous for superior production is between 40 and 50. In the April *Popular Science Monthly*, Professor E. G. Dexter furnishes very instructive statistics based on a careful study of the ages of those named in "Who's Who in America," for 1900. He finds that the median age for the nearly 7,000 professional men in 20 different callings is 54; only 16% are below the age of 40. The ratio of recognition for the entire 9,000 persons mentioned in the book is, for several decades, as follows: 20 to 29, 3.9%; 30 to 39, 39.5%; 40 to 49, 36.4%; 50 to 59, 17.6%; 60 to 69, 2.4%. Allowing for certain sources of error, and admitting that the contention regarding the age limit of 40 is not thereby disproved, Professor Dexter concludes that the study throws certain serious doubts upon the truth of that generalization. It is well this subject was

placed under the limelight, for it is creating a reaction against the sentiment among employers that a man's usefulness is measured by a definite, arbitrary number of years. In this way will be prevented injustice to capable men.

Sterility in Röntgen-ray Workers.—Some weeks since, in a note upon this subject, we mentioned the findings of F. Tilden Brown as reported at a New York society meeting. The published report¹ of Drs. Brown and Osgood, with additional cases, is of sufficient importance again to demand attention. Since January, their cases of total azoospermia or oligonecrospermia have risen from 10 to 18. All these cases concern men from 22 to 40 years of age, in robust health, who have observed absolutely no sign denoting the insidious development of sterility. Of the 18 men, 12 have operated röntgen-ray tubes for a half to four hours at least three times a week for the greater part of each year during the past two to six years; six have had more or less severe dermatitis of the hands. The means employed by Drs. Brown and Osgood appear to leave absolutely no doubt of the correctness of the diagnosis. The question now of most vital interest is prognosis, which, as stated by the writers, must remain in abeyance until evidence can be obtained months or years later. Possibly some of the spermatogenic cells escape, especially if exposures have not been often or lengthy. The writers close with this warning to röntgen-ray workers: "Repeated, prolonged exposures of the testes does produce sterility in the human being. Adequate protection to all parts of the body not directly exposed for examination or treatment, should invariably be provided." The facts herein set forth are of exceeding importance to workers with this subtle agent, both from a personal standpoint and in regard to assistants and patients.

The dangers of the röntgen-ray atmosphere are now sufficiently proved to warrant extraordinary precautions in the case of physicians themselves and also of all patients, whether they are to have few or many applications of this powerful agent. The severe superficial necroses, which were formerly caused by prolonged exposures, have been entirely prevented in recent years, but now there are reports of the deaths of several operators from carcinomas developing upon the hands and spreading, in spite of repeated amputations. In addition, there are reports of four other wellknown experts, who have had malignant growths of the hands, and at least seven more, who have intractable deepseated suspicious ulcers on these exposed parts. These malignant growths cannot be explained, particularly if there is a parasitic cause, though they are due in some way to a loss of resistance from the direct damage of the strong rays frequently impinging on the tissues, but never sufficiently long to cause necrosis. The most serious results appear to be due to those rays which penetrate the body and in time bring about some kind of profound change in nervous tissue in the nature of a partial destruction of the cell protoplasm, though the rays are never strong enough to cause necrosis or newgrowths. The symp-

¹ American Journal of Surgery, April, 1905.

toms are those of a severe grade of neurasthenia, which differs in no respect whatever from the cases of tropic neurasthenia found among Europeans, who have been exposed for short periods daily for some years to the direct rays of the tropic sun. The röntgen-ray atmosphere and the tropic atmosphere are in this respect identical in their actions.

Proliferating cells are specially susceptible to damage by röntgen rays, probably on account of instability. A fatal result from the application of radium to adult mice requires a much longer exposure than in the case of young and growing mice. These effects are mostly due to röntgen rays set up by the radium corpuscles and the pathologic findings are the same as those found in tissue damaged by ordinary röntgen ray. Similarly it is found that in men or animals long exposed to the röntgen-ray atmosphere, the earliest symptoms are in the lymphatic glands and are due to degeneration and absorption of the tissue. There should be no astonishment at the results of the experiments which cause degeneration and disappearance of the graafian follicles in the ovaries nor similar changes in the epithelium lining the seminiferous tubules of the testicles when these organs are exposed to rays too weak to damage the surrounding connective tissue. The protoplasm of germ cells is evidently very unstable and easily damaged. There are reports of at least ten operators in whom spermatozooids had disappeared from the semen though the victims had not been conscious of any change of function. There is one case reported of azoospermia following the use of röntgen ray for pruritus ani. In some cases the spermatozooids reappeared after some months, but the condition is no doubt permanent if the exposure has been long continued. It is a new danger to be avoided by operators and patients by appropriate screens.

The use of röntgen rays for sterilizing the ovary or testicle has been suggested in cases in which removal of the healthy organs has formerly been advocated, such as cases of deformed female pelvis. The results are too uncertain at present for the suggestion to receive serious consideration, though it might become a valuable measure in the future when there is more learned of the matter and it is possible to apply the exact dosage to accomplish the purpose without causing necrosis of other tissues. The patient is far less likely to object to this measure than to mutilation, and it is to be hoped that investigation will continue along these lines. The proposition to sterilize habitual criminals and others who are burdens to society, though perennially advocated, does not seem to be taken seriously, and indeed it is opposed on the ground that but few of our criminals are descended from criminals, the greater number being of more or less respectable families, but damaged by a bad environment, not heredity. The antisocial class does not tend to family life, and the lines thus die out, though the class is constantly recruited. Yet vicious parents do supply our asylums, hospitals, and jails with a fair proportion, and there is ground for advocating their sterilization; and if it can be done without mutilation or loss of function apparent to the criminal, the

method by röntgen ray may yet become a matter for serious thought in the future treatment of the incurable or incorrigible burdens on society.

Holmes, Hodge, and Meigs, Concerning Puerperal Fever.—*The Practitioner*, in devoting an issue to the subject of puerperal fever, gives in an editorial some valuable data as to the history of the reception of the discovery of the infectious nature of the disease. In 1842 an obscure young teacher of anatomy, named Holmes, read a paper before his local medical society on the contagiousness of puerperal fever, in which he showed that there was epidemicity in the appearance of the disease, and that it could be traced to a single source of infection. Cases were cited, the failures to prevent and cure being pronounced "calamities," "irreparable errors and wrongs." He pronounced this harsh judgment: "The time has come when the existence of a private pestilence in the sphere of a single physician should be looked upon not as a misfortune, but as a crime." The two great American leaders of professional opinion and authority at once, of course, attempted to crush the young and presumptuous discoverer. And they succeeded. Hodge said: "You can never convey, in any possible manner, a horrible virus so destructive in its effects, and so mysterious in its operations, as that attributed to puerperal fever." He ordered his students to divest their minds of the dread that they could ever carry the "horrible virus." And Meigs said: "I prefer to attribute the deaths to accident or Providence, of which I can form a conception, rather than to a contagion of which I cannot form any clear idea." The point of interest in this for those of today who are capable of appreciating it, is that Hodge and Meigs still live again in hundreds of "leaders" and "authorities," who act toward new truths just as did the old teachers. The later teachers also prefer to attribute the diseases and deaths to some cause of which they can form a conception. But nowadays they credit them not to "accident and Providence," but to "heredity" and "degeneracy," "neurasthenia," "nervous breakdown" or the terminal diseases which step in to do the executioner's job for long forerunning morbid function.

How the Leaders Led Semmelweiss.—In another part of the world, and not knowing of the work of Oliver Wendell Holmes, another physician, a few years later than Holmes, began to preach the same absurd doctrine of the contagiousness of puerperal fever. In the Vienna Hospital women were dying by the hundreds, 829 out of 5,139, for instance. In one clinic the deathrate of the women was 9.29, in another of the same hospital it was only 3.38. It was found that the students of the 9.29 clinic came straight from the dissection room. Semmelweiss, after thorough study, said that a poison was conveyed to the "open wound" of the parturient woman, which produced the septicemia of puerperal fever. At once the leaders and authorities pounced upon Semmelweiss. They poured upon him their sarcasm and the vials of their wrath. In this case the vials were the largest amphora. Semmelweiss had no mind to fight the giants who hated the truth and the truth-bringer.

At last his enemies drove him from his position and out of Vienna, ruining him professionally and financially, while they continued to "play the game" of medical politics, advancing themselves by office, honors, learned lectures, and erudite books. They finally succeeded in driving poor Semmelweiss into insanity, and death in 1865, at the age of 47. But if one in 1905 should ask some of our modern expert huntsmen of honors, degrees, offices, and powers, to join in a monument to Holmes and Semmelweiss they would be the most avid contributors; at the same time they would warn most threateningly or smile most superciliously at any present day "hobby riders" who dare criticism of the modern fetiches called "degeneracy," "heredity," "pathology," "neurasthenia," "migraine," "terminal diseases," "insanity," and the rest of the idols. Even very recently, it is said, the greatest leaders refused for a long time to accept the now established doctrine of the origin of malaria, yellow fever, etc.

Castration of Imbeciles.—A recent editorial writer has suggested, perhaps facetiously, the propriety of State supervision over surgical operations and how the august power of the law might be utilized to stay the hand of the ambitious and energetic surgeon inclined to operate too hastily or too frequently. Upon the heels of such a suggestion one notes that the Legislature of Pennsylvania passed the Sproul bill authorizing castration in hopeless cases of imbecility—a striking instance of the scope of legislative surgery. Every obstetrician of experience has seen pregnancy occurring and recurring in half-witted, almost imbecile women—women totally unfit for the duties and responsibilities of maternity; and surely it would be a blessing to posterity and humanity if a legal ovariectomy should be authorized in these cases. But why confine the operation of emasculation to the unfortunate idiot who very rarely perpetuates his species or infects with disease a member of the opposite sex? Why should not a paternal government require the castration of the man who infects his innocent wife with gonorrhea or brings into the world a syphilitic offspring doomed from a prenatal period to bear the marks of a parent's sin? Why should not the hardened brute, be he black or white, who violates the chastity of a child or woman be subjected to the same mutilation as a punishment for his crime and as an assurance against its repetition? Does not this broadening of the scope of legislation seem reasonable and logical, if we are to have any "legal surgery"? If admitted, the inevitable logic seems to carry us much farther. Wicked men and women, proved and hardened criminals, are constantly and extensively begetting children with the same characters. There is a truth in the law of heredity. Must not the drunkards, the weak-minded, the hopelessly diseased, indeed the sociologic failures, paupers, tramps, etc., be added to the list? Why not include corrupt politicians, bosses, legislators, and the rest? It would seem wise not to begin even with the hopeless idiot. *Facilis descensus Averni.*

Cuban Sanitation and Life Insurance.—A correspondent who likes our recent comments on Cuban

sanitation as misrepresented in the *New York Herald*, believes that *American Medicine* has been misinformed upon the relations of life insurance companies to the *Herald* investigation. He thinks that no life company would be "foolish enough to seek such support" for the sake of maintaining the semitropic premium rates in Cuba. Perhaps he is right, but, even so, *American Medicine* sees nothing to retract in its ungentle remarks on the *Herald* investigation. The agitation, if it had been truthful, would have helped certain interests, as we have pointed out, but it does not follow and it is not charged that these interests inspired the *Herald's* enterprise. We are not looking for an instigator. The motive may have been an unmixed desire to supply interesting news, but the point of offense was that the commission included two physicians whose work was discreditable to the medical profession. Otherwise the misfortune of the *Herald* might not have called for comment by *American Medicine*. Our correspondent is in a position to know much about the component elements of insurance premiums, and he thinks that the semitropic rates do not include yellow fever. If not, why not? The semitropic rate certainly should include the chief cause of untimely death, and it is inconceivable that any life company sold insurance in Cuba before 1901 at rates which disregarded yellow fever. Our correspondent believes that the tropic and semitropic rates are more nearly related to malaria than to yellow fever. But the tropic and semitropic rates expressly consider yellow fever, while their relation to malaria is merely implied. Thus tropic rates are charged in certain parts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas. In these regions, applicants must have had yellow fever, or else have been resident in the locality continuously for the previous two years, and must pay tropic rates. In certain selected cities in these areas, insurance is written at semitropic rates. In Cuba, if one has had yellow fever, or has been at least six years resident in the island, and lives at an elevation exceeding 1,500 feet above sea-level, he may be insured in many companies at the tropic rate. If he is unacclimated, and lives below the altitude of 1,500 feet, he must pay the tropic rate plus \$30 per 1,000 the first year, \$20 per 1,000 the second year, \$10 per 1,000 the third year, and the tropic rate thereafter. In Cuba, too, insurance is sold at semitropic rates in certain selected localities. But in Cuba, as in the subtropic United States, yellow fever has been the freely admitted, if not the chief, determining factor of extra premiums. Malaria undoubtedly lays a burden on life insurance. Its burden is well recognized, and in some respects more serious than that of yellow fever. But that is another story.

American Medical College Requirements.—The Association of American Medical Colleges, at its annual meeting in Chicago last week, adopted a uniform minimum curriculum. The requirements for matriculation were raised so as to make the term of preparation the full four years instead of three of the high school course, representing a certain specified number of hours' credit in each subject. A committee was appointed to pass upon the value of so-called medical studies taught by colleges of liberal arts, with a view to recommending their recognition by the association. Samuel C. James, Kansas City, Mo., was elected president of the association, and Fred C. Zapfke, Chicago, secretary-treasurer. Seventy of the principal medical colleges in the United States were represented at the meeting. The 1906 meeting of the association will be held in Pittsburg.

BOOK REVIEWS

A Textbook of Medical Chemistry and Toxicology.—By JAMES W. HOLLAND, A.M., M.D. W. B. Saunders & Co., Philadelphia, New York, and London. 1905.

The author's long experience as a teacher is evident on every page and in every line of this admirable textbook. It is written for students of medicine and for those who have not had a complete training in physics or elementary chemistry previous to taking up their medical studies. Its statements are clear and terse; its illustrations well chosen; its development logical, systematic, and comparatively easy to follow. General principles are brought in at that point in the progressive study when the student is best fitted to appreciate them, and where their coordinating function is most efficient. The author has not outrun contemporary science, but he has been careful while giving the student an insight into current theoretic discussions to keep within the limits of demonstration. Thus we find a summary statement of ionization and an exposition of the elect ionic theory of matter and radioactivity, but not exhaustive discussions. For the purpose of the book this is a wise course. Future editions will doubtless enlarge on these and kindred topics as the field of accepted theory and demonstrated fact enlarges. Chemic substances are thus treated from the standpoint of the medical student and physician; much more space is devoted to toxicology than in any other textbook on chemistry. The chapters on the clinical chemistry of milk, gastric contents, and the urine, and that on water-supply and filtration are full of practical information. We heartily commend the work not only to medical students, but to physicians, especially those who graduated, say, 15 years or more since.

The Vermiform Appendix and Its Diseases.—By HOWARD A. KELLY, M.D., and E. HURDON, M.D. With 399 Illustrations, some in colors, and 3 lithographic plates. Philadelphia, New York and London: W. B. Saunders & Co., 1905.

This work on the appendix, broad in the sense that it considers the diseases of that organ from essentially every standpoint of practical value, stands forth, nevertheless, as an exemplification of one particularity—graphic portrayal of a subject by illustrations. The most cursory examination of the book would reveal this fact, even though it were not emphasized by Dr. Kelly in his preface. The authors may well view with satisfaction this feature of their contribution to a subject so fruitful in verbal and printed discussions during the past few years. That quartet of brilliant artists, Brödel, Horn, Huntington, and Becker, seem in this volume to have outdone even their own previous accomplishments. The drawings are clear and accurate; in many instances they and the legends make the accompanying text almost superfluous. As one views in order these magnificent illustrations he appreciates the reason for placing upon the book what at first seems, even for 811 pages of text, a somewhat excessive price, \$10. It is a work of art, for which the profession is indebted to the authors and publishers. The text in general shows no marked superiority over certain other wellknown works upon the appendix, but is carefully and thoroughly written, as would be expected of any work with which Dr. Kelly had to do. References to literature are copious, the mere names of the authors mentioned occupying eight double-column pages. The first successful operation on the appendix in the United States was done by Thomas C. Morton, of Philadelphia, who deliberately undertook it with an alternative diagnosis of disease in the organ. This was on April 27, 1887. In connection with this case occur two statements (pp. 44 and 46) that should be corrected in future editions. They refer to the case being published in the transactions of the "College of Surgeons" and "College of Physicians and Surgeons," of Philadelphia, respectively. Both are wrong, and should read College of Physicians. The anatomy and the pathology of the appendix are both very fully considered, the latter including a discussion of the various types of peritonitis resulting from appendix disease. Chapters are devoted to etiology, clinical history, diagnosis, appendicitis during typhoid fever and in children, and typhilitis. Several chapters are made up of considerations regarding the various

phases of operation. The great value of these is well shown by the one on incisions, which occupies 17 pages. Each of the recognized methods is given, and elaborately illustrated. The same is true of the methods for removing the appendix, those of other surgeons being treated as fully as is the one advocated by Dr. Kelly. He uses McBurney's incision when pus is not present, and Battle's (semilunar) when an abscess must be evacuated. To remove the appendix, he crushes the base with special forceps, amputates with the paquelin cautery, and invaginates the stump. After-treatment, tumors, hernia of the appendix, specific infections, and the medicolegal aspects of appendicitis are finally considered. Under the last subject, in discussing trauma, Dr. Kelly says appendicitis must always be regarded as an affection for which an active human agency can be responsible, and testimony to that effect must be given when facts warrant it. As a whole, the work is an exhaustive, trustworthy, and most instructive treatise upon the appendix and its diseases; it should be in the library of every practitioner who has removed, or meditates removing an appendix, and physicians will find in it much that will help them in handling the disease. The typography and binding are all that could be desired. The usage of double spacing the letters in words to be made emphatic, instead of italicizing, cannot be commended by the reviewer; he may be alone in this regard, but for him it makes difficult reading.

Health, Strength and Power.—By DUDLEY ALLEN SARGENT, A.M., Sc.D., M.D. H. M. Caldwell Company, New York and Boston, 1904.

This is a book for the layman rather than for the physician, but physicians can usefully refer to it. Dr. Sargent's thorough knowledge of his subject and his long practical experience fit him to speak positively as he does in these pages. The general principles underlying the use of systematic physical exercises as a substitute in civilized life for the unconscious and constant exercise of more primitive social conditions are well set forth. The necessity of cleanliness, of suitable diet and of sufficient rest is dwelt upon. A number of illustrative exercises are given and to each of these is attached a name which serves to keep the group of movements in memory. One is called "swimming," another "bowling," another "pitching hay," another "mowing," another "the long pass," etc. These are illustrated with photographs, which add much to the value of the book. To the textual directions for each exercise, necessary cautions are always added and a list is given of the muscles most affected by the movements prescribed.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

The Cause and Prevention of Consumption. Fourth revised edition. The Illinois State Board of Health, 1904.

Studies in the Psychology of Sex—Sexual Selection in Man: I. Touch. II. Smell. III. Hearing. IV. Vision.—By HAVELOCK ELLIS. Extra cloth, \$2.00 net. Sold only by subscription to physicians, lawyers, and scientists. F. A. Davis Company, Publishers, Philadelphia.

The American Yearbook of Medicine and Surgery for 1905: A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from Journals, Monographs, and Textbooks of the leading American and Foreign Authors and Investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A.M., M.D. In two volumes. Volume I, including General Medicine; Volume II, General Surgery. Two octavos of about 700 pages each, fully illustrated. Philadelphia, New York and London: W. B. Saunders & Co., 1905. Per volume: Cloth, \$3.00 net; half morocco, \$3.75 net.

The Medical Examination for Life Insurance.—By CHARLES LYMAN GREENE, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota, Member of the Association of American Physicians, American Medical Association. Second edition, revised and enlarged with 99 illustrations. P. Blakiston's Son & Co., Philadelphia, 1905. Price, \$4.00 net.

Transactions of the Luzerne County Medical Society for the year ending December 31, 1904. Vol. xii.

First Annual Report of the Henry Phipps Institute. For the study, treatment, and prevention of tuberculosis. February 1, 1903, to February 1, 1904.

Transactions of the National Association of United States Pension Examining Surgeons. Vol. II, 1904.

Epitome of Medical Diagnosis: A Manual for Students and Physicians.—By AUSTIN W. HOLLIS, M.D., Attending Physician to St. Luke's Hospital, to the New York Dispensary, etc. In one 12mo volume of 319 pages, with 13 illustrations. Cloth \$1.00 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

For Duty on the Isthmus.—Captain Paul S. Straub, of the army medical department, on duty at Fort Leavenworth, Kan., has been ordered to report to the Secretary of War, who will assign him to duty under the Canal Commission on the Isthmus. He will be connected with the sanitary establishment.

Tuberculous Patients in the Navy.—Very little, if anything, can be done toward establishing camps, although the Surgeon-General is continuing his inquiry along the lines which will sooner or later indicate the best possible site for such an out-of-door institution. Expert favor appears to confine the choice of a place to Colorado or New Mexico. No recommendation will be made at present concerning the naval camps for the treatment of tuberculous patients of the service; and, of course, there is as yet no fund out of which such a camp could be established.

New Water Sterilizer for Trial.—Experiments will be made by army medical officers with a sterilizer such as has been used with the German Army in South Africa. This device has a capacity of 100 liters of boiled, cooled, and filtered water per hour and is portable by being divided into two sections and carried by two men. The advantage claimed for these portable sterilizers is that any kind of fuel may be used. With the sterilizers used at present in our army it is necessary to employ petroleum. The German sterilizer weighs about 20 pounds, including the carrying apparatus. Later it is proposed to purchase a transportable filter drawn by horses, an entirely new mechanism, which has never been used by our army. Its capacity will be sufficient for furnishing pure water for a full regiment of war strength. The sterilizer and transportable will be subjected to a thorough test.

A Comparison of Sick Lists.—Surgeon-General Rixey of the navy has received a graphic exhibit of a most significant character, showing the relative sick list on board one of the new battleships under two very different conditions of service. One represents the season from May to September in 1902, while the vessel was cruising in the North Atlantic, when the daily sick list showed an average of between 10 and 19; the same vessel, while in the Mediterranean, the Gulf of Mexico, and the West Indies, during the same time of the year, showed a sick list ranging from 10 to 25, with an average during that period of at least 17. This was not one of the worst ships in a sanitary way; was well equipped, as warships go, with modern ventilating apparatus. It is easy to see what the conditions must be on a vessel which is not so fortunately circumstanced; and the results do not lead one far astray as affording at least one of the excuses for desertion in the navy. It represents a condition which is evidently not relieved by the liberty which is permitted on foreign stations. [*Army and Navy Register.*]

Personal.—David L. Edsall, of Philadelphia, has been made assistant professor of medicine in the medical department of the University of Pennsylvania, and R. Tait McKenzie has been appointed professor of physical education, with a seat in the medical faculty.—Frank Abbott, resident physician in the Garretson Hospital, has resigned and Walter M. Miller has been appointed to the vacancy.—Colonel John Van R. Hoff, of the army medical department, now on duty at Fort Leavenworth, is one of the three officers appointed to represent this country with the Russian army in the field as military attache from this government. He will relieve Colonel Valery Havard, of the medical department, from further duty with the Russian army. Colonel Havard is on his way to the United States, having recently left Tokio for San Francisco. He was captured by the Japanese army on the retreat of the Russian forces from Mukden, but might easily have escaped. A comrade, however, was prostrated with sickness at the time and Colonel Havard remained with him as an act of friendship to see that he was properly treated.—The serious illness is reported of Ernest Mellish, of El Paso, Tex. He is reported as slowly convalescing after a major operation, performed by Frederick M. Hartsock, post surgeon.

EASTERN STATES.

Adulterated Milk Fatal.—A warrant charging manslaughter has been sworn out against John F. MacDonald, Providence, R. I., a milkman, as the result of an autopsy performed upon the bodies of William and Ella Shanley, three-months-old twins. Medical Examiner John C. Pegram, Jr., gave as his opinion, after the autopsy, that the children died of chronic formaldehyd poisoning. MacDonald had supplied the Shanley family with milk for five years. The city milk inspector, examined samples of the milk taken from MacDonald's cans. In each instance formaldehyd was found, as well as the anilin coloring, which in the milk appear thick and creamy. The warrant against MacDonald charges him with the manslaughter of the little girl Ella. An inquest has been ordered by the coroner.

NEW YORK AND VICINITY.

The American Academy of Ophthalmology and Otolaryngology.—The Buffalo meeting will be held on September 14, 15, 16, instead of August 23 to 25.

Hospital Gets \$5,000.—The executors of the estate of Adrian Iselin have notified the Treasurer of the New Rochelle Hospital that they will soon turn over to that institution \$5,000. The gift is the first that has been announced since the banker's death. Mr. Iselin set aside \$300,000 in his will for charitable bequests, and indicated privately to the executors the institutions to be benefited.

More Meningitis Deaths.—The deathrate in New York for the week ended April 15, was 24.26 per 1,000. Last year for the corresponding week it was 20.20. Deaths by cerebrospinal meningitis increased last week, there being 117. In the week before there were 110, and in the week before that 131. In the corresponding week in 1904 there were only 45. Other diseases, with the exception of pneumonia, decreased. There were 248 deaths from pneumonia, but this was a large decrease over the corresponding week last year, when there were 409.

An Undiagnosed Disease.—A peculiar malady, of which extremely high temperature seems to be the only distinguishing feature, was called to the attention of the New York health authorities upon the arrival of the British steamer *Osceola* from River Plate, Para, and Barbados. The captain and three members of his crew were ill when the steamer arrived. One man had died and was buried at sea, another stricken with the peculiar illness had committed suicide by jumping overboard, and two others had been sent to hospitals at Barbados. It was decided to hold the *Osceola* at quarantine.

Physical Death Fourteen Years after Legal Death.—After having been dead *de jure* for 14 years, Charles H. Smith, a former partner of the late Governor Pingree, of Michigan, was declared to be dead *de facto* on Saturday by the doctors of St. Vincent's Hospital, New York. The man had been a guest at the Mills Hotel on Bleeker street for 15 years. He disappeared from Detroit in May, 1890, after withdrawing largesums from the shoe firm of Pingree & Smith. A little more than a year later the Probate Court declared him to be legally dead, but not long after Mr. Pingree discovered the whereabouts of his former business associate, and contributed to his support until his death.

Meningitis Epidemic.—John S. Billings, chief of the division of communicable diseases of the Health Department of New York, has kept a map on which the deaths from cerebrospinal meningitis are designated from week to week, and up to the present time shows 800 cases. The locality bounded by Fifth street, the Brooklyn bridge, Broadway and the East River has furnished the greatest number of cases, there being 200 reported. As the disease has not developed in the section of the city inhabited by the well-to-do, it would seem that cleanliness is the chief factor in the prevention of the disease. As a high mortality still prevails, it would seem that the report that the disease was dying out, is incorrect, and as one case occurs near that of another, fumigation of infected houses should be advocated.

To Isolate Contagious Diseases in New York.—The Health Department of New York City is endeavoring to supply the city with an adequate and modern equipment for the care of cases of contagious diseases. At the present time there are accommodations for 60 cases of diphtheria, which is totally inadequate, there being from 8,000 to 10,000 cases reported annually. The great majority of these are in the tenement district, where it is practically impossible to properly isolate them. The plan is to rebuild the isolation plant in Brooklyn, and it is hoped that several of the buildings will be opened this year. The cost of rebuilding and the erection of new buildings will be \$7,000,000, and the work will commence as soon as the plans are completed. A site near the Willard Parker Hospital is to be purchased at a cost of \$250,000, and on this will be erected pavilions for measles and diphtheria. A pavilion for scarlet fever, an administration building, and a laboratory for the analysis of food products and for making bacteriologic examinations will also be erected.

New York's Public Bath System.—The Forty-first street bath was constructed at a cost of about \$100,000. It has more than 100 showers and 10 bathtubs. The One Hundred and Ninth street bath is much larger than any of the other baths now in operation. There are in course of construction four other baths, one of which when completed will be the largest one in the city and will contain plunge, showers, and tubs for males and for females. The Board of Estimate and Apportionment has appropriated \$633,000 for the erection and completion of four public bath buildings and the acquiring of sites for same. When this extensive system of public baths has been completed, New York will rank as one of the first cities of the world in its work for cleanliness and health. It is the intention to provide these interior baths so that when the time comes when commerce and unsanitary condition of the waters surrounding New York City will make it impossible to maintain floating baths at all, the interior baths will be an adequate substitute to meet all the demands of the free floating baths. The

floating baths have accommodated 1,851,029 males and 957,468 females, making a total of 2,808,497. The baths were open for 115 days, making an average of 24,421 bathers per diem. The Rivington street bath is extensively patronized by the residents of this locality, and 499,730 males and 303,561 female bathers were accommodated, making a total of 803,291 in the year.

PHILADELPHIA, PENNSYLVANIA, ETC.

Contract Practice.—The Mercer County (New Jersey) Medical Society has amended its by-laws so that hereafter any member who arranges with a secret or beneficial order to render services under yearly contracts will be dropped from the roll. This action is the outcome of a long discussion among physicians.

Case of Anthracosis.—Suffering from anthrax, Isaac Goldberg is at the Jewish Hospital. Goldberg has been under treatment for several days by his physician, who failed to discover the nature of the malady, although he suspected that it might be of a contagious character. Goldberg is employed to sort horse hair, and, it is believed, contracted the disease at work.

Meningitis Closes Schools.—An epidemic of cerebrospinal meningitis, or spotted fever, has broken out in Dunbar, Pa., and the citizens are greatly alarmed. The homes where the disease exists have been quarantined, and the schools of the town have been closed. At a meeting of the Board of Health, the School Board and the president of the Town Council, it was decided to appeal to the State Board of Health for help.

Operation without Consent.—D. P. Maddox, chief surgeon at the Crozer Hospital and one of the leading physicians of Chester, is defendant in a suit for \$20,000 damages by William Hibbert, of Chester, who alleges that Dr. Maddox operated on his 16-year-old daughter for appendicitis without his consent, causing her death. Dr. Maddox testified that he never heard of there being any objection on the part of the family to the operation until at least a month after her death.

Politics Hurt Hospital.—It is said that political interference prevented final action on a bill making an appropriation to the Susquehanna County Hospital. Senator Hill, a Democrat, of Wayne, introduced the bill for \$10,000, and it passed the Senate without amendment. The House committee cut it down to \$5,000. A disagreement between the houses followed, and it was referred to a conference committee. It is said that a high State official opposed the appropriation on the ground that it would strengthen Senator Hill for reelection, and the report of the conference committee was conveniently lost.

The Tuberculous to Pay.—Lawrence F. Flick, president of the Free Hospital for Poor Consumptives, said that the new policy of running the institution on a partial pay basis, which was decided on at the last annual meeting of the society, would probably go into effect on June 1. The 100 patients now in the hospital will be maintained as free patients until that time, when they may be sufficiently improved to be able to do a little work on the convalescent farm and thus be able to contribute a share to their support. Until the capacity of the hospital is increased to 300 beds, the cost of maintenance of each patient will be about \$6 or \$7 a week.

Insane Asylum Horrors.—Speaker Walton has made a tour of inspection through the Danville, Warren, Harrisburg, and Norristown insane asylums, and says the accommodations were inadequate for the inmates. Hundreds of the insane poor have to sleep in corridors and on floors for lack of proper quarters. In many cases the buildings are antiquated and without ordinary sanitary arrangements, and should a fire occur in the night nothing could save hundreds of lives being sacrificed. The commission appointed is to make a full investigation and inquiry into the capacity and condition of the various hospitals for the insane, deaf, dumb, blind, and feeble-minded or similar institutions maintained wholly or in part by State appropriations, and suggest necessary legislation to correct abuses or carry out any reforms, together with any other recommendations with respect to their management, improvement, enlargement, and control.

Home for the Indigent and the New Municipal Hospital.—The Philadelphia Department of Public Safety has asked for proposals for the construction of buildings for the new Home for the Indigent, and for the new Municipal Hospital. Specifications have been so arranged that the bidders may submit proposals on parts of the work. This will enable the awarding of contracts for as much of the work as the appropriations will permit. There is available about \$700,000 for the Home for the Indigent, and \$900,000 for the Municipal Hospital. When the whole series of buildings for the Indigent Home is completed there will be accommodations for 3,000 persons, but it is not intended for the present to build for more than 2,000. The inmates will be the helpless poor solely, and the almshouse feature of the Philadelphia Hospital will then be abandoned. The nest of smallpox buildings at the Municipal Hospital site, has already been constructed, and so has the power plant. There are two other groups to be built—one the diphtheria group and the other the scarlet fever—but since all necessary ground has not yet been acquired, the scarlet fever

wards, which are to be placed partly on this outlying ground, cannot be built under the present proposals. One of the buildings for which bids will be asked is for a receiving and discharging house for smallpox patients, and, unless smallpox should become epidemic, this receiving ward would also be used during the treatment of patients. The diphtheria hospital will consist of an administration building, two stories high, with a curved corridor, leading to the four ward buildings. The second floor of the corridor will be an open porch to be used by convalescents. Each group of buildings will occupy a ground space of 500 feet by 700 feet. The scarlet fever buildings will be practically the same as those for diphtheria patients.

SOUTHERN STATES.

Meningitis Serum.—The bacteriologists of the Maryland State Board of Health report some degree of success in their experiments on rabbits in the endeavor to secure an antitoxic serum for cerebrospinal meningitis.

Herter Lecturer.—An invitation has been accepted by Prof. Hans Meyer, of the University of Vienna, to deliver the Herter Lectures at Johns Hopkins University, October 5 and 6. Subject: "The Physiologic Results of Pharmacologic Research."

Tuberculosis Immunization of Cattle by Vaccination.—The veterinary department of the Maryland Agricultural Experimental Station has begun the practical application of the von Behring method. No claim is made for it as a curative means, but exclusively as a preventive, through the production of an increased resistance to tuberculous infection.

The National Antituberculosis Meeting.—The annual meeting of the National Association for the Study and Prevention of Tuberculosis, will be held in Washington, May 18 and 19, under the presidency of Edward L. Trudeau. At the general meeting of the association to be held on the morning of May 18, addresses will be made by the president and by William Osler, of Baltimore, and Hermann M. Biggs, of New York.

Fighting Tuberculosis.—The educational committee of the Maryland Association for the Prevention and Relief of Tuberculosis has submitted a report of its work, stating that 13 public lectures were given in Baltimore in March, mostly in neighborhoods where people live in rather crowded condition, and where the deathrate from tuberculosis is naturally highest. The estimated attendance at all of the gatherings was something over 1,500 persons.

Naval Medical School.—The Surgeon-General has not yet recommended officers of the naval medical corps for duty under instruction at the naval medical school in Washington during the post-graduate term of two months beginning in May. The difficulty comes from obtaining officers to relieve the surgeons who will be assigned to this work there; and, naturally, these occasions many changes which cannot be quickly provided for or planned. The course will be attended by those officers who have not hitherto been in Washington under instruction and the selection will be among those who are attached to the ships of the North Atlantic fleet and who are on shore duty on the Atlantic coast.

WESTERN STATES.

Sweatbox Ordeal Unhinges Mind of Witness.—As a result of the torture to which she was subjected by San Francisco authorities, the wife of a suspected murderer is mentally and physically prostrated and is under the care of a physician. In an attempt to force a confession from her she temporarily was deprived of her infant and thrust into the autopsy room at the morgue, where lay the mangled remains of the murdered man. She refused to look at the body, threw herself on the floor, and became hysterical. Then the bloodstained cleaver with which the crime was committed and the bloodstained blanket and shawl in which the dismembered trunk was wrapped were suddenly produced, with the result almost of driving the terror-stricken woman insane. Her condition is reported as serious.

Mortality of Michigan during March, 1905.—There were 3,367 deaths returned to the Secretary of State for the month of March, an increase of 149 over the preceding month. The deathrate was 15.5 per 1,000 as compared with 16.4 for February, and 16.0 for March, 1904. By ages, there were 687 deaths of infants under 1 year, 194 deaths of children 1 to 4 years, and 1,070 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis of lungs, 227; other forms of tuberculosis, 46; typhoid fever, 31; diphtheria and croup, 26; scarlet fever, 10; measles, 16; whoopingcough, 5; pneumonia, 399; diarrheal diseases of infants under 2 years, 58; meningitis, 54; influenza, 150; cancer, 158; accidents and violence, 150. There was some increase in the number of deaths reported from tuberculosis and cancer, and a decrease from typhoid fever and pneumonia. Meningitis showed about the same mortality as in February. No epidemic prevalence was reported from any part of the State. Three deaths from smallpox occurred, as follows: 1 in Alpena City, Alpena county, 1 in Jackson City, Jackson county, and 1 in Perry village, Shiawassee county.

FOREIGN NEWS AND NOTES

GENERAL.

The King Institute of Preventive Medicine in India.—The King Institute of Preventive Medicine at Guindy was formally opened on March 11 by Lord Amptill, Governor of Madras.

Epidemic in Russia.—A peculiar epidemic of cerebral spasms, almost always fatal, has made its appearance in St. Petersburg. It was imported from Galicia to Lodz, Russian Poland, where there have been many victims. It is regarded by some as a precursor of cholera, while others believe it is cerebrospinal meningitis.

Prince Ferdinand's Corset Edict.—Prince Ferdinand, of Bulgaria, has signed an edict of the Minister of Public Instruction, directing that from now on girls and young women attending the public schools throughout the principality shall be prohibited from the wearing of corsets. The ground given for this new law is the health of the young women.

Institute of Medical Sciences Fund.—The scheme for building and endowing an Institute of Medical Sciences under the control of the University of London has been favorably received by the medical and lay press and by a very large section of the London teachers of medicine and the allied sciences. Mr. Alfred Beit has decided to increase the amount of his donation from £5,000 to £25,000, in commemoration of the great kindness of his friend Dr. Jameson, the Premier of Cape Colony, and the services of members of the faculty of medicine during a recent illness.

OBITUARIES.

Jarvis K. Mason, aged 74, April 8, at his home in Suffield, Conn.; a graduate of Harvard Medical School, in 1861. He was medical examiner for the town of Suffield since 1883; president of the Hartford County Health Officers' Association during 1897 and 1898; member of the Harvard Alumni Medical Association, and of American Academy of Medicine, and examiner for a number of leading life insurance companies.

Alonzo Lewis Kennedy, aged 61, April 13, from heart disease, at his home in Brookline, Mass. He graduated from Bowdoin College and the Boston University Medical School. For several years he was instructor of materia medica at the Boston University School of Medicine.

William S. Walker, March 31, from the effects of a surgical operation, at St. Mary's Hospital, Rochester, Minn.; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1877. He was surgeon of the St. Louis, Iron Mountain & Southern Railway, at Hot Springs, Ark.

George W. Purnell, aged 68, April 4, from heart disease, at his home in Hazelhurst, Miss.; a graduate of the University of Pennsylvania, department of medicine, Philadelphia, in 1858. He served as surgeon in the Confederate service during the Civil war.

William M. Linquist, aged 84, March 23, from pneumonia, at his home in Ukiak, Cal. He graduated in San Francisco, in 1896. For several years he served as surgeon to the Pacific Mail Steamship Company's boats between San Francisco and Panama.

John D. Paige, aged 45, of Savannah, Ga., March 23, in Salt Lake City; a graduate of Harvard University Medical School, Boston, in 1888. He was a member of the Medical Association of Georgia, and a specialist in disease of the eye, ear, nose, and throat.

Peter Nelson Jacobus, aged 71, March 23, from influenza, at his home in Washington, N. J.; a graduate of the University of Vermont, medical department, Burlington, in 1885; member of the Medical Society of the State of New Jersey.

Rachel Brooks Gleason, aged 84, March 13, at the home of her daughter, in Buffalo, N. Y.; a graduate of the New York College, New York City, in 1851. For many years she had been in charge of the Elmira Water Cure.

Evan E. Hughes, aged 59, March 23, from cerebral hemorrhage, at his home in Oak Hill, Ohio; a graduate of the Medical College of Ohio, Cincinnati, in 1872; member of the American Medical Association.

J. Lee Adams, aged 68, April 16, at his home in Washington, D. C.; a graduate of the University of Georgetown, medical department, in 1868. For 40 years he has been in the internal revenue office.

Randolph N. Seaver, aged 60, April 3, from cerebral hemorrhage, at his home in Corry, Pa.; a graduate of the University of Worcester, medical department, Cleveland, O., in 1874.

John W. Hamilton, aged 45, March 29, after a short illness, at his home in Lampasas, Texas; a graduate of Tulane University, medical department, New Orleans, La., in 1887.

Courtney L. Smith, April 15, at his home in Aurora, Ill.; a graduate of Rush Medical College in 1879. He was one of the best known surgeons in northern Illinois.

John Wesley Martin, aged 52, March 26, from cancer, at his home in West Plains, Mo.; a graduate of the University of Louisville (Ky.), medical department, in 1879.

Rufus P. Grindle, aged 59, March 28, at his home in Bluehill, Hancock county, Me.; a graduate of the New York University, New York City, in 1872.

Silas B. Kash, aged 33, March 28, from pneumonia, at his home in Burdette, Mo.; a graduate of the Hospital College of Medicine, Louisville, in 1898.

Justus Sutcliffe, aged 57, April 3, from pneumonia, at his home in Nanticoke, Pa.; a graduate of New York University, New York City, in 1885.

Louis Gotthelf, aged 85, April 2, from senile debility, at his home in Parker, S. D.; a graduate of the University of Berlin, Germany, in 1846.

Henry Lummas, aged 80, April 14, at his home in Appleton, Wis. He was the oldest professor of the Lawrence University faculty.

J. G. Wyley, aged 66, April 9, at his home, near Lake Providence, La.

P. H. Reaney, April 17, at his home in Detroit, Mich.

FOREIGN.—**Thomas Morton**, aged 69, March 27, from pleurisy, at his home in Kilburn, England. He graduated from the University of London in 1865. He was vice-president of the Metropolitan Counties Branch of the British Medical Association. He was very much interested in the subject of heredity and the transmission of predispositions and tendencies in the mental and physical sphere, and alcoholism. He was the author of a number of articles on temperance.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 15, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Florida:	Jacksonville.....	Apr. 1-8.....	7	
Illinois:	Cairo.....	Apr. 3.....	5	
	Danville.....	Apr. 1-8.....	3	
Louisiana:	New Orleans.....	Apr. 1-8.....	26	1
	Pte. Coupee Parish.....	Mar. 1-31.....	Several	
	St. James Parish.....	Mar. 1-31.....	Several	
	St. John Parish.....	Mar. 1-31.....	1	
Michigan:	Grand Rapids.....	Apr. 1-8.....	2	1
	At 47 localities.....	Mar. 18-25.....	Present	
Mississippi:	Natchez.....	Mar. 25-Apr. 8.....	2	
Missouri:	St. Louis.....	Apr. 1-8.....	28	8
Nebraska:	Omaha.....	Apr. 1-8.....	1	
	South Omaha.....	Apr. 1-8.....	1	
New York:	New York.....	Apr. 1-8.....	4	
North Carolina:	Goose Creek Island.....	Apr. 3.....	50	
	Hog Island.....	Apr. 3.....	15	
Ohio:	Cincinnati.....	Mar. 31-Apr. 7.....	6	
South Carolina:	Charleston.....	Apr. 1-8.....	2	
Tennessee:	Memphis.....	Apr. 1-8.....	7	
SMALLPOX—FOREIGN.			Cases	Deaths
Africa:	Sierre Leone.....	Mar. 10-17.....	240	
Brazil:	Bahia.....	Feb. 25-Mar. 11.....	24	1
	Escada.....	Mar. 11.....	Epidemic	
	Rio de Janeiro.....	Mar. 12-19.....	8	4
Ecuador:	Quayaquil.....	Mar. 7-14.....	29	5
France:	Paris.....	Mar. 18-25.....	2	
	St. Etienne.....	Mar. 1-15.....	1	
Germany:	Bremen.....	Mar. 18-25.....	1	
Great Britain:	Cardiff.....	Mar. 25-Apr. 1.....	1	
	Hull.....	Mar. 18-25.....	2	
	Leeds.....	Mar. 25-Apr. 1.....	12	
	London.....	Mar. 18-25.....	3	
	Nottingham.....	Mar. 18-25.....	1	
India:	Bombay.....	Mar. 7-14.....	172	
	Calcutta.....	Mar. 4-11.....	10	
	Karachi.....	Feb. 5-12.....	18	2
	Madras.....	Mar. 4-10.....	6	
Italy:	Catania.....	Mar. 23-30.....	1	
	Lecce.....	Mar. 8-16.....	6	
	Palermo.....	Mar. 18-25.....	13	4
Mexico:	City of Mexico.....	Mar. 25-Apr. 1.....	2	2
Russia:	Moscow.....	Mar. 18-25.....	7	3
	Odessa.....	Mar. 18-25.....	4	2
	St. Petersburg.....	Feb. 11-Mar. 18.....	41	12
	Warsaw.....	Jan. 21-28.....	1	
Turkey:	Smyrna.....	Dec. 25-Feb. 19.....	2	
YELLOW FEVER.			Cases	Deaths
Brazil:	Rio de Janeiro.....	Mar. 12-19.....	8	3
Mexico:	Coatzacoalcas.....	Mar. 26-Apr. 1.....	1	1
Panama:	Panama.....	Jan. 1-Mar. 27.....	43	18
CHOLERA.			Cases	Deaths
India:	Calcutta.....	Mar. 4-11.....	32	
Russia:	Baku Government.....	Feb. 17-24.....	1	
	Don Territory.....	Feb. 5-17.....	7	3
PLAGUE.			Cases	Deaths
Africa (British):	Durban.....	Jan. 29-Feb. 11.....	4	4
Arabia:	Aden.....	Mar. 10-17.....	60	55

Brazil:	Rio de Janeiro.....	Mar. 12-19.....	2
Chile:	Coplando.....	Mar. 10.....	Present
	Quilombo.....	Mar. 14.....	Present
	Pisagua.....	Mar. 10.....	Epidemic
Egypt:	Tukh.....	Mar. 4-11.....	1
India:	Bombay.....	Mar. 7-14.....	688
	Calcutta.....	Mar. 4-11.....	815
	Karachi.....	Feb. 5-12.....	77
Peru:	Cajamarca.....	Mar. 10.....	Present

Changes in the Medical Corps of the U. S. Army for the week ended April 15, 1905:

MURTAGH, First Lieutenant JOHN A., assistant surgeon, is assigned to duty as attending surgeon at headquarters, department of California, and examiner of recruits in San Francisco, Cal.

ROCKHILL, First Lieutenant EDWARD P., assistant surgeon, is granted leave for one month, on surgeon's certificate, with premission to apply for an extension of one month.

HATHAWAY, First Lieutenant LEVY M., assistant surgeon, is granted leave for two months, to take effect when relieved from duty in Alaska.

SANDS, JOHN R., sergeant, first class now at Hastings, Mich., will, upon expiration of the delay granted him, February 16, report at Jefferson Barracks to relieve Sergeant First Class George Gibbens, instead of returning to the chief surgeon's office, department of California, San Francisco, Cal. Sergeant First Class Gibbens will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I., on the first available transport. Upon arrival at Manila he will report to the commanding general, Philippines Division, for assignment to duty.

A board of officers to consist of First Lieutenant William N. Bispham, assistant surgeon; First Lieutenant John R. Devereux, assistant surgeon, is appointed to meet at Fort Logan, May 1, for the purpose of conducting the preliminary examination of applicants for appointment in the medical corps of the army.

HUMPHREYS, First Lieutenant HARRY G., is granted leave for one month, to take effect April 12.

HODGINS, JOHN, surgeon first class, Army General Hospital, Washington Barracks, will be sent to Fort DuPont for duty.

BIRMINGHAM, Major HENRY P., surgeon, is relieved from duty as chief surgeon, department of Texas, to take effect upon the arrival at the headquarters of that department of Lieutenant-Colonel Louis M. Maus, deputy surgeon-general, and then will proceed to Fort McPherson for duty, relieving Major William W. Gray, surgeon, who will proceed to Atlanta, Ga., and report to the commanding general, department of the gulf, for duty as chief surgeon of that department.

BANISTER, Major JOHN M., surgeon, will proceed to Fort Riley for duty, upon his arrival at San Francisco, Cal.

RAYMOND, Major HENRY I., surgeon, will proceed to Columbus Barracks for duty, upon his arrival at San Francisco, Cal.

MANLY, Captain CLARENCE J., assistant surgeon, granted leave of absence for one month, to take effect when he is relieved from duty at Fort Brady.

STRAUB, Captain PAUL F., assistant surgeon, is relieved from duty at Fort Leavenworth, and will repair to Washington, D. C., and report to the Secretary of War for further orders.

WICKLINE, First Lieutenant WILLIAM A., assistant surgeon, granted leave of absence for 12 days, to take effect April 13.

REBERT, M. A., contract surgeon, leave for 10 days granted, is extended 10 days.

MILLER, ALBERT L., contract surgeon, will proceed to Camp Gregg, Pangasinan, for duty.

HALLWOOD, JAMES B., contract surgeon, is relieved from further duty at the World's Fair Station, St. Louis, Mo., and will proceed to his proper station, Fort Leavenworth, for duty.

So much of orders of April 1, W. D., as relate to Captain Paul I. Straub and First Lieutenants Chandler P. Robbins and George W. Jean, assistant surgeons, are revoked.

The following named officers will be relieved from duty in the Philippines Division in time to embark on the first available transports leaving Manila after the dates set opposite their respective names, and will then proceed to San Francisco, Cal., and report by telegraph to the military secretary of the Army for further orders: Major Edward R. Morris, surgeon, August 28; Major W. Fitzhugh Carter, surgeon, November 30; Captain Christopher C. Collins, assistant surgeon, October 26; Captain Louis T. Hess, assistant surgeon, November 29; First Lieutenant William R. Eastman, assistant surgeon, August 26; First Lieutenant Edwin W. Rich, assistant surgeon, October 1; First Lieutenant Raymond F. Metcalfe, assistant surgeon, October 8.

ADAIR, Lieutenant-Colonel GEORGE W., deputy surgeon-general, granted leave for one month.

Changes in the Medical Corps of the U. S. Navy for the week ended April 15, 1905:

SMITH, G. T., surgeon, ordered to the Maryland—April 10.

LUMSDEN, G. P., surgeon, detached from the Minneapolis and ordered to the Olympia—April 11.

NORTON, O. D., surgeon, detached from the Olympia and ordered to the Minneapolis—April 11.

Orders issued by the Commander-in-Chief of the Asiatic Fleet:

STRINE, H. F., assistant surgeon, detached from the Helena and ordered to the Barry—April 12.

FIELD, J. G., surgeon, detached from the Bennington and ordered to the Solace—April 12.

BAKER, J. W., surgeon, retired, ordered to additional duty in performance of medical attendance to officers of the Navy and Marine Corps in the vicinity of Boston, Mass., not otherwise provided with medical attendance—April 12.

CORDEIRO, F. J. B., surgeon, detached from the Solace and ordered home to wait orders—April 12.

PECK, A. E., passed assistant surgeon, detached from the Pensacola and ordered to the Bennington—April 12.

STIEPP, J., passed assistant surgeon, detached from the Training Station, Newport, R. I., and ordered to the Topeka—April 12.

FURLONG, F. M., passed assistant surgeon, ordered to report to the Surgeon-General for special duty in the Bureau of Medicine and Surgery, Navy Department—April 12.

OHNESORO, K., passed assistant surgeon, detached from the Topeka and ordered to the Museum of Hygiene and Medical School, Washington, D. C., for course of instruction—April 12.

CATHER, D., assistant surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Training Station, Newport, R. I., with additional duty on the Constellation—April 12.

Surgeons E. M. Shipp, from the Naval Hospital, New York; J. C. Pryor, from the Naval Hospital, Narragansett Bay, R. I.; and Passed Assistant Surgeons L. W. Bishop, from the Southern; J. H. Iden, detached from the Naval Hospital, Narragansett Bay, R. I.; F. L. Benton, from the Naval Recruiting Station, Philadelphia, Pa.; H. O. Shiffert, from the United States Receiving Ship Franklin; J. A. Murphy, from the Navy Yard, Washington, D. C., for course of instruction at the Naval Museum of Hygiene and Medical School, Washington, D. C.—April 12.

FARWELL, W. G., medical director, retired, ordered to the Naval Recruiting Station, Philadelphia, Pa., April 26—April 12.

LEYS, J. F., passed assistant surgeon, ordered to Washington, D. C., April 28, for course of instruction at the Naval Museum of Hygiene and Medical School—April 12.

FISKE, C. N., passed assistant surgeon, from the Naval Hospital, Boston, Mass., to Washington, D. C., for course of instruction at the Naval Museum of Hygiene and Medical School—April 12.

Changes in the Public Health and Marine-Hospital Service for the week ended April 12, 1905:

MEAD, F. W., surgeon, granted leave of absence for six days from April 24—April 11, 1905.

CUMMING, H. S., passed assistant surgeon, granted leave of absence for ten days from April 15—April 10, 1905.

FRICKS, L. D., passed assistant surgeon, granted three days' leave of absence from April 3, 1905, under paragraph 191 of the regulations.

EARLE, B. H., assistant surgeon, to proceed to certain points in Oregon for special temporary duty—April 6, 1905.

STIMSON, A. M., assistant surgeon, relieved from duty in the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty—April 7, 1905.

WIGHTMAN, W. M., assistant surgeon, granted leave of absence for three days from March 18, 1905, under paragraph 191 of the regulations.

MULLAN, E. H., assistant surgeon, relieved from duty at New York (Stapleton), N. Y., and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty—April 7, 1905.

DREW, A. D., acting assistant surgeon, granted leave of absence for two days, March 8, and March 24, 1905, under paragraph 210 of the regulations.

FOWLER, J. B., acting assistant surgeon department letter of February 13, 1905, granting Acting Assistant Surgeon Fowler leave of absence for thirty days, revoked—April 7, 1905.

SAFFORD, M. V., acting assistant surgeon, to proceed to Portland, Me., for special temporary duty—April 7, 1905.

McKAY, M., pharmacist, to report to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class—April 7, 1905.

WATERS, M. H., pharmacist, granted leave of absence for fifteen days from April 12—April 11, 1905.

Promotions.

Assistant Surgeon T. D. Berry commissioned (recess) as passed assistant surgeon, to rank as such from March 24—April 10, 1905.

Assistant Surgeon A. J. McLaughlin commissioned (recess) as passed assistant surgeon, to rank as such from April 10—April 10, 1905.

Appointment.

Dr. Mary A. Israel appointed medical inspector for duty at Manila, P. I.—April 6, 1905.

Boards Convened.

Board convened to meet at Washington, D. C., April 10, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board convened to meet at Boston, Mass., April 12, 1905, for the physical examination of Pharmacist M. McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. C. Rucker, Acting Assistant Surgeon F. H. Cleaves, recorder.

Board convened to meet at Washington, D. C., April 17, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board convened to meet at San Francisco, Cal., April 20, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

Board convened to meet at San Juan, Porto Rico, April 24, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. W. King, chairman; Acting Assistant Surgeon P. del V. Atiles, recorder.

Board convened to meet at Port Townsend, Wash., April 24, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon D. E. Robinson, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE VERTEBRAL CONCUSSIONAL REFLEXES.

BY

ALBERT ABRAMS, A.M., M.D.,

of San Francisco, Cal.

To the Editor of *American Medicine*.—I have already made reference in *American Medicine* (July 16, 1904), to definite visceral reflexes evoked by vertebral concussion of definite vertebrae. At the present time I desire to direct attention to the nature of a preliminary report, to certain reflexes analogous to the superficial or cutaneous reflexes. Whereas the visceral reflexes require considerable percussional skill for their recognition, the reflexes, the subject of present consideration are demonstrable to the mere tyro, provided they are elicited after the manner here cited. For their elicitation one must employ a hammer, weighing about six ounces, and a pleximeter of felt, although a piece of moderately soft rubber (an easily manipulated rubber eraser will suffice), may substitute the latter. The pleximeter must be firmly applied to the spinous processes of the vertebrae, and with the hammer a sharp, vigorous blow must be struck. The concussion blow is by no means agreeable to the patient, specially over the cervical vertebrae. If the blow does not induce the expected reflex, it must be repeated with more vigor. While an assistant supports the extremities, he must also be on the alert for the reflexes, while the operator is behind the patient executing the vertebral concussion. The functions of the assistant and the operator may be reversed. The reflexes in question while usually evoked by direct concussion of the spinal processes, resulting in bilateral reflexes, may be unilateral by striking either to the right or left of the spinal column, or even at more remote points. The vertebral, like the conventional reflexes, are subject to the same variation. At the time of writing, the following reflexes have been elicited: 1. Biceps, triceps and wrist-jerk, by concussion of the fifth and sixth cervical vertebrae. 2. Pectoral reflex by striking the dorsal spinous processes from the third to the sixth. 3. Epigastric reflex, by striking the seventh dorsal vertebra. 4. Gluteal reflex, by striking any of the lumbar vertebrae, the reflex increasing in intensity as the last lumbar vertebra is approached. 5. Cremasteric, first to the third lumbar vertebrae, and it is often present when not evoked after the conventional manner. 6. Adductor reflex, both lower extremities being adducted when any or all of the lumbar vertebrae are concussed. 7. A new reflex, implicating the flexors of the leg, and which is essentially the antithesis of the knee-reflex. To elicit the first reflex, the upper extremity must be placed in a state of flexion, the elbows resting in either hand of the assistant; if the patient does not thoroughly relax the muscles while the spine is concussed, no reflexes will be elicited. The first series of reflexes may also be evoked by directing the patient to fix his elbows on a table in the flexed position and relaxed. To obtain the pectoral reflex, the patient lies on his side, and the arm is slightly elevated to bring into slight prominence the muscle. The third reflex is obtained in the erect posture during the time breathing is suspended. In the fourth reflex, the patient also lies on his side, inasmuch as the gluteal reflex is not demonstrable in the erect posture. The fifth reflex is obtained in the erect posture. In the adductor reflex the patient sits on a chair, with both lower extremities extended and relaxed. To obtain the seventh reflex of our series, the patient lies on his side, while the flexed lower extremity thoroughly relaxed, rests passively on the hands of the assistant. With a strong sinusoidal current, a large electrode at an indifferent point, and a smaller one with interrupter, applied over the different spinous processes, one may determine the localization of functions of the various segments of the spinal cord with relation to muscular contractions and reflexes. The plantar reflex by sinusoidalization of the first and second sacral segments, is especially characteristic. It was impossible for me to elicit the

knee-reflex by spinal concussion, a fact which would tend to show that it was not a true spinal reflex. The reflexes referred to in this communication are central in contradistinction to the conventional cutaneous peripheral reflexes. The central reflexes are evident bilaterally occurring at the same time. The reflexes in question will no doubt prove of some value to the internalist, and their practical application will be the subject of a future contribution.

A LETHAL DOSE OF SODIUM CHLORID.

BY

CHARLES M. COMBS, M.D.,

of Terre Haute, Ind.

The following case is reported as contributing to the toxicology of a substance which, as ordinarily used by physician and layman alike, is considered innocuous. A search through medical literature failed to find any similar case chronicled, and possibly it may be unique:

Mrs. N., aged 35, underwent a vaginal oophorectomy. The patient was in good condition, and the operation being short and simple, no apprehension was felt as to her recovery, but to prevent postoperative thirst and renal congestion, the operator, W. E. Bell, ordered normal salt solution by hypodermoclysis, 500 cc. to be injected under each breast. By some inexplicable misunderstanding between the nurse and myself (one of those proverbial accidents which occasionally happen, but which, nevertheless, the most extenuating circumstances will not condone), a concentrated stock solution was used instead of being diluted 0.9%. This almost saturated solution I injected, wholly ignorant of the horrible blunder, while the operator was making the final toilet.

The patient was seen four hours later, at which time she was unconscious. None of her symptoms warranted the belief that there was any hemorrhage.

The past events were reviewed, and the error was finally located when the stock bottle was produced and was empty.

Computation showed that the woman had received subcutaneously 124.4 gm. (1,920 gr.) of NaCl, which had in the meantime been completely absorbed and diffused throughout the body.

After about six hours of coma, followed a period of excitation; she was maniacal, and talked incoherently, remaining in that condition until, after 24 hours, death relieved her.

Symptoms.—Pulse 190, bounding, becoming later too rapid to be distinguishable, and respirations increasing finally to 70; insatiable thirst, a slowly ascending temperature, reaching a maximum of 104.6° F., constant nausea. A quantitative estimation of the vomitus showed .32 gm. (5 gr.) of NaCl to 4 gm. (1 dr.). During the last 24 hours 300 cc. of urine was excreted, which contained 11 gm. of NaCl, an amount normal, considered absolutely, but large relative to the quantity of urine. No albumin nor sugar present. An examination of the fresh blood revealed the erythrocytes shriveled and crenated, due to exosmosis. This explained the rapidity of the pulse and respiration, it being an effort on the part of nature to compensate for the diminished oxygeniferous power of the corpuscles.

Treatment.—A number of therapeutic measures theoretically indicated suggested themselves, venesection, transfusion of blood, continuous tub bath to extract the salt by osmosis, washing the stomach with a solution of silver nitrate, etc., but after due consideration of the case all were rejected.

She was kept in a continuous hot pack, and allowed and even urged to drink water freely. We were satisfied that the combined excretions (urine, sweat, feces, vomitus, tears) removed nearly half of the salt, but it was unavailing.

The following extracts, commenting on the case, are from a letter written to me by C. R. Schaefer, professor of materia medica and therapeutics, Medical College of Indiana:

... Probably all symptoms were due to a desiccating action by the hyperisotonic salt solution in the blood on the central (and perhaps, also, the sympathetic) nervous system. . . . The primary depression of the anesthetic, operation, and salt (especially sodium) ions caused continuous coma. Then followed the salt irritation of the medulla, with respiratory, vasomotor, and cardiac symptoms, followed by final overirritation and necessary death from exhaustion of the nervous system. The blood as a desiccating salt solution and irritant caused also the cerebral symptoms, excitement, and pyrexia. Diarrhea and diuresis were absent because the blood demanded all the water in the body to form an isotonic solution, and refused to give it up. Vomiting was due to excreted salt irritating the gastric wall; intestinal cramps may have occurred which the patient's depressed sensorium failed to notice. . . . The disorganization of the blood, and perhaps the formation of toxins, aided the dissolution.

ORIGINAL ARTICLES

SOME REMARKS ON PHYSICAL DIAGNOSIS: 1. TRANSMANUAL AUSCULTATION. 2. ULNAR PALPATION.¹

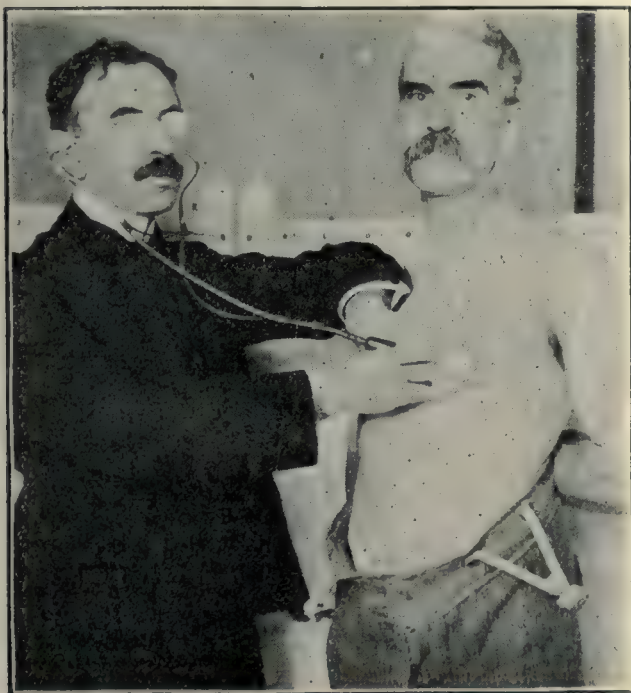
BY

DAVID RIESMAN, M.D.,
of Philadelphia.

Professor of Clinical Medicine, Philadelphia Polyclinic; Associate in Medicine, University of Pennsylvania, and Physician to the Philadelphia General Hospital.

1. *Transmanual Auscultation.*—The timing of heart murmurs is occasionally very difficult, particularly when the murmur is in the apex region. Textbooks on physical diagnosis advise that in such circumstances the fingers should be placed upon the carotid artery. Murmurs synchronous with the carotid pulse are considered systolic; all others, either diastolic or presystolic, as the case may be. When the carotid artery is easily accessible, it answers very well as a guide; but it is not always possible to locate the vessel with sufficient accuracy to make the necessary comparison. Some endeavor to time a murmur by means of the radial pulse; but this is not a good method, as the pulse at the wrist occurs perceptibly later than the cardiac systole.

There are times when, owing to diffuseness of the



Transmanual auscultation.

apex beat, it is possible to auscultate with a stethoscope, while simultaneously ascertaining, with the hand placed upon the heart, when the systole occurs. In such a case the timing of a murmur is readily accomplished. When, however, the carotid artery or the pulsation of the precordia outside of the area immediately auscultated is used as a guide, the attention is necessarily divided. This is undesirable, since in order to determine whether a given murmur is systolic or presystolic, the fullest concentration of the attention is required.

While engaged one day in an arduous endeavor to time a musical murmur, the more common methods

having failed me, I made use of the one that I desire to bring to your notice. It consists in auscultating through the hand placed over the heart, and can be used satisfactorily only with one of the newer binaural stethoscopes. I have found that known as the Bowles to answer best. It is a modification of the phonendoscope, and consists of a shallow, concave bowl, and a diaphragm of tin or rubber. With this instrument it is possible to hear the heart sounds and heart murmurs with surprising distinctness through the hand placed on the precordia. It must be evident that such a method greatly facilitates the timing of a murmur, inasmuch as



Transmanual auscultation.

the palpation and the auscultation are done at the same time and place. I have found that not only is it possible to auscultate directly through the fingers and hand, but that almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat and then resting the stethoscope lightly upon it. The accompanying photograph (Fig. 2) will make this clear.

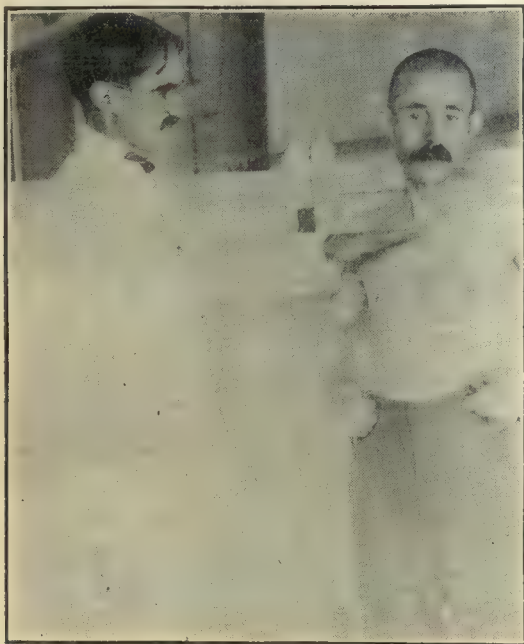
The principal advantage of transmanual auscultation will be found in distinguishing presystolic from systolic murmurs. The differentiation of these two murmurs is frequently compassed with great difficulty, and in my experience in teaching, I have noticed that students find this the most difficult part of cardiac physical diagnosis. I need scarcely emphasize in this article the importance of differentiating these two kinds of murmur at the mitral valve. In mitral stenosis, indicated by the presystolic murmur, the treatment is quite different from that demanded in mitral insufficiency, indicated by the systolic murmur. In many cases of the former affection, digitalis is not only useless, but distinctly harmful; and any method that will facilitate an accurate diagnosis, to this extent aids in the proper treatment of a case.

The successful practice of the method of transmanual auscultation presupposes the existence of a palpable heart beat. As in the first case in which I employed it (one of musical diastolic murmur), the method may also be of value in timing peculiar murmurs having a wide area of diffusion.

¹ Read before the Medical Society of the State of Pennsylvania, September, 1904.

2. *Ulnar Palpation.*—Of the four cardinal methods of physical diagnosis—inspection, palpation, percussion, and auscultation—the second, palpation, is least often employed; and yet it is as valuable as any, at times even affording information that none of the others can give. The reason for its comparative lack of popularity is that, as ordinarily practised, the results obtained are unsatisfactory—at least, with regard to the determining of the tactile fremitus. The prevailing method of ascertaining the tactile fremitus is to lay the flat of the hand on the chest while the patient is speaking. This is the only method generally taught and described in textbooks on physical diagnosis, and is the one that, with few exceptions, I have always seen employed by physicians and students in making their routine examinations. The exceptions are constituted by the times when an occasional examiner has determined the fremitus, especially in the supraclavicular spaces, by using the tips of the fingers.

It must be evident that the hand, when laid on flat, will in many instances cover an area much larger than that which is the seat of disease. What is actually felt in such circumstances is an average fremitus, produced by a combination of the fremitus of the diseased area with that of the surrounding uninvolved regions. For example, if the lesion is one of consolidation, the resulting increase in fremitus will be somewhat dampened by the lesser fremitus of contiguous normal areas; while if the lesion is one that naturally lessens the fremitus—as, for instance, a localized plastic pleurisy—the diminution



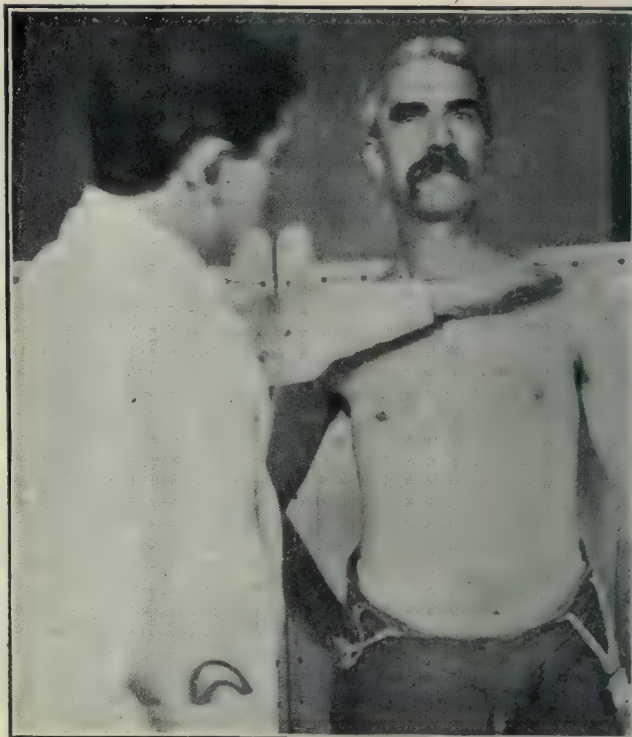
Ulnar palpation.

will not be clearly discerned when the hand covers normal lung tissue as well.

The method that I propose is analogous to that used in percussion, in that it confines the examination to the individual interspaces. It is extremely simple and not at all revolutionary; and, while original, may not be new, for it is quite likely that others have employed it.¹ It consists in laying the ulnar side of the

hand in each interspace successively, while the patient counts "one, one, one;" "one, two, three;" or "ninety-nine," according to individual preference. The ulnar surface of either the hand or the little finger must be firmly placed in the interspace, the hand being held almost at a right angle with the chest. It is advisable to stand a little to the side of the patient and to use the same hand for both sides of the chest.

An inspection of the hand will show that the ulnar side is really a part of the palm. It is hairless and has a very delicate sense of touch. I have been unable to find in works on physiology a comparative study of the sensitiveness of the various parts of the hand spe-



Ulnar palpation.

cifically mentioning the ulnar side. I have examined a number of persons, using the method of Weber (that is, determining the smallest distance at which two points can still be recognized as two), and in this way have found that the ulnar side of the hand and of the little finger is as sensitive as are the thenar and hypothenar eminences and the center of the palm. Indeed, in some persons the ulnar side seemed to be the most sensitive of the four zones. It is, however, not so sensitive as the finger-tips.

The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It has its best field in the diagnosis of effusions, especially in determining the upper level of the exudate. As a rule it is practised most successfully on the front of the chest. On the back, by reason of the difficulty in locating the interspaces, it is not so satisfactory; but it may be employed even there.

I have called the method by the somewhat cryptic name of "ulnar palpation," for the reason that it is done with the ulnar side of the hand; and have taught it for the last 18 months to students and physicians, who have quickly adopted it. It is not offered as a substitute for the method now in vogue, but as an addition to it. Both should always be employed.

The accompanying photographs are self-explanatory.

¹ Since reading this paper my attention has been called to the fact that the method has been used to some extent in Vienna; it is also briefly mentioned by Vierordt² and by Aufrecht.³

² Diagnostik der inneren Krankheiten, 1901, p. 144.

³ Nothnagel's System: Diseases of the Bronchi, Pleura, and Lungs, English Edition, p. 465.

REMARKS ON THE DESTRUCTIVE SKIN DISEASES. EPITHELIOMA, LUPUS VULGARIS, AND SYPHILIS.¹

BY

HENRY W. STELWAGON, M.D.,

of Philadelphia.

The diagnostic significance of destructive action as a part of a chronic skin disease, as shown by the presence of ulceration or scarring, or both, is scarcely sufficiently appreciated. For excepting some rather rare diseases, such as blastomycosis, actinomycosis, granuloma fungoides, leprosy and several others that need not be mentioned, this symptom narrows the diagnostic horizon very materially, and usually brings us immediately to the consideration of epithelioma, lupus, and a late manifestation of syphilis. I refer particularly to chronic destructive skin diseases, and this necessarily excludes boils, carbuncles, anthrax, and similar acute conditions, and which are, as a rule, as to their character quite self-evident, and unattended with diagnostic difficulty. Nor need be included the occasional cases of acne that leave scattered punctate and varioliform scars, and the rare disease acne varioliformis characterized by acne-like nodules which in disappearing leave varioliform cicatrices, nor lupus erythematosus in which tubercles, nodules and ulcerations do not appear. My remarks refer particularly to those destructive diseases usually limited to a single variously-sized area.

Before a body of this character I need not describe the features of a well-developed epithelioma, for when well marked the central, usually irregularly flattened ulcerated floor, the surrounding infiltrated border, and the serosanguinolent or sanguinopurulent discharge, as a rule somewhat scanty, make up a typical picture. But that which I desire to say is that an epithelioma should never be permitted to reach such a stage. Ofttimes doubtless it is wholly the fault of the patient who neglects and puts off the day of advice until the action required must necessarily be considerable and the chances of recurrence great, with also the possibility of neighboring glandular involvement. But in many instances it is the physician himself who is to blame, who fails to recognize or rightly appreciate the beginnings of these growths, and temporizes. Thus the small pea to bean-sized crusted or scaly, and usually somewhat discolored spot or patch, common on the faces of those advancing in years, readily manageable in the early stages, is permitted to go on until considerable ulceration and spreading infiltration leave no longer doubt as to the necessity of active interference. It is true that in many instances these so-called old-age spots may last several or more years or even much longer without showing marked subjacent degenerative action, but this cannot be foretold in any given case. In their earliest formation, before underlying thinning or abrasion has taken place, an ointment containing 2% to 5% of salicylic acid and 5% to 10% of sulfur, rubbed in nightly after washing, will generally remove them or at all events stop their further development. Later, or in those in which some hardening of the epidermic tissue is noted, the same end can usually be attained by using a stronger salicylic acid salve, about 10% to 15% strength, applied as a plaster for one to several days, and then continuing with the milder ointment already referred to; or an occasional painting with a 10% salicylated colloid may be often satisfactorily employed. When the process has advanced to the stage of abrasion and ulceration mild methods are no longer permissible. Again another signal for action that both patient and physician are prone to neglect or undervalue, is the beginning irritation or slight fissuring or abrasion that frequently presents itself at the center or edge of a wart, warty growth or mole, a formation that may have been in

existence as a benign lesion, usually on the face, for years. But so soon as this sign of beginning degenerative action presents, and persists, be it ever so slight, it means the development of an epithelioma; and I think, as a rule, the development from such a growth is more rapid and frequently more malignant than that observed from the beginning scurfy spots just mentioned.

A word as to the treatment necessary for the developed epithelial formation, and I refer here chiefly to the small superficial epitheliomas that are quite common on the face and back of the hand in people from middle life on. These are usually unattended with glandular involvement. To the surgeon, excision by the knife is always the method, whatever the character and extent of the growth, and, as a rule, the only method. No one can gainsay its value, and if the excision extends far enough beyond the immediate area of disease, recurrence is not to be looked for. But to save unnecessary loss of tissue and consequent disfigurement, the lesion frequently is, so to speak, not sufficiently excised, and recurrence sooner or later takes place. Further, in spite of what we may urge and prescribe, there remain a large number of patients who decline this method, and if we stand upon the single platform of surgery or nothing it means very often the transfer of such cases into the hands of unskilful quacks, who, although often bunglers, nevertheless with the caustic method cure most of the superficial cases and cure them permanently. Quacks never spare tissue, and consequently, sometimes destroy several times as much tissue as is necessary, causing great disfigurement, but in so doing they are pretty sure of the permanency of the result. That these men bungle, treat patients they should not treat, and frequently attempt to treat deep-seated cases, for which the caustic method is wholly inapplicable, goes without saying. That they get any case is, as I take it, largely due to the uncompromising attitude of surgery or nothing for all cases. The dermatologist has three methods for these cases—excision, erosion with the curet, supplemented by slight cauterization, and destruction by caustics. As most of the cases coming into our hands are of the superficial type, the last two methods named are the most largely practised, and we thus save many from falling into the hands of those who may apply such methods unskilfully. Small beginning growths can be permanently destroyed by one thorough application of such a caustic as caustic potash. It destroys everything it touches, however, and healthy tissue goes with the morbid tissue. A much better plan, and one that I can cordially endorse and for which also surgical approval is not wanting, is that by the curet. A thorough erosion, followed by momentary cauterization with caustic potash, has given me excellent results. Or, instead of the momentary cauterization with caustic potash, the operation can be followed by two or three days' application of a 33% pyrogallol salve. Surgical operators who quite frequently employ curetting often neglect this supplementary measure, possibly from inherent antipathy against caustics, and this neglect means, as a rule, a recurrence of the disease, for the curet alone is not sufficient to get away all the morbid cells. Another plan that I frequently employ, and in which, when properly used, I have the greatest faith, founded upon considerable experience, is that by the arsenical paste of about 33% to 50% strength, made up with powdered acacia and water at the time of its application. On the growth deprived of its crust is applied a layer of this paste about the thickness of a back of a table knife and over this is placed a piece of patent lint cut to the proper size and spread with the same paste. The application should overlap the diseased area for at least an eighth of an inch; it soon dries on and forms a fixed plaster. At the end of 12 hours, if considerable inflammatory swelling and edema of the parts and immediate neighborhood have not resulted, the dressing is removed and a fresh application made. From 18 hours to 36 hours suffice; the growth on removal is noted to be of a

¹ Read before the Blair County Medical Society at Altoona, November 29, 1901.

dull grayish tint; poultices or a simple ointment dressing are applied till the slough comes away, a matter of 5 to 10 days; under any simple dressing healing soon results. Occasionally, as with other methods, slight keloidal thickening is noted, but this disappears in several weeks to a few months, and in small lesions the final resulting scar is scarcely perceptible. The great advantage of this plan is that this caustic relatively spares the healthy tissue, but seems far reaching as to morbid tissue, for I believe with this treatment fewer recurrences are observed than by any other plan. In fact, it is rare to have a recurrence. It is painful, but patients do not object to it. Owing to the possibility of toxic action, its application should not be to an area of more than an inch in diameter.

You are doubtless surprised that the röntgen-ray treatment that has been so much in vogue the past several years has not yet been mentioned, and that methods, even including excision, that in the early part of this period were, by the extreme röntgen-ray enthusiasts, almost labeled as antique and passé, have been referred to. Its omission up to this moment is not for the reason that I undervalue the method, for I use it with almost all my cases as a supplementary measure, and use it alone in superficial epitheliomas involving the neighborhood of the eye and eyelid. After several years' use of the röntgen ray as a sole method of treatment, I have come to the conclusion that it is not as potential in many of these cases as first described. That it alone will often cure I know from my own experience and the experience of others, but in many cases I have also learned that it stopped short of complete cure. Moreover, it is usually slow and time-consuming, and often has to be pushed to the point of unpleasantly active röntgen-ray reaction before improvement sets in. In my practice at present, therefore, I always say to patients that the best plan of treatment is the destruction or enucleation of the growth by excision, curet and cauterization, or purely cauterization, according to the case, followed during the healing period by 5 to 10 or 15 exposures to the röntgen ray. Of course, patients bent upon this method alone may have it, and the final result in many is gratifying, but in my judgment this method should not be directly urged upon patients without first stating the probabilities as to length of treatment and the possibility of its not infrequently stopping just short of complete cure. For cases not otherwise easily manageable it remains, however, a very important palliative and curative measure, and in those cases advanced or relapsed beyond hope of relief from any other method, its value as a frequent palliative and an occasional curative agent cannot be too strongly endorsed.

Lupus, a form of tuberculosis of the skin, is another destructive skin disease which, fortunately in this country, is comparatively rare; the dogmatic remarks therefore as to diagnosis apply chiefly to the disease as observed here. It is a slow disease, has its beginning most frequently before the age of 20, and is characterized usually by three distinctive symptoms—the peculiar brownish-yellow, apple-jelly colored nodules or tubercles, ulceration, and as a rule, thick, often keloidal scarring. Sometimes, in the so-called exfoliative type, ulceration is lacking, and with it also the firm scarring, and in their place we see an atrophic brownish, scaly condition of the skin. The face is the most common site of this disease. It is rarely mistaken for the other destructive diseases, epithelioma and the tubercular syphiloderm, not necessarily owing to diagnostic acumen, but merely for the reason that so many cases of these two diseases are labeled lupus by those inexperienced in the differentiation, that naturally almost all the rightful cases of lupus are included. A very large number of so-called lupus cases described in the current journals during the past several years as being relieved by the röntgen ray, were in reality not lupus cases at all, but some of them examples of epithelioma of usually the rodent ulcer type, and others ex-

amples of the tubercular syphiloderm; description and history showed that, and this could be readily corroborated in several instances by the illustrations accompanying the publications. In fact, one should hesitate to call any case lupus in this country, especially in a native born, without first considering carefully whether it would not more properly come under the head of epithelioma or the tubercular syphiloderm, more frequently the latter. Lupus rarely has the segmental and serpiginous configuration or method of spread that characterizes the resembling syphilitic eruption, and much more usually shows a reappearance of nodules in the traversed portion than does syphilis. Theoretically, one might think that in doubtful cases the demonstration of the presence of bacilli in microscopic sections of tissues could be resorted to, but unfortunately the bacilli are usually only in scant numbers and often hard to find. Much more reliance can be placed upon the microscopic differences in the character of the morbid tissue itself. But, after all, the fact is to be remembered that in any given chronic destructive skin disease lupus is the least likely to be the correct diagnosis. It has been said, and there is much truth in it, that diagnosis is a species of guesswork based upon certain premises, and that he who has the most experience is naturally the most likely to be right in his conclusions. Therefore, as I have often said to my class, when speaking of this disease, the guessing, if practised, should be in the direction of the most likely disease, and if so they would rarely mention lupus. With all my opportunities of hospital and private practice of meeting uncommon and rare diseases, I see scarcely on an average more than 10 to 15 cases of lupus a year, and considering that a dermatologist's private practice is largely made up of chronic cases, this certainly seems a very small number.

As to prognosis of lupus, the disease when not advanced beyond one or two well-defined areas of small size is, in my experience, readily manageable; when not beyond the size of two or three inches in diameter, it will still yield to properly directed treatment; when advanced to the involvement, say of a third or more of the face, the prognosis is much less favorable, mainly for two reasons: One, that patients rarely persist sufficiently long in the treatment, and the other that even when apparently cured, recurrences are the rule. Those cases in which the region involves centers more or less about the mucous orifices, as, for example, the nose, are usually most rebellious, and recurrences frequent; the latter for the reason that in many of these cases the starting point is within the nose; it is difficult to eradicate from this situation, and some morbid tissue generally remains to set the disease again in motion.

The measures of treatment in this disease are very largely those employed in epithelioma, and already referred to, except that here the Finsen light has its particular field. In selected circumscribed cases, as also in epithelioma, complete excision is valuable, and can be so done as to leave but a linear scar; in larger areas excision immediately, supplemented by large skin grafting, has been advocated, but the resulting disfigurement is apt to be quite decided, and recurrences not unusual. In some of the cases, especially those of superficial type, the repeated use of a 25% to 40% pyrogallol salve is valuable, and as a preliminary to the subsequent use of the Finsen light, is quite frequently resorted to in Copenhagen. Curetting, followed by the pyrogallol salve, is also here, as in epithelioma, often a satisfactory plan.

The method employed by Hebra of repeated short cycles of treatment with a 4% to 8% arsenical salve has, in my opinion, great value, and if pushed as energetically as some of the methods now in fashion, could show some brilliant results, and in much less time. Unfortunately, it is quite painful, but leaves excellent and but slightly disfiguring cicatrices, as it is sparing in its action on healthy tissue. The röntgen ray acts admirably in some cases, and in a measure has shared

the honors with the Finsen method, and to some extent supplanted it. But we cannot say in a given case how much good it will do, and in some instances it seems to have but little influence; in others, only after considerable röntgen-ray reaction has been produced; and in others again, not till the danger point of röntgen-ray reaction has been passed. The Finsen method, by concentrated light filtered of its heat rays, is the method that has been most talked about in recent years.

On my visit to Copenhagen four years ago, I had the pleasure of seeing this method as practised by Finsen himself, and no one can question the brilliancy of his results. Good reports from his institute and from others who have been using his method, continue to appear; and this past summer at the International Dermatological Congress, held in Berlin, I saw 30 odd patients that had been brought over from Copenhagen to emphasize the good effects of this plan. The favorable results, and the excellent cosmetic effect, were well in evidence. Unluckily the method is slow, not more than an area of three-fourths inch in diameter being treated at a sitting of not less than an hour, and before the patient is cured, it may be necessary to go over the same area several times. In extensive cases this means a long time. Further, a trained attendant is necessary to see that the light is directed upon the proper point, and to hold a chambered lens heat strainer firmly against the skin. The pressure thus exerted further serves the purpose of pressing the blood out of the part, its presence being more or less of a hindrance to the deeper entrance of the curative rays. The apparatus is somewhat expensive. Now that the single lamp, known as the Finsen-Reyn lamp, has been devised, the expense of apparatus is no longer so great a bar, but the long time of exposure and the necessity of trained supervision remain. The principle of the Finsen apparatus is that it has several concentrating lenses; most of the others on the market lack this feature, but make up for it somewhat by the fact that the source of light can be brought much nearer to the part being treated, and a larger surface can be treated at one time. In its effects, however, the Finsen lamp, and the smaller Finsen-Reyn lamp, have not been approached by other lamps so far brought forward. In the past several years I have used a modified Finsen apparatus in some circumscribed cases, with good results; but in spite of the good effects, I am not able to escape the conviction that with some of the other methods mentioned I could have attained the same end in less time, but probably with not so good cosmetic result. It certainly has its advantages, and appeals to patients. As yet, however, as already remarked, no apparatus has been devised for private or limited use that equals the large Finsen and the Finsen-Reyn lamps, and one who wishes to give the Finsen method a proper trial and use, should employ either one or the other of these.

The other destructive disease of the skin that I wish to refer to is the late, limited syphiloderm, usually the so-called tubercular syphiloderm, and sometimes the superficial infiltrating gummatous syphiloderm. These cases are relatively numerous, and are often mistaken by general physicians as examples of lupus vulgaris. Among my most grateful patients are those who had a disfiguring area of tubercular syphiloderm of the face, of several or more years' duration, who had been variously treated with caustics, curet, and other methods, and without result, and finally falling into my hands found themselves entirely well in the course of several weeks to a few months under the very easy treatment with potassium iodid and mercury by the mouth. And this result, as you can well understand, not for the reason that I possessed any particular skill in the matter of treatment, as any tyro, with the diagnosis established, could have done as well, but merely due to the fact that I recognized its syphilitic nature. According to my observation, the practitioner places entirely too

much stress upon the presumed respectability of the patient, and consequently falls into error. A case in point coming under my notice recently, was one of an area of tubercular ulcerating eruption on the face of a woman—she was sent to my service at the Jefferson Hospital, with a note from her physician, asking for treatment by the röntgen ray, he regarding the case as one of lupus. It was immediately recognized as syphilis, and prescribed for accordingly; 10 days later she returned, and was already considerably improved, but the otherwise worthy and experienced practitioner wrote us again that he had sent the patient for röntgen ray, and "that it could not possibly be syphilis, for he had known the woman ever since she had been a child." In spite of this, however, the patient recovered completely in two months under the continued administration of the same antisyphilitic remedies. Another striking example came under my care some years ago, when the tubercular craze had seized us and when anything that looked like lupus meant for the patient tuberculin injections. This woman, apparently thoroughly respectable and of good social standing in the community, had had for several years a superficially destructive tubercular and nodular eruption involving a great part of the face and scalp, and had been variously treated by various physicians upon the assumption of lupus; and the end was reached when she, upon the advice of one, was placed in one of our hospitals and given a series of tuberculin injections, without the slightest reaction and without the slightest effect. She accidentally reached my hands finally as a patient, and inside of three months, under the usual simple treatment of potassium iodid and mercury, she was entirely well, but the numerous scars and consequent disfigurement still remain as indelible marks of the error in diagnosis.

I could multiply such cases, and I am sure every other special worker could do the same. The fact seems to be lost sight of by the rank and file of the profession that syphilis is not always a venereal disease, and that its presence does not always signify immorality on the part of the subject. Many married women contract the disease from their husbands; and frequently the early symptoms are so mild and slight as to escape notice completely, and the first symptom for which the patient may have to seek treatment is a late limited cutaneous manifestation, or possibly some obscure cerebral, spinal, pulmonary or other trouble due to the syphilis and the nature of which may never be recognized, unless one is awake to such possibilities. Again, extragenital chancres are not nearly so uncommon as most physicians think, and in some such cases the early symptoms being mild the nature of the late tubercular or gummatous eruption as well as its internal manifestations are often misinterpreted. Scarcely a year passes that I do not see as many cases of extragenital chancres as I see cases of lupus. In this country, as already remarked, lupus is so relatively rare that it is really wiser for one who has not been trained in dermatologic differences to view all cases presenting symptoms of lupus and tubercular syphilis as examples of the latter—and this in spite of the standing, sex, and calling of the patient, and to treat upon this supposition accordingly. One will be surprised to find under this rule how few mistakes would be made, how many cures effected, and how easily a reputation is gained. If mistakes are made in this way they would be rare, and could be readily corrected without detriment to the patient and without damage to the practitioner's reputation, it being understood that he had kept his opinion to himself. The older the patient too the less the chance of such a case being lupus, as the latter more commonly begins under the age of 20, and only rarely after 30. There are, it is true, some differential points in these two etiologically different affections—such as in syphilis the more rapid development, the often distinct segmental and serpiginous spread and configuration, the dark sluggish red,

ham, or copper-colored tubercles or nodules and the greater purulent discharge from the ulcerated surface; and in lupus the peculiar yellowish-brown, or apple-jelly colored tubercles or nodules, the slow growth, the firm scar tissue, the more frequent reappearance of the tubercles and nodules in the transversed or older part, and the other not infrequently associated tuberculous symptoms in the history of patient or family. But these distinctive appearances are not always available, for the resemblance is sometimes puzzling, and I confess that the experienced dermatologist must at times consider well, and sometimes long too, before he can feel sure. It may seem a presumption for me to discuss before a society of this character the matter of treatment of these late syphilitic cases, for we all know that the appropriate treatment is the so-called mixed treatment, but I should like, in closing, to refer to a few points. Potassium iodid, or in those of feeble digestion, sodium iodid preferably, is the remedy that has the greatest action as to rapidity in dispelling the eruption, but if the possibility of recurrence is to be reduced to a minimum, or one might say rendered impossible, mercury is not to be omitted; and in the continuance of the treatment for several weeks or months after apparent cure, the mercury should be given the more prominent part of the two, if not in fact, the whole role. In most of these cases too it is not necessary to exceed the dose of .32 gm. to .65 gm. (5 gr. to 10 gr.) of the iodid, three times daily; in exceptional instances it may be necessary to increase it to 8 gm. to 12 gm. (2 dr. or 3 dr.) three times daily. In rare cases, especially when, in my experience, the eruption is on the palm or involves the region of the nasal orifices, the iodid sometimes seems to have but little value, and chief reliance is in the mercury. And in some of these instances as well as in others, the mercury will only act when given by inunction or hypodermic injection, and sometimes then only when given in full dosage.

CHOLECYSTITIS.¹

BY

HOWARD LILIENTHAL, M.D.,

of New York.

Attending Surgeon to Mt. Sinai Hospital.

Cholecystitis represents nature's effort to rid the gallbladder of infection. The disease may be of all grades, from the mildest catarrhal variety to the severest suppurative or gangrenous form. It is usually associated with the presence of gallstones, but cholecystitis, even of very severe types, may exist without cholelithiasis. Indeed, it is not improbable that gallstones are practically always caused by changes in the bile, resulting from an infectious process.

Probably the commonest mode of entrance of the infection is by direct extension from the intestine, though instances of apparently hematogenous cholecystitis are not wanting. Only recently I saw an acute attack in a puerperal patient who was suffering from suppurative mastitis. She was a young woman whose previous history, very carefully taken, gave no hint of biliary disease. A few days after the incision and drainage of the mammary abscess there was rapidly progressive, but not sudden, acute abdominal pain and rise of temperature. On palpation, the tense, enlarged gallbladder could be plainly made out. Under treatment by calomel, the tumor gradually receded and the symptoms disappeared without jaundice. Naturally, one cannot exclude the possibility of calculous impaction of the cystic duct, although the absence of sudden colic would argue somewhat against this condition.

The two principal divisions of cholecystitis are the

chronic and the acute. The so-called relapsing form is much like the same in appendicitis; that is, a chronic disease with exacerbations, the pathologic changes never being replaced by normal anatomy. Some thickening of the cystic duct, with catarrh of the mucosa, persists, and frequently stones, themselves the result of infection, continue to irritate the viscus and tend to perpetuate the disease, often causing it to assume a most acute form on account of interference with drainage by the plugging of the cystic duct. In short, a true cholecystitis having once existed, a return to the normal is impossible, though conditions may be brought about which are perfectly tolerable and do not call for an immediate resort to surgery.

Chronic cholecystitis is nearly always characterized by a shrinking in the capacity of the gallbladder, with great thickening of its walls. If stones are present they are tightly hugged by the parietes, so that the cavity contains in addition merely a few drops of mucus or mucopus and the entire shape of the viscus is changed. A gallbladder in this condition is a constant menace to the patient, because of sequels, such as cirrhosis, malignant degeneration, and the other and more usual dangers of ulceration and perforation with abscess or peritonitis.

The actual function of the gallbladder is unknown. There have been various theories, none of which has been proved.

Certainly these chronically inflamed gallbladders do not functionate, and will never functionate again. They should be removed, just as any other useless and danger-threatening part of the body.

Biliary colic from gallstones is practically always associated with some degree of cholecystitis, though the infection may not be severe enough to cause fever. It seems to be true, however, that colic may exist without stones and without cholecystitis, on account of anything which impedes the free flow of bile beyond the cystic duct. Gastroduodenitis with swelling or plugging of the papilla, will cause colic, and probably even jaundice, without the presence of stones or cholecystitis, though naturally if the impediment persists, infection will occur. I have operated in several cases of cholecystitis, removing the thickened pus-filled gallbladder, in which there were no stones. This condition I have encountered twice in posttyphoid cases, and once when there was nothing to account for the infection. In the posttyphoid cases the characteristic bacilli were found in culture from the contents of the gallbladder.

Acute cholecystitis may be either primary, or it may be the result of an exacerbation in a chronic or subacute process. There is distention of the organ with pus, mucus, or mucopus, its walls become thickened, soft, and succulent, there are adhesions with neighboring parts, often the stomach, duodenum, or colon, and nearly always with omentum; later, without relief, there is gangrene, and then perforation. The gangrene begins in the mucosa, and finally affects the entire thickness of the walls. The area of necrosis may be very great, sometimes involving the whole viscus, and the operation of cholecystotomy, in which the fundus alone is opened, may afford no idea of the extent of the disease, especially when the peritoneal coat is unchanged. It is to this fact that I attribute the comparatively high mortality after cholecystotomy performed during an acute attack, the danger being greater than the apparently graver operation of removing the entire gallbladder. I have more than once been astonished on opening a recently removed specimen, to find a condition which would have been unsuspected had I been satisfied with a less radical procedure. The logical conclusion, then, is that in acute as in chronic cholecystitis, the removal of the offending organ is indicated, unless the patient is moribund or is suffering from some other very grave or necessarily fatal disease. The fact that I have performed this operation in 65 unselected cases with only two deaths, demonstrates the safety of the procedure, while

¹ Read at a meeting of the New York Medico-Surgical Society, January 30, 1905.

the subsequent history of the patients, some of them now dating back for more than three years, proves the operation to be a curative one. To be sure, it differs from appendicectomy because there may be associated hepatic disease, which is usually nonoperative and which may prevent a full return to health, but this is extremely rare in comparison with the number of individuals permanently relieved by the operation.

It is not my wish to trouble you with the technical part of this subject, but I will simply say that whenever there is icterus or the history of a recent icterus, I do not consider the operation complete without a thorough exploration of the hepatic and common ducts.

And now just a few words about the clinical aspect of cholecystitis. First let me emphasize the fact that the great majority of cases, even when severe, are not accompanied by jaundice. When icterus appears it may be either due to general sepsis with the same variety of hepatic involvement which we might expect in septic disease of any part of the body, or it may be caused by actual obstruction of the bile passages, whether by stone, mucus or great edema of some part of the common or hepatic ducts. In chronic cholecystitis, jaundice usually signifies calculus or malignancy.

Taking now the general picture indicating chronic cholecystitis, we have usually a history of repeated colic with periods in the interval of what the patient almost invariably describes as "indigestion." There is belching, distress on the ingestion of any except the simplest food, pain and tenderness usually ascribed to the epigastrium or a point just to the right of it. There is a boring, dull pain shooting into the back and into one or both shoulders. Colic may be rare, and in some cases absent, but the distress in the right epigastrium is present for longer or shorter periods, perhaps disappearing for a time, but usually recurring with or without an initiatory colic. There may be normal pulse and temperature, and on physical examination objective signs may be absent, although frequently there is rigidity of the right upper quadrant and some pain there on deep pressure. Slight enlargement of the liver is corroborative evidence but it is far from invariably present. If the test-meal shows nothing abnormal, and there is absence of other demonstrable disease to account for the symptoms, the working diagnosis of chronic cholecystitis may be established.

The acute form of the disease is nearly always ushered in by colic, whether due to stones or not, and there is a quick rise of temperature, often to a point as high as 105° F. or more, dropping within a day or even within a few hours to 101° F. or 102° F. There is a corresponding rise in the pulse-rate. The tongue becomes coated; there may or may not be chill, but vomiting is almost invariably present. The gallbladder rapidly fills and becomes extremely sensitive to pressure, although general abdominal rigidity, so common in appendicitis, is much less in evidence in cholecystitis. The enlargement of the gallbladder may become more and more marked for several days, while the acute sensitiveness to pressure may diminish but does not disappear. The pain extends into the back and into one or both shoulders, more often the right. Hepatic enlargement is quite common and if Riedel's tongue-like process of the right lobe is present, this may easily be mistaken for the gallbladder as it becomes more prominent with the distention of that organ. Then too, it should not be forgotten that by palpation *alone* it is impossible to be sure whether the structure under examination is the liver process, the gallbladder or the right kidney, or any two or all three. With a carefully taken history before us, however, an error of this kind is not likely to occur. Constipation is often present, perhaps because nine-tenths of these patients receive morphin early in the disease. If the case progresses toward gangrene, sepsis becomes marked and the tumor in the right side becomes larger through the adhesions and exuded lymph. Finally, when per-

foration takes place, there is, as in appendicitis, temporary relief with the formation of abscess, then a grave exacerbation as the peritoneum becomes further invaded.

As to treatment, acute cholecystitis is seldom, if ever, in such urgent need of operative interference as acute appendicitis. To be sure, one sees neglected cases in which delay would be fraught with the gravest danger, but if one has the opportunity to observe the disease from the beginning, there is little or no excuse for allowing things to come to such an acute crisis. Then, too, even in perforation, there is often more time before general peritonitis occurs than is the case with appendicitis, principally because in the recumbent position the space between the hepatic flexure of the colon, the lower surface of the liver, the right kidney and the abdominal wall, known as Morrison's space, will hold, without spilling, about a pint of fluid, thus acting for a time as a safety valve.

The pain in the beginning of cholecystitis is usually so severe that opiates must be administered. Poulticing and calomel should be the next steps. No food should be administered by the mouth, but small quantities of hot water or weak tea without milk may be given. If the patient's general condition is worse at the end of the first 24 hours, he should be seen by a surgeon, and I would here remind you that cholecystectomy is apt to be easier in the acute stage when the parts are softened by edema than in chronic cases with tough, cicatricial adhesions. Judging by my own work, I should pronounce the operation of cholecystectomy more difficult, but safer than that for appendicitis of an equally severe type, and I believe that there is far less to be gained by waiting for the interval.

A STUDY OF HOMOGENIZED CULTURES OF TUBERCLE BACILLI.

BY

RANDLE C. ROSENBERGER, M.D.,
of Philadelphia.

Assistant Professor of Bacteriology, Jefferson Medical College; Director of the Clinical Laboratory of the Philadelphia General Hospital.

(From the Laboratories of the Jefferson Medical College Hospital.)

The growth of human, bovine, piscum, or avian tubercle bacilli in bouillon, has a tendency to form a scum or pellicle, in the absence of which, under ordinary conditions, no growth is obtained. This pellicle may be started by floating a small mass of the transplanted culture upon pieces of cork (Coplin), or by using sterile oil for the float. This floating can be accomplished without either cork or oil, if great care is exercised not to wet the whole mass. To obtain what is called a homogenized culture, quite different technic is employed.

The first to call attention to this special cultivation of the tubercle bacillus was Ferran,¹ who recommended inoculating into a succession of bouillons successively poorer and poorer in sugar and glycerin.

Arloing² recommends for the preparation of cultures for the agglutination test, potatoes, which are placed in a tube containing a small quantity of a 6% solution of glycerin, just enough to touch the lower end of the potato. After inoculation, the tubes are kept in the incubator at 38° C. to 39° C. On every second day the tubes are tipped, so that by the inclination of the tube the glycerin solution is caused to flow over the culture on the surface of the medium. Under these conditions, growth occurs rapidly, the resulting masses of bacilli differing from those in ordinary cultures, in that they are soft in consistency, and easily broken up by a glass rod or by rubbing in a mortar. From these cultures, subcultures are made in veal broth, and submitted to daily shakings to keep the organisms separate one from another; but even in these preparations, it is impossible to prevent some clump formation. The majority of the

organisms are isolated, the fluid is turbid, with but little sediment. According to Courmont and Descos, the more numerous the transplantations, the better the resulting homogeneity. When the pseudotubercle bacilli are experimented with, a scum is likely to form in a few hours, so that repeated shakings are absolutely necessary. With the bacillus of human tuberculosis, as the film does not form until several days of repose, there is less trouble in obtaining homogeneous cultures.

Hawthorn³ recommends growing the tubercle bacillus in a medium consisting of peptone (Defresne) 20 gm., sea salt 7 gm., water 1 liter; neutral to litmus, but faintly acid to phenolphthalein.

Auclair⁴ gives the following technic for obtaining a homogeneous and at the same time a saprophytic form of the tubercle bacillus. The organism is sown on a beef bouillon containing potato, salt, sugar, and glycerin. At the end of 20 days it will be found that the previously clear medium has become slightly cloudy, without the formation of a pellicle, but later with a tendency toward the development of a deposit.

My experiments in obtaining homogeneous cultures of tubercle bacilli were made by using glycerin-agar and glycerin potato growths, and inoculating into a 5% glycerin bouillon. The agar preparations were made



Aberrant forms of the human tubercle bacillus from a culture three months old. (Homogenized preparation.)

originally from a homogenized bouillon culture. The method of inoculating the bouillon consisted in taking upon a platinum wire loop a small portion of the growth from potato and rubbing it thoroughly upon the side of the tube or flask. The bouillon was brought in contact with the growth by rotating the receptacle, thus washing off and at the same time disseminating the organisms throughout the medium. The culture was placed in the incubator at 37° C., and several times a day the flask was shaken to prevent the bacteria precipitating or forming a pellicle. The growth of the human tubercle bacillus was noticed as early as the third or fourth day, when turbidity of the medium was apparent. The cloudiness persisted and increased, and resembled vigorous cultures of *B. typhosus*. If the flask was not shaken a very granular and amorphous sediment formed. In all these cultures, in addition to the sediment, pellicle formation took place, and when this was shaken down another formed in a couple of days. In one preparation a third pellicle developed, though it was more scanty and delicate than the two previous ones. When glycerin agar was inoculated from a bouillon culture, growth was usually observed within five to seven days, the fully formed preparation was moist or creamy in appearance and consistency, and could be easily removed and readily spread upon other culture mediums. A perfectly homog-

enized preparation will remain turbid indefinitely, but eventually a sediment forms or a pellicle appears. I was also successful in obtaining a perfectly homogenized preparation of the human tubercle bacillus in plain bouillon at the temperature of the body and at ordinary room temperature. In the incubator, at body temperature, growth was abundant, and appeared as early as the fifth day, while at ordinary room temperature only slight turbidity was noticeable at the end of two weeks. The method of inoculation was the same as mentioned for the ordinary homogenized preparations. The appearance of cultures in plain bouillon was exactly like those in glycerin bouillon.

In homogeneous cultures of the human tubercle bacillus the morphology and microchemic reactions are but little different from growths upon blood-serum or upon glycerin-agar.

Auclair claims that the homogeneous tubercle bacillus is a strict aerobe; the elements longer and larger than the ordinary bacterium and actively motile. Hawthorn states that the motility of tubercle bacilli upon his special medium is most striking, and notes the presence of free spore-like bodies. Arloing maintains that the homogenized tubercle bacilli are motile, and from his description of these motile forms of the organism, Koch doubted the identity with his own bacillus. Loeb⁵ denies motility though the usual brownian movement is present. I was unable to demonstrate motility in any of the cultures examined, even in cultures only four or five days old. Brownian movement was evident in nearly all preparations. Marmorek asserts that homogeneous cultures, when young, lose their virulence, and in part their resistance to acids. In my experiments young homogenized bacilli resisted 25% solution of sulfuric acid just as markedly as preparations from an agar culture. In morphology the human tubercle bacillus was very pleomorphic, exhibiting short and long forms; some of the former were so small that they were almost coccoid, while the latter were filamentous in nature. Beaded forms were common, club-shaped bacilli and branched organisms were occasionally encountered. In cultures three months old, the individual elements were very long, 10 microns to 12 microns being an average size. Some were thin, others thick; some stained darkly, the remainder stained very faintly. Quite a few contained small, deeply-stained granules, which slightly exceeded the diameter of the organism itself. As many as eight of these granules were observed in a single element. This filamentous character was quite constant, the threads resembling closely those seen in streptothrices. Large, thick, irregularly staining or beaded forms were common in old cultures. Although the greater number of the organisms were isolated and ungrouped, there was a decided tendency to collect in small masses of from 6 to 12 or 15 elements. Five cubic centimeters of the homogenized bouillon culture inoculated into the peritoneal cavity of a guineapig, produced caseous nodules ranging in size from 5 mm. to 2 cm. Spreads made from these lesions contained numerous beaded, long, acid-fast bacilli.

Homogenized cultures were also made of *Bacillus tuberculosis piscum*, *Bacillus tuberculosis avian* as well as of Moeller's grass bacillus.

B. tuberculosis piscum.—The individual elements were pleomorphic. Small coccoid forms were abundant in young preparations, while suggestively filamentous forms were present in older cultures. The average length of the organisms was about two microns. Beading was also noticed, and in this form the bacterium stained less darkly than the other solidly staining elements. No clubbed bacilli were present, and although pairs were frequently observed, isolated bacteria predominated; the tendency to form in groups was not especially noticeable. They were amotile, although an active brownian movement was apparent. Resistance to 25% solution of sulfuric acid was still retained in old

cultures, though to a certain extent lost in very young growths.

B. tuberculosis avian.—Like the previous organisms, this bacterium was also pleomorphous. Very small almost coccoid forms were present; others were from 5 microns to 6 microns in length. The long forms showed a decided tendency to club formation, while a smaller, thin variety appeared as if fractured near the center, causing it to resemble a diplobacillus. Beaded bacilli but no filaments were present in young cultures, though the latter form was abundant in preparations six months' old. The tendency to form in groups was decided, although individual bacilli were present in every field. There was not the slightest brownish movement or motility of any kind noticeable in young or old cultures. Resistance to 25% solution of sulfuric acid was well preserved.

Moeller's Grass Bacillus, No. II.—This organism was taken as the type of the pseudotubercle bacilli. The individual elements in cultures two weeks old were short, stout, and oval; very few, if any, long forms, and no beaded or clubbed forms, were seen. Some bacilli were decolorized by 25% solution of sulfuric acid, while the greater number still resisted the reagent. An agar culture made from the homogenized preparation was of the color and consistency of cream. Spreads made from this growth contained many long and beaded forms, which were quite resistant to 25% solution of sulfuric acid.

BIBLIOGRAPHY.

- ¹ Soc. de Biol., 1897: Arch. gén. de Méd., January, 1903.
- ² Comptes Rend. de l'Acad. des Sci., 1898, Vol. xxii, p. 319.
- ³ C. R. Soc. de Biol., Vol. v, 1903, p. 398.
- ⁴ Arch. de Méd. Exper. et Anat. Path., July, 1903, p. 469.
- ⁵ Journal American Medical Association, May 23, 1903.

TYPHOID FEVER IN RELATION TO THE URBAN AND RURAL POPULATION OF THE UNITED STATES.*

BY

SENECA EGBERT, M.D.,

of Philadelphia.

Professor of Hygiene in the Medico-Chirurgical College.

In the preparation of a paper several months ago, my attention was attracted by the table (Fig. 1) and maps in the United States Census Report on Vital Statistics for 1900,¹ which show for each grand group or division, in the United States, the proportion in that year, of deaths from typhoid fever per 1,000 deaths from known causes. Had I been interrogated previous to that time as to the relative proportion of typhoid cases in city and country, I probably would have stated, as my belief, that the greater proportion of the typhoid fever cases occurred in our urban communities, especially as I already knew something of the very high sickrates and deathrates from this disease in many of the large cities of the country. That I would have been much in error, will be shown by this paper, as well as, I trust, some other points and lessons of interest to this assembly.

In order to make clear the meaning of the charts and data to be referred to in the discussion, it is necessary to preface a few remarks concerning the so-called "grand groups," into which the country has been arbitrarily divided by the census authorities. Quoting from the Report, "differences in climate, occasioned by meteorologic conditions, latitude, altitude and topography have

a marked influence on the mortality in different localities, which is also affected by the density and distribution of the population, by color or race, age, sex, and occupation, as well as by the liability to certain diseases in epidemic form. States, however, are political divisions only, and their boundaries are not fixed with reference to any of the agencies affecting the health of the population. The peculiar physical characteristics of different sections of the country which influence the mortality are, therefore, best shown by taking the county as a unit and grouping together the counties in each State having similar characteristics, forming what are specified as 'State groups.' State groups of generally similar physical characteristics are then grouped together, forming 'grand groups,' making a total of 21, as indicated on the accompanying maps and charts."²

Naturally, in determining the solution of the problem before us, the most satisfactory factors to employ would

I GRAND GROUPS	Total	Rural Cities			
		M	F	M	F
1 North Atlantic Coast	12.6	14.2	9.2	15.3	10.6
2 Middle Atlantic Coast	14.2	25.8	24.9	12.4	10.5
3 South Atlantic Coast	41.8	51.3	47.7	25.9	20.3
4 Gulf Coast	45.2	58.4	64.8	21.6	25.9
5 Northeastern hills & plateau	18.1	19.7	16.4	20.4	15.7
6 Central Appalachian	23.7	27.3	24.1	21.9	16.4
7 Great Northern Lakes	19.7	20.6	21.5	20.2	17.7
8 Interior Plateau	34.4	41.4	39.4	32.2	25.5
9 South Central Appalachian	63.3	66.3	62.6	44.5	38.7
10 Ohio River	43.6	52.6	55.1	30.0	28.6
11 Southern Interior Plateau	76.1	74.0	78.1	—	—
12 South Mississippi River	47.0	50.7	54.2	26.3	19.2
13 North Mississippi River	33.3	39.6	42.7	25.2	23.0
14 Southwest Central	69.5	68.4	72.3	38.1	33.3
15 Central	52.1	55.5	56.5	37.1	29.2
16 Prairie	35.7	35.4	36.4	33.2	33.7
17 Missouri River	37.9	43.8	44.2	31.1	25.3
18 Western Plains	43.4	50.1	45.3	28.3	23.5
19 Heavy Timber of Northwest	23.8	23.7	19.2	36.1	26.0
20 Cordilleran	31.8	30.4	37.1	12.6	20.0
21 Pacific Coast	24.1	26.0	33.5	23.2	17.4

Fig. 1.

be the deathrates in relation to the actual populations of the respective areas, but in the Census Reports, "deathrates in relation to the population are only given for the (so-called) registration areas," for the reason that "the enumerators' returns are too incomplete to afford any reliable conclusions as to the deathrates in relation to population," and that "the record of deaths obtained from registration sources (the records of various States and cities) supplied the only data that are sufficiently complete for the preparation of reliable mortality statistics."³

In fact, the "registration area" includes only the localities and districts "where the deaths obtained from registration sources constituted 90% or more of the total (registration plus additions from enumerators) and the additions from the enumerators' returns did not exceed 20% of the number reported by them." The registration area, as thus defined for 1900, included all the New Eng-

*This paper was prepared to be read at the Pan-American Medical Congress at Panama, January 3-6. As it became evident to the delegates on board the steamer Athos that they would necessarily miss most, if not all, of the meetings of the Congress in Panama, two meetings were held on board the vessel on January 4 and 5, at which this and other papers were read and discussed. Subsequently, at the meeting of the Congress in Panama, on January 6, the papers and discussions were accepted as part of the proceedings, and the papers ordered to be read by title at the closing meeting of the Congress on the following day.

land States, New York, New Jersey, Michigan, the District of Columbia, and 153 cities of 8,000 or more population in other States; or, as far as the "grand groups" indicated on our charts are concerned, "1 and 5 consist wholly of registration counties, 7, 8, and 19 are partly of registration counties, and in the other grand groups the only registration areas included are the registration cities located therein." "In the nonregistration localities "the only comparable data are those derivable from the incomplete returns of deaths, made by the enumerators,"



Map No. I.—Showing the grand groups.

but these "have a certain value in indicating the relative frequency of deaths from different causes,"⁵ and it is upon these that we must largely rely, since 86% of the total rural population of the United States and 13.3% of the total urban population (those living in cities of 8,000 or more) are embraced in the nonregistration area, or 62.1% of the total population of the country.

Considering now the question as to where typhoid fever is most prevalent, we find by referring to Fig. 1



Map No. II.—Relative proportion of deaths during the census year 1900, from typhoid fever per 1,000 deaths from known causes.

that the incidence of this disease is apparently greater in districts essentially rural, and not in those which include the great cities, many of which latter are known to have high deathrates from typhoid fever, and all of which have water-supplies which may, if not properly cared for, serve as common carriers of infection to their enormous populations.

The demonstrations of this fact are made more striking by the graphic representations of Figs. 2 and 3, in the latter of which the grand groups have been some-

what changed in their order so that there may be, for our purpose, a more logical and compact geographic arrangement and a better balancing of populations.*

Combining the grand groups into four main classes (as indicated in Fig. 3) certain facts are at once evident: (1) That Class A, comprising the North and Middle Atlantic and Central Appalachian regions, the northeastern hills and plateaus, the Great Northern Lake region and the Interior plateau, has a lower deathrate from this disease than that of the entire country, although it contains many of the great cities, including New York, Chicago, Philadelphia, Boston, Baltimore, Pittsburg, etc.; (2) that Class B, comprising practically all of the States of the South and Southwest and with an essentially rural population, has a high deathrate, averaging more than twice, if not three times that of Class A, and that in certain of the grand groups in this class the rate is excessively high; (3) that Class C, which takes in the Ohio, North Mississippi and Missouri River belts, the central and prairie region and that of the western plains and the heavily timbered region of the Northwest, has a deathrate but slightly greater than the average for the country, though higher than that of Class A, and (4) that of Class D, the far West, has also a fair rate, though map No. II shows that there is an area in the newly settled farming section of Washington that threatens to be a focus of danger for the surrounding territory. Fig. 4 shows the relative population of

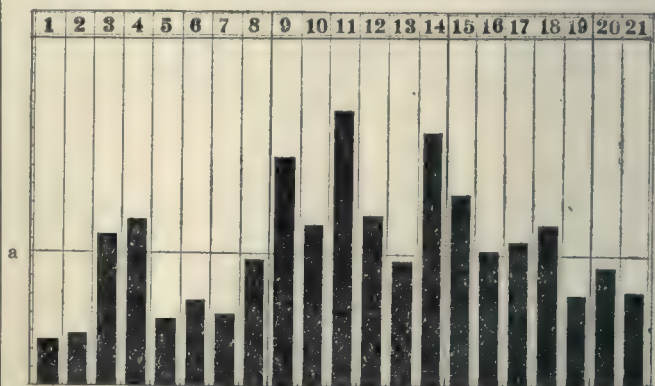


Fig. 2.—Number of deaths from typhoid fever per 1,000 deaths from known causes. (The horizontal line in this Fig. and in Fig. 3 indicates the relative proportion for the entire country.)

the respective grand groups and classes, and Fig. 5 the relation of the urban to the rural population in each, this being also illustrated for the respective classes in Fig. 6.

It should be remembered, however, that the population indicated as urban on Fig. 5 represents only that of the registration cities; but as the population of the nonregistration cities (of 8,000 or more) is less than 4.4% of the total population of the country, Fig. 5 fairly represents the relationship between the urban and rural populations. And, even if all of the nonregistration cities were embraced in Class B, the latter would still have the rural population preponderating over the urban to a greater extent than any of the other classes.

Lastly, Fig. 7 shows for males and females respectively, the difference in the incidence of typhoid fever, as shown by the number of deaths from it per 1,000 deaths from known causes, in the urban and rural population in each of the grand groups. The data thus graphically presented unmistakably demonstrated that the disease in question, common as it is in many of our cities, is a far more serious scourge to the rural population, which embraces two-thirds of the total of the entire United States.

*Grand group 7, including, as it does, the area along the shores of the Great Lakes, might apparently have been included in Class C, just as well as in Class D, but it will be evident that such change would not affect our deductions, while the arrangement adopted keeps the large cities in the same class.

Should anyone raise the objection that a comparison based upon the number of typhoid deaths per 1,000 deaths from known causes is not the same as one considering the typhoid deathrate per 1,000 of population, and that, if it were possible to determine the latter with sufficient accuracy for each district, it might show a heavier incidence of the disease in the areas comprising the large cities with their enormous populations, I would note that the variation in the number of typhoid deaths per 1,000 deaths from known causes cannot differ much relatively from that of the typhoid deathrate per 1,000 of population, since less than 4% of the deaths

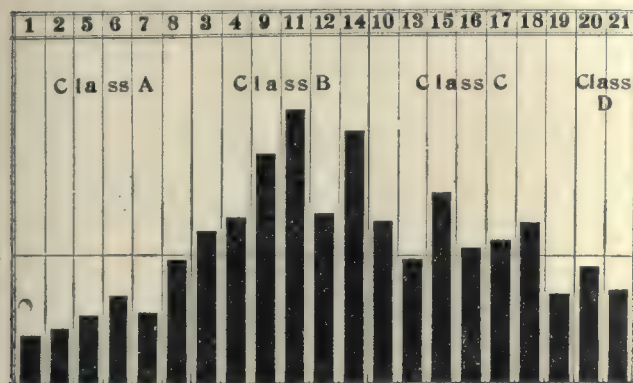


Fig. 3.—Number of deaths from typhoid fever per 1,000 deaths from known causes.

occurring during the census year were due to unknown causes and also, because the preponderance of total population in Class A over that of Class B is not sufficient to overbalance the great difference in the two classes as to the number of typhoid deaths per 1,000 deaths from known causes. Thus, while the latter rate is 35.4 for the whole country, it is only 19.2 for the registration area and considerably less than this for the registration States which, as stated, are comprised in grand groups 1 and 5, and in parts of grand groups 7, 8 and 9.

What, then, are the conclusions to be derived and the lessons to be learned from these statistics that we have

supplied from private shallow wells or cisterns, rather than from a common reservoir, artesian well or spring. And though we do have at times impressive examples of the liability to danger from large public water-supplies not properly safeguarded, as occurred recently at Ithaca, N. Y., and Butler, Pa., yet the risk is still greater and the actual danger is more persistently at hand when the members of a community are taking almost the entire supply of water from shallow wells which are receiving the drainage from neighboring cesspools and other sources of pollution. For almost as certainly as we find a household using a private well located in convenient proximity to the house, so too do we find the familiar outhouse with its reeking abominations also conveniently located, and thus too near the well. Moreover, the danger is multiplied as the village increases in size, for then wells and cesspools are brought closer one to another and the entire body of ground water supplying the wells is increasingly liable to be polluted beyond the safety limit or to become at any time the common carrier of infection.

We know now that many persons, recovering from typhoid fever, may carry the infective germs about with them for a long time, even many months, disseminating them daily in the urinary as well as fecal discharges. And we know also that typhoid fever is so universally prevalent throughout the entire country that, as Professor Vaughan, of the University of Michigan, stated in his



Fig. 5.—Proportion of urban to rural population. Black represents the urban and white the rural population.

oration on "State Medicine," before the American Medical Association, in 1900, "the chances are that if a regiment of 1,300 men should be assembled in any section and kept in a camp, the sanitary conditions of which are perfect, one or more cases of typhoid fever would develop within eight weeks after assembling." Nor should we lose sight of the fact that three cases occurring simultaneously in a town of 1,000 population is just as grave an epidemic as 3,000 cases at one time in a city of a million inhabitants, with the danger of extension the greater and the means of controlling infection the less in the former community.

I would not have you believe that I am endeavoring to cast undue blame upon the parts of the South and Southwest where the charts show this disease to be most prevalent. Conditions differ only in degree there from those in the North, East, and West. Comparatively, there are more small communities and fewer large ones, and the people have not as yet learned so well the lessons of modern hygiene. Fig. 7 shows that, with one or two exceptions, there is a greater incidence of the disease in the rural portion of each grand group. Moreover, that portion of the country which is included in Class B and part of Class C, has not yet appreciated the reflex influence of a thorough system for the registration of vital statistics. It is interesting to note that

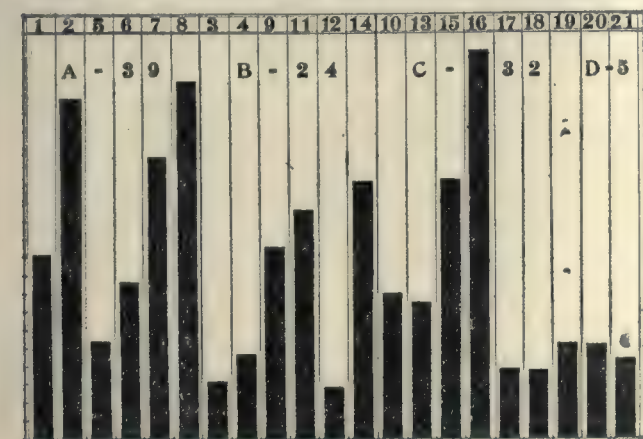


Fig. 4.—Percent of total population.

been considering and that relate to the entire population of the nation? In endeavoring to determine the reasons for the preponderance of this disease in the essentially rural groups or area, we must remember that all cities and towns of less than 8,000 population are classified with, and that they collectively make up a large, if not the greater part of, the so-called rural population. It may also be asserted as a general rule that the probability of a community having a pure and well-cared for public water-supply will be in direct relation to its size, and that the chances are that in the smaller hamlets and villages the aqueous needs of the inhabitants will be

according to the Census Report, "In comparison with 1890, there was a decided decrease in the deathrate from this disease in all the registration areas, the decrease being most marked in the cities in the nonregistration States, where it amounted to 25%." This is probably because the registration States had already achieved considerable success in preventing the disease before 1890. One thing, however, is certain, and that is that the experience of the last two census periods shows that the adoption of proper registration methods will be quickly

join hands with all progressive citizens, but be the first to urge the improvement, purification and care of public water-supplies, and should likewise use every reasonable means to induce those depending upon private sources, whether in town or country, to protect themselves against the danger of infection.

4. That it is likewise the duty of the members of the profession to help to secure for their respective localities and States, uniform and satisfactory methods and laws governing the registration of vital statistics, not only because these are direct agents for the increase of sanitary information and knowledge, but because they also always react to bring about marked improvement in the sanitary conditions of the people supplying the statistical data.

Finally, although my remarks have of necessity been confined to the consideration of certain conditions in my own country, and though I am not informed as to the extent of similar conditions in the other countries here represented, I trust that the conclusions stated are capable of general application and that they may serve to forward the crusade against this preventable disease, which, as experience shows, can be effectually lessened in its prevalence and dissemination by the careful, systematic and thorough application of wellknown and well-tried sanitary principles. For the discussion on this paper, see *American Medicine*, February 18, 1905, p. 262.

REFERENCES.

- ¹ United States Census Report on Vital Statistics, Part I, p. cxlviii and Plate No. 14.
- ² *Ibid.*, Part I, p. cxlix.
- ³ *Ibid.*, p. xi.
- ⁴ *Ibid.*, p. cxlix.
- ⁵ *Ibid.*, p. cxix and xi.

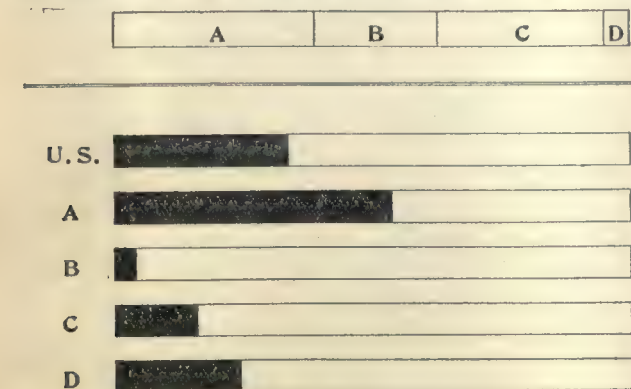


Fig. 6.—a. Relative population. b. Proportion of urban to rural population.

followed by a decided improvement in the sanitary status of the district concerned.

Having thus considered the facts and the problem before us, may we not agree upon the following conclusions:

1. That, although proper education in sanitary matters is essential and necessary throughout the whole country, it is especially important in so far as it relates

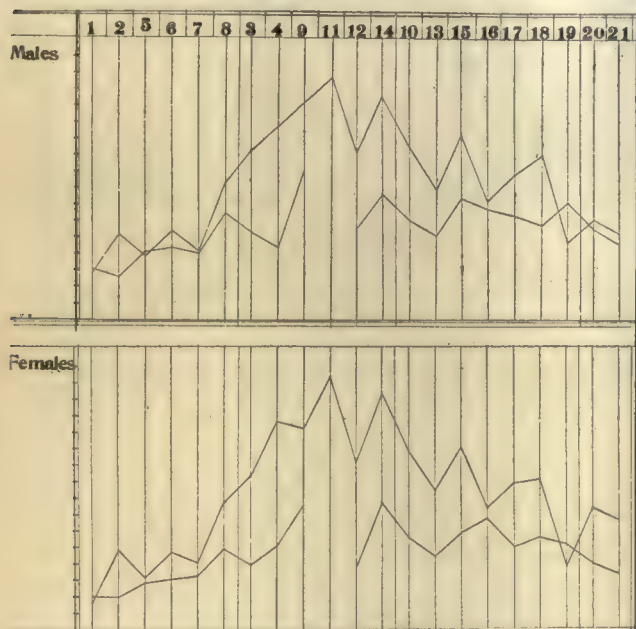


Fig. 7.—Comparison of urban and rural deathrates. The upper line represents the rural deathrate.

to the causation and dissemination of typhoid fever in the localities particularly indicated by the charts.

2. That it is the duty of the medical profession in these particular localities not only to do all they can to educate the public along these lines, but also to impress their typhoid patients with the necessity of the utmost care as to disinfection, both during the illness and long after the convalescence.

3. That the medical practitioners should not only

A CURE BY OPERATION OF AN INTRACTABLE PRONATED FOOT, IN WHICH THE HEAD OF THE ASTRAGALUS HAD BEEN ABDUCTED AND FIXED IN THIS POSITION BY BONE UNION AT THE ASTRAGALOFIBULAR ARTICULATION.

BY

MICHAEL HOKE, M.D.,

of Atlanta, Ga.

Orthopedic Surgeon to the Presbyterian Hospital, and Tabernacle Infirmary.

Three cases of this type have come under my observation. All were intractable before the operation, and in all cure was obtained by the simple operation mentioned.

The history of one case is given. The histories of the others were so nearly parallel to this one that the details of them would add nothing. This case is reported in order to call attention to the fixed position of the astragalus and the perfect recovery after it was released.

Miss B., aged 26; occupation, clerk. She stands most of the day. Her past history is negative. There never has been any inflammation in the ankle. The trouble began when she was 19. The feet became easily tired. The sole was painful. This lasted six weeks. She stopped work. She got well. Afterward there were several attacks which rest relieved for a time.

In the last year there has been some pain constantly in both feet around the outside of the ankle, through the instep, and in the left foot at the attachment of the anterior tibial. The pain has been worse toward the end of the day. Some days it is severe, again it is slight. The calf of the right leg has ached.

Examination.—Both feet are pronated. The right foot is the worse.

Right Foot.—There is much valgus rotation of the os calcis and abduction of the fore-foot. Plantar flexion and adduction are both much limited. The foot can be plantar flexed just a little beyond a right angle to the leg. The foot cannot be adducted to a straight line with the leg, and when adducted the head of the great metatarsal rises. When adduction is attempted the peroneus longus becomes spastic. The tendons of the foot are shortened on the outside of the front of the ankle. The fascia is also shortened. The foot cannot be dorsally flexed without abduction of the fore-foot.

Left Foot.—No spasm. The foot is mobile. Manipulation

under ether and plaster were advised preparatory to other treatment.

The patient could not spare the time for this treatment. Plates were applied and exercises prescribed as an alternative. These measures gave some relief. She was seen from time to



Fig. 1.

time for about a year. The left foot recovered functionally. It remained slightly pronated. The right foot still pained her a good deal. Examination of the foot showed it about as before. See Fig. 1.

Manipulation under ether was done. When the patient was under the anesthetic there was great resistance to the correcting effort. With the greatest force it was impossible to produce the desired overcorrection. With great force adduction to a straight line with the leg was the best that

could be done. When the foot was abducted the head of the great metatarsal still rose up. It was impossible to plantar flex the foot to the normal degree (impossible to plantar flex the astragalus). This being impossible the foot was explored through an incision over the ankle-joint in front of the external malleolus. The astragalus was immovable. Its head was abducted. The external malleolus was attached by bone union to the astragalus where the two articulate. This was the cause of the fixed position of the astragalus. Friction had caused the union.



Fig. 2.

The plantar and dorsal flexion had taken place in the mediatarsal joint and between the os calcis and astragalus. It was easy to liberate the astragalus from its fixed position. As soon as it was released, plantar flexion and adduction could be executed to the normal degree. The foot was put up in plaster in the strongly adducted and plantar flexed position. Subsequently proper shoes, exercises, and manipulation restored the foot's function. Fig. 2 shows the present position of the feet when standing. The patient is now a nurse. She has no pain. The motion in both feet is normal.

The fixed position of the astragalus was not detected at first.

This case, and the other two cases similar to it emphasize the necessity that, in the examination of pronated and flat feet, one should palpate in front of and over the outside of the ankle-joint, to determine if the astragalus moves as it should. Should it be immovable it should be released by operation as I have described.

The Public Health Bill of the British Medical Association.—The main objects are to insure that none but those properly qualified shall be appointed as medical officers of health or sanitary inspectors and to give to all such officers and inspectors similar security in their tenure of office to that enjoyed by poor-law medical officers and metropolitan medical officers of health. As the law stands, no qualification is required for a sanitary inspector except in London; and, as a general rule, a medical officer of health or sanitary inspector is appointed from year to year only and thus has no true security of tenure. Poor-law medical officers and metropolitan officers of health are not appointed for limited periods only and are removable only by, or with the consent of, the local government board.

SPECIAL ARTICLES

SPONTANEOUS COMBUSTION.

BY

JOHN KNOTT, A.M., M.D., CH.B., and D.P.H. (Univ. Dub.);
M.R.C.P.I.; M.R.I.A., etc.,
of Dublin, Ireland.

The fact that the occurrence of spontaneous combustion of the human body is still admittedly received as an article of pathologic faith by some "authorities" on medical jurisprudence, and treated with respect by leading periodicals of our current medical literature, raises doubts in the minds of some others regarding the reality of the intellectual progress of the human race. The physical facts of which the analogy would appear to give a tinge of likelihood—as well as a fairly plausible explanation—of such an accident appear to be as follows: (1) The known spontaneous combustibility of some chemic elements and compounds at comparatively low temperatures; (2) the known inflammability of the intestinal gases and of those sometimes produced by decomposition in the pleural and peritoneal cavities and in the connective-tissue spaces; (3) the peculiar inflammability of alcohol, ether, etc., which some persons are prone to make use of in large quantities; (4) the great inflammability of fats, oils, etc., the abnormal increase of which in the human body is not an infrequent accompaniment of the chronic habit of over-indulgence in inflammable beverages; and (5) the reputed proneness of certain animal products and also of imperfectly dried grass (and other vegetables) when piled up in a heap to take fire spontaneously. Preceding all these, and tingeing the atmosphere of opinion with the requisite hue which gave easy transmission to irregular flashes of misleading illumination, were the occasional observations and reports of the weird phenomena of electrification and phosphorescence; which were, of course, utterly inexplicable in the light of the science of the older centuries. Also, the discovery of inflammable and explosive compounds with the increase of chemic knowledge; mostly, of course, hit upon by the merest accident, and as a result of the mingling of two or more forms of apparently inert matter. Medical (and alchymical) writers were familiar with *ignes lambentes*, but knew not their why or wherefore; the elevated temperature, the violent effervescence, the spontaneous combustion—or even explosion—produced by the mingling of two liquids, was occasionally placed on record, but without any account of the molecular rearrangements which produced such uncanny phenomena. The age of the Renaissance necessarily bubbled over with such items of knowledge. *Ignes lambentes* were known to the learned Eusebius Nieremberg; they resulted from friction of any or all of the limbs of the father of the Emperor Theodoric; and the celebrated Bartholin records a corresponding property of the cutaneous surface of Charles Gonzaga, Duke of Mantua. The critical colossus of his generation, Julius Caesar Scaliger, knew of another case. The alchymico-astrologico-medical philosopher and mystic, Jerome Cardan, tells his readers of a Carmelite monk, whose head flashed forth sparks of light whenever he tossed his cowl on his shoulders. Ezekiel a Castro, "a famous Jew, and afterward a Christian," wrote a treatise on the subject of *Ignis lambens*, of which the text had been furnished by the case of the Countess Cassandra Buri, of Verona, who, "when she rubb'd her arms with a cambrick handkerchief, all the skin shined with a very bright light." The phenomenon was exactly similar to that recorded by Eusebius, of Maximus Aquilanus. Licetus tells us that he knew a bookseller of Pisa, by name Antony Cianfio, who, "when he shifted, shined all over with great brightness;" and mentions another case, that of Francis Guido, a civilian, of which he had been told by his father. The famous Jesuit, Athanasius Kircher, has related the particulars of his visit to a subterranean grotto at Rome, where he "saw sparkles of fire evaporate from the heads of his companions, grown warm by walking." Father Alphonso d'Ovale told his contemporaries of analogous phenomena, which he had witnessed on the summits of the highest mountains of Peru and Chili, where he found that "both men and beasts there seem shining with the brightest light from top to toe." Boyle received from Mr.

Clayton a letter forwarded to him by a Colonel Digges, which contained an account of a "Strange Accident." The document reads as follows:

Maryland, Anno. 1683.

There happened, about the month of November, to one Mrs. Susanna Sewall, wife to Major Nic. Sewall of the province aforesaid, a strange flashing of sparks (seem'd to be of fire) in all the wearing apparel she put on, and so continued till Candlemas: And, in the company of several, viz., Captain John Harris, Mr. Edward Braines, Captain Edward Poulson, etc., the said Susanna did send several out of her wearing apparel; and when they were shaken, it would fly out in sparks, and make a noise much like unto bay-leaves when flung into the fire; and one spark litt on Major Sewall's thumb-nail, and there continued at least a minute before it went out, without any heat: All which happened in the company of Wm. Digges.

To this letter Mr. Clayton had added the following supplemental information:

My Lady Baltimore, her mother-in-law, for some time before the death of her son, Cæcilius Calvert, had the like happen to her, which has made Madam Sewall much troubled at what has happened to her.

They caused Mrs. Susanna Sewall one day to put on her sister Digges's petticoat, which they had tried beforehand, and would not sparkle; but at night, when Madam Sewall put it off, it would sparkle as the rest of her own garments did.

I have already referred to one of the cases mentioned by the celebrated Bartholin, of Copenhagen. He quotes a number of other instances, both from his own observations and the records, written or spoken, of other reliable witnesses. He refers to the case of Countess Buri, of Verona, on whom he conferred the epithet of *Mulier Splendens*; and indicates the peculiar phenomenon which she displayed in the striking words: "Ut quotiens leviter linteo corpus tegerit; scintillæ ex artubus copiose prosiliant, cunctis domesticis conspicuæ, non secus ac si è silice excuterentur." He, indeed, not only collected a series of such natural curiosities in his "Anatomical Histories," but wrote a distinct treatise, which bears the title of "De Luce Animalium," in which he proved, to his own special satisfaction, if not to that of all available readers, that "Light is connatural or innate to all, as well vegetables as animals." In the year 1675 there was published by a Dr. Simpson a "Philosophical Discourse of Fermentation," which he dedicated to the then juvenile Royal Society. The author discourses at length on the phenomenon of light reflected by animals on the "frication" or "pectation" of their surfaces, especially of the more hirsute portions thereof. He instances the "combing of a woman's head," the "currying of a horse," and the "frication of a cat's back." True to his hobby of "Fermentation," whose virtues he had undertaken to defend against all comers, he explained all such luminous phenomena by its principles of acidum and sulfur, which were the fundamental causes of all such "lucid effluvia in animals." Some 10 years later, Rev. Henry Miles, D.D., F.R.S., made a communication to the Royal Society, containing "Observations of luminous emanations from human bodies, and from brutes, with some remarks on Electricity." This scientist, as the expert reader will probably have surmised after perusal of the title, believed himself to have ridden far beyond the advance guard of his generation—on his hobby of electricity, to whose properties he would, of course, refer all such mysterious phenomena of luminosity.

The surmise would naturally be entertained by the average observer that if such flames appeared harmless it was only for want of the appropriate fuel. Peter Bovistean asserted that he knew of a case in which "such sparkles reduced to ashes the hair of a young man." Johannes de Viana, in a treatise, "De Peste," describes how "the wife of Dr. Freillas, physician to Cardinal de Royas, Archbishop of Toledo, sent forth naturally, by perspiration, a fiery matter, of such a nature, that if the roller that she wore over her shift was taken from her, and exposed to the cold air, it immediately was kindled, and shot forth like grains of gunpowder." Ezekiel à Castro, to whose work, "De igne lambente," I have already referred, mentions a "famous instance of Alexandrinus Megetius, a physician, who, from the vertebra of the coxa, after great pain, relates how fire came out, which burned the eyes, as Simplicius and Philaseus, eye-witnesses, did attest." In his interesting collection of "Medical Wonders," Marcellus Donatus quotes the Saxon history of Albertus Krantz, who related that, "in the time

of Godfrey of Bologne, his Christian war, in the territory of Niverva or Nivers, people were burning of invisible fire in their entrails, and some had cut off a foot or an hand where the burning began, that it should not go further." This strange record is, of course, of a period (and in connection with public movements of a type) usually associated with mystery or miracle, or a combination of both. From the critical standpoint it is most striking to find the famous scientist, Peter Borelli, detailing instances of "effluvia" which emanated from the human body, producing not only light, but actual fire. One of his "Observations" is, "that there was a certain peasant, whose linen, hempen thread, etc., if laid up in boxes, though wet, or hung upon sticks in the air, did soon take fire; which hath been seen by a great number of spectators." It is less surprising to those who are acquainted with the history of scientific progress to find the celebrated Lord Chancellor Bacon commenting (with his usual scientific discrimination) on the fact that he had himself seen "a woman's belly sparkling like fire;" and a member of the Royal Society, in 1745, assuring a meeting of that learned body that "truly such flames would often rise in us, if the natural moisture did not quench them"—a philosophic view of the physics of the human economy which he was able to corroborate by the venerable authority of Lucretius himself:

Poscunt humorem, glomerataque multa vaporis
Corpora quæ stomacho præbent incendia nostro
Dissupat adveniens liquor, ac restinguit, ut ignem:
Urere ne possit calor amplius aridus artus.

The significance of such observations was also supposed to receive further confirmation from another case reported by Borelli, in which he gravely informed his readers that he had seen a man vomit bile, which, after its ejection, "boiled like *aqua fortis*;" in which connection he also relates how he "was told that a woman vomited flames in the point of death," and quotes Eusebius Nierembergensis who had related "how fire came out of the privy parts of a woman," and further affirmed that "such accidents did often happen in great drinkers of wine and brandy." In presence of such a series of items of scientific testimony as the foregoing—all of whose constituents seem to have been allowed to pass the critical scrutiny of the acknowledged judges and ordeals of the age—we should not feel very much surprised on finding Paul Rolli, F.R.S., stating, before a meeting of the Royal Society in London (June 20, 1745), that:

After all this I say that a feverish fermentation, or a very strong motion of combustible matters, may rise in the womb of a woman, with such an igneous strength that can reduce to ashes the bones, and burn the flesh.

And two such cases are referred to as known at that date; one had been reported in the "Acta Medica Philosophica et Hafniensis," of 1673; the other was quoted by Marcellus Donatus in his treatise on "Medical Wonders."

1. The discovery of the element phosphorus and the study of its properties, with the fact of its earliest known sources having been human urine and bone, undoubtedly provided the original data for an attempt at the formation of a physical theory of spontaneous combustion of the human body. The unexampled facility with which the new body underwent oxidation—with the accompanying display of heat and flame at even moderate temperatures, and the gradual (but very obvious) transformation into a form of "dust and ashes" at even low ones—formed a strong item of presumptive evidence which tended to remove all doubt as to the possibility of the destruction of the human body by flames arising within itself, and without external aid. Those who are familiar with the effective display with which a chemist conjurer can carry out the laboratory experiment of the genesis of phosphureted hydrogen, and the graduated succession of explosions with which its bubbles burst into flame as they escape from their cold water bath, and form an esthetic exhibition of successive white smoke rings, gradually increasing in diameter as they ascend toward the ceiling with a regularity suggestive of the parallel sections of a great inverted cone, cannot fail to appreciate the effect which such a demonstration of the uncanny powers of Nature must have had on the minds of the uninitiated observers of the older centuries, when faith and awe were immeasurably more abundant than they are in our own

materialistic age. The phenomenon of the "will-o'-the-wisp" (*ignis fatuus*) of marshy regions is, of course, coeval with the formation of the earth's surface as we know it; and must, necessarily, have been observed by prehistoric man. That of "St. Elmo's fire" had always been observed by those who went down into the sea in ships. The "Bologna stone" began to occupy the critical attention of the curious in matters physical about the same time as did the question of the spontaneous combustibility of the human body. The "phosphorescence" of the sea, and of fish removed therefrom, was, of course, always known.

2. Further apparent corroboration of the idea of the actual or potential inflammability of the constituents of the interior of the human body was offered by the discovery of the combustibility of the gases of the gastrointestinal canal, which was made for the first time, we are told, by Vulparius in 1669, who was then Professor of Anatomy at Bologna. The description of his experiment has been transmitted to us as follows:

Tie the upper orifice of the stomach of an animal with a string; tie also its lower orifice; then cut it above and below the ligatures, and press it with both hands, so that it swells up on one side; which done, let the left hand keep it so that the swelled part may not subside; and, with the right, having first, at an inch distance, placed a candle, open it quick with an anatomic knife, and you will see a flame there conceived, coming out in a few seconds of time; and such a flame may, by the curious, be perceived not only in the stomach, but also in the intestines.

Van Helmont (1577-1644), who is regarded by many as the earliest pioneer of modern chemistry, was keenly discriminating in the matter of "Flatus's, or Windy Blasts in the Body." One of his items of information reads as follows (English version of J. C., 1682):

Belching, or a flatus originally in the stomach, even as also the flatus of the ileon, do extinguish the flame of a candle. But a dungy flatus which is formed in the utmost bowels, and breaks forth through the fundament, being sent through the flame of a candle, is enflamed in flying through it, and expresseth a flame of divers colours, like a rain-bow. But that which is formed in the ileon or slender bowel, is never inflammable, is often without smell, unless it bring down the mixture of another with it, it oft-times strikes through, being tart, sharp, and brackish in the fundament. Therefore flatus's or windinesses, do differ in us, in their matter, form, place, ferment, properties, and so in their whole species. Neither have flatus's less, their own generic and specific varieties, than the bodies from whence they proceed. For flatus's are in nowise air.

Licetus also refers to the combustibility of intestinal gas in a way which shows that the experiment to which Van Helmont alludes in the foregoing quotation was well known in his day:

Cum chirurgus candenti ferro excrecentias carneas adolescenti succubo circa nates inureret, flatus ex ano in ferrum ignitum irrumpens flammam repente concepit, non sine astantium risu.

He refers to this fact, and also to the experiment of Vulparius quoted, as items of evidence corroborative of the popular belief in the existence of lamps whose flame never went out. Such "eternal" lights were said to exist in many subterranean vaults and grottoes, where they were occasionally found. The relationship between the mysterious fulgurations of the thundercloud and the

Extremo ructus qui venit à barathro,

of Martial's wellknown epigram, formed the inspiration of a learnedly facetious enigma of the famous Julius Cæsar Scaliger:

*Ima à sede ruens, cognatus fulminis alti,
Summani videor ritè venire manu.
Vicini fugiunt, quatuntur tecta cachinnis
At si mutus ero, jurgia sæpè cio.*

Paracelsus, the "Luther of Medicine," in his scheme of reformed physiology, makes out the stercoraceous contents of the intestine to consist wholly of sulfur and wind. According to Johann Conrad Peyer, whose name has become immortalized in connection with the "patches" of agminate glands of the nether ileum:

Flatus à spiritu nitro-aërio derivari posse . . . qui quatenus vi expansiva insigni præditus cum excrementorum particulis sulphureo-salinis impuriorebus ac effervis coëundo, illas tamdiu exagitat donec quoad minima contrite & resolute in

exhalationum volumina commigrent, quæ inde per anum subinde proruentia, ob particularum sulphurearum & nitro-aërearum, quoddam velut torrente erumpentium agmen instar pulveris pyrii admota flamma celerrimè deflagrat.

The occasional luminosity of the cutaneous excretions of the human body in certain morbid conditions had been noticed by some observers. In his very powerful description of the horrors of the plague, Lucretius refers to:

Sudorisque madens per cutem splendidus humor.

3. The noncombustibility of the ordinary gases of the stomach and upper part of the intestinal tube, contrasted with the ready inflammability of those of the lower bowel, left scope for the exercise of alcoholic inflammability in establishing a uniformity of this property throughout the whole of the gaseous contents of the digestive tube. Accordingly, we find this development attained in the clinical experience of Sturmius, who informed the medical world of his day that: "Often in the northmost countries, flames evaporate from the stomachs of those who drink strong liquors plentifully."

And he illustrates this general statement by adding that:

About 17 years ago, three noblemen of Curland, whose names, for decency sake, I will not publish, drank, by emulation, strong liquors; and two of them died scorched and suffocated by a flame forcing itself from the stomach.

And as a matter of fact, the entire history of "spontaneous combustion" is almost exclusively made up of the cases of persons who had been in the habit of indulging in the excessive use of alcohol. The extreme inflammability of that water-like liquid lent a kind of *prima facie* possibility, if not probability, to the statements of its occurrence.

4. As chemic knowledge increased, the constitution of fats and oils was gradually investigated, and the relationships of those derived from the animal and vegetable kingdoms respectively became revealed to the inquiring scientist. The relatively high degree of inflammability of fatty and oily substances had, of course, been familiar to humanity ever since the earliest attempt to construct the primitive candle or lamp, and the auspicious occasion on which the first holocaust was offered by the priests of Baal. And the high-class scientific reasoning which, in the year of grace 1745, was based upon such knowledge and received in evidence before the highest tribunals is forcibly illustrated by the remarks of Rolli in this connection, made at a meeting of the Royal Society in London.

The acid particles in our bodies are much united with the fat and oily parts; nay, all our limbs abound with oil and acid. What wonder then if they may kindle as Mr. Homberg well observes in the aforesaid history . . . where he takes notice that all our limbs have abundance of fetid oil and volatile salt, and are therefore easily combustible. We ought not to omit how the teeth are formed by so many short tubes, the bones by long ones, and easier therefore to be set on fire. Malpighi observed also that the bones contain a fat, oily matter. Besides all this, we know that the sebaceous glands are spread all over the body; and that an oily moisture with now and then a nitrous sulfureous smell perspires from our skin, to which Dr. Blancard ascribes the whole circulation. Abundance of combustible matter shut up in a great number of cells lies in the omentum. There is further to be considered the vast quantity of effluvia that emanate from our bodies. . . . On this supposition I say that the effluvia of such an insensible transpiration are an inflammable mine easily apt to kindle whenever a friction, be it ever so small, puts them in quick motion and increases their velocity.

The reference made in this quotation to Mr. Homberg and his ideas on this subject of combustion will repay further elucidation. Beccher (1635-1682) had startled himself and astonished the chemic world by the accidental discovery that on adding the "oil of vitriol" to that of turpentine the mixture instantly burst into flame—even with explosive suddenness. Borrichius afterwards found that a similar result occurred on the mingling of oil of turpentine with *aqua fortis*. Tournefort made a corresponding discovery on adding "spirit of niter" to oil of sassafras. And the famous Homberg (1652-1715), referred to in the communication of M. Rolli, expanded the discoveries of his precursors, for he found that similar processes of violent spontaneous combustion resulted from the mingling of this acid spirit with the oils and quintessences of all or any of the aromatic Indian herbs.

5. Among the many discoveries of this eminent pioneer of chemie science was that of his pyrophorus, of which a description was published in the *Mémoires de l'Académie* for 1711. The production of this substance was a kind of rival achievement to that of phosphorus proper, which had recently been made by Brandt and by Kunkel. Homberg blended human feces with alum, and roasted the mixture till it was reduced to the state of a dry powder. This powder was then exposed in a matress to a red heat till every trace of combustible and volatile matter was got rid of. When a little of the powder was then poured out on paper, it at once took fire and ignited the latter. He also found that other substances derived from organic sources could be substituted for the human feces—such as gum, flour or sugar. Several generations later, Sir Humphry Davy explained what it was that happened in the process of the spontaneous combustion of Homberg's pyrophorus. The potash of the alum was reduced to metallic potassium; this element, having an intense affinity for oxygen, at once absorbs the latter from the atmosphere on exposure thereto; and the amount of heat generated in the process of oxidation sets fire to the paper. It is another aspect of the property which causes the apparent combustion of that metallic element when thrown upon water.

The spontaneous combustibility of such substances as the elemental phosphorus originally obtained from human urine by Brandt, and the pyrophorus prepared from human excrement by Homberg; the observation of Galen that he had himself seen the dung of doves undergo spontaneous ignition when it had become rotten; and his statement that the dung of one of those birds was sufficient to set fire to a whole house; all formed factors in the confirmation of the belief that the animal body, especially the human body, contained within itself not only the fuel necessary for its complete combustion, but also the latent spark requisite for the ignition, and of which the activity might be elicited in the case of any individual by a special combination of circumstances. In accordance with this genesis and growth of opinion, we find the learned Jesuit, Father Casati, relate in a tone of apparently unquestioning credence, that he had "heard a worthy gentleman say, that, from great quantities of the dung of doves, flights of which used, for many years, nay, ages, to build under the roof of the great church of Pisa, sprung originally the fire which consumed the said church." It is, of course, well known in farmyards that the dung of some animals undergoes, during the process of decomposition, a considerable elevation of temperature; and, according to popular opinion of venerable date, the greater tendency to "heating" displayed, the more fertilizing were its properties. On this account, horse dung, which always displayed a tendency to active fermentative change, with pronounced evolution of heat, was vastly more conducive to vegetable growth than that of horned cattle, which hardly "heated" at all. Fertilizing power, or the richness in nutrient material, varied directly as the power of evolving heat; an item of opinion, greatly strengthened by the fact that by the possession of this mysterious latent property, it approached more nearly the highest known types of organic existence. This heating property of horse dung was freely utilized by the pharmacists of medieval times, who, in the language of the period, "in ventre Equino (scybalis equinis) digerere sciunt vitro inclusos succos, aquas, ejusque calore suas parare Essentias, Elixiria & Tincturas, &c." We are also told by Bartholin, of the artificial incubation of fowls' eggs by the same agency. "In quovis sterquilinio, hybernus etiam mensibus, pulli ex ovis excluduntur, quod in palatio *Magnifici Cancellarii Regii Dn. Christiani Thomæ* aliquoties cum successu fuit tentatum."

Very closely associated in the cerebral machinery of the rural intellect is the heating process—so indicative of potential future vegetable wealth—in the dunghill with that developed within the newly-made hayrick, which is as infallibly indicative of destruction of the source of property on which the very staff of life depends. But in each of these cases, and the fact is one which seems to have remained undiscovered even into our own twentieth century, the phenomenon is one which does not conform to the household adage, for the smoke which (so readily) appears is never accompanied by fire. In the still dim light of a chill autumn morning, when the annual manure heap

has just commenced to display substantial expansion and the annual hayrick has just had its architecture completed, the condensation of the ascending water vapor which so surely tells of the functional activity of the newly generated "caloric," forms a misty canopy which instantly catches the eye of the lynx-eyed farmer or his responsible representative. From the former it is indicative of future prosperity; from the latter, of immediate destruction. The hay which has undergone the "heating" process is permanently spoiled; its taste and flavor betray it and it is refused by all cattle. Accordingly, it has become quite as useless as an article of food as if it had been reduced to ashes. But, as a matter of fact, it never is. The alarm with which the discovery of a "heating" hayrick causes the rousing of the working members of a farmer's household is quite comparable to that which summons the assistance of the fire brigade in a crowded city. The structure is immediately reduced to an apparent chaos, and its contents spread out to dry: not exactly to cool, for it is the presence of an excess of vegetable sap which determines the "heating" process, which, accordingly, never develops in hay that has been properly "saved." The temperature, as a matter of fact, is never very high; and the idea of spontaneous ignition is purely an item of traditional folklore—of the emotional type. And such I believe the reports to be of a corresponding origin of fire in barns, paper-mills, etc., which have been transmitted from hand to hand for centuries—with this qualification, that they have upon occasion been utilized to veil negligence or malice. The unfortunate farmer's boy or herd, during whose period of responsible charge an Irish farmer's hayrick happened to take fire, would need some such excuse before he faced his infuriated employer; and he always found it, too.

The apparently spontaneous origin of some cases of vast conflagrations in remote forests and untenanted territories of combustible grasses, contributed to the maintenance of the general belief in the occasional occurrence of an allied phenomenon in the animal kingdom. The primitive method, so widely disseminated in savage life, of raising a fire by producing the ignition of wood by friction, also yielded an item of plausibility to the conception; so did even the latent existence of the spark whose possibilities were demonstrable on the abrupt contact of inorganic flint and steel. Of the sacred flame of the altar of Vesta, we are told by Festus Pompeius that: "*Siquando instinctus esset, virgines verberibus affliciebantur à Pontifice, quibus mos erat, tabulam felicis materiæ tam diu terebrare, quousque exceptum Ignem cribro æneo virgo in ædem ferret.*" The remarks of the elder Pliny upon the combustibility of wood are interesting, as are indeed the observations of the same writer on most of the arcana of natural history:

The wood of the Linden tree seems of all other to be most soft, and hottest withal; for proofe whereof, this reason men doe alleadge, because it soonest turnes and dulls the axe edge. Of a hote nature also are the Mulberrie tree, the Lawrell, and the Yvie, and in one word, all those that serue to strike fire with. This experiment was first found out by spies, that goe between camp and camp, by sheepeheards also in the field; for hauing not flint euermore readie at hand to smite and kindle fire withall, they make shift for to rub and grate one wood against another, and by this attrition there fly out sparkles, which lighting vpon some tinder, made either of drie rotten touchwood, or of bunts and withered leaues, very quickly catch fire, and burne not out. And for this intent, there is nothing better than to strike the Yviewood, with the Bay. In this case also the wilde Vine (I mean not *Labrusca*) is much commended; and it climbeth and runneth upon trees in manner of Yvie.

The classic writers, both Greek and Roman, refer to the recognized fact of occasional origin of fires in forests, *ferociente austrina tempestate*; and the ready explanation afforded by the violent collision of the branches (*ascripserunt etiam cacuminum arborum à vento agitatorum collisioni, per quam Ignis elicetur non aliter, ut è Canna Indica scintillas excitari vulgo innotuit*). The respectable authority of Thucydides himself is committed to the same item of (in this instance "natural") history. And the phenomenon has been celebrated in dignified metre by Lucretius, the most philosophic of poets:

At sæpè in magnis fit montibus, inquis, ut altis
Arboribus vicina cacumina summa terantur,
Inter se validis facere id conantibus Austris.
Donec fulserunt, flammai flore coorto.

And the more geometric Manilius descends from his siderical pathway of investigation to contemplate the same terrestrial source of the higher element of fire:

Sunt autem cunctis permisti partibus Ignes,
Ac silice in dura viridique in cortice sedem
Inveniunt, tum Sylva sibi collisa crematur.

The very remarkable property of inflammability possessed by alcohol, a liquid which in its purer forms looks to the unsuspicious eye so exactly like water, would prepare, not only the uneducated, but even the scientific, mind of the very crudely scientific ages to receive strange stories of the effects of its prolonged influence on living tissues. One of the most definite of the only reports of such a case which was ushered into the light of the scientific world under the auspicious patronage of high medical authority, is that already referred to, which appeared in the "*Acta Medica et Philosophica Hafniensia*," of 1673, published by the celebrated physician and anatomist, Thomas Bartholin: "A poor woman at Paris used to drink spirit of wine plentifully for the space of three years, so as to take nothing else. Her body contracted such a combustible disposition, that one night she, lying down on a straw-couch, was all burned to ashes and smoke, except the skull and the extremities of her fingers."

Another uncompromising report is mentioned by Cohausen in commenting on the above case ("*Lumen novum Phosphoris accensum*," Amsterdam, 1717), in which we are told that: "A Polish gentleman, in the time of the Queen Bona Sforza, having drank two dishes of a liquor called brandy wine, vomited flames and was burnt by them."

The first case of this kind which appears to have been brought under the notice of the Royal Society of London was reported "in a letter from Mr. R. Love to his brother Mr. George Love, apothecary of Westminster, dated Ipswich, June 28, 1744, which was laid before the society by the president on November 8," (1744.) That letter stated:

That it appeared, upon the coroner's inquest concerning the death of this woman (at which he attended), that she having gone up stairs with her daughter to bed, went down again from her, half undressed, and that, the next morning early, her body was found quite burnt, lying upon the brick hearth in the kitchen, where no fire had been, with the candlestick standing by her, and the candle burnt out, with which she had lighted herself down, and that the daughter could assign no reason for her going down, unless it were to smook a pipe; but said she was not addicted to drink gin. The jury brought it in accidental death.

A week later (November 15), Dr. Lobb communicated two letters concerning the same case: "One from the Reverend Mr. Notcutt, at Ipswich, to the Reverend Mr. Gibbons; this dated July 25, 1744, and the other from the said Mr. Gibbons to a friend, dated September 2, following." The extract from the "minutes," which was afterwards published, states that:

They both agree in all the material circumstances relating to the fact; both giving their relations from the mouths of the eye witnesses, who viewed the body when it was first found burning; particularly Mr. Gibbons, from the woman's own daughter, and from two other persons living in the same house, whose names are Boyden. The case was this: One Grace Pett, a fisherman's wife, of the parish of St. Clement's, in Ipswich, aged about 60, had a custom, for several years past, of going down stairs every night, after she was half undressed, to smook a pipe, or on some other private occasion. The daughter, who lay with her, fell asleep, and did not miss her mother, till she awaked early in the morning, April 10, 1744, when, dressing herself, and going down stairs, she found her mother's body lying on the right side, with her head against the grate, and extended over the hearth, with her legs on the deal floor, and appearing like a block of wood burning with a glowing fire without flame; upon which quenching it with two bowls of water, the smother and stench thereof almost stifled the neighbors, whom her cries had brought in; the trunk of the body was in a manner burnt to ashes, and appeared like an heap of charcoal covered with white ashes; the head, arms, legs and thighs were also very much burnt.

It was said that the woman had drank very plentifully of gin over night, on the occasion of a merry-making, on account of a daughter who was lately come home from Gibraltar. But the difficulty is to account for the fire with which she was burnt; since there was none in the grate, and the candle was burnt out in the socket of the candlestick, which stood by her; and a child's cloaths on one side of her, and a paper screen on the other, were both untouched. And although the melting of the grease had so penetrated into the hearth, as not to be scoured out, yet they observed that the deal floor was neither

singed nor discolored; and the manner of the fire burning in her body is described as the working of some inward cause, and not from the burning of her cloaths, which were only a cotton gown and upper petticoat.

With the exception of a case published in a posthumous work of Lecat, and which does not appear to have had any reliable vouchers, the above appears to be the only instance of spontaneous combustion that had been definitely brought under the notice of the scientific world before the epoch-making communication made to the Royal Society of London, June 20, 1745. This was in the form of "an extract, by Mr. Paul Rolli, F.R.S., of an Italian treatise, written by the Reverend Joseph Bianchini, a prebend in the city of Verona; upon the death of the Countess Cornelia Zangari and Bandi, of Cesena, to which are subjoined accounts of the death of Io. Hitchell, who was burned to death by lightning; and of Grace Pett at Ipswich, whose body was consumed to a coal." The account of the last has just been already quoted. The Italian account of the death of the Countess dated from April 4, 1731. The version placed before the Royal Society deserves to be reproduced, as it first established the position of spontaneous combustion before the English-speaking world of science:

The Countess Cornelia Bandi, in the sixty-second year of her age, was all day as well as she used to be; but at night was observed, when at supper, dull and heavy. She retired, was put to bed, where she passed three hours and more in familiar discourses with her maid, and in some prayers; at last, falling asleep, the door was shut. In the morning, the maid, taking notice that her mistress did not awake at the usual hour, went into the bed-chamber, and called her, but not being answer'd, doubting of some ill accident, open'd the window, and saw the corpse of her mistress in this deplorable condition.

Four feet distance from the bed there was a heap of ashes, two legs untouch'd, from the foot to the knee, with their stockings on; between them was the lady's head; whose brains, half of the back-part of the skull, and the whole chin, were burnt to ashes; amongst which were found three fingers blacken'd. All the rest was ashes, which had this particular quality, that they left in the hand, when taken up, a greasy and stinking moisture.

The air in the room was also observed cumber'd with soot floating in it: A small oil-lamp on the floor was cover'd with ashes, but no oil in it. Two candles in candlesticks upon a table stood upright; the cotton was left in both, but the tallow was gone and vanished. Somewhat of moisture was about the feet of the candlesticks. The bed receiv'd no damage; the blankets and sheets were only raised on one side, as when a person rises up from it, or goes in: The whole furniture, as well as the bed, were spread over with moist and ash-colour soot, which had penetrated into the chest-of-drawers, even to foul the linnens: Nay the soot was also gone into a neighbouring kitchen, and hung on the walls, moveables, and utensils of it. From the pantry a piece of bread cover'd with that soot, and grown black, was given to several dogs, all which refused to eat it. In the room above it was moreover taken notice, that from the lower part of the windows trickled down a greasy, loathsome, yellowish liquor; and thereabout they smelt a stink, without knowing of what; and saw the soot fly around.

It was remarkable, that the floor of the chamber was so thick smear'd with a gluish moisture, that it could not be taken off; and the stink spread more and more through the other chambers.

The "remarks" appended to the original "narration" by the reverend author were as follows:

It is impossible that, by any accident, the lamp should have caused such a conflagration.

There is no room to suppose any supernatural cause.

The likeliest cause, then, is a flash of lightning, which, according to the most common opinion, being but a sulfureous and nitrous exhalation from the earth, having been kindled in the air, did penetrate either thro' the chimney or thro' the chinks of the windows, and did the operation. All the above-mentioned effects prove the assertion; for those remaining foul particles are the grossest parts of the Fulmen, either burnt to ashes or thickened into a viscous bituminous matter. And no wonder the dogs would not eat of the bread, because of the bitterness of the soot, and stink of the sulfur that lodged on it. The impalpable ashes of the lady's corpse are also a demonstration; for nothing but a Fulmen could produce such an effect.

They say that there was not any noise; but maybe there was, and they heard it not, being in a sound sleep. Besides, there have been seen lightnings and fulmina without noise, as one may very often observe.

Other items indicative of the profundity of the scientific discrimination of the first half of the eighteenth century are also furnished:

It seems, also, that it was not what is commonly taken for a Fulmen, for there was not left in the place any sulfureous

and nitrous smell. There did not appear any blackish tracks on the walls; all signs of the fulmina, . . . ; and the opinion of an academician at Ravenna, who insisted that underneath that chamber must be a sulfurous mine, which opinion he founds on this: That in the very house, in a room near that the lady was burnt in, there was set on fire a good quantity of hemp, and couldn't be found out by whom; as, also, that all of a sudden part of the palace had fallen, and not by an earthquake; so that one might conjecture all this to be the effects of the sulfurous mine underground, which is not proved by those assertions. Nay, on the contrary, if there was a mine of sulfur, one should smell the stink of it in those dull days, when the nauseous south wind blows, the sulfur mines then stinking a great distance. Besides, the effects of sulfur are not to reduce a body into impalpable ashes.

Then "the author's opinion" is definitely enunciated in the following grave sentences:

The fire was caused in the entrails of the body by inflamed effluvia of her blood, by juices and fermentations in the stomach, by the many combustible matters which are abundant in living bodies for the uses of life; and, finally, by the fiery evaporations which exhale from the settlings of spirit of wine, brandies, and other hot liquors in the tunica villosa of the stomach, and other adipose or fat membranes; within which (as chemists observe) those spirits engender a kind of campfire; which, in the night time, in sleep, by a full breathing and respiration, are put in a stronger motion, and, consequently, more apt to be set afire.

A series of "proofs" is then placed in array, so as to form outposts and buttresses for the defense and support of the above opinion. They are mostly derived from the materials which I have already quoted. The results of the investigations of Sanctorius regarding the cutaneous excretions, then occupied a prominent place in the collective intellect of the scientific oligarchy of Europe. And they evidently subscribed to the "opinion" of Rev. Joseph Bianchini:

After all these instances, what wonder is there in the case of our old lady? Her dulness before going to bed was an effect of too much heat concentrated in her breast, which hindered the perspiration through the pores of her body; which is calculated to about 40 ounces per night. Her ashes, found at four feet distance from the bed, are a plain argument that she, by natural instinct, rose up to cool her heat, and perhaps was going to open a window.

As I have already observed, the preparation of elemental phosphorus from human urine by Brandt, that of pyrophorus from human feces by Homberg, and the belief of Galen in the spontaneous combustibility of doves' dung, specially combined to give an air of probability to the belief in the excessively inflammable nature of some of the excrementitious products of the animal body. And throughout all the prescientific centuries of learning and dogma, the very idea of life was closely associated with those of light and heat. The first command of the Creator was: *Fiat lux*. Some of the subtlest philosophers professed the belief that the human soul itself was, in each individual instance, formed by a simple scintilla of the *lux immortalis*—a view enshrined for modern English readers in Pope's line:

Vital spark of heavenly flame.

Even in brutes the principle of life must have had a similar origin, as was shown so conclusively by the phosphorescence sometimes observable in dead bodies—especially those undergoing slow decomposition. The original source of animal heat could be accounted for only in this way. Plato himself (who, contrary to what most people seem to think of the science of those remote ages, had fairly well-defined ideas on the subject of the circulation of the blood) must have been of this way of thinking. We find his ἐμψυχόν θερμον perpetually burning—a *vera flamma*—in the left ventricle of the heart. Hippocrates, Aristotle, Galen, etc., the highest and noblest of the intellectual aristocracy of those philosophic ages, all entertained somewhat cognate opinions. It was even noted, in this connection, that although burning was the usually characteristic "accident" of fire, it was not of the "essence" of that element; witness the facts that lightning sometimes killed without scorching, that the flame of the spirit of wine is so (comparatively) feeble, and that the *calor animalium* was discoverable by touch, but not by sight. Accordingly, it was not, after all, difficult to comprehend that the ψυχή became overheated by disease, and took its part in the display of the phenomena of fever. And we find that in the imagination of Melancthon—

at whose intellectual focus the bisectors of the bristling renaissance angles of theology and physiology and Greek philosophy appeared to meet in a single point—the *spiritus vitalis*, on whose presence and functional activity life and animal heat depended, was generated within the heart and from the purest blood—necessarily, of course then, in the left side of that organ. There were a considerable number of qualities or features common to the heat of ordinary combustion and that of the animal body: both were continuous, with superficial variations; both varied with the quality of the air; both required a periodic supply of fuel; both were extinguishable, and very easily, if not on a large scale; when once extinguished, no trace was left in either case; both yielded to water, a substance of the mildest qualities; both required free ventilation; each favored a special focus or hearth; and each was productive of warmth, and light, in special instances. We find the learned Tidicaeus comparing this focus of the vital principle to the unfading fire of Vesta. When the "three principles" of Basil Valentine and Paracelsus reigned, the sulfur regulated, of course, all the phenomena of animal heat. It is refreshing in the light of twentieth century science to find Kepler, the pioneer colossus of modern astronomy, stating with an air of the fullest scientific deliberation:

In Arterias ex Corde venit, in Corde vero, non vereor, . . . flammam vero perennem. . . . Cordis latebrosa lampas, sanguis ex ipso cavæ venæ caudice per canalem peculiarem in Cor traductus, ad instar olei, unde vivat hæc flamma.

Those who adopted the sulfur theory of the origin of animal heat, however, usually regarded the internal flame as "potential," not "actual." The fantastic Van Helmont divided the various forms of animal (light and) heat into two classes—solar and lunar, according to their character; which necessarily depended on the source. That of fish, being cold and moist, was, in the very nature of things, referable to the moon. Any phosphorescent and allied phenomena displayed by warm-blooded animals would be attributed to the solar influence. And, after all, does not twentieth century science accept the solar control over all life and heat—as well as light—of our own day? And has not the calculation of the allotted time for the extinction of all life, light, heat, and movement, on the face of our planet been falsified only by the discovery of the weird phenomenon of radioactivity?—which, in turn, has furnished the nearest approach to a basis of actuality for the imaginary displays of spontaneous combustion. In this connection it is interesting to note that the phosphorescence of the "Bologna stone," which was the text for a good deal of discussion in his day, was referred, as well as that of sea water, by the illustrious Boyle to a (necessarily) solar origin—not lunar, which would be more in accordance with the theoretic classification of Van Helmont. If we really wish to be just in our criticisms, we should not enunciate our views on the scientific acquirements of the older centuries with too much confidence, for we can never define, with even an approach to accuracy, what the exact limits of their attainments were. We, in the present day, are desirous to take an educated and intelligent public into our confidence. In the centuries which witnessed the slow and painful evolution of the early stages of modern science, the members of the learned oligarchy, one and all, were of the opinion that their "own gained knowledge should profane" by even a moment's casual exposure to the scrutiny of the many-headed monster. What "secrets" they did publish were clothed in enigmatic language, which only the initiated could ever unriddle. And the subjects of light and fire were so mysteriously important and powerful, and so closely and obviously connected with the existence of all forms of organic life, that they were always among those specially fenced around with the paraphernalia of mystery and adoration. The cave of Mithra and the altar of Vesta are correspondingly imposing items of testimony to the distribution of this sentiment throughout the pagan world, as the "fiat lux" of the Jewish cosmogony became its watchword in the Christian. Of the four "elements" of the time-honored theory of matter which was accepted by Galen himself, fire occupied the highest place. Very naturally, too, as it is the only known entity of which the tendency is invariably upward. Necessarily, then, the soul, as the principle of life, must be a derivative thereof. According

to the profound Patricius, all life was derived from spirit and fire. And even the *anima microcosmi* was of the nature of fire; hence the horror with which the quenching of a fire was regarded: "apud Veteres ignem extinguere, non minor erat religio, quam hominem occidere." And as the little world was but a picture in little of the great, the *anima mundi* was constituted of matter derived from the same elemental source. The luminosity of the human soul was made specially demonstrable by some representatives of the vagaries of Manichean doctrine: the sun was the transitory abode of redeemed souls, to whose radiance it owed its luminosity; the saved soul always rested temporarily on the moon in its journey, from which there was a monthly discharge towards its eternal home in the *Lux Zodiaci*. Hence the succession of the moon's phases!

The attitude of the popular mind towards the "divine effulgence"—and the nature of the latter—in all ages is shown by the record of the shining of Moses' face on his descent from the mount; by the sparkles which emanated from the head of the infant Æsculapius, and indicated the special powers of the future divine healer of the pagan world; by the "golden" halo which Homer used to decorate the head of the hero of his *Iliad*; by the more "will-o'-the-wisp"-like effulgence with which Virgil consecrated the youthful Ascanius; by the flashes which radiated from the head of Alexander the Great during the battle of the Indus; by the corresponding emanations from the head of Hasdrubal under similar circumstances; and by those observed on the person of even Masanissa, king of the Numidians:

Carpenti somnos subitus rutilante corusca
Vertice fulsit apex: crispamque involvere visa est
Mitis flamma comam atque hirta se spargere fronte.

One of the strangest of the old world fusions of the ideas of fire and life, and of the divine origin and virgin conception of a future redeemer of his people, is to be found in the traditional account of the generation of Servius Tullius, the liberator of the Roman people. It is thus furnished by the elder Pliny (Philomon Holland's version):

But before I make an end of fire, and the hearth where it burneth, I will not passe one admirable example commended unto us by the Roman Chronicles: in which we reade, That during the reign of Tarquinius Priscus, king of Rome, there appeared all on the sudden vpon the hearth where hee kept fire, out of the very ashes, the genital member of a man, by vertue whereof a wench belonging vnto Tanquil the queen, as she sate before the said fire, conceived and arose from the fire with childe; and of this conception came Servius Tullius who succeeded Tarquin in the kingdome. And afterwards, while hee was a yong childe, and lay asleep within the court, his head was seen as a light fire; whereupon he was taken to be the son of the domestical spirits of the chimney.

Divine halos, apostolic fiery tongues, and saintly coronæ conspired to maintain (in script, and sculpture, and architecture, and painting) the mysterious reverence of Christianity for the inexplicable properties and powers of light and fire, down through the long lapse of ages. So did the natural phenomena of comets and meteors, and the more familiar and more destructive lightning. And the history of the tradition of spontaneous combustion of the human body well shows that discussion alone—logical or illogical, inductive or deductive—was the method employed in establishing the "scientific" facts which were brought under its notice, in the exercise of its "Royal" function, by the great association formed in London "for improving natural knowledge." Almost a century after the sprouting of the original germs of the Royal Society came the communication of Paul Rolli, F.R.S., on the subject of spontaneous combustion of the human body, to receive the imprimatur of the council of that august learned and scientific body. The fact of its publication in their "Transactions" constituted its acceptance as an inspired chapter in the new gospel of modern science. Few outsiders had either the knowledge or the ability, or the inclination, or the leisure, necessary for an attack on the position thus captured and fortified. And if any happened to be equipped with even every one of these requisites, he would, most assuredly, have reaped a corresponding reward of irritation and disappointment. The whole tone of Rolli's epoch-making communication, combined with its acceptance for the position (which it has ever since firmly occupied) of foundation stone of the scientific recognition of spontaneous combustion,

fully prove that the Royal Society of 1745 retained the original complexion of that of 1660, when its widely-experienced (although frivolous) patron, Charles II, nonplussed its collected members by propounding the problem: Why is it that a dead fish, when put in a vessel full of water, will cause it to overflow, while a live one will not? Scoffing whisperers of the period went so far as to circulate the report that the query was about to be shelved as insoluble in the existing state of knowledge, when one of the menials connected with the society's symposiums conceived the unscientific idea of ascertaining by means of a couple of fish and a vessel of water, whether the hypothesis contained in the enunciation of the problem was really founded on matter of fact.

The foundation of the orthodoxy of spontaneous combustion having thus been firmly imbedded in the petrifying cement of the *Transactions of the Royal Society*, future contributors to the literature of this subject sought rather to account for its occurrence than to question its possibility. The general love for the marvelous and admiration for the incomprehensible, on which the makers of faith and miracle have always depended for professional prosperity, were cultivated with a very fair degree of success in this connection. The hankering after notoriety—which is not always a negligible quantity in the cerebral panoply of scientists and physicians—would appear to have been accountable for the genesis of some of the contributions. "Philosophic doubt" has never been a favored guest in the halls of learned institutions; and the charge of heresy has always been as serious (and as deadly in its consequences) in science as in theology—so far as the power of punishment and extinction permitted. Frank, in 1843, was able to tabulate and analyze the records of 42 cases. Tourdes, writing in 1876, states that "on peut évaluer à 45 ou 48 le nombre total des faits qui, pendant deux cents ans, de 1672 à notre époque, ont été considérés comme appartenant à la combustion spontanée." The supply, then, had evidently tended to diminish. A new era in the history of spontaneous combustion opened in 1850. Down to that date hardly a voice of recognized authority was raised against its credibility or possibility, with the solitary exception of that of the great French surgeon, Dupuytren, whose powers of penetrating observation and strong common sense illuminated so many dark places of the theory and practice of surgery. He had vigorously attacked the traditions and theories of spontaneous combustion, and explained the deaths of the drunkards—as they practically all were—to the occurrence of which the results had been attributed, by ordinary and rationally explicable causes. But even his voice for some years remained that of a scientific John the Baptist. The highest medicolegal authorities had accepted its occurrence; men of the acknowledged rank of Fodéré, Marc, Broeschet, Devergie, and Friedreich had respectfully discussed all the reported details, and seemed anxious only for the production of a satisfactory theory. The explanations offered were divisible into two groups: One was that the combustion originated in alcoholic (or allied) vapors; the other, that it was owing to the development of highly inflammable gases in the interior of the body. Under the first group may be included that of Fontenelle, who, although having pointed out that even on the ignition of alcohol in which specimens of human tissues were immersed, the combustion ceased—with little or no injury to such structures—when the liquid was consumed, nevertheless persisted in the suggestion that the effect of chronic alcoholism on the living body might result in the production of a degree of inflammability which would account for the phenomenon.

The new era in the history of spontaneous combustion opened with the investigation of the case of the Countess of Goerlitz. The body of that lady was found consumed by fire (June 13, 1847) in her chamber at Darmstadt. The head was completely charred, the whole circumference of the neck was deeply burned, and the upper limbs almost entirely consumed. The lower part of the thorax had also suffered deeply in the process of combustion; but even the clothes which covered the lower part of the trunk and inferior extremities had escaped. The body had been found in the midst of a large quantity of combustible furniture, of which the destruction has been correspondingly and inexplicably limited. The limitations of the action of the fire were somewhat peculiar; and

although the projection of the tongue which was noticed was suggestive of strangulation, the idea of spontaneous combustion appears to have suggested itself at once to the first expert summoned. The most skilled scientific evidence then available was called, and elicited, among other results, an absolute denial of the physical possibility of spontaneous combustion from Liebig, Bischoff, and some others, whose arguments carried all the experts with one exception. Liebig discussed the question in a pamphlet published apropos of this case, which should surely have settled the solution of the problem for all time. The culprit afterwards confessed that the lady had been strangled; the furniture had then been piled around, and special attention given to the burning of the upper part of the body for the purpose of extinction of all marks of violence. Nevertheless, so much pleasanter is the perusal of fiction than that of fact, that we find published in the *Gazette des Tribunaux* of February 25, 1850—during the period in which the Goerlitz case was still the subject of unsettled discussion—the following case: "Un ouvrier quel'on nomme, dont l'intempérance était connue, occupé à boire dans un cabaret de la barrière de l'Étoile, s'introduit dans la bouche une chandelle enflammée; aussitôt on voit errer sur les lèvres une flamme bleuâtre; l'incendie est intérieur et en moins d'une demi-heure la tête et le thorax sont carbonisés; deux médecins constatent la combustion spontanée, M. M. Regnault et Pelouze sont aussitôt consultés sur ce fait."

Of the total number of cases published, nearly half have been reported from the neurotic land of France. Caspar attributes this high ratio to the greater credulity of the people of that nation; perhaps excitability—with innate desire for its gratification—would be a better term. But what should be said of the faith of a practical Anglo-Saxon "authority" of this enlightened twentieth century, who thinks that spontaneous combustion of the human body can take place postmortem?—with the naive addendum that: "I think also that it occurs in a fat, flabby, drunken person, who has been in a drunken slumber, in whom the cessation of life has been due to a fatty heart, the whole circumstances being favorable to the growth of a microbe which brews combustible gas or alcohol." (!) Cannot even the most injured enemy of the mischievous microbe afford to forgive—almost even to pity—that agent of evil when he finds the fact of spontaneous combustion laid at its door? Cannot we now anticipate that the final conflagration of the universe will be credited to the omnipotent microbe—if there remain any human (scientific) survivors? More than likely; for the authority just quoted fortifies his faith in the occurrence of spontaneous combustion in specimens of inanimate nature by the statement that: "It is well known everywhere that if grass be cut wet and stacked wet the hayrick is very likely to ignite." I will now close this tediously prolonged communication by assuring my readers that such hayrick has never yet done anything of the kind!

The cost of the ration of the army has been reduced from 25 to 23 cents, while that of the special diet ration furnished at army hospitals to patients who are not able to subsist on the regular ration has been reduced from 40 to 38 cents. There is no change in the full allowance of 50 cents for the ration at Fort Bayard, New Mexico. This reduction in the ration cost will not make any difference in the nutritive qualities of the ration.

Turpentine Fumes for Influenza.—The United States Consul to Frankfurt, Germany, says that during an epidemic of influenza prevalent in the vicinity it was found that workmen in a certain watch factory, exposed to evaporating oil of turpentine, seemed to be protected from the disease. Since then oil of turpentine has been always evaporated in that factory upon a stove, and not a case of influenza has ever occurred there. This preventive measure is successfully employed in dwellings, and the inhaling of water vapor with oil of turpentine is said to act favorably on the affected respiratory organs.

The new manual for the medical department, upon which a board of army surgeons has been at work for some time, is about ready for issue. Unusual pains have been taken in the compilation of this volume, which is intended to be of practical value to volunteer surgeons in time of war. It is intended that the revised manual shall contain everything of even the remotest value to those engaged in the care of the sick and wounded in the field. To this end quotations are made from various publications, such as the army regulations and the field service regulations. In time of war there shall be issued in connection with this manual a book of forms.

MISCELLANEOUS

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Report of the Committee on National Uniformity of Curriculums.

Your committee, appointed at the last meeting of the Association of American Medical Colleges, to cooperate with a similar committee appointed by the National Confederation of State Examining and Licensing Boards, for the purpose of presenting a minimum standard of medical education, together with such recommendations as the committee may deem proper as to the division of the subjects in a four-years' graded course, begs leave to submit the following report:

It is doubtless generally known that the National Confederation of State Medical Examining and Licensing Boards, at its meeting held at Atlantic City in June, 1904, provided for a minimum standard of medical education covering a course of four terms in four separate calendar years, and consisting of not less than 3,600 hours of actual work, and that the clinical work shall constitute at least a fourth of the total number of hours in the four-years' course.

A committee of the American Confederation of Reciprocating, Examining and Licensing Medical Boards, at a meeting held in St. Louis, Mo., October 25, 1904, submitted the following report: "Upon the subject of minimum requirements for graduation in medicine, it seems probable from our work that it will be found just and equitable to recommend that a medical diploma in the future be simply treated as a matter of identification, and that the medical college course must consist of at least 4,000 hours; that the division of subjects under this limit shall be in hours multiples of 25; that no college shall be recognized that falls below this standard over 20% in any one branch, or over 10% in the total. The details of division of such working standard to be decided by the coming year's work of the committee."

The report of the committee was accepted, adopted, and printed, and the committee continued.

From the action of these National Associations of State Medical Examining, Licensing, and Reciprocating Boards it is evident that they propose to insist on a reasonable standard of medical qualifications, believing, as they do, that it is the duty of the State to see that none but qualified men are licensed to practise one of the most difficult and responsible of all professions.

That there is an actual need for such a demand is shown by a review of the results of examinations for medical licensure presented in a very able report by Charles McIntire to the American Academy of Medicine at Atlantic City, June 4, 1904, from which the following table is taken:

	Passed.	Failed.	Total.	Percent licensed.
1896.....	2,328	562	2,890	80.6
1898.....	2,645	560	3,205	82.5
1900.....	3,000	504	3,504	85.3
1901.....	2,486	522	3,008	82.3
1902.....	3,781	729	4,510	83.8
	14,190	2,877	17,067	82.9

This table shows that out of 17,067 applicants examined during the five years, from 1898 to 1902 inclusive, 2,877 or 17.1% failed. The failures are not confined to graduates from individual schools, but include men from every reputable school in the country.

Dr. McIntire, in his paper on "The Personal Equation in Examination for Licensure," read before the American Academy of Medicine in 1902, demonstrates that the charge frequently made against State examining boards, that they are too severe in their examinations, is not true, for the returns of papers marked by college professors and members of such boards show a remarkable uniformity, that with hardly an exception the men who failed would not have been licensed by any of the boards of faculties making returns, and, as a matter of fact, the colleges were more severe in their markings than the boards.

The conclusions to be drawn from such a result are: 1. That our products are not up to the standards adopted by the State licensing boards. 2. That the applicants have deteriorated since graduation. 3. That in some instances the candidates have passed the college examinations by dishonest methods. Whatever the cause, these painful facts confront us, and we can scarcely expect a harmonious and satisfactory product from medical schools when the very exhaustive report by George W. Webster, published in the *New York Medical and Philadelphia Medical Journal* of July 23 and 30, 1904, shows that the total hours vary from 10,244 in one school to 958 in another school. The time devoted to clinical instruction varies from 2,000 to a little over 200 hours. Anatomy varies from 1,248 hours as a maximum to 126 as a minimum. One school devotes 756 hours to chemistry, while another has less than 80 hours. General medicine has 1,900 hours in one and less than 100 hours in another school. In some schools such important subjects as physical diagnosis, pharmacology, etiology, and hygiene are not taught at all, while one school devotes 780 hours to orthopedic surgery. Indeed, a careful review of Dr. Webster's work

TABLE I.—COMPARATIVE STANDARDS OF MEDICAL EDUCATION.

	Proposed standard.				Michigan standard.	Average in 43 medical colleges. ¹	Average in 124 medical schools. ¹
	Number of hours of lectures in entire course.	Number of hours of laboratory work.	Number of hours of clinics.	Total.			
1 Histology	30	60	.....	90	.....	.....	.....
2 Embryology.....	30	60	.....	90	200	219	211
3 Osteology.....	30	.....	.....	30	.....	.....	.....
4 Anatomy.....	180	230	.....	420	460	549	480
5 Physiology.....	180	120	.....	300	300	276	341
6 Chemistry and toxicology.	100	200	.....	300	350	375	345
7 Materia medica.....	40	20	.....	60	100	.....	216
8 Pharmacology.....	40	20	.....	60	60	118	60
9 Therapeutics.....	90	.....	.....	90	90	.....	.....
10 Bacteriology.....	40	100	.....	140	160	181	138
11 Pathology.....	100	140	.....	240	.....	.....	.....
12 Medical zoology, postmortem work and clinical microscopy.....	30	60	.....	90	240	295	251
13 Physical diagnosis.....	20	.....	80	100	100	61	97
14 Practice of medicine.....	180	.....	360	540	400	544	490
15 Surgery, including orthopedic surgery.....	180	.....	860	540	530	598	536
16 Obstetrics.....	100	.....	60	160	140	177	169
17 Gynecology.....	50	.....	110	160	170	145	181
18 Pediatrics.....	40	.....	60	100	110	72	98
19 Eye and ear.....	30	.....	30	60	.....	106	124
20 Nose and throat.....	30	.....	30	60	200	67	86
21 Mental and nervous diseases.....	60	.....	60	120	120	109	130
22 Electrotherapeutics.....	20	.....	40	60	80	.....	.....
23 Genitourinary diseases.....	30	.....	30	60	60	.....	74
24 Dermatology and syphilis.	20	.....	20	40	40	64	80
25 Hygiene and public health	30	.....	30	60	30	88	46
26 Dietetics.....	30	.....	30	60	.....	.....	.....
27 Medical jurisprudence.....	30	.....	30	60	30	.....	36
	1,750	1,010	1,240	4,000	4,000	3,887	4,188

reveals a lamentable lack of uniformity in regard to the relative importance of each of the 23 studies tabulated by him.

Your committee is of the opinion that the problem of the medical school is to supply the community with competent medical men; and with a fixed minimum standard for admission, and a definite course of medical studies, with the prescribed number of hours of didactic and practical work in each branch, we may hope for a more uniform product, and if this product should reach the requirements of our best State examining boards, the way to reciprocity between the State boards will be open, and much time and annoyance will be saved in the transfer of students from one school to another. We cannot agree with those who believe that there should be a different standard in different schools, and who consider it a utopian idea to expect that all the medical schools in the country should be based on a uniform curriculum. It seems to us that the standard of State boards is no higher for the graduates of the prominent schools than for those of the smaller schools. All must possess the same qualifications.

¹ Compiled from tables prepared by George W. Webster.

The subject of graduate work is another question. There is of course, no reason why schools engaged in turning out specialists and teachers should not vary their curriculums with the special needs of the student.

Your committee is perfectly aware that an ideal plan and course of medical teaching has not as yet been devised, but there are some things which every graduate in medicine should know, and the object to be secured in undergraduate work is not to make specialists, but to fit men and women for the general practice of medicine and surgery. Every educator knows that the average student needs a certain number of hours in lectures, recitations, laboratory and clinical work, and special preparation to acquire a reasonable proficiency in the various branches, and to give him more in some subjects at the expense

TABLE II.—PROPOSED STANDARD OF A 4,000 HOURS' MEDICAL COURSE DIVIDED ACCORDING TO YEARS.

	Lecture.	Laboratory.	Clinics.	Total.
First year:				
Histology.....	30	60	.....	90
Embryology.....	30	60	.....	90
Osteology.....	30	.....	.....	30
Anatomy.....	100	230	.....	330
Chemistry.....	60	100	.....	150
Physiology.....	90	60	.....	150
Materia medica.....	40	20	.....	60
	370	530	.....	900
Second year:				
Anatomy.....	90	.....	.....	90
Physiology.....	90	60	.....	150
Chemistry.....	50	100	.....	150
Bacteriology.....	40	100	.....	140
Pathology.....	100	140	.....	240
Pharmacology.....	40	20	.....	60
Minor surgery.....	15	.....	60	75
	425	420	60	905
Third year:				
Postmortem, medical zoology and clinical microscopy.....	30	60	.....	90
Physical diagnosis.....	20	.....	80	100
Practice of medicine.....	90	.....	180	270
Surgery.....	90	.....	105	195
Obstetrics.....	50	.....	30	80
Pediatrics.....	20	.....	30	50
Gynecology.....	25	.....	55	80
Mental and nervous diseases.....	30	.....	30	60
Therapeutics.....	90	.....	.....	90
Hygiene.....	30	.....	.....	30
Dietetics.....	30	.....	.....	30
	505	60	510	1,075
Fourth year:				
Practice of medicine.....	90	.....	180	270
Surgery.....	90	.....	180	270
Obstetrics.....	50	.....	30	80
Gynecology.....	25	.....	55	80
Mental and nervous diseases.....	30	.....	30	60
Electrotherapeutics.....	20	.....	40	60
Eye and ear.....	30	.....	30	60
Nose and throat.....	30	.....	30	60
Genitourinary diseases.....	30	.....	30	60
Pediatrics.....	20	.....	30	50
Dermatology.....	20	.....	20	40
Medical jurisprudence.....	30	.....	.....	30
	465	.....	655	1,120
Recapitulation:				
First year.....	370	530	.....	900
Second year.....	425	420	60	905
Third year.....	505	60	510	1,075
Fourth year.....	465	.....	655	1,120
Total.....	1,765	1,010	1,225	4,000

of others leads to unilateral development, and is not fair to the student nor to the State.

The question naturally arises, what may be considered a minimum standard for the average student, and this we have attempted to offer in Table No. I, being fully aware that quantitative standards are considered by many as educational evils. In Table No. II an attempt is made to divide the subjects into the four years, indicating the logical order in which the studies may be taken.

The adoption of a standard uniform curriculum would enable students to go from one school to another without interfering in the slightest degree with their systematic course of studies.

The committee has purposely apportioned less hours to freshman and sophomore studies, as the acquisition of the

sciences taught during the first two years really involves more of a mental strain than the work of the third and fourth years.

The committee recommends that the standard curriculum which is to be adopted as a minimum for the degree of M.D. conferred by any member of the Association of American Medical Colleges, shall consist of the following:

1. The course shall consist of four terms in four separate calendar years.

2. Each term shall consist of at least 30 weeks of work, exclusive of holidays, and of not less than 30 hours of college work in each week.

3. The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the proposed standard of Table No. I; and no college shall be recognized that falls below this standard over 20% in any one branch or over 10% in the total.

It is believed that the adoption of this standard will not only satisfy the demands of many State Medical Examining and Licensing Boards, but will subserve the interest of higher medical education.

Respectfully submitted,

(Signed)

GEORGE M. KOBER,
WILLIAM J. MEANS,
PARKS RITCHIE.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 15, 1905. [Vol. XLIV, No. 15.]

1. Surgical Tuberculosis in the Abdominal Cavity, with Special Reference to Tuberculous Peritonitis. WILLIAM J. MAYO.
2. Study of the Economic Course of Tuberculosis in Wage Earners. MARSHALL LANGTON PRICE.
3. Relation of School Methods to School Diseases. WILLIAM J. HERDMAN and JAMES H. MCBRIDE.
4. The Mortality of Appendicitis. CHANNING W. BARRETT.
5. An Experimental and Clinical Study of the Value of Clay Mixture Poultices. AUGUSTUS H. ROTH.
6. The Etiology and Pathology of Bronchopneumonia Complicating Measles. CHARLES F. CRAIG.

1.—See *American Medicine*, Vol. VIII, No. 20, p. 833.

2.—See *American Medicine*, Vol. VIII, No. 4, p. 142.

3.—**Relation of School Methods to School Diseases.**—W. J. Herdman (Ann Arbor) and J. H. McBride (Pasadena) reported for the committee appointed at the New Orleans session of the American Medical Association. They gave an account of what has been done here and abroad in the way of school inspection and isolation of diseased children and general sanitation of school buildings, the special care of backward children, etc. The report approves of the thorough psychologic examinations made in the Chicago schools as the high-water mark in school inspection in this country and elsewhere. It finds the work satisfactorily done in a few places, though as yet inspection methods are far from complete in most communities, and in some they have never been tried. The report recommends that the American Medical Association put itself on record as urging complete and systematic medical inspection of schools and school children: "1. In the interests of the public, since it is a potent means for detecting and preventing the spread of contagious and infectious diseases. 2. For the purpose of securing to the child, while in attendance on school, the most favorable hygienic and sanitary conditions. 3. For the purpose of securing exact knowledge regarding the physical and mental capacities of each child, in order that the methods of instruction may be intelligently directed to meet individual needs."

4.—See *American Medicine*, Vol. VIII, No. 22, p. 912.

6.—**Bronchopneumonia Complicating Measles.**—C. F. Craig (San Francisco) reports the findings in cases of bronchopneumonia occurring in an epidemic of measles at one of the United States Army posts in California, the patients being sent to the hospital at San Francisco for treatment. Out of 89 cases, bronchopneumonia developed in 12 (13%), and 10 patients died. From a summary of the macroscopic and microscopic changes of the necrotic areas in the lungs, liver, spleen, and kidneys it was evident that the infection was of a septic character, causing hemorrhages in all the organs, areas of focal necrosis, hyaline

degeneration, empyema and abscess formation in the lungs, kidney, and spleen, and the occurrence of large numbers of lymphoid cells in the capillaries of the liver and the kidney and in the air vesicles of the lungs. He believes that this epidemic complicating measles and with so high a mortality was due to secondary infection of the diseased mucous membrane of the respiratory tract by streptococci, causing pyemic infection, due to these organisms.

Boston Medical and Surgical Journal.

April 13, 1905. [Vol. CLII, No. 15.]

1. The Importance of Early Diagnosis of Cancer in and about the Mouth. FREDERIC C. COBB.
2. The Results in Cases of Cancer of the Tonsils, Tongue, and Jaws, Operated on at the Massachusetts General Hospital from January 1, 1892 to January 1, 1900. FARRAR COBB and CHANNING C. SIMMONS.
3. The Results of Treatment of Cancer in and about the Mouth at the Boston City Hospital. HOWARD A. LOTHROP and DAVID D. SCANNELL.
4. The Use of the Röntgen Ray in the Postoperative Treatment of Cancer in the Mouth. E. A. CODMAN.
5. Thermotherapy as a Part of Physical Therapeutics. OCTAVE ROZENRAAD.
6. Weather Conditions at the Sharon Sanatorium. WALTER A. GRIFFIN.
7. A Suggestion for a Practical Apparatus for Use in Intrathoracic Operations. FRED T. MURPHY.

1.—**Early Diagnosis of Cancer in and about the Mouth.**—F. C. Cobb emphasizes the importance of knowing in which cases we should operate on a benign growth at once and in which we must wait for symptoms of degeneration. Leukoplakia has the longest period of incubation. The patches microscopically are scar tissue and frequently degenerate into epithelioma. When ulceration appears a microscopic examination should be made whether induration is present or not. Simple ulceration may also become carcinomatous. When diagnosis is doubtful, antisyphilitic medication should be tried for a week before operation. Traumatic ulcerations may almost always be associated with their causes. In taking wedge-shaped pieces of tissue for examination, care should be exercised to cut into healthy tissue wide of the lesion to avoid metastases and to afford microscopic comparison between the healthy and diseased parts. [H.M.]

2.—**Cancer of the Tonsils, Tongue, and Jaws.**—F. Cobb and C. C. Simmons report a series of 92 consecutive cases. The study of these has upset the idea that cancer of the mouth is a hopeless disease. The average age was 51½ years. The operations were from the simplest to the most extensive. The operation mortality was 10%. There are 8 cases of cures, all of which are alive from 4 to 13 years after operation. Most of the cases showed squamous-cell carcinoma. Life in the operated cases was longer than in the nonoperated by 11 months from the first symptoms and 14½ months from the time of observation. The malignancy of the disease diminishes as age increases, the longest cures occurring in old people. Cancer of the tonsil is the most malignant; next is that of the lower jaw, while that of the upper jaw is the least so. Had extensive operation been done in all cases the percentage of cures would have been greater. On inquiring into some sarcoma cases the results on the whole were somewhat better than in carcinoma. [H.M.]

3.—**Cancer in and about the Mouth at the Boston City Hospital.**—H. A. Lothrop and D. D. Scannell's conclusions are based on 69 cases. The mortality is 90%. Operated cases live longer than others by about three and a half months. The comfort of the individual is distinctly increased by operation. Early diagnosis and moderately radical excision offer the greatest hope of radical cure commensurate with comfort and immediate risk to life. [H.M.]

4.—**The Röntgen Ray in the Postoperative Treatment of Cancer of the Mouth.**—E. A. Codman has never seen the röntgen-ray do any objective good for cancer in the mouth. His experience covers 17 cases, and yet it is the most hopeful treatment we have after operation has failed. Treatment of operable cancer in the mouth by the röntgen rays is unjustifiable. [H.M.]

5.—**Thermotherapy.**—O. Rozenraad discusses the results achieved by the use of hot air in chronic rheumatism, arthritis deformans, parametric inflammations, sexual atrophy, decubitus trophicus, ulcus specificum, and eczema. The methods

described are not available for the poorer classes and great benefit would result if a special department were attached to each hospital for treatment by physical means. [H.M.]

Medical Record.

April 15, 1905. [Vol. 67, No. 15.]

1. Cerebrospinal Meningitis: Epidemic and Sporadic. GRANT GOULD SPEER.
2. Recent Studies in the Diagnosis of Rabies. DANIEL W. POOR.
3. Modern Methods of Treatment in Obstetrics and Gynecology. J. A. SCHMITT.
4. Some Points of View in Regard to the Time When to Perform the Myringotomy and the Mastoid Operation. EMIL AMBERG.
5. Decapsulation of the Appendix. A. E. ISAACS.
6. Tuberculous Testicle and the Röntgen Ray. W. B. DE GARMO.
7. Granulation Wound Adhesions: With a Preliminary Report on a New Application in Preventive Treatment. FREDERIC GRIFFITH.

1.—Cerebrospinal Meningitis: Epidemic and Sporadic.

—G. G. Speer discusses the various aspects of this disease in detail, and mentions an early pressure symptom, which, together with Kernig's sign, he has found regularly present. It consists in a turning in of one or both feet until, if not disturbed, one lies across the other. The legs later become flexed and also tend to cross each other. The plan of treatment, which is described at length, comprises in general the use of sedatives, ice to the head, and sinapisms to the body, and potassium iodid to promote absorption of the morbid products. The conclusions are as follows: Cerebrospinal meningitis, when first recognized, was purely epidemic in character, and is now endemic in large cities. Its method of transmission from place to place and person to person is unknown. According to the latest and best investigators, the exciting cause of the epidemic form is *Diplococcus intracellularis meningitidis*, and no evidence has been produced to prove that the cause of epidemic and sporadic cases is not the same. The probable entrance of the pathogenic germ into the system is through the respiratory tract, especially that portion covered by the schneiderian membrane. Its action is that of a septic invasion, and its symptoms are a combination of toxin poisoning, nerve irritation, and pressure. The rate of mortality in late epidemics has been about 50%, which may be lowered by a better agreement regarding methods of care and treatment. Spinal puncture is a requisite of exact diagnosis, but as a method of treatment it is still in the experimental stage.

2.—The Diagnosis of Rabies.—D. W. Poor discusses the negri bodies, which he considers as affording the most satisfactory diagnostic sign. These bodies are found chiefly as cell inclusions in the purkinje cells of the cerebellum and in the large ganglion cells in the regions of amon's horn. They are minute structures, varying in size from 1 micron to 23 microns in diameter. The shape is round or oval, but may be quite irregular. The staining reaction is eosinophile. In structure they may be homogeneous, ring formed, or vacuolated. They may contain irregularly grouped granules, or they may present a certain definite structure, which can be seen in smears as well as in sections, namely, that of a mass of protoplasm containing one or more nuclear-like bodies surrounded by circular unstained areas. They have been seen in the hanging drop as well as in stained preparation. Poor believes that though further work on control diseases is desirable, it would seem that in this method we have the means of making a rapid diagnosis, which is of about the same grade of accuracy as the laboratory diagnosis of tuberculosis or diphtheria. The lesions are, as a rule, found early in the disease, and are not affected by changes in the brain tissue incident to the delay of shipping material to the laboratory from a distance.

3.—Modern Methods of Treatment in Obstetrics and Gynecology.—J. A. Schmitt advocates the use of antistreptococcus serum in puerperal sepsis, though he says that it is important to use a preparation obtained by inoculating the horse directly from puerperal parturients, and to employ large doses (up to 100 cc.). In eclampsia, thyroid extract has been added to the list of drugs recommended, and vaginal cesarean section affords a rapid method of emptying the uterus if the cervix is rigid. Splitting the renal capsule is suggested for cases in which, after emptying the uterus, symptoms of impending anuria develop. Gigli's operation of lateral pubotomy is described, and is praised as being less dangerous than symphys-

ectomy. By its means the true conjugate is increased about 3 cm., so that the lowest limit at which it is justifiable is a conjugate of 7 cm., and in a generally contracted pelvis, about 8 cm. Emphasis is laid on the general practitioner's responsibility in recognizing malignant disease of the uterus at a stage sufficiently early to permit of complete operative extirpation.

4.—When to Perform Myringotomy and the Mastoid Operation.—E. Amberg cites a large number of authorities, the consensus of whose opinion seems to be that early incision of the drum membrane and early operation in mastoiditis are the courses of election. The author divides the cases of acute mastoiditis into three groups: 1. Those which take a rapid course, clearly showing alarming local and general symptoms, especially of a toxic character, and which do not respond to palliative measures. 2. Those which take a somewhat more protracted course, extending over a period of one or several weeks, exhibiting plain local symptoms, but which are not accompanied by intense pain nor by a grave affection of the whole system, and which, at least temporarily, respond to palliative measures. 3. Those which take a mild course. The first type should be called mastoiditis acutissima; the second, mastoiditis acuta; the third, mastoiditis subacuta. In general, when deciding whether to operate or not to operate in a case of mastoiditis, it is better to err to the safe side and open the mastoid.

5.—Decapsulation of the Appendix.—A. E. Isaacs describes a course of procedure which he has found very helpful in freeing the appendix when it is buried in dense adhesions. Having located some portion of the appendix, preferably the proximal, the capsule is incised longitudinally opposite the mesenteric attachment if possible, so as to avoid the larger bloodvessels. In this situation the hemorrhage is insignificant and hardly ever needs attention. The white, glistening surface of the middle layer is the guide to the depth of the incision. The incised serous coat peels off very easily, and with the blunt end of the scalpel handle or with a periosteum elevator, the core can be easily separated and raised from its bed without fear of hemorrhage. This white core now serves as a guide to the capsule, inside of which it can be loosened up a short distance, then the capsule split for that distance, and the procedure repeated till the whole length is delivered. The author estimates that the method will be found of service in about 20% of the general run of cases, and describes two operations in which it proved of the greatest assistance, the appendix in one of these being eight and a half inches long.

6.—Tuberculous Testicle and the Röntgen Ray.—W. B. De Garmo reports the case of a man of 56, who shortly after having one testicle removed for tuberculous disease developed a similar condition in the other organ. As he was unwilling to have the operation repeated, röntgen-ray treatment was tried. Between November 3, 1902, and September 14, 1903, 128 treatments of 10 minutes each were given. A medium tube was used, at a distance of about 10 inches. The first application relieved the pain. The swelling and tenderness also gradually subsided, until at the time of the last treatment the testicle was apparently of normal size and in normal condition.

7.—Granulation Wound Adhesions.—F. Griffith, whose theory it is that the healing of granulation wounds is dependent upon the mechanical principle of friction, says that an approach to the ideal application to an external granulating wound is the gastrointestinal mesenteric attachments of the gray or sand shark common to the American coasts. Two or three square feet of this thin but tough membrane are obtainable from an ordinary sized fish.

New York Medical Journal.

April 8, 1905. [Vol. LXXXI, No. 14.]

1. The Operative Treatment of Chronic Suppurative Otitis. ARTHUR B. DUEL.
2. Spondylose Rhizomelique: A Study of the Relative Frequency of Spinal Involvement in Rheumatoid Arthritis, with Autopsy Findings. D. J. MCCARTHY.
3. Asepsis and Antisepsis in Obstetrics: Also "Sterile Gauze" and "Sterile Water." J. MILTON MABBOTT.
4. A Clinical Lecture upon a Case of Typhoid Cholecystitis. J. CHALMERS D'ACOSTA.
5. Food Preservatives and Food Adulterations. H. W. WILBY.
6. The Gonococcus in the Vulvovaginal Region. HERMANN J. BOLDT.

7. On Two Unusual Conditions Affecting the Gastric and Epigastric Regions. W. MOSER.
8. Atony of the Rectum and Anal Sphincters: Its Etiology, Pathology, Diagnosis and Treatment. WILLIAM BODENHAMER.

1.—Chronic Suppurative Otitis.—A. B. Duell believes in thorough cleaning, careful inspection, and feeling the tympanum over with a probe, as far as possible, for necrotic areas. Should no necrotic area be found, if the perforation seems inadequate for drainage, a free incision should be made in the membrana tympani, and granulation tissue in the lower part of the tympanum removed with a curet; any adhesions which can be got at divided, and any obstructions in the nose or nasopharynx removed. The external auditory meatus and all parts of the tympanum which can be reached should then be kept constantly clean by antiseptic irrigations, and mopping with cotton pledgets. Better drainage can be maintained by the use of gauze wicks running from the incision out into a good-sized dressing over the auricle, renewed once or twice in 24 hours, than by frequent irrigations. When, under this treatment, no improvement takes place, or when at the outset necrotic areas of bone are found in the ossicles or low down in the tympanic walls, the membrana tympani, together with the malleus and incus, should be removed, and any areas in the tympanic walls which can be reached, and require it, carefully curetted. This gives an opportunity of washing out the attic and affords more perfect drainage. Should this fail, or should there be evidence at the outset of necrosis in the attic or aditus, or should the tympanum be filled with a cholesteatomatous mass, or should there be a history of one or more acute exacerbations with pain and tenderness over the mastoid process, a so-called radical operation should be advised. [C.A.O.]

2.—Spondylose Rhizomelique.—D. J. McCarthy reports a number of cases, and offers the following conclusions: (1) That ankylosis and rigidity of the spinal column is a frequent manifestation of advanced rheumatoid arthritis; (2) that it may develop early in the course of the disease and be associated with irritative root symptoms; (3) that if the disease described by v. Bechterew is to be considered as a distinct clinical entity, separate from rheumatoid arthritis, it should only be diagnosed as such after the disease has progressed over a considerable period of time without involving joints other than those of the spinal column; (4) that we are not able at present to differentiate from rheumatoid arthritis that large group of cases, reported by Marie and others, where the rigidity of the spine is associated with changes in the hip and other joints. [C.A.O.]

4.—Typhoid Cholecystitis.—J. Chalmers DaCosta reports a case of typhoid cholecystitis in a boy of 11, occurring two months after the development of the fever, which confined him to bed for five weeks. The pain, tenderness, fever, rigidity, well-marked jaundice, rapid pulse, and a mass in the right hypochondrium, led to the diagnosis of suppurative cholecystitis. An incision was made in the region of the gallbladder, which organ was found to be full of pus. Drainage was inserted and perfect recovery followed. [C.A.O.]

5.—Food Adulterations.—H. W. Wiley takes a firm stand against the use of antiseptics in foods, maintaining that they are injurious and unnecessary. He believes that the fight against artificial coloring matters is almost won, and that the education of the public in regard to artificial colors is quite as effective in this direction as any legislation that can be enacted. He believes that every food product should be marked, and should be exactly what it is said to be. [C.A.O.]

6.—The gonococcus in the vulvovaginal region is discussed by H. J. Boldt. He says that the treatment should consist in the partaking of a bland diet, perfect cleanliness, and local applications. The vagina should be swabbed very thoroughly with a strong solution of one of the albumose or gelatose salts of silver. The urethra, the patient having previously urinated, should receive a similar application of a 25% solution. It is best applied with an intrauterine applicator syringe, made by the Kny-Sheerer Company. The slender silver nozzle, which is four and a half inches long, is wrapped with absorbent cotton like an intrauterine applicator, the barrel of the syringe having previously been filled with the medicament. There being but one opening at the termination of the nozzle, the cotton becomes saturated from the tip backward when the fluid

is injected, and thus the solution in its full strength is brought in contact with every part of the mucous membrane. [C.A.O.]
8.—See *American Medicine*, Vol. V, No. 23, p. 906.

Medical News.

April 15, 1905. [Vol. 86, No. 15.]

1. Intracranial Traumatic Hemorrhage. J. SHERMAN WIGHT.
2. A Preliminary Report of the Use of Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis. FRANCIS HUBER.
3. Some Points in the Construction of a High-frequency Machine. CLARENCE A. WRIGHT.
4. Report on the Use of Stovain. C. G. COAKLEY.
5. On the Treatment of Chronic Osteomyelitis and of Chronic Bone Cavities by the Iodoform Wax Filling. CHARLES A. ELSBERG.
6. The Significance of Epigastric Pain. A. M. POND.
7. Gastrointestinal Conditions in Epilepsy. J. W. McLAUGHLIN.

2.—Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.—F. Huber thinks the results from injecting directly into the subarachnoid space are promising. The treatment should be resorted to before anatomic changes, due to the exudate, have taken place. The malignant type is not affected by the method. In several cases in which lumbar puncture was repeated in 36 to 48 hours the polynuclear cells and diplococci had diminished in number. As the meningococcus is present in the circulation, Dr. Wolff suggests it would be well to use the antitoxin subcutaneously as well as intraspinally. [H.M.]

4.—Stovain.—C. G. Coakley's observations are that stovain equals cocain as a local anesthetic. It does not contract the nasal mucosa so greatly, which is an advantage in snaring redundant tissue. It does not produce so great a sense of constriction in the throat. It has an odor of stale fish, and is more bitter than cocain. He has seen no toxic effects follow its use. [H.M.]

5.—Iodoform Wax Filling in Bone Cavities.—C. A. Elsberg describes its use especially in cavities in the long bones which are generally slow to heal by granulation. Materials heretofore introduced almost always acted as foreign bodies. This filling of Mosetig-Moorhof consists of iodoform 60 parts, spermaceti and sesame oil, each 40 parts. After mixture over a water-bath the preparation is kept in a sterilized bottle and is melted when needed by immersing the bottle in hot water and poured into the cavity until filled. It is slowly extruded in several weeks by active growth of new tissue. The method is applicable to chronic, but not to acute bone disease in which the cavity cannot be rendered aseptic. All oozing must be stopped before the wax is inserted. The writer modified Mosetig-Moorhof's method by pouring the melted wax in cold water and molding it with the hands until it has the consistency of putty, then pressing bits into the walls, stopping the oozing and filling all the small spaces, then he packs the cavity with the filling as a dentist fills a tooth. He uses only 20% of iodoform as in an early case he had marked poisoning. Even if the filling is extruded the healing process is much hastened. The procedure may require two hours. [H.M.]

7.—Gastrointestinal Conditions in Epilepsy.—J. W. McLaughlin has had six cases of epilepsy, in which there was found a myasthenic stomach, retention of food and fermentation with excessive mucus. The latter occurred in two cases, with excessive hydrochloric acidity. Under treatment of the local condition, there has been no attack in over two years in one case, and over a year in another, and in the remainder, the attacks have been milder and less frequent. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The prognosis of diphtheric paralysis has for a long time occupied the attention of clinicians. Sevestre and Martin have classified it into two groups, namely, the early type, which makes its appearance during the first eight or ten days of the process and the second type which occurs usually between the tenth and thirtieth days, in other words during convalescence. The early paralyses are benign, while the later forms are quite

serious. In the former the muscles of the soft palate are alone involved and the affections remain localized; in the second form there is a tendency to generalization. This classification cannot be applied in all cases and Deguy has endeavored to describe an early and serious type of paralysis of the soft palate which usually ends in death. Barbier also insists on the gravity of early diphtheric paralysis, those appearing from the first to the tenth day of the disease are far from infrequent and out of 763 cases cared for during 20 months at the Herold Hospital in Paris, Berthelot found 63 instances of early paralysis, in other words a proportion of 8%. This is a complication of considerable gravity and is usually the prelude of accidents ending in death. These accidents are represented by cardiac and bulbar phenomena, while the gravity is all the greater the more early the paralysis appears. When this complication arises during the first two days of diphtheria the mortality amounts to 60%, but when it occurs after the fifth day the deathrate was found to fall to 17%. When complicated by serious mixed infections the mortality was 26% and only 9% in instances where the paralysis occurred during the mixed mild angina.

Cardiac and bulbar complications arise more especially during the progress of cases of angina which have been diagnosed as serious from the general and local characters, but this may not always be so, because occasionally these accidents are met with in children presenting a satisfactory general condition and where the membranes have decreased or even disappeared under the action of the serum. The administration of massive doses of serum has been considered an excellent measure in these early paralyses. In these cases the favorable effect is not always marked, but the treatment nevertheless contributes to neutralize the toxins of Löffler's bacillus. The local condition is favorably changed which is certainly something, but this action, although slight, exists only in pure diphtheria and is wanting in the mixed forms. Unfortunately the serum, although acting on the local process, appears quite powerless in controlling the cardiac and bulbar accidents. By its action a patient presenting a paralysis of the soft palate will become locally improved, the membrane becomes detached and the lymph-nodes in the neck decrease in size, but on the other hand the child shows evidences of increasing weakness, the pulse becomes weak and slow and soon the heart becomes irregular and spontaneous vomiting occurs. Death is often the end of these alarming symptoms.

Cardiac medication, it naturally follows, should be resorted to, and in order to strengthen the heart, subcutaneous injections of strychnin sulfate and spartein should be given. If the pulse becomes weak, injections of caffein should be given several times a day, the dose being regulated according to the age of the patient and in presence of cardiac collapse, injections of ether are to be resorted to. If the extremities become cold, dry friction or frictions with alcohol or turpentine may be used and if the child is restless tepid baths have their indication. To improve the general condition, injections of artificial serum should be given.

REVIEW OF LITERATURE

Diseases Produced by the Trypanosomes.—R. Koch,¹ prior to his remarks on trypanosomiasis, calls attention to the diseases for which pathogenic protozoa have been found. Dr. Laveran's discovery of the malarial organism was the first step in this domain; this discovery was supplemented by Dr. Ross, who found that the infection is spread by mosquitos, in whose bodies the parasite undergoes a complicated development. Texas fever was found by Th. Smith to be due to a parasite, transmitted by the bite of a fly. Dr. Bruce next found the trypan-

some in the blood of animals ill of tsetse disease, and this was followed by the discovery of the causes of trypanosomiasis or sleeping-sickness in Africa, spotted fever in North America, tropic splenomegaly, and Delhi sore. Speaking of the trypanosomes, he says they belong to the flagellates; they are several times as large as a red corpuscle, have a nucleus and nucleolus, from which a distinctly stainable thread passes to the flagellum, which is attached to the anterior part of the cell. They divide by longitudinal fission and live from the blood plasma. The diseases produced by the trypanosomes may be acute or chronic, usually the latter, and are associated with irregular fever, anemia, emaciation, cachexia, localized edema, enlargement of the cervical glands, and spleen. The tsetse disease is the best known of all the trypanosome diseases; it is distributed over the entire African continent; its cause is the protozoon discovered by Dr. Bruce in 1895; it is pathogenic for most of the warm-blooded animals, least of all for sheep and goats; man seems to be immune against it. The intermediate host is *Glossina morsitans*, in whom the trypanosomes multiply considerably. The same disease exists in Asia under the name of surra. The Asiatic and African trypanosomes are identical morphologically, but the former are transmitted by *Glossina stomoxys* and *tabanus*. Mal de Caderas of South America resembles the preceding conditions closely; its trypanosome differs slightly from the others. In man the trypanosomes were first discovered in 1901 by Dr. Dutton, who found them in the blood; the same organism was found later in the cerebrospinal fluid of patients suffering from sleeping-sickness, and the fact was later established that sleeping-sickness is only a late symptom in the course of trypanosomiasis. The disease is endemic in certain portions of Africa, being latent in many individuals; the symptoms are irregular fever, anemia, cachexia, emaciation, localized edema, erythema, enlargement of lymph-gland and spleen. Sleeping-sickness has developed in individuals six to eight years after removing from the endemic center, thus showing how long the condition can remain simple trypanosomiasis. The disease has spread rapidly within the last few years. The organisms of this disease are not distinguishable from those of tsetse and surra. Theiler's trypanosomes are several times as large as the ordinary type and are pathogenic only for bovines. The mortality is only 5%. Rat trypanosomiasis is very common, being present in about 30% of all examined animals; the organisms are easily distinguished and are but slightly virulent. They are not pathogenic for other species; but rats affected with the latter can develop tsetse disease, and vice versa. Koch divides all the trypanosomes into two groups, placing the last two into the first group, all the others into the second. The two groups differ from each other in morphology, virulence, and pathogenicity; in group one the morphology is constant and they are virulent for only one animal species; the virulence also is constant. Group two is absolutely different; they are not as easily separated morphologically; their virulence varies between wide limits and they are pathogenic for many species. He concludes from this that the parasites of the first group have lived a long time in their respective hosts, they having become immune to them; while those of the second group have lived in their hosts a relatively short time and they have not become accustomed to the parasites. Concerning the variability of the virulence of the same organism, he cites instances of simultaneous infection, this being grave in one animal, light in another. The organisms taken from these animals and inoculated into others showed the same propensity. They can, however, be made more or less virulent at will, as illustrated by some of his experiments. He believes in the identity of the diseases known as tsetse, surra, etc. He reports having succeeded in immunizing animals against virulent trypanosomes by injecting them with organisms of gradually increasing virulence; this immunity lasted for years in the animals in question. But as these retained some trypanosomes in their blood during the entire period, they are just as capable of spreading the disease as if they were not immune themselves. The same is true of animals possessing natural immunity. The best measure therefore to overcome the disease is to kill all affected and suspicious animals at once, as has been done in the case of surra in Java. Lastly, he alludes to the experiments performed with arsenic, trypan red, and malachite green in instances of trypan-

¹ Deutsche medicinische Wochenschrift, 1904, xxx, 1706, No. 47.

osomiasis of man, but says that they are still in their infancy. [E.L.]

Epidemic of Vulvovaginitis among Children.—A. C. Cotton¹ gives careful notes on a hospital epidemic of vulvovaginitis, demonstrated to be due to the gonococcus, 18 girls showing the disease. One male infant was affected with the gonococcal inflammation. The average duration was 116 days. Dr. Cotton accounts for this prolonged duration by the physical condition of the children when attacked, they having typhoid fever, tuberculosis, scarlet fever, or were recovering from operation. Dr. Cotton concludes that every hospital should have detention wards where newly admitted patients may be subjected to careful scrutiny for 14 days before admission to general wards. Isolation wards for acute infections are also necessary. Female infants are peculiarly susceptible to gonorrhea, which is a formidable disease in a children's hospital. A child showing such condition should be isolated and placed in charge of a special nurse; the latter, as well as the interne, should, while treating it, be relieved from other duties in the children's ward. The same care by physician and nurse should be exercised as is used when passing from any acute infection to a noninfected patient. [A.G.E.]

A Symptom of Blood-pressure in Cerebral Arteriosclerosis.—M. Löwy² observed that in many diseases the blood-pressure was decidedly raised in the radial but remained normal in the temporal arteries. With reference to this phenomenon, he studied a large number of diseased conditions in which the blood-pressure was influenced, and reports the case histories of 15 patients. In his investigations he employed the sphygmomanometer of von Basch as modified by Potain. He found that when patients suffering from cerebral arteriosclerosis bent their heads forward on the chest, an increase in blood-pressure in the temporal arteries resulted every time. In patients with increased or normal blood-pressure, who presented no symptoms of cerebral arteriosclerosis, the increase of the blood-pressure in the temporals was absent. Löwy concluded from his investigations that this blood-pressure symptom does not occur in functional necrosis or other diseases, even though the blood-pressure and engorgement of the vessels is increased, and the other cerebral symptoms, due to processes which increase blood-pressure, are present. Cerebral arteriosclerosis, with apparently normal temporal blood-pressure, gives this blood-pressure symptom. He believes, therefore, that this blood-pressure symptom, that is, the increase of the pressure of the blood in the temporal arteries when the head is bowed, is an important symptom for the differential diagnosis of arteriosclerosis, and probably for the cerebral form. [W.E.R.]

The Clinical Tests of the Gastric Function.—B. Wagner³ considers the reliability of the usual tests as applied in his own clinic to 430 cases of all sorts. His tables show that hyperacidity is much more common in men, owing probably to the irritation of alcohol and tobacco; only a quarter of the cases of hyperchlorhydria had ulcer, and less than a half of the ulcer cases showed hyperacidity. Cancer was more definite, four-fifths of the cases being water, and over 90% showing no free HCl. The presence of blood in the wash water is the most certain sign of organic disease; he found blood by the guaiac test very rarely present in the stools. The only interesting finding, apart from organic disease, was the constant association of achylia gastrica with pernicious anemia. [T.S.G.]

The Rash in Typhus Fever.—During an epidemic of typhus fever in Moscow, M. P. Kireeff⁴ had an ample opportunity to study the symptoms totally, and he directed special attention to the rash. He finds that the latter has not only a diagnostic, but also a great prognostic value. The chief characteristic feature of the spots is the fact that they are never raised above the skin. This enables us to exclude typhus fever the moment we find a papular eruption, which is the type one in typhoid fever. When the latter shows an abundant eruption, this differential point acquires great importance. As to prognosis the author has observed that an abundant petechial eruption goes hand in hand with severity of the disease. In

favorable cases the petechial began to fade early, while in those that ended fatally the petechial spots did not disappear even after the temperature had fallen. The longer the petechias persist, therefore, the more serious the outlook. Their presence after the fever is broken is, according to the author, a sign of hopelessness. [L.J.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

Puerperal Sepsis.—The March special number of *The Practitioner* is devoted entirely to the consideration of this dreaded condition, which is there given the time-honored name of puerperal fever, though the editor himself prefers the term sepsis. Though, fortunately, it is now immeasurably better understood than in 1842, when Oliver Wendell Holmes was scathingly arraigned for his advocacy of its contagiousness, there are still points of difficulty in diagnosis that often hinder treatment. There is no specific cause for the condition, which is not a clinical entity, as thought by earlier investigators, any one or more of several types of bacteria, by gaining entrance to lacerated or bruised tissues, being able to produce it. Hence the difficulty in treating correctly the condition by curative serum when the infecting organism is not known. Antistreptococcic serum given when infection is by *Staphylococcus* or *B. coli communis*, does not aid the patient, and the failure casts disrepute on serum therapy. As pointed out by Dr. Foulerton, an exact diagnosis with an appropriate antitoxic serum given in sufficient dosage would render much more general the success which has attended in some cases the employment of antistreptococcic serum. In the absence of exact bacteriologic diagnosis, however, he believes the safe rule is to treat every case as though it were of streptococcic origin. In connection with the pathology of puerperal sepsis, Dr. Foulerton refers to another important point, namely, the clinical and pathologic impossibility of deciding for or against the use of the curet by the presence of a superficial or a deep uterine infection. Curetage must be based on other grounds.

The Prevention of Puerperal Sepsis.—Obviously the great desideratum regarding puerperal sepsis is its prevention. Happily, the profession is not now in the toils of ignorance as it was in the time of the younger Dr. Hey in 1809, of whose description of an epidemic in Leeds Dr. Hellier gives a most interesting account. Its severity may be inferred from the fact that of the first 14 patients seen by Dr. Hey 11 died. In casting about for a cause, he says no other disease was so prevalent as to be dignified by the name of epidemic "except erysipelatous inflammations, which prevailed during the whole period of puerperal fever and in many cases were of a very malignant kind, insomuch that I do not recollect to have ever seen worse cases of erysipelas than at that time." And physicians were attending alternately erysipelas and confinement cases! Epidemics of puerperal sepsis are now essentially unknown, but sporadic cases are far too frequent in private practice. In our maternity hospitals, especially in the larger ones, series of thousands of confinements without a death from sepsis show the possibilities when proper precautions are employed. In private practice such precautions are not always possible, but their extent depends largely upon the ingenuity and enthusiasm of the physician. The working rule for the accoucheur is admirably stated by Dr. Hart, who says our present standpoint is that puerperal sepsis is "an invasion of the woman's tissues by some form of micro-organism, and that these have either been primarily on the examining fingers of the attendant or conveyed from the patient's uncleansed external parts deeper into the genital tract during examination." In rare cases

¹Archives of Pediatrics, February, 1905.

²Berliner klinische Wochenschrift, January 12 and 19, 1905.

³Archiv für Verdauungs-Krankheiten, Bd. xi, No. 1.

⁴Medizinskoje Obozrenie, lxiii, No. 1.

specific infection of the adnexa may have been present, placing the blame upon the woman or her husband, but in the vast majority the attendant's declaration of cleanliness is disproved by the very occurrence of infection.

The Midwife Question.—No discussion of the prevention of puerperal infection can disregard the etiologic influence of midwives. We believe this is not so urgent a question in this country as in England, because their employment is here not so extensive, but it has recently been emphasized by Dr. Steele¹ as demanding legislation in Maryland and in other States, the practice is in many respects reprehensible. There the intimate connection shown to exist between the practice of uncontrolled midwifery and puerperal sepsis created a demand for legislation which led to an act of Parliament regulating these persons. This act of 1902, ably discussed by Drs. Cullingworth and Glover, became partially effective April 1, 1905. The first penal clause exacts a penalty of \$25 for using the term midwife, unless certified by the proper authorities. The second clause, which does not become active until 1910, provides a maximum penalty of \$50 for practising midwifery without certification. This act was passed only after repeated attempts and was finally made possible by the compromise of postponing the enforcement of the second clause for five years. The physicians of England and Wales, to which the act applies, are to be congratulated upon this curb of a great menace to human lives; the pecuniary aspect of the question is not to be considered. In this country an allied source of danger to the puerperal woman are the nurses who graduate at certain nursing-taught-while-you-wait institutions. These quasirespectable fakes grant diplomas after a few weeks' lectures, and the public is thus made to believe they employ intelligent nurses. One of these deceived and deceiving "trained nurses" recently met the physician as he came to conduct a labor case and deplored his early arrival, as she was just ready to make an internal examination in order to inform him how affairs were progressing. He had the commendable stamina to at once insist on her discharge and the employment of a real trained nurse. Midwives and fake nurses should respectively be regulated and suppressed as an efficient help in lowering the morbidity of puerperal infection.

Treatment of Puerperal Sepsis.—The general treatment of sepsis, of whatever origin, is now based on well-recognized principles of pathology and therapy, and is much the same in the hands of all physicians. The management of the condition locally, however, depends to a great extent on individual preference, and possibly in no other lesion is there more perplexity regarding the best course to pursue than in the one under consideration. The discussion in *The Practitioner* is rightly devoted more to the prevention than to the treatment of puerperal sepsis, but certain phases of the latter are well considered, particularly by Dr. Galabin. The points most prominent are the use of the curet, the performance of hysterectomy, and the employment of serum therapy. Dr. Galabin believes certain French and American authorities have been more free in the use of the curet than is entirely justified, and considers it the general opinion that curetment as a routine measure increases rather than diminishes the mortality. The interior of the uterus should be explored, and, if needs be, cleaned with the finger; this, in private practice, is too often omitted or postponed until too late. Dr. Galabin concludes that hysterectomy, though it may be advisable in exceptional cases, has for the present a very limited field in the treatment of puerperal sepsis. He regards antistreptococcic serum as a remedy of value. It may be used at the outset in severe cases, because such are almost always streptococcic infections, its continuance depending upon the result of bacteriologic

investigation. Two of these points will bear emphasis—early digital exploration of the uterus and early use of antitoxic serum. As a whole, the 14 papers making up this number of *The Practitioner*, form an admirable presentation of the subject in question. They cannot fail to stimulate renewed zeal in the one great essential of the medical care of puerperal sepsis—its prevention.

REVIEW OF LITERATURE

Acute Urinary Retention in a Pregnant Woman as the Earliest Tabetic Symptom.—R. Birnbaum¹ reports the case of a woman of 32, who was pregnant in her third month. Without apparent cause she became unable to void urine. At the same time, the legs and the external genitalia became markedly edematous. Catheterization, on the second day, relieved her of 5 liters of normal urine. She recovered under the use of warm baths and electricity. A study of the patient's history revealed luetic infection 10 years previously; and the birth of a dead infant, with distinct signs of congenital syphilis, 6 years before. Examination showed pupillary rigidity to light, diminished knee-jerks, diminished pain sense and touch sense, partial anesthesia to heat and cold, and lancinating pains. The author concludes, therefore, that the acute retention was in this case an expression of an early symptom of tabes, a condition that has been but rarely noted in the reported cases. [E.L.]

Traumatism during Coitus.—T. S. Balin² reports the case of a vaginal tear in a young woman during the first coitus. The tear was situated in the posterior vaginal vault. The noteworthy feature seems to be the evidence this case bears against the assertion that such an injury positively excludes rape, as the patient willingly submitted to the act, and moreover, she could not experience that excessive sexual excitement which is alleged to favor tears of the vagina, because she suffered intense pain during the act. The author infers that such tears can occur without sexual excitement on the part of the woman and denies this traumatic effect any medicolegal value as evidence against rape. [L.J.]

Diseases of Veins in the Course of Secondary Syphilis.—E. Hoffmann,³ studying syphilitic phlebitis, has been able to collect 33 cases belonging to the secondary period of the disease; to these he adds 6 cases of his own. Based upon these 39 cases he discusses this disease, as well as the nodular type of the disease, summing up his conclusions as follows: Syphilitic phlebitis may occur in the early periods of syphilis, and is not as rare as has been thought. There are three types of this disease—phlebitis, in which the vein is like a cord, nodous periphlebitis, and syphilitic erythema nodosum. The first occurs in young adults, and affects oftener the large saphenous vein. It usually affects large portions of this vein, and frequently attacks several veins at once. There is little temperature and little edema, but considerable spontaneous pain increased by pressure and movements; the vein has changed to a hard, cylindric, movable cord, with nodular thickenings corresponding to the valves. This is seen usually during the eruptive stage of syphilis, and may recur with each relapse. Mixed treatment produces a resolution, the lumen always becoming patulous again; sometimes a sclerosis remains. The disease never shows any tendency to extend to the deeper veins or to produce emboli. Hard labor predisposes to this phlebitis, but the syphilitic virus is the exciting cause of the condition. Histologically, the vein becomes much thickened, especially the media and intima; and of the media, the internal layer is the one showing the most inflammation. The process begins in the vasa vasorum, spreading from there by way of the elastic fibers to the surface; thromboses of variable extent are soon formed then. Characteristic of the condition are the numerous giant cells in the peripheral parts of the thrombus; they seem to be of endothelial origin, and contain no other foreign bodies beyond some leukocytes. Bacteria have never been found in the examined tissues. The nodous syphilitic or periphlebitis appears in women with varicose veins during the first exanthem; they are round or fusiform nodules, having a subacute course, occasionally undergoing

¹ Deutsche medizinische Wochenschrift, 1904, xxx, p. 1572, No. 43.

² Russki Vrach, January 15, 1905.

³ Archiv für Dermatologie und Syphilis, 1905, lxviii, 1.

¹ Maryland Medical Journal, January, 1905.

softening and ulceration; they react to mixed treatment. Syphilitic erythema nodosum is found in women with recent grave infections; it is always febrile, has an acute course, reacts to treatment and resolves without undergoing softening. Both of these processes have their seat of predilection at the points of venous division. [E.L.]

The Five Obstetric Examinations.—R. L. Dickinson¹ says these examinations should be made: 1. In the second month of pregnancy. 2. In the eighth month. 3. During labor and at its conclusion. 4. Two weeks after delivery. 5. Two months after delivery. The object of the first is to make sure of pregnancy and determine that no cause exists that might terminate it, as retroversion, anteversion, tumors, adhesions, cysts of cervix or tubal gestation. At the second, look after general condition, heart strength, nipple adequacy, kidney action, presentation and position of child, pelvic measurements. Under the third, Robinson emphasizes the carelessness of many physicians who prepare their hands thoroughly and not the parts to be examined. His rule regarding lacerations is: The worse the tear, the later the repair. If there is reason to believe there is a tear of the cervix, though the perineum is intact, a vaginal examination the fifth day will give indications for repair just at the time when repair works out the best. For postpartum examinations, Robinson sets two weeks and two months for the general practitioner, although his own practice is to make them at two weeks, six weeks, and three months. After three months, danger of retroversion is past. [A.G.E.]

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN.

ALFRED GORDON.

EDITORIAL COMMENT

Tender Spine.—"Tender Spots on the Spine in Relation to Pain in Various Parts of the Body," is the title of a paper from the pen of St. Clair B. Shadwell,² in which he gives a series of ten cases, beside slight references to a few others, in which, pains, which were in some instances severely neuralgic in character referred to various organs and regions of the body—gastric, thoracic, ovarian, articular, occipital, intercostal, etc.—were found to be associated with marked tenderness on pressure over corresponding sections of the spinal column. Local treatment of the latter (counterirritation by blisters, liniment of iodine, etc.) caused the disappearance of the "referred" symptoms in every instance. He very truly observes:

Frequently patients come complaining of pain in various regions of the body; cure them of the pain, they are cured of the disease. What are those pains? Too often we are satisfied with giving them a name and treating them accordingly—pleurodynia, dry pleurisy, intercostal neuralgia, fake angina, gastrodynia, ovarian neuralgia, neuralgia of kidney, occipital neuralgia, and even acute indigestion and rheumatism. These cases are usually treated generally and locally—tonics, quinine, strychnin, arsenic, salicylates, iodine and bromide of potassium being administered; locally by the application of anodyne liniments, blisters, continuous current, etc. Tedious enough is the treatment and long-suffering the patients. Many of the cases go on for weeks and even months, then change of air or residence in a dry climate is advocated.

All that is indeed sadly and painfully true; and the pity of it is that Dr. Shadwell's discovery of the central starting-point of functional derangement in the spinal cord was apparently new to himself when made, and to probably a large proportion of his readers when announced by him in print. So many of the discoveries of the past are now being rediscovered—because the forward march of science is so rapid that few ever wait a moment to glance backward at the results of the observations and researches of those who have gone before them. In the year 1834, two Irish physicians (who were also brothers), published an octavo volume bearing the following title: "Observations on Functional Affections of the Spinal Cord and Ganglionic

System of Nerves in which their Identity with Sympathetic, Nervous, and Imitative Disease is Illustrated. By William Griffin, M.D., member of the Royal College of Surgeons in Edinburgh, one of the physicians to the Limerick County Infirmary and Lying-in Hospital, etc.; and by Daniel Griffin, member of the Royal College of Surgeons, in London, and surgeon to the Pallas Kenry Dispensary." In this volume the authors discuss the history, symptoms and results of treatment of 148 cases, in all of which local pain was the crying symptom and in the great majority of which there was local tenderness found over the region of the spine which corresponded to the origin of the nerve supply of the affected part. Toward the close of the volume, the authors drew up a table of "Facts and Inferences"—16 in number—of which we reproduce the following specimens:

1. That tenderness at one or more points of the spine is an attendant on almost all hysteric complaints; on numerous cases of functional disorder, where the hysteric disposition is not so obvious, and in many nervous or neuralgic affections.
2. That many of the symptoms of these affections evidently depend upon a peculiar state of nerves, probably at their origin, may be reproduced at any moment by pressure, and are often relieved by remedies applied there.
3. That in all the cases of tenderness of the cervical and upper dorsal spine, there was nausea or vomiting, or pain of stomach, or affections of the upper extremities; but no pain of the abdomen, dysuria, ischuria, hysteria, or affections of the lower extremities.
4. That in all cases of dorsal tenderness, pains affecting the abdomen, bladder, uterus, testes, or lower extremities, were usual symptoms; while nausea, vomiting, or affections of the upper extremities, were never complained of.
5. That nausea and vomiting appeared to bear more relation to tenderness of the cervical spine, pain of stomach to tenderness of the dorsal; but that where there was soreness of both, nausea, or vomiting was still more frequent, and pain of stomach scarcely ever absent.
6. That where several points, or a great extent of the spinal column, is painful or tender on pressure, local remedies are generally less effectual, and there is a strong disposition to transference of the disordered action from one organ to another; the pain or tenderness, in all such cases of transference, shifting its place to a corresponding part of the spinal column, leaving the original point free, or with a very diminished degree of tenderness.

The patients in such functional disorders of the spinal cord never complain of pain or tenderness in the affected region; the existence of the latter is always left for the discovery of the physician. It is obvious how very important it is to the latter and to his patient, that he should come to the clinical examination, in every instance, furnished with the results of the capitalized experience of his predecessors as well as his own. And wherever historic justice is attainable, let credit be accorded where it is due—to the original discoverer whose observations have added to the skill of the physician, and diminished the sum total of human suffering. But it is more incumbent upon us to ask as to the cause of such disorders. Even the osteopaths make a blundering and stupid attempt at etiology, and they are at least examining the backs of suffering patients—with much (financial) profit to themselves.

Toxemia and Insanity.—The pathogenesis of insanities with the exception of paresis is still a matter of speculation. There is, however, a reasonable tendency to regard a toxic action as the most important factor in insanity. Histology and morbid anatomy have proved their inability to elucidate the various mental phenomena observed in mental pathology. We must look to other sciences, and especially to physiologic chemistry for the solution of the problem of insanity. We are now prone to consider mental derangement as the result of disordered metabolism in the cells of the brain. The functional activity of the latter being disturbed or destroyed, dementia, delusions, hallucinations, and illusions will ensue. Toxemia as a main cause of insanities is practically accepted by the majority of modern alienists, and any additional contribution to the subject should be accepted with great interest. A. A. D. Townsend's recent publication in the *Journal of Mental Science* on the significance of indoxyl in the urine in cases of melancholia, is to be considered a valuable additional proof in favor of

¹ Brooklyn Medical Journal, March, 1905.

² The Lancet, September 10, 1904

a toxic condition in this form of mental affections. Indoxyl is present in normal urine as a result of intestinal putrefaction, but in very small amounts (0.005 gr. to 0.025 gr. in 24 hours). Should it be present in excess, it will indicate abnormal putrefactive processes in the gastrointestinal tract. Dr. Townsend examined very carefully 16 patients, observed them before and after an appropriate treatment, and could draw this practical conclusion that the depth of the mental symptoms bore distinct ratio to the excess of indoxyl, and that the diminution and disappearance of the excess of indoxyl in the urine has taken place with the improvement in the physical and mental health of the patient. Should this be totally established, it opens up a new field for the treatment of certain mental states and an early recognition of the condition with an adequate treatment might possibly prevent the development of mental symptoms. Dr. Townsend has found that free purgation and a diet exclusively of milk diminished considerably the excess of indoxyl.

REVIEW OF LITERATURE

Primary Degeneration of the Pyramidal Tracts.—

William G. Spiller¹ made a most careful contribution to the literature of this disease. He reports eight cases with necropsy, two of which were ascending, at first unilateral in type, the paralysis becoming later a triplegia. In another case the paralysis began as a hemiplegia involving later the opposite side. Two other cases were looked upon as uncomplicated cases of primary degeneration of the pyramidal tract without involvement of the cells of the anterior horns. The degeneration in one case could be traced as high as the motor cortex; in two cases into the internal capsule, and in two other cases into the cerebral peduncle. The degeneration ascended as high as the pons in three cases. Spiller believes that amyotrophic lateral sclerosis is an abiotrophic process and that it is not toxic in origin. That the process is ascending in each nerve fiber attacked he thinks doubtful. There is, he believes, a gradual death of those portions of the central motor neurons which are most remote from the cells of origin, the extent of diseased nerve fibers varying in different cases. The whole portion of the nerve involved is, in his opinion, diseased simultaneously, while the individual fibers become involved at different periods. Amaurotic family idiocy resembles amyotrophic lateral sclerosis in some respects. He was able to find only 10 other cases in the literature of unilateral degenerative form of amyotrophic lateral sclerosis. [J.H.W.R.]

Neuronal in Mental Diseases.—Neuronal (bromdiethylacetamid) is administered in doses of .5 gm. to 1 gm. (8 gr. to 16 gr.) in mild cases and 1.5 gm. to 2 gm. (24 gr. to 32 gr.) in pronounced cases of insomnia and excited mental state. According to Weissenbach's² investigations, it is superior to hyoscin or chloral. He administered it in the following diseases: Paresis, epilepsy, manic-depressive insanity, hebephrenia, katatonia, dementia paranoides, idiocy. For the purpose of control he used neuronal in a number of cases of ordinary insomnia and in healthy individuals. After a prolonged trial he concludes that it is a valuable hypnotic in ordinary insomnia and in the excited state of the insane. As a sedative it can be given three times a day from .5 gm. to 1.5 gm. (8 gr. to 16 gr.). It does not possess a cumulative effect. Unfortunately the system gets gradually accustomed to the drug and the narcotic effect of the latter gradually disappears. In regard to its power of inducing sleep, it is not superior to trional or veronal. It is not entirely free from unpleasant and toxic complications, but the latter disappear more rapidly than those of other narcotics. It is best to administer in the form of a powder in cool water. [A.G.]

Pseudobulbar Palsy.—T. H. Weissenberg³ reported in detail the history of 6 cases of this disease with microscopic examination in 3 of them. He concludes that pseudobulbar palsy in adults is probably always the result of a bilateral

lesion which may be in the cortex, in the subcortical region, the internal capsule, the central ganglion, such as the caudate nucleus, the optic thalamus, and especially the lenticular nucleus, in the pons or medulla. The lesions consist of areas of softening or hemorrhages which may be macroscopic. On the contrary it may not be possible to find the lesions, excepting by careful microscopic examination. The lenticular nucleus is the part of the brain most frequently involved. Without a microscopic examination it is impossible to distinguish between a pure cerebral and a cerebral pontile type. An arteriosclerosis of the bloodvessels in the brain is the usual cause of this symptom-complex. In these cases of unilateral lesion reported, it is probable that a careful examination would have revealed a bilateral lesion. The cause of infantile pseudobulbar palsy is frequently a congenital maldevelopment. An area of softening found in the knee of the internal capsule caused a degeneration of the cerebral peduncle. This degeneration was traced into the median part of the pons, the outer part of the pyramid, and into the direct pyramidal tracts of the cervical and dorsal regions of the cord. The views held by Marie and Guillain regarding the extent of the degeneration of the direct and crossed pyramidal tracts due to brain lesions are shown to be erroneous. [J.H.W.R.]

Fibrous Nodules in the Cerebral Pia Arachnoid, Causing the Appearance of Tuberculous Meningitis.—C. D. Camp¹ reported a case in a rachitic dwarf of 64, who died of retroperitoneal sarcoma, with extensive metastasis to the kidneys. The autopsy revealed the presence of small white nodules scattered over the convexity of the brain, principally in the neighborhood of the bloodvessels. They resembled the tubercles found in tuberculous meningitis so closely that without the aid of the microscope they could not be differentiated from them. Microscopically, however, they were found to be directly within the substance of the pia, and to consist of wavy, fibrous connective tissue, very poor in nuclei. This nodular condition may be readily confused with tuberculous meningitis, unless histologic examination is made. [J.H.W.R.]

A Case of Hereditary Syphilis Affecting the Cerebro-spinal System.—Richon² publishes the history of a boy of 11, presenting a fistula of the left parietal bone. Later a right Jacksonian epilepsy developed and soon followed by a right hemiplegia. Finally the hearing and sight were lost. Mental impairment was marked. An operation did not improve the condition. The patient died three and a half years later. On autopsy alongside of a congenital anomaly of the brain was found a fibrous meningoencephalitis lying immediately under the affected bone; this was the cause of epilepsy. There was also a softening of the cerebellum and extensive basilar and spinal meningitis. The syphilitic character of these changes is very suggestive. [A.G.]

Congenital Hypertonia or Little's Disease.—William G. Spiller¹ reported two cases of this disease, with necropsy. In the first case the nerve fibers in the section of the crossed pyramidal tracts were very fine, indicating evidently an agenesis of these tracts. The second case was that of a woman of 70, who had never been able to use her legs at all, while she had some power in the arms. There were marked contractures of the legs and arms; the patellar reflexes were exaggerated, and the Babinski phenomenon present on both sides. Voluntary movement was feeble. The spasticity was due to a compression of the cervical portion of the cord by displaced vertebrae. There was present at the fourth cervical segment degeneration of the direct cerebellar tract on the right, and Gowers' tract on both sides. The posterior columns were also degenerated. At the sixth cervical segment the degeneration in the posterior columns was more extensive. At the eighth cervical segment Schultze's comma zones were alone degenerated in the posterior columns. Part of the right crossed pyramidal tract was involved, while a moderate degree of degeneration was found in the right cerebellar tract and right Gowers tract. The left Gowers tract was slightly degenerated. There was not much degeneration present in the left crossed pyramidal tract. At the fourth thoracic segment there was a marked degeneration of the right crossed pyramidal tract,

¹ University of Pennsylvania Medical Bulletin, January and February, 1905, pp. 390 and 407.

² Zentralblatt für Neurologie und Psychiatrie, January, 1905.

³ University of Pennsylvania Medical Bulletin, Jan., 1905, p. 352.

¹ University of Pennsylvania Medical Bulletin, January, 1906.

² Nouv. Iconogr. de la Salp., 1603, p. 84.

while the degeneration in the other parts of the cord was insignificant. Otherwise there was no important pathologic change. Spiller concludes that the cord was arrested in its growth, especially in the posterior columns. He cites also two cases, with autopsy, which he reported in 1898, and reports five other cases from the literature. [J.H.W.R.]

Bulbar Symptoms the Result of Carcinoma Outside of the Nervous System.—T. W. Weisenberg¹ describes a case in a woman who died as a result of carcinoma of the breast. She exhibited difficulty in talking, eating, and in swallowing. Microscopic study of the brain showed alteration in the nuclei of the vagus and accessory vagus, and in the nuclei of the sixth and seventh nerves. These alterations were probably toxic in character, and directly associated with the presence of the cancer of the breast. The author believes that his case proves that toxic changes are not limited to any one part of the nervous system, but may be found throughout the brain. [J.H.W.R.]

Color Blindness in Half of the Visual Field.—Karl Abraham² states that the patient presented a right hemiplegia with conjugate deviation of the eyes to the left, also a right homonymous hemianopsia. The left visual field was blind for red and green. As the condition is very rare, Abraham experiences a difficulty in explaining the phenomenon. He cannot tell whether the lesion of the left hemisphere, which is the cause of the right-sided symptoms, is at the same time the cause of the color blindness, or the latter is the result of a separate lesion in the right hemisphere—or else the condition is congenital. [A.G.]

The Course of the Sensory Fibers in Stab Wound of the Spinal Cord.—Morton Prince³ studied a case of stab wound of the spinal cord with a view of tracing the course of the sensory fibers. The cord was partially severed in the cervical region and both sides of the body were paralyzed below the seat of the lesion, while tactile sensation was absent only on one side. The case was exhaustively studied and the following conclusions reached: Tactile sensation was preserved on one side, notwithstanding the fact that the whole posterior columns and posterior horns were destroyed. Therefore, tactile sensation is conducted by paths outside of the posterior columns, although it cannot be concluded that the posterior columns do not conduct paths of sensation. This is probably true also of pain impressions, although not certainly so. The right and left sides of the cord were equally destroyed, so that the only way of interpreting the hemianesthesia is by concluding that it was due to incision of the lateral columns on the left, a path for sensibility crossing in the cord. A sensory pathway must lie somewhere anterior to a line drawn from the base of the anterior horn to a point a little back of the center. The uncrossed motor tracts could not convey significant motor impulses in this case, because there was total paraplegia. He concludes that a lesion between the sixth and seventh cervical segments would cause absolute paralysis of the triceps and all movement of the fingers, while the deltoid would remain intact, and all other movements become weakened. [J.H.W.R.]

Combined Pseudosystemic Disease and Annular Degeneration.—A. R. Allen⁴ reported a case, with autopsy. Sections taken from the spinal cord, medulla, and cerebral peduncles were studied, and a pathologic diagnosis of intense meningoencephalomyelitis was made, probably luetic in origin. In the spinal cord the degeneration, while presenting the appearance of systemic disease, was not a true systemic degeneration. The case was of peculiar interest on account of the intense annular degeneration present. The author attributes the cause of this condition to vascular disease, although at the same time he asked the question: Why, if the inflammatory degenerative process is of toxic origin, affecting the blood-vessels first and secondarily the adjacent tissue, is the process apparently so selective in these cases? [J.H.W.R.]

Pseudoangina Pectoris and Epilepsy.—Rowe Jeremy⁵ reports the case of a woman of 39, who, several years after the onset of epilepsy developed attacks of excruciating pain over

the region of the heart. A physical examination of the latter reveals nothing abnormal, nor is there a history of syphilis, alcoholism, and rheumatism. He suggests that the attack of the angina pectoris might be due to a disturbance of the cells of the vasomotor center of the medulla similar to the disturbance of the cells in the cerebral cortex, giving rise to an epileptic fit. [We, however, believe that the attacks of angina with such an acute onset may be an equivalent of epilepsy, and should be treated as epilepsy itself. A.G.]

Myasthenia Gravis.—Charles W. Burr¹ reported a case in a man of 30, who, after suffering from headache for two months, noticed that the right eyelid began to droop, especially in the evening; that the jaw muscles grew weaker; and later, weakness of the shoulders and arms developed. The knee-jerks were present, and there was no ankle-clonus or Babinski phenomenon. Speech was slow and the voice weak, but there was no aphasia or vocal palsy. The weakness gradually increased, and a month after the onset of the symptoms the patient could scarcely get out of bed, and walked only in a halting, staggering manner. After slight effort the arms would fall helpless to the sides and he could hold his head upright for a short time only. Later the knee-jerks became capricious, but were never exaggerated. There was no muscular wasting in the face, tongue or extremities. The faradic current produced slower contractions than normal. There were contractions of the fields of vision and partial reversal of the red and blue fields, while later there was some further color confusion. A microscopic study of the muscular and nervous systems was made. There was nothing abnormal found in the brain, except the presence of some hemorrhagic areas, probably having no relation to the disease. In a word, the lesion of the muscles was a lymphoid infiltration. The most frequent lesion present in this affection is a persistent disease of the thymus gland and lymphoid infiltration of the muscles. [J.H.W.R.]

Phosphorus in Cerebrospinal Fluid.—J. Donath² investigated the question of phosphorus in various nervous diseases. He found that it is present in large amounts in the cerebrospinal fluid in brain tumors, tabes and paresis, also in diseases characterized by a rapid destruction of nervous tissue. This group of organic nervous diseases also showed increase of albumen in the cerebrospinal fluid. The cholin group is not higher in these diseases than it is in neuroses or other nervous diseases. [A.G.]

Muscular Atrophy Occurring in Tabes Dorsalis.—Carl D. Camp³ described a case of tabes dorsalis, in which there was atrophy of the lower limbs and trophic changes in the distribution of the trigeminal nerve. Pathologically there was found, beside the usual lesions of tabes dorsalis, degeneration of the cells of the anterior horns of the spinal cord in the segments corresponding to the location of the atrophy. There was also a degeneration of one of the fifth nerves. The author concludes from this case and from a study of the literature that amyotrophic changes in tabes are due to degeneration of the nerve cells and that it was not of neuritic origin. In a second case of tabes in a man of 55, who presented the usual symptoms of this disease, but in whom there was no atrophy, there was a marked degeneration of one lateral column, due, probably, to interference with the blood supply. The nerve cells in this case were unaltered. The pathologic finding of importance in the second case was the presence of swelling of the axis cylinders in the anterior columns. This was attributed to an intense secondary anemia, from which the patient suffered. This represents one of the earliest stages of the changes in the spinal cord of anemic origin and one rarely observed. [J.H.W.R.]

Early Marriage as a Cause of Nervous Diseases.—Beyer⁴ considers the question of early marriage of women from the standpoint of neuroses and psychoses. Anxieties, differences with the husband, worry, are all contributing causes. This is also the opinion of Griesinger, Krafft-Ebing and Kirchoff. Hysteria, neurasthenia and hypochondria are a common occurrence in marriages before 21. Beyer, in accordance with others, is opposed to marriage before an age when complete

¹ University of Pennsylvania Medical Bulletin, January, 1905, p. 385.

² Zentralblatt für Neurologie und Psychiatrie, January, 1905.

³ Journal of Nervous and Mental Disease, February, 1905, p. 81.

⁴ University of Pennsylvania Medical Bulletin, January, 1905, p. 382.

⁵ Journal of Mental Sciences, January, 1905.

¹ Journal of Nervous and Mental Disease, March, 1905, p. 172.

² Zeitschrift für Physiologie und Chemie, 1904.

³ University of Pennsylvania Medical Bulletin, January, 1905, p. 386.

⁴ Zentralblatt für Neurologie und Psychiatrie, January, 1905.

bodily development cannot be expected. The author also believes that the marriage at an early age by itself is an abnormal psychic phenomenon. He therefore advises regulation of marriages by special laws. [A.G.]

Korsakoff's Symptom-complex.—F. Robertson Sims¹ described two cases, with anatomic findings. The first patient was a woman of 48, who suffered from acute alcoholic neuritis, which was accompanied by delirium, hallucinations and romancing. Later there were present convulsions and twitchings of various muscle groups, followed by spasticity of one extremity and flaccidity of the extremities on the opposite side. The facial muscles were paralyzed. The patient died at the end of five weeks. An acute degeneration of many of the peripheral nerves was found. In the cells of the anterior horns there was an axonal reaction, as well as in Clark's columns and many cranial nuclei. The posterior columns, the direct cerebellar tracts, and the root bundles were degenerated, and the cortical cells were acutely altered. The second case was that of a man of 35 who suffered from acute alcoholic mental confusion following chronic neuritis. Memory for recent events was lost; he was irritable, emotional, and delirious, and orientation was imperfect. The peripheral nerves of the lower extremities were degenerated as well as the vagi. The cells of the anterior horns and Clark's columns, some cranial nuclei and the Betz cells showed axonal reaction. Numerous microscopic hemorrhages were observed throughout the cerebrum, while acute degeneration of the cortical radiations and of the cord was observed. A review of the literature shows that distinct changes have been observed in the brain in these cases, although not of specific character, and in the chronic cases degeneration has been found in the white substance of the cerebrum, in some instances more intense in the frontal region. In the patients dying early, these manifestations are sometimes not observed. Vascular changes are common, consisting of marked congestion and prominence of the vessels. Sometimes the vessel walls have been thickened. There seems to have been a tendency to the formation of minute hemorrhages, chiefly in the gray matter, at the base ganglions, and around the third ventricle. Softening in the cerebellum, the base ganglions, or the pons has been reported. Axonal reaction and acute alteration of the cortical cells have been described. The posterior columns of the cord and the direct cerebellar tract are nearly always involved, while in some cases the pyramidal tracts show degenerative changes as well as the anterior and posterior roots. [J.H.W.R.]

Myotonia Congenita.—Congenital atony of the muscles in childhood is a rare condition, first described by Oppenheim. William G. Spiller² has reported a case of this disease with necropsy. Myotonia congenita is a congenital disease characterized by hypertonia or atonia of the muscles, especially of the legs, but involving either the whole body, or only parts of the body. The joints are abnormally movable on account of the relaxed muscles, and there is distinct weakness. The muscles of the eye, tongue, throat, and diaphragm are not involved. Electrically, there is usually quantitative alteration, although in mild cases the electric reaction may be normal. There is no disturbance of the intelligence, sensation, or the special senses. Spiller's case was that of a child of 23 months. A study of the nervous system revealed no abnormality, excepting in the muscles of the sole of the left foot, on the back of the trunk and the left calf. These showed a myeloid appearance, while in the muscles from the sole of the foot there was a large amount of connective tissue present as well as an increase in the nuclei of the affected tissue. The muscle fibers were small, and while the transverse striations were well preserved, the longitudinal striations were not so distinct. Spiller concludes that this disease is of muscular origin, and that the prognosis is not hopeless. [J.H.W.R.]

Periodic Paralysis of Hereditary Origin.—L. Cheinisse³ refers to Westphal's description of this disease in which the unique feature is the complete loss of electric excitability without a trace of degeneration in the paralyzed muscles. There is

loss of the reflexes without any concomitant sensory or intellectual disturbances. In contrast with malarial paralysis the recurrence of the attacks is governed by no law of periodicity. As a rule they are occasional at the onset increasing in frequency later on and after persisting at a high level many years begin to diminish in frequency. The duration of the attack varies, usually lasting several hours, sometimes for days, or they may subside in 15 minutes. They often occur during sleep, the patient on awakening discovering that he is unable to move. In waking hours the attack may be ushered in by a sensation of fatigue, weakness, drowsiness, pricking, formication, intense thirst, etc. The patient may be engaged in copying and the paralysis attack only the unoccupied limbs, the active limbs being affected when work is relinquished. A sharp walk may delay extension to the legs, even if incomplete at the onset, the paralysis rapidly extends involving all four limbs and the trunk muscles. The cranial nerves are usually unaffected. The paralysis disappears piecemeal. There is perfect health in the intervals. It is a disease of adolescence and is hereditary. The coefficient of urinary toxicity is much higher during than between the attacks. In view of the injurious influence of repose, massage and gymnastics may be tried as soon as there are prodromal manifestations. Faradized muscles regain their motricity more quickly than untreated parts. [H.M.]

A Case of Tabes with Laryngeal Implication and Labyrinthine Disease.—E. Davidsohn and B. Westheimer,¹ of Berlin, report the case of a man afflicted with tabes. Five years after the initial lesion he developed gastric crises, and later he became hoarse and the hearing power of his left ear diminished. The more usual symptoms of the disease did not develop for some years afterward. At the present time the patient's state is thus described: Tabes dorsalis, atrophy of both optic nerves, bilateral abducens paralysis, bilateral paresis of the superior laryngeal nerve, complete paralysis of the left recurrent laryngeal, almost complete of the right; degenerative atrophy of the lower two-thirds of the left sternomastoid, beginning atrophy of the right; labyrinthine, probably acoustic disease of the left side. The case is an illustration of the rare implication of the pneumogastric and spinal accessory nerves. The fact that the sternomastoid was not in the slightest affected, would indicate that in this case this muscle is not innervated by the spinal accessory, a condition which has been repeatedly pointed out. [E.L.]

Flaccid Paraplegia with Exaggerated Reflexes and Epileptoid Tremor.—M. Lannois and A. Porot² report the case of a woman who was suddenly affected by a paralysis of the lower extremities with retention of urine and feces. She improved somewhat, but the paralysis suddenly became complete. The muscles were completely relaxed, the knee-jerks exaggerated, with a tremor of both feet, complete anesthesia, and obstinate retention of urine and feces. At autopsy there was found a caries of the seventh cervical and first to third dorsal vertebrae, with an apparently complete transverse degeneration of the spinal cord for a distance of three centimeters. Microscopic examination, however, showed that the section of the cord was not complete. The peculiar feature of the case was the dissociation of the condition of muscular tonus and the tendon reflexes. This can only be explained by assuming that the center of muscular tonus lies in the cerebral cortex; while the exaggerated reflexes are attributed to the intact condition of the spinal reflex arc. The authors review the secondary systemic degenerations, which followed the transverse myelitis. Descending degeneration was found to be more or less complete in the pyramidal tracts, extending also into the so-called intermediolateral fasciculus. The degeneration was especially marked in the anterior part of the anterolateral columns. This part of the cord includes the column of Türeck, which has more recently been enlarged to form the so-called crescent-shaped column of Marie and Guillain; the latter includes fibers from the cortex, peduncles and pons. The descending sulcomarginal fasciculus, containing fibers from the corpora quadrigemina and cerebellum, was also the seat of a descending degeneration. No systemic descending degenera-

¹ Journal of Nervous and Mental Disease, March, 1905, p. 160.

² University of Pennsylvania Medical Bulletin, January, 1905, p. 342.

³ Medical Press and Circular, December 28, 1904.

¹ Deutsche medicinische Wochenschrift, 1904, xxx, 1712, No. 47.

² Lyon Medical, January 15, 1905.

tion was found in the posterior columns, which is somewhat contrary to the finding of some recent authorities. The ascending degenerations were those typically found in the posterior columns, the direct cerebellar tract, and Gowers' tract. [B.K.]

An Obscure Form of Alcoholism Involving Irresponsibility.—T. C. Shaw¹ finds that of all the causes or mental conditions which eventuate in murder or self-destruction, none is so frequent or powerful as drink, whether acting directly or indirectly. The law holds a man responsible for actions which seem to be logical, but character is the ultimate cause of will and whatever changes character modifies the will, and therefore changes the conditions of responsibility. There is a class of patients in which complete recovery from the brain injury caused by intoxication does not really occur, though the ordinary brain reflexes regain sufficient power to deceive those with whom the individual is usually in contact. The writer has seen patients repeatedly in which alcohol has produced suicidal or homicidal conditions, an interval elapsing between the cessation of drink and the outbreak of the attack, nothing wrong being in the meantime noticed by casual observers. Minute investigation would probably have disclosed incapacity for attention to new subjects, irritability of temper, emotional instability, all pointing to an impulsive condition and loss of inhibition. This state is akin to one of partial shock, leaving the lower centers free to act while the upper centers are in a greater or less degree of paralysis. It is impossible to define accurately the line between responsibility and irresponsibility, and the microscopic findings are not decisive, showing deteriorations even on what have been considered healthy brains. Punishment, acting medicinally, often prevents the repetition of crime, but this has nothing to do with the question of responsibility. [H.M.]

Multiple Cerebrospinal Sclerosis.—F. X. Dercum and A. Gordon² report a case of this condition which is the seventh, with pathologic findings, reported in the United States. The patient was a white woman of 29. The lesions were scattered throughout the brain and cord, the most remarkable point being the great irregularity of their distribution. Another interesting feature was the presence in the sclerotic areas of isolated normal cells and axis cylinders. Degenerative changes in bloodvessels, though present to some degree, were not in keeping with the destructive process in the nerve tissue and the writers do not believe they bear to each other the relation of cause and effect. It is not impossible that the lesion has its origin in the glia, but all we have a right to infer is that neither the nerve cells nor axis cylinders on the one hand, nor the bloodvessels on the other, are primarily involved. The presence of secondary degeneration was also an interesting feature of this case. The condition of the knee-jerks during life was of some diagnostic importance. At first, and for a long time, they were exaggerated, but gradually diminished in intensity and finally disappeared. [A.G.E.]

Atrophy of Bones in Syringomyelia.—F. Tedesco³ reports the cases of five patients suffering from syringomyelia, and in the course of which atrophy of various bones was observed. He draws the following conclusions from his observations: Bony atrophy or osteoporotic changes exist frequently latent in the course of syringomyelia; the first sign of their existence is usually a spontaneous fracture. The simultaneous existence of muscular atrophy makes it probable that the etiologic factor for both is the same. All the cases thus far observed presented also angioneurotic disturbances of the affected extremities (cyanosis, acute edema, disturbances of the sweat secretion). The author is not certain whether a relation exists between the angioneurotic affections and the atrophy, but considers their coexistence of sufficient importance to emphasize it. The skiagraphs of all the cases showed the picture of chronic osseous atrophy, i. e., equal clearing of the entire bone shadow, with retention of structure and size of skeletal parts. The diaphysis as well as the epiphysis is affected. It is possible that at the beginning of the process a condition of the bone tissue corresponding to acute osseous atrophy exists; it would be characterized by a spotted clearing

up of the shadow of the spongy tissue in the röntgen picture. Nonuse, in the author's opinion, is of little importance as an etiologic factor, as none of the patients were robbed of the use of their limbs. The atrophic and porotic bones of such patients fracture easier than normal bones. This is in favor of the opinion that mechanical processes play an important role in the production of the osteoarthropathies in syringomyelia. [E.L.]

Mental Deficiency in Children in Regard to Prognosis.—C. H. Fennell¹ groups congenital cases of amentia into simple, microcephalic, Mongolian, hydrocephalic, sense deprivation, and cretinism; and acquired amentia into traumatic, inflammatory, epileptic, organic, hypertrophic, amaurotic family idiocy and juvenile general paralysis. The slightest cases of imbecility show weakness of the higher activities and we cannot create what is congenitally absent. When attention is turned to manual work, a varied field of training is opened up. The microcephalic, despite their winning ways, generally afford but little result from education, their powers of attention are deficient. If a Mongol can be taught the simplest household work, it is an achievement. Congenital hydrocephalics are more amenable to development than those in which the disease is acquired. The latter are most intractable. In cretinism the writer has noted marked improvement mentally and physically even in adults. In acquired amentia the outlook is far less favorable than in the congenital forms. Prognosis as to epileptic imbecility depends greatly on the severity of the seizures and on the extent to which they can be controlled. The effect of tumors depends on the progress of the lesion. Cases of hypertrophic idiocy are hardly amenable to improvement. Amaurotic family idiocy ends in gross idiocy and death. Juvenile general paralysis leads to increasing mental and bodily enfeeblement, and ultimately to death. The mentally deficient have a special predisposition to acute insanity and to tuberculosis. Their interests can be better safe-guarded by segregation than by home life. [H.M.]

Mental Symptoms, Associated with Heart Disease.—H. Kerr² says the frequency of heart disease in the insane may be estimated from the statistics of the reports of a commission in lunacy, where it is seen that the deathrate among the insane from cardiac disease is 10.07%. While in the majority of instances the cardiac condition probably bears little relation to the mental condition, in a certain number of cases mental symptoms are present, which have a definite relation to the cardiac condition. A case is reported in which a man of 52 was admitted to the asylum in his first attack of insanity of three months' duration. His previous health, aside from cardiac trouble, had been good. At the time of admission he was depressed and low spirited, with suicidal tendencies; he was dull, and disinclined to talk. On examination, cardiac dulness was found to be increased in every direction, and marked pulsation was present over the cardiac area; the pulse approached the water-hammer variety. He was kept in bed and under treatment with cardiac tonics for six weeks, and there was great improvement in both the cardiac and mental condition. After this, his cardiac condition, and likewise his mental condition, continued good for several months. It was then noted that the heart was becoming insufficient, and at the same time there appeared an aggravation of his mental symptoms. The author appears to believe that the mental condition was dependent upon the cardiac condition. The patient died, and on postmortem the heart was found enormously hypertrophied. [A.B.C.]

Akinesia Algæra.—M. O. Shaikewitch³ discusses this peculiar nervous affection. A patient afflicted with akinesia algæra cannot make any movement without pain, and the result is that he assumes a position of enforced rest, trying hard to avoid every movement. The author reports two original cases, and looks upon the affection as a variety of hypochondriasis, having only a clinical, not a pathologic right to be classed separately. The pains must be pronounced unreal, and looked upon as delusions of pain. Akinesia algæra occurs most frequently in the course of other psychoneuroses as a complication or intensification of the underlying disease. [L.J.]

¹ Medical Press and Circular, December 14, 1904.

² American Journal of the Medical Sciences, February, 1905.

³ Deutsche Zeitschrift für Nervenheilkunde, 1904, xxvi, 336.

¹ West London Medical Journal, January, 1905.

² The Lancet, February 13, 1905.

³ Russki Vrach, January 8, 1905.

American Medicine 673

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine
DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY
Legal Medicine
JOHN MARSHALL

General Surgery
MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR
Pathology
ALLER G. ELLIS

Obstetrics and Gynecology
WILMER KRUSEN
FRANK C. HAMMOND
Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment
SOLOMON SOLIS COHEN
L. F. APPLEMAN
Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.
D. BRADEN KYLE
Ophthalmology
WALTER L. PYLE
Dermatology
M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 17.

APRIL 29, 1905.

\$5.00 YEARLY.

The diminishing birthrate is a topic of unending interest in current literature. It is a phenomenon as old as the human race, but because it has just been widely noticed it has given rise to needless alarm. Even physicians have failed to note that all such natural laws are wholly beyond man's control, and many writers seem to think that by our voluntary efforts we can change a process which has been going on ever since the time when every woman was annually fruitful. It is an invariable law that the lower the civilization the greater the birthrate. In no other way could the savage races survive under their tremendous deathrates. Those families which were too small have simply perished, and the families which carried on the race have been those large enough to have some survivors to marry. Among lower organisms where the deathrate is prodigious, survival could only result from an equally prodigious birthrate as with certain fishes. It is the same law of natural selection as with primitive man, who was so markedly different from modern man.

Birthrates are Remarkably Sensitive to Changes in Deathrates.—Reproduction is such a drain upon the organism that, by the law of economy, the surviving lines are those which produce the minimum possible, even though that minimum may be a great number. Hence, when deathrates diminish, the fittest for survival are those with the lesser number and not those which have wasted their substance by useless reproduction. Man has survived through the action of this law and his birthrate has invariably diminished with the diminishing deathrate of an increasing civilization. If too many are born in one family they may not be as strong nor as well started in life as the offspring of the smaller families and extinction follows in time. If too few are born, the ordinary accidents of life will end the line. In the case of man as well as every other species, natural forces are more concerned with the welfare of the species and not of the individual.

The proper size of family for ultimate survival cannot possibly be determined because the future environment will probably be so different from the present. The population of some centuries hence will be descended from the present families of the fittest size and it is no more possible for man to change the matter

than it is for him to change his complexion. He must be adjusted to his environment or perish. So we need not worry over it in the least—for nature will mind her own business, as she always does. The lay press has had its sensation over the matter, and its readers have been duly thrilled at the idea of a manless earth, but they can now sleep peacefully, knowing that the future race will be amply provided for by a diminished birthrate, which is the best for nature's purposes. In the meantime they can console themselves with the thought that, as a rule, the men who have made the world's history have not left descendants, and the few who have left a posterity have probably regretted it ever since. The ancestors of the future great men are now in the great normal healthy class of average men with the proper-sized families. They will keep every part of the world filled with as many men as can find subsistence, just as they always have done. The upper classes tend to disappear, and their small birthrate is of no special significance.

The Sociologic Problem of Family Desertion.—The signing by Governor Higgins of the desertion bill recently passed by the New York Legislature serves to emphasize the increasing importance to charitable societies, and hence to the general public, of family desertion. A late number of *Charities* is devoted largely to the consideration of this question, one writer discussing it from the legal aspect, another from the standpoint of broken families. From these we learn that one of every 10 applications for relief in the United States is the result of desertion by the husband and father of the family. In hundreds of cases of desertion which have been fully investigated, the wife was found to blame in only a sixth. Of the five-sixths due to the husband, half were the result of intemperance, a fourth licentiousness or other moral defect, a sixth disregard of family ties or a roving disposition; this leaves but little more than 7% to causes other than moral, the ordinary deserter being a man not unable but unwilling to care for his family. An examination of the laws in various States and Territories shows that nonsupport in some form is made an offense in all but 6; in 14 it applies to children only, in 30 to both wife and children. An official in New York states that 25% of commitments of children to institutions are due to desertion, an item of useless

expense to the community which, if realized, would cause taxpayers to rise in revolt.

Treatment of Deserters.—Two ways of dealing with these persons have been more or less thoroughly employed—reconciliation with the family, and a court decree enforcing contributory support. Neither appears to have been successfully sought by charity workers. Of 383 cases, the former was not attempted in 207, because the address of the man was not known, and in 122 the family was considered much better off without him. For not securing a court decree, the reason in 223 of 302 cases was that the man was out of reach. Hence, the family is provided for in some way, often at public expense, and the scoundrel responsible for their destitution goes free. A proposed law for all the States makes desertion a criminal offense (now it is a misdemeanor or felony), which is extraditable, includes nonsupport without desertion, recognizes the wife as well as the children, and affixes as a penalty imprisonment at hard labor. The aforementioned New York law makes desertion a felony and does not include the wife, which certainly leaves much to be desired. The offense of desertion, which appears to be increasing, should be effectively punished. The effect on the physical and moral welfare of deserted wife, and of children who are thereby too early driven to work, is of far-reaching significance. Medical as well as social problems are at once engendered by this evasion of responsibilities. Legislators who debate proposed laws may well profit by the experience of those who deal directly with the conditions imposed by deserting miscreants.

The Decreasing Mortality in Chicago.—In the bulletin of the Chicago Health Department for April 15, Commissioner Reynolds contrasts the deathrate of the last 10 years, his term of office, with that of the preceding decade. The decrease in the general rate was from 20.2 to 15.1 per 1,000 of population, a most gratifying reduction. Though Dr. Reynolds says the decrease in deaths from certain diseases during the second decade can be attributed directly neither to medical science nor to sanitation, "the greatest reductions of mortality are among diseases over which sanitary administration and sanitary conditions have the greatest and most direct control." Among these are smallpox, with respective rates of 1.09 and 0.15 per 10,000; diphtheria and croup, 13.7 and 4.9; typhoid fever, 7.9 and 3.2; diarrheal diseases, 26.4 and 14.5; tuberculosis, 17.6 and 15.2. These results, with the consequent saving of life, are depicted by graphic charts which will appeal to the general public when presented in the daily papers as they undoubtedly will be; frequent quotation by the press of the virile bulletins of the department has been a material aid in its work, a point fully recognized by Dr. Reynolds. Cities which maintain semisecrecy in this respect might well imitate Chicago. Speaking of the diseases which have increased during the last decade, Dr. Reynolds says that excepting cancer, every one of importance may be traced directly to the malign influence of influenza. Of itself, the mortality has increased 145%, but this is considered of minor importance as

compared with its effect in paving the way for other diseases. Not everyone will be disposed to attribute so important a role to influenza, but the opinion of such an experienced observer is entitled to the greatest respect. As a whole, the record of the Health Department of Chicago for the last 10 years is one of which that city may be justly proud.

The Bates Project for the Panama Canal.—An engineer of New York, Lindon W. Bates, makes the suggestion of an entirely new method of meeting the problem of the construction of the Panama Canal, which appears to do away with many of the difficulties heretofore found so insuperable. In brief, the plan is the creation chiefly of two large artificial lakes, whereby practical lake navigation for about 17 miles is secured at about 20 feet above sea-level. As to the sanitary advantages of this proposal, it must be true that these lakes, Chagres and Panama, drowning the swamps adjacent to the terminal cities will have most beneficial effects upon the health of the engineering and construction forces, and upon the residents of the cities for all time. There will be no more wading in saturated stifling jungles, there will be much less vegetation, and the mosquito as a pest could be more easily controlled. In connection with the oil pipe line from which every breeding area can be reached the larvas can be exterminated. The roads and embankments can likewise be relieved in good measure, by oil, from the plague of mud, which must so greatly handicap economies of construction.

Jiu-jitsu is a complicated system of trick wrestling evolved by the Japanese after centuries of trial and practice by the ruling classes. It depends upon an intimate anatomic knowledge of the joints and peripheral nerves. The wrestler tries to seize his opponent in such a way that he can twist a joint, say the shoulder, so as to give great pain. American school boys have a trick of seizing another's index finger and bending it back until pain causes the sufferer to cry for mercy, and this is typical of jiu-jitsu. It is combined with such tricks as pressing upon exposed nerves or tender spots in joints such as under the lobe of the ear, while holding the opponent in a species of chancery, or an effort may be made to choke the opponent. As soon as the antagonist relaxes his guard in a moment of pain, the other slips behind him and while back to back throws him over his head by a dextrous movement. While still stunned, the fallen man is seized, bound, handcuffed or in the olden times dispatched with the sword. The system was carefully taught to all the samurai or ruling caste, but the mass of the people were kept in ignorance of its tricks. At present it is apparently used by only the police, to assist them in overpowering men much larger than themselves.

The qualities of a Japanese juggler are required for expertness—very flexible joints, great muscular power, a cool head, and a feline agility which no race possesses except the Japanese, and even with these natural traits, the Jap requires several years to learn the numerous tricks, and must keep in constant practice.

Europeans who attempt to become expert do not succeed, so that it is not at all probable that it can be transplanted to America and flourish. The footpad has more efficient means of attack, and the victim is not as well off as he would be with a fair knowledge of boxing.

Jiu-jitsu is advocated as a system of calisthenics, and there is at present a tendency to introduce it from this standpoint, but its dangers are so great that it would be wise for the medical profession to frown upon it. Only Japanese joints and bones can withstand such usage, and we can rest assured that if the present tendency succeeds, physicians will meet with a series of cases of twisted, sprained and permanently damaged joints and traumatic neuritis. Already there are reports of fatalities from the violent throws upon the floor, and it would seem to be more dangerous to life than boxing and football. Americans who have witnessed jiu-jitsu bouts in Japan, between native experts in their native costume, or lack of it, know that even with the floor heavily padded with mattresses, the exertion is so violent and a man can be thrown with such force, that it is only by the greatest skill and agility that the Japs themselves escape serious injury. If one is ruined, the others, with Oriental carelessness of life, do not seem to care particularly. Physicians therefore should utter a word of warning whenever the occasion arises against this new fad, and though it is not exactly a yellow peril from the Orient, it bids fair to produce more evil than good. We hope that it will not be introduced into the athletic drills of our military schools, particularly those at West Point and Annapolis.

Hygeia Soporosa.—It is reported that the health authorities of certain Southern States have issued a quarantine order against all parts of Cuba outside Havana, requiring every person who desires to visit a Gulf State to obtain from an officer of the United States Public Health and Marine-Hospital Service a certificate, declaring that the time from the point of departure in Cuba is such that five full days must elapse before landing can be made at the point of destination in the United States. If this is true we hope that the promulgators of the order can explain its necessity to the people of their several sovereign States. The one ground of necessity which can justify such an action is to admit that the States concerned cannot do on the smallest scale what has been done on a large scale and with apparent ease by Cuba. It may be that the health authorities of the Gulf States are in such necessitous straits, and it is perhaps inconsiderate to ask how they have been brought to this extremity. The matter is of importance, however, to the whole country, for we are accustomed to rely on a certain not very exacting standard of efficiency in local sanitary government, and it is difficult to conceive that a State Board of Health, driven to so poor an expedient in the solution of a hygienic problem so simple, can have practical efficiency of any sort. Every one knows that the cumbersome and very expensive quarantine armament of the Gulf States was not good enough in 1900 to preclude the use of devices like this quarantine order of 1905, and that monstrous equipment is no better today.

One can understand the reluctance of the owners to send so much costly and useless metal to the scrap heap, but for an American Board of Health in 1905 to confront a foreign government with a quarantine order is a ridiculous anachronism. The history of long and futile resistance by certain southern health officers to the ascertained truth about yellow fever is well known to the medical profession. Driven to unwilling admission of the mosquito theory, these sanitarians fell back on the possibility that the mosquito theory, while true, might not include the whole truth of the transmission of yellow fever. Weakening in this position, they set up a plea of popular disbelief in the South, and asked for more time to effect the conversion of their cumbrous methods into conformity with modern ideas.

Sanitary Anachronisms Should be Abandoned.—Year after year these so-called sanitarians have opposed any conclusive statement by the associated health authorities of this country concerning the prophylaxis of yellow fever, and year after year American Boards of Health have been indulgent, believing that those who had most at stake were doing their best to adjust themselves to new conditions. With the promulgation of this quarantine order, the time has come when the sanitarians of this country should proclaim their settled convictions unequivocally and without reservation. American sanitarians are wholly convinced and will, without the slightest misgiving, risk the welfare of the country on their faith that the procedures which in Cuba afford perfect defense against yellow fever, will do as much for all civilized lands. If the Gulf States are not prepared to deal simply and effectively with yellow fever, their weakness is chargeable first and last to the health officials. Allowing the largest reasonable weight to popular unbelief, one cannot accept the health officers' plea of constraint by this influence, for public opinion is no more refractory in the South than elsewhere. Whoever was so fortunate as to be present in New Orleans in May, 1903, when Stanford Chaille, the Nestor among American students of yellow fever, made his noble and self-effacing address, must have been convinced that professional opinion in the South was well informed on the subject; and whoever heard on the same occasion the vigorous remarks of Quitman Kohnke, then and now health officer of New Orleans, must have been convinced that public opinion in the South manifests no serious hostility to the truth about yellow fever. If the people of the South have not learned the very striking lesson which the experience of Cuba has impressed on the rest of the civilized world, they have remained in this benighted condition for no other reason than that the appointed leaders of public opinion have not led.

Hindrances to Food Legislation.—Among those who are well informed on the subject, there is no doubt about the necessity of uniform food laws, operating through Federal agencies equally in all parts of the United States. Those who most desire the enactment of a food law probably also understand best why Congress after Congress adjourns without providing such legislation. The reasons for this inaction are fairly satisfactory

to some at least of the advocates of strict and uniform food laws. It is generally understood that the recent defeat of the reformers was brought about by the National Liquor Dealers' Association. This association claims indeed to have beaten the previous food bills, and they may be allowed whatever credit there is in such a performance. The power of the combined liquor interests has been manifest from the first. They have been strong enough to divide. Two years ago the so-called Whiskey Trust cantered off the field with the little green stamp, and has no further interest in the campaign. In the recent campaign the association labored in opposition mightily and, as we think, unnecessarily. Beside the little green stamp, the "pure food" agitation has produced on both sides an extraordinary amount of yellow literature, and it is not strange that the politicians and the people remain unconvinced after a campaign of such vigorous unveracity. The propaganda in favor of this needed reform has been quite bad enough to defeat it.

An example of vicious advocacy is found in *Public Opinion* for April 1, 1905, under the title "America's Food Poisoners." The author, Paul Pierce, publishes a magazine called *What to Eat*. This magazine has been recommended in glowing terms by the National Association of State Food and Dairy Departments; its voice has been heard in the U. S. Senate, and the editor, Mr. Pierce, was a superintendent of the Food Show at the St. Louis Exposition, so that he speaks with some authority in his subject. Concurrently with his papers in *Public Opinion*, Mr. Pierce is printing in *What to Eat* a series of articles similarly motivated, under the more shocking, but not more truthful title "The Slaughter of Americans." In order to justify his gory headlines, Mr. Pierce offers an ample bill of particulars concerning fraudulent and dangerous adulterations and sophistications of foodstuffs. These particulars consist mainly of two sorts of untruth, simple and compound. The statements which are simply false are comparatively unimportant, since they may be put out of action by merely challenging them. The compound untruths are more serious, since they contain a binding substance of fact which renders them viable. As examples of simple nonviable untruth, the following quotations from the *Public Opinion* article will serve: "More and more is it becoming so that nearly everything thrown into the streets and alleys of American cities is turned into foods"; "More than 700,000 infants died in the United States last year"; "An army of 455,000 babies was murdered last year by food adulterators"; "Residents of Germany . . . have often become violently ill and died in this country from eating American made foods that seemed to have no visible effect on the poison inured American." There are others, but these will suffice as specimens of untruth which the author will not attempt to defend as having any basis outside the realm of fancy.

The compound variety of untruth is well illustrated by the following quotations: "Of the chemicals in general use in the preservation of food, coal-tar dyes are among the most common and the most dangerous";

"There is no American who has not eaten these dyes; none who has not felt their injurious effects"; "Not only is arsenic itself widely used as a food adulterant, but it has become a leading element in the new practice of adulterating other adulterants"; "Formaldehyd in milk caused the wholesale poisoning of babies in Chicago not long ago. New York and other cities have also experienced the fatal consequences of this adulterant"; "Food adulterations, it is estimated, cost the United States more than \$575,000,000 annually." After a slightly exaggerated description of the abuses in fruit canneries, in which he says that "nothing escapes of the fruits or vegetables but the smell," he continues, "the same conditions are true in the manufacture of foods of all other classes. The residue is always made into marketable adulterations." Old horses and mules, seaweed, old boots and shoes, and "the gleanings from the sewers" are utilized, he says, to "appease the seeming hunger for the lower grade foods." One wonders which of the ten quotations given can be defended by the author. Not one of them is capable of proof. Most of them are capable of disproof, and the use of any of them indirectly contributes to the strength and comfort of the enemy, the food fraud. The truth about food adulteration, cogent as it is, becomes powerless when so grossly sophisticated. No good cause needs such championship as that supplied by Mr. Pierce in his *Public Opinion* article.

Cancer in British Colonies.—In answer to a request by the Colonial Secretary of Great Britain, the governors or high commissioners of most of the colonies have reported on the incidence of cancer as an aid to the cancer research committee and the entire correspondence has been published as a government bluebook. From a brief summary of the book¹ we glean that considerable information has been applied, but that a great deal is too indefinite for use in exact research. Many of the cases occurring in whites have been thoroughly investigated but the reports regarding aboriginal peoples, which in a way would be much more valuable, are too uncertain. In general the reports show that cancer is much less frequent among these native races than in civilized people. Secretary Lyttelton asks for more definite information regarding the age of those afflicted and also the average age attained by natives not dying from cancer. Until these facts are ascertained the rarity must be considered as possibly apparent rather than real. Statistics from Ceylon show certain departures from the rule. The disease is comparatively rare, it is more frequent in men than in women, and the most common site is the oral cavity. *The Lancet* says editorially that 55% of cases occur in this location, being nearly as marked in women as in men. It is suggested that this frequency is due to chewing betel, a compound of tobacco, betel leaves, areca nut and slaked lime. Additional exact and valuable information concerning the aboriginal tribes and the cause for their immunity, if it exists, to malignant tumors, will, it is hoped, result from the earnest appeal of the Secretary.

¹ British Medical Journal, February 18, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

Cerebrospinal Meningitis.—The second death within a week from cerebrospinal meningitis at the naval training station, at Newport, R. I., occurred Saturday. The victim was Frank J. McKinnon, an apprentice seaman, of Detroit, Mich. The authorities have taken all possible precautions, and do not anticipate a further spread of the disease.

Mosquitos in Panama.—While few mosquitos are seen or felt in exposed places during the prevalence of the northeast trade winds, the conditions for their breeding, especially *Stegomyia* in the tanks, water barrels, and other containers in the sheltered portions of the town, are undoubtedly favorable. The fumigation of the town, especially such portions as are most likely to harbor infection, is being pushed forward as rapidly as circumstances will permit, but little is being done to do away with these breeding places of the mosquitos. The swamps and pools under the houses, which exist during the greater part of the year, are now completely dry, and the principal breeding places are necessarily in the tanks and barrels in which the people are hoarding what little good drinking water they have, and these are the favorite haunts of *Stegomyia*. Little or no objection is made by the people to the fumigation of houses, as the destruction of the vermin they have harbored so long seems to more than compensate for the trouble and inconvenience occasioned. The appearance of Colon has improved considerably since the sanitary force began its work. The streets are kept fairly clean, the piles of rubbish and filth that for years littered the back yards and empty lots have been removed, and the people are becoming educated to the use of the garbage can. There is no doubt that with a good water-supply, good drainage, and a system for the proper disposal of sewage, Colon will be made a wholesome, healthy place of residence.

EASTERN STATES.

Birth Insurance Unknown.—A special act by the Maine Legislature may be requested by a "birth insurance" company, which, it is said, has applied for rights to do business in Maine. Application has been received by Insurance Commissioner Carr from a Massachusetts corporation, but this class of business is not included in the insurance code. The promoters of the company are women, who say it is not a money-making scheme. No officer can receive compensation for her services. The company is operated on the mutual plan, and by its means the policy holders may, by the payment of a small sum monthly, receive on the birth of a living child a cash benefit of from \$50 to \$500, depending on the premium. The advisory board is composed of persons prominently connected with philanthropic work. Membership in the company is open only to members of the American Education Association.

NEW YORK AND VICINITY.

Hospital Fund Allotted.—Sums aggregating \$76,000 will be distributed at once among various hospitals of the city as the result of an apportionment made yesterday by the Distributing Committee of the Hospital Saturday and Sunday Association. The apportionment is based on the free work performed by the various institutions during the past year. The Montefiore Home and Hospital received a tenth of the entire amount.

Plumbing Rules and Public Health.—Bad effects on the general health of New York City are reported from the revoking of a building department order, forbidding the use of putty, red lead, cement, plaster, or other plastic substance in the setting of toilet fixtures. It has been claimed that the use of these substances is dangerous, inasmuch as after a time they dry out, crumble, fall away, and permit the escape of sewer gas into houses. The revoked order was that toilet fixtures should be set upon floor flanges, and the danger of disintegrating plastic substances avoided.

Doctors Object to Use of Their Names.—Several prominent physicians and surgeons of New York City, including Charles McBurney, W. T. Bull, Austin Flint, A. Jacobi, and E. G. Janeway, have written to the New York *Herald* protesting against the use of their names in an advertisement. They maintain that the advertisement apparently intends to convey the idea that they are willing to be referred to regarding certain methods of treatment. They have no knowledge whatever of the advertiser, they assert, and add that the use of their names is unauthorized and distasteful.

A panic among the patients in the Metropolitan Hospital, on Blackwell's Island, was caused one day last week, when a pot of boiling wax was overturned and set fire to the floor of a ward in which 90 patients were quartered. The flames were quickly extinguished with but little damage, but in the meantime the patients in the wards had been assisted from their cots and were prepared to make a hurried exit. The

patients quickly became calm when informed that there was no danger. Soon after they had returned to bed they were alarmed by a second outbreak of the fire, but the blaze was quickly smothered.

Meningitis Cases.—At 13 Little West Twelfth street, which was a tenement away back when New York was young, cerebrospinal meningitis has settled down as if to stay. Within three weeks five children have died there of the disease, and three are now stricken with it. Health Commissioner Darlington reports that for the week ending April 22, there were 104 deaths from spinal meningitis, while for the previous week there were 117 deaths from the same disease. For the corresponding week of last year the deaths from this cause were 59. The total number of deaths from spinal meningitis since January 1, 1905, were 1,033, while for the same period last year the deaths numbered 274. Pneumonia caused 257 deaths last week, while during the corresponding week of last year such deaths numbered 399.

Slocum Nurses Rewarded.—Fifty-one nurses at North Brother Island, New York, have been presented with diplomas, the gift of Augusta Victoria, Empress of Germany, in recognition of their heroism on June 15, 1904, when the excursion steamer General Slocum was burned and over 1,000 lives were lost. The formal presentation was made by Acting Consul-General Gneist of the German Empire. The head nurse, Miss Edith V. D. Smith, who directed the work of rescue and cared for the living as well as the dead, received also a gold brooch, the personal gift of the German Empress. On it were emblazoned, in enamel, the German coat of arms, in the center of which was a large emerald, surrounded with pearls. A personal letter from the German ambassador at Washington was also presented.

PHILADELPHIA, PENNSYLVANIA, ETC.

Twins, Twins, and Triplets!—It is reported that Mrs. Uriah Bailey, of Laurel, Del., not yet 18 years old, has just been delivered of triplets. Less than two years ago she gave birth to twins, and less than one year ago again was confined with twins, making seven children in two years. None of the children have survived. Mrs. Bailey is very frail, and the father, a mechanic, is not robust.

Heavy Damages for an Eye.—In the U. S. Circuit Court, Philadelphia, a jury last week returned a verdict of \$7,500 against the International Mercantile Marine Co. for injuries received by Theresa Gaffney, on July 16, 1904. Mrs. Gaffney was standing on Washington avenue wharf watching the departure of the Friesland for Liverpool. A tug was pulling the vessel into the river, when the hawser slipped, swung over the wharf and knocked several men and women down. The end of the rope struck Mrs. Gaffney's eye, paralyzed the muscle, and since that time she has been blind. The jury awarded \$5,000 to the woman and \$2,500 to the husband.

Better Milk Sold in Philadelphia.—Experiments have shown that a much better grade of milk and cream is being supplied in this city than was the case some years ago. Chemists who analyzed numerous samples of milk recently purchased from dairymen doing business in this city and from retail stores, reported that not a single sample contained formaldehyd or other harmful preservative, formerly in common use. The cream analyzed was also free from preservatives or foreign coloring matter, while the quality was of a fair average and equal to that of any other city. The range in actual fat contents was from 13% to more than 25%.

Removing a Medical Boycott.—It is said the fact that a physician in the upper part of the county sent a patient to the Allentown, Pa., Hospital suffering from a disease from which he died the following day, has awakened the authorities of that institution to a condition of affairs which they don't know how to combat. Among the mass of foreigners at work in the cement mills and quarries in Lehigh and Northampton counties there is a superstition that it is unlucky to employ a physician who has failed to cure any of their number, and such a physician is instantly boycotted. To offset this superstition it is the habit of certain physicians to rush their patients immediately to the hospital as soon as they realize that they cannot recover. This process greatly increased the mortality list of the hospital.

Recent Legislation and the Governor.—Governor Penypacker has vetoed the baby-farming bill because of faulty construction. The bill providing for the removal of bodies of dead animals by the health authorities was also vetoed because its provisions were too stringent. The bill was approved granting to those having charge of the public health and sanitation in Philadelphia the power to make rules and regulations governing the care and control of persons suffering from cholera, yellow fever, typhoid fever, typhus fever, scarlet fever, relapsing fever, smallpox, chickenpox, diphtheria, diphtheric croup, membranous croup, cerebrospinal meningitis, measles, mumps, whoopingcough, tuberculosis, pneumonia, puerperal fever, plague, trachoma, leprosy, tetanus, glanders, hydrophobia, or anthrax.

Doctoring of Food Prohibited.—Governor Pennypacker's action in signing the bill amending the act of April 28, 1903, which made it a misdemeanor to use more than a half of 1% of boracic acid compounds for the preservation of food commodities, has removed the last loophole for the doctoring of meats or other articles of food. The act of 1903 was misleading, because a cursory reading thereof seemed to legalize the use of harmful preservatives in given quantities. Dealers took advantage of that act, with the result that prosecutions instituted by the Dairy and Food Commissioner to stop the practice, cost the State in the last two years probably \$15,000. Mr. Brown says that this last legislation materially strengthens the pure food laws which he says now absolutely prohibit the use of preservatives of any kind, whether harmful or not. The provisions of the amending bill go into effect at once, and it is understood that the Food Commissioner may at any moment instruct his agents to start collecting samples of meats or other food commodities that he may believe contain preservatives in any form. No extension of time will be given any dealer to get such meats off his shelves.

SOUTHERN STATES.

Alabama State Medical Association.—The fifty-eighth annual convention was held last week, with 200 physicians in attendance. Capers C. Jones, of East Lake, presided, and a number of distinguished scientists from all over the country were present. The association advocated a State commission for the purpose of curbing the spread of tuberculosis.

Hiccoughed for 96 Hours.—After hiccoughing almost incessantly for 96 hours, Austin T. Quick, a business man of Lynchburg, Va., was relieved. There seems to be no doubt now of his recovery. The publication of his trouble brought the family a large number of letters, telegrams, and even long-distance telephone messages suggesting remedies. Some were tried, but gave no relief.

To Abate Dust Nuisance.—An ordinance is passed in Baltimore appropriating \$25,000 to keep down the dust and otherwise improve the street conditions in the burned district. The \$25,000 appropriation will be expended under the supervision of the Board of Estimates, but the Street Cleaning Commissioner will be in charge of the work. The city has eight sprinkling machines, and it is the purpose to utilize these in sprinkling in the burned district every day.

The American Anti-Tuberculosis Congress assembled at Atlanta, Ga., last week with an attendance of about 490 physicians. Delegates came from nearly every part of the United States east of the Rocky Mountains, and there were several prominent representatives from European centers. Addresses of welcome were made by Governor Terrell, Clark Howell, editor of the *Atlanta Constitution*, and by several others. The formal address of Dr. George Brown opened the proceedings.

To Stop Insanity by Law.—The sixty-first session of the American Medico-Psychological Association last week chose St. Paul for the next meeting place. The papers and discussions hinged about the proposal to prevent the spread of insanity by legislation. H. W. Miller, of Taunton, Mass., drew the conclusion that the States should control the marriage of persons afflicted with mental maladies. C. G. Hill, of Baltimore, took a contrary view, saying the tendency of heredity is always to the better.

Health Officer Threatened.—John S. Fulton, secretary of the Maryland State Health Board, found three cases of smallpox at Hagerstown last week, and incidentally had an exciting experience with a storekeeper whose wife was sick. The man threatened to kill anyone who attempted to enter his house. Dr. Fulton drew his watch and gave him three minutes to grow reconciled to the disinfecting and placarding of his home and store. He seemed to acquiesce, but when the physician left he again grew unruly, and Dr. Fulton, again summoned, ordered his arrest. The disease was taken to Hagerstown by a cigar salesman from Richmond, and six families contracted the disease. Dr. Fulton found but three dangerous cases, and ordered the houses quarantined. He states there is no danger of an epidemic.

WESTERN STATES.

Michael Reese Hospital.—Work has been begun on the new Michael Reese Hospital, to be erected on the old site in Chicago. The first spadeful of earth was turned by Isaac Greensfelder, who performed the similar duty 25 years ago at the beginning of the old building. The new structure will cost about \$500,000.

Direct Serum Therapy for Meningitis.—It is reported that Professor Ludvig Hektoen, before the American Association of Pathologists and Bacteriologists, suggested withdrawing a portion of the cerebrospinal fluid from the spinal canal and injecting in its place pure serum taken from human blood, thus securing immediate phagocytic effect. Although the treatment has not been tried upon human beings as yet, Dr. Hektoen says he has experimented successfully with animals, and has effected numerous cures, which he believes are permanent.

Chicago Healthiest Big City in the World.—Chicago is the most healthful big city in the world, according to statistics furnished by C. St. Claire Drake, statistician of the Health Department. He shows that the duration of life in Chicago has increased 166% since 1870. In that year the average age at death was 12 years, while in 1904 the average age was 32—a gain of 20 years of life for the average Chicagoan.

Chicago Antispitting Signs.—Signs to be posted in all public conveyances and public buildings for the prevention of spitting have been issued by the Chicago Health Department. All vehicles for the transportation of passengers, including cabs, will be required to carry the signs. They also must be posted in office buildings, lodge halls, theaters and dance halls. The police will prosecute persons who have not posted the signs where required by law by May 1.

Large Contract for Medical Services.—Numerous witnesses to the genuineness of L. C. H. E. Ziegler's \$100,000 contract with the late Mrs. J. H. McVicker testified in the Probate Court in Chicago last week. Dr. Ziegler's claim is for \$126,000 for medical services for several years previous to Mrs. McVicker's death, which occurred last August in Pasadena, Cal. Mrs. McVicker told witnesses that Dr. Ziegler had prolonged her life, and that inasmuch as she was wealthy, she had decided to pay him well for his services. She explained that the physician had abandoned his practice and agreed to devote his entire time to caring for her.

Meats Must Not be Displayed Outdoors.—The display of meats on the street in front of butchers' and market dealers' shops in Chicago must cease after May 1. A provision has been found in the new rendering ordinance which prohibits the hanging of meats in the street, and the city health department is about to enforce the law. Wooden hams or those stuffed with sawdust will be permitted to hang from the butcher shop door, but any portion of slaughtered animals will have to remain inside. Even sausages and turkeys and game displayed for advertising purposes will have to be removed from the streets. The ordinance reads that "no animals shall be slaughtered or the meat or any part thereof dressed or hung, wholly or partly, within any street, avenue, or sidewalk, or public alley or place."

FOREIGN NEWS AND NOTES

GENERAL.

Heavy Damages for Railway Accident.—The Paris courts have decided that remarkably heavy damages must be paid by the Eastern Railway Company to Mme. Eckman, widow of a man killed when an auto was demolished at a level crossing at Ozoer la Ferriere last year. The widow will receive the sum of \$6,000 for herself and \$2,000 for each of her two children, beside annuities of \$800 for herself and \$400 for each child.

Smallpox.—Further reports continue to be received of vessels along the China coast having smallpox on board, which has been contracted, directly or indirectly, at Shanghai. At the sailing of the steamer Loongsang from Hongkong, February 24, 1905, Passed Assistant Surgeon M. J. White detected a case of smallpox among the crew. Certain measures were taken by the Hongkong quarantine authorities, and after a period of two days, the vessel was released and permitted to proceed to Manila. All passengers were left at Hongkong. Upon the arrival of the vessel in port a careful inspection was made of the crew, all of whom showed evidences of recent vaccination, and it was deemed necessary only to bathe them and disinfect their effects and quarters, after which the vessel was released, with the understanding that only the master thereof was to be permitted to go ashore, in order that he might transact the necessary ship's business.

Bubonic Plague in South America.—Recent dispatches state that the reports of bubonic plague in Copiapo, Chile, have, unhappily, been confirmed. The local population have joined in making a protest to the government because it has not as yet adopted any measures against the spread of this disease. The report that bubonic plague had broken out in Atacama, Chile, is confirmed. A dispatch from Santiago states that the French legation has called the attention of the Government of Chile to the absolute and pressing necessity for taking strong measures which will prevent the spread of bubonic plague from the foci already infected, and in which the disease is making many victims. On the same date there was a report of bubonic plague from Coquimbo, where a number of cases had been verified. The Chilean government has ordered from Europe a supply of antipest serum in value to the amount of 5,000 francs. Certain cases of bubonic plague had been verified in the city of Valparaiso, and the inhabitants of the city are much alarmed. The government has ordered the adoption of measures in order to prevent the spread of the disease. An outbreak of bubonic plague is reported in San Nicolas, Argentina, the disease being officially verified as being present. There have been three deaths from the disease, and all ill with plague have been removed to hospitals of isolation.

Health of Bombay, India.—It is remarkable that with the slight rise in temperature which has occurred during the past week there has been great improvement in the health of the city. Within the week the plague mortality dropped from 860 to 683, representing nearly 20% in seven days. The phenomenon of the relation of temperature to the intensity of the plague epidemic has been closely noted in previous years, but improvement has never before followed so closely on the first indication of warm weather. It is generally believed that the improved condition which arises on the reappearance of the hot weather is due wholly to the fact that the people leave their houses and sleep in the open, and that there is less crowding in insanitary buildings. There is doubtless ground for this theory, but it does not seem possible that it can account for the entire phenomenon. Some of the worst phases of plague epidemic in the city have occurred at temperatures as high as and higher than those now recorded. The fact remains that there is an immediate response in the increased or decreased activity of plague as the temperature moves up or down. Possibly a close watch on the habits of the people in certain sections of the city might help to unravel the mystery. In some crowded sections there has been a drop; elsewhere a rise or stationary figure during the week. If it be true that, as heretofore, the height of the epidemic lasts but 10 weeks, then Bombay should soon be free from plague.

Mosquitos in Barbados.—No mosquitos of the genus *Anopheles* have ever been found in Barbados, and malarial fever among the resident population is unknown, although sporadic cases may have occurred and, in the absence of a blood-examination, may have been overlooked. There certainly must be some reason for the absence, or the very small number, of the *Anopheles* in Barbados, and recently a planter living in the northern part of this island has advanced the theory that as the swamps and ponds in Barbados are kept free from mosquitos by a small fish that abounds in them, the absence of the *Anopheles* may be accounted for in that manner. These fish are locally known as "millions," because of the countless numbers seen in a single pond of water, but which are probably the so-called top-minnow of the genus *Gambusia* of the species *Affinis*. It is well known that these little fish do feed on mosquito larvae, and when they occur in sufficient number, no larvae are to be found. Still, these fish occur in most of our Southern States, and in many places, as in New Orleans, where the *Anopheles* are found in abundance. So that while the presence of these fish in this island is interesting, one must look elsewhere for the real cause of the absence of the *Anopheles*, and therefore malarial fever in Barbados, which is practically the only island in the West Indies where malarial fever does not occur.

OBITUARIES.

N. Newlin Stokes, aged 72, April 19, at his home in Moorestown, N. J.; a graduate of the Jefferson Medical College in 1854. He was an active member of the Burlington County Medical Society, and for many years a member of the Board of Managers of the State Asylum for the Insane at Trenton, N. J. Dr. Stokes was the third of his family to serve as physician in Moorestown, covering a period of 100 years.

Herbert W. Cardwell, recently, at his home in Portland, Oregon; a graduate of the medical department of Willamette University, Salem, in 1887. He served as surgeon-general of the Oregon National Guard from 1895 to 1898; major and surgeon, United States Volunteers 1898 to 1901, and was a member of the American Medical Association.

John Waterman H. Baker, aged 83, April 7, from senile debility, at his home in Davenport, Iowa; a graduate of Dartmouth Medical School, Hanover, N. H., in 1843. He served as assistant surgeon of volunteers during the Civil war, and at one time was secretary and president of the Iowa State Medical Society.

Loren True Day, aged 48, April 1, from tuberculosis of the lungs, at his home in Westport, Conn.; a graduate of Yale University, medical department, New Haven, Conn., in 1880. He was health officer of Westport; president of Fairfield Medical Society in 1900; and a member of the Connecticut Medical Society.

John Gordon Stewart, aged 63, of Pitscairn, Pa., April 9, in the Mercy Hospital, Pittsburg, Pa., after an operation for intestinal disorder; a graduate of the College of Physicians and Surgeons, Baltimore, in 1882. He was a member of the American Medical Association.

W. B. Ulrich, aged 83, April 24, at his home in Chester, Pa.; a graduate of the Philadelphia College of Medicine and Surgery, Philadelphia, in 1850. He was surgeon to the P. B. & W. railroad, and medical examiner for numerous life insurance companies.

Samuel Gregg George, aged 91, April 3, after a short illness, at his home in Porterville, Cal.; a graduate of the Medical College of Ohio, Cincinnati. He served as assistant surgeon of Ramsey's Company, First Regiment, Ohio Volunteers, in the Mexican war.

Andrew D. Hawley, aged 81, March 31, from senile debility, at his home in College Corner, Ohio; a graduate of the Medical College of Ohio, Cincinnati, in 1848. He was one of the founders of the Union District Medical Society.

Hector McNeill Grant, aged 82, of Helena, Ark., April 6, at the home of his daughter in Clarksdale, Miss.; a graduate of Louisville Medical College. He served as surgeon in the Confederate service during the Civil war; was four times senator from his State, and several times mayor of Helena.

Patrick H. Thornton, aged 69, March 24, at his home in Larkspur, Cal.; a graduate of the University of Louisville (Ky.), medical department, in 1857. He served as chief surgeon in the Confederate service during the Civil war.

Henry Chenoweth, aged 80, April 15, at his home in St. Matthews, near Louisville; a graduate of the University of Louisville, medical department, in 1844. He was the oldest practitioner in Jefferson county, Ky.

Stephen H. Rushing, aged 75, April 19, at his home in Alexandria, La.; a graduate of the University of Pennsylvania, Philadelphia, in 1853. He served as staff surgeon in the Confederate army during the Civil war.

Moses S. Hall, aged 81, of Harrisville, W. Va., April 9, at the home of his daughter in Parkersburg. He had practised medicine in Ritchie county, W. Va., for half a century.

Presley A. Rosenberger, aged 80, of Petersburg, Ill., April 8, from heart disease, at the home of his son in El Reno, Okla.; a graduate of St. Louis Medical College, in 1859.

Samuel H. Griffith, April 24, at his home in Washington, D. C. He was fleet surgeon to the Atlantic Training Squadron. He entered the naval service in 1877.

John S. Baker, aged 74, April 7, from cerebral hemorrhage, at a hospital in St. Joseph, Mo.; a graduate of the American Medical College, Cincinnati, in 1854.

Samuel N. Bemis, aged 81, April 9, from influenza, at his home near Brattleboro, Vt.; a graduate of the Vermont Medical College, Woodstock, in 1848.

Hiram Barber, aged 85, April 24, at his home in Ossining, N. Y. He was surgeon to the New York City Department and physician at Sing Sing Prison.

W. J. DeVoe, March 7, at his home in Camptown, Pa.; a graduate of the College of Physicians and Surgeons, Baltimore, Md., in 1887.

William C. Ravenel, aged 77, April 21, at his home in Charleston, S. C.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 22, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Florida:	Jacksonville.....Apr. 8-15.....	5	
	West Tampa.....Apr. 8-15.....	2	
Illinois:	Chicago.....Apr. 8-15.....	9	
Kansas:	Topeka.....Apr. 1-8.....	2	
	In 46 counties.....Mar. 1-31.....	1123	5
Kentucky:	Louisville.....Apr. 6-13.....	3	
Louisiana:	New Orleans.....Apr. 1-15.....	39	
Maine:	Portland.....Apr. 1-8.....	1	
Michigan:	Ann Arbor.....Apr. 1-8.....	1	
	Detroit.....Apr. 8-15.....	1	Imported
	Grand Rapids.....Apr. 8-15.....	2	
	At 42 localities.....Mar. 25-Apr. 1.....	Present	
Missouri:	St. Louis.....Apr. 8-15.....	24	1
New York:	New York.....Apr. 8-15.....	2	1
Ohio:	Cincinnati.....Apr. 7-14.....	1	
South Carolina:	Charleston.....Apr. 8-15.....	2	
	Greenville.....Apr. 1-8.....	3	
Tennessee:	Nashville.....Apr. 8-15.....	1	
Washington:	Mason County.....Mar. 1-31.....	1	
	Snohomish County.....Mar. 1-31.....	2	
Wisconsin:	Milwaukee.....Apr. 15.....	8	
SMALLPOX—INSULAR.		Cases	Deaths
Philippine Islands:	Manila.....Feb. 18-25.....	2	1
SMALLPOX—FOREIGN.		Cases	Deaths
Argentina:	Buenos Ayres.....Jan. 1-31.....		28
Brazil:	Bahia.....Mar. 11-25.....	16	2
	Rio de Janeiro.....Mar. 19-26.....	4	5
Great Britain:	Birmingham.....Mar. 18-25.....	1	
	Cardiff.....Mar. 18-25.....	2	
	Liverpool.....Mar. 25-Apr. 1.....	1	
	London.....Mar. 18-25.....	3	
	Southampton.....Mar. 25-Apr. 1.....	9	
Contacts from an imported case			
India:	Bombay.....Mar. 14-21.....	143	
	Calcutta.....Mar. 11-18.....	9	
	Karachi.....Mar. 12-19.....	15	2
	Madras.....Mar. 11-17.....	5	
Mexico:	City of Mexico.....Apr. 1-8.....	4	3
Russia:	Moscow.....Mar. 18-25.....	4	4
Straits Settlements:	Singapore.....Feb. 25-Mar. 4.....	1	
Uruguay:	Montevideo.....Feb. 6-24.....	56	8

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Mar. 19-26.....	14	3
Ecuador:	Guayaquil.....	Mar. 21-28.....	4	4
Panama:	Colon.....	Jan. 23-Apr. 2.....	6	3
	Panama.....	Jan. 1-Mar. 28.....	44	18

CHOLERA.

India:	Calcutta.....	Mar. 11-18.....	30	
--------	---------------	-----------------	----	--

PLAGUE—INSULAR.

Philippine Islands:	Manila.....	Feb. 18-25.....	1	2
---------------------	-------------	-----------------	---	---

PLAGUE—FOREIGN.

Africa:	Cape Colony.....	Mar. 4-11.....	4	8
Arabia:	Aden.....	Mar. 17-24.....	45	34
Argentina:	San Nicolas.....	Mar. 18-30.....	Present	
Brazil:	Rio de Janeiro.....	Mar. 19-26.....	1	1
Chile:	Atacama.....	Mar. 16.....	Present	
	Copiapó.....	Mar. 15.....	Present	
	Port Montt.....	Mar. 16.....	Present	
	Valparaiso.....	Mar. 16.....	Present	
India:	(General).....	Mar. 4-11.....	52504	45541
	Bombay.....	Mar. 14-21.....	648	
	Calcutta.....	Mar. 11-18.....	405	
	Karachi.....	Mar. 12-9.....	102	91
	Rangoon.....	Mar. 18.....	Increasing	
Peru:	Chiclayo.....	Mar. 12-19.....	23	10
	Guadalupe.....	Mar. 12-19.....	1	1
	Lambayeque.....	Mar. 12-19.....	1	
	San Pablo.....	Mar. 12-19.....	2	4
	Mollendo.....	Mar. 12-19.....	11	4
	Lima.....	Mar. 12-19.....	2	2

Changes in the Medical Corps of the U. S. Army for the week ended April 22, 1905:

WALES, Major PHILIP G., surgeon, will proceed to Fort William McKinley, Rizal, for duty as surgeon at that post.

MABRY, WILLIAM C., contract surgeon, is relieved from duty at Fort Sheridan, and will proceed to his home, Stillwater, O., for annulment of contract.

The following changes in the stations and duties of officers are ordered:
POWELL, Major JUNIUS L., surgeon, is relieved from duty at Fort Hamilton to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about June 30 for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

EWING, Major CHARLES B., surgeon, is relieved from duty at Columbus Barracks to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about July 31 for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

HARRIS, Major HENRY S. T., surgeon, is relieved from duty at Fort Slocum to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 31, 1905, for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

The following assignment of medical officers to temporary duty in connection with the joint Army and Navy exercises of 1905 are ordered:

WILLCOX, Major CHARLES, surgeon, will proceed to Fort Wadsworth and report to accompany the Fifty-sixth and Fifty-seventh Companies of Coast Artillery to the artillery district of Baltimore, and there report to the commanding officer of the district for such duty as he may assign him. The commanding officer, Fort Wadsworth, will notify him when he should join that post.

TRUBY, Captain WILLARD F., assistant surgeon, (Fort Preble), will proceed to Fort Totten and accompany the troops from that post to Fort Monroe and report to the commanding officer, artillery district of the Chesapeake, for duty. The commanding officer, Fort Totten, will notify him when he should join at that post.

COX, Captain WALTER, assistant surgeon, Fort Banks, so soon as he shall have completed his duties as member of a board at Fort Warren, will proceed to Fort Monroe and report to the district commander for duty.

ROBBINS, First Lieutenant CHANDLER P., assistant surgeon, Fort Ethan Allen, so soon as he shall have completed his duty as member of a board to meet at that post May 1, will proceed to Fort Monroe and report to the district commander for duty.

RENO, First Lieutenant WILLIAM W., assistant surgeon, will proceed, about May 1, from Fort Myer to Fort Monroe, Va., and report to the district commander for duty.

ROBERTS, First Lieutenant WILLIAM, assistant surgeon, will accompany the troops from Fort Hamilton to Fort Monroe and report to the district commander for duty.

THORNBURGH, First Lieutenant R. M., assistant surgeon, so soon as he shall have completed his duties as a member of a board at Fort Warren, to meet May 1, will proceed to Fort Monroe, and report to the district commander for duty.

JEAN, First Lieutenant GEORGE W., assistant surgeon, will accompany the Seventy-ninth Company, Coast Artillery, from Fort Adams, R. I., to Fort Monroe, Va., and report to the district commander for duty.

JONES, First Lieutenant PERCY L., assistant surgeon, Washington Barracks, will proceed to Fort Monroe about May 1, and report to the district commander for duty.

ADAIR, G. W., contract surgeon, will report at Fort Banks on or before April 30 for temporary duty during the absence of Assistant Surgeon Cox at Fort Monroe, and when his services are no longer needed there, he will return to his proper station—Fort Wadsworth.

The surgeon at Fort Williams, Me., will, in addition to his present duties, furnish medical attendance at Fort Preble during the absence of Assistant Surgeon Truby.

The surgeon at Fort Strong, will, in addition to his present duties, furnish medical attendance at Fort Warren during the absence of Assistant Surgeon Thornburgh.

RAYMOND, Major HENRY I., surgeon, is granted leave for ten days.

CRAIG, First Lieutenant CHARLES F., assistant surgeon, orders of February 23, 1905, revoked.

MCALISTER, JOHN A., dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to the Presidio of Monterey for duty, relieving Dental Surgeon Emmett J. Craig, who will proceed to Manila, P. I., on the transport to sail from San Francisco about April 30, and upon arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty.

THUNEY, FRANCIS E., sergeant first class, now at the post of recruits and casuals, Fort McDowell, will be sent to Plattsburg Barracks for duty.

MCCORMICK, Corporal SAMUEL, upon his own application, will be placed upon the retired list.

CARTER, Major EDWARD C., surgeon, is granted leave for two months, with permission to return to the United States from the Philippine Islands via the Suez Canal and Europe.

BILLINGSLEY, First Lieutenant CHARLES C., assistant surgeon, is granted leave for two months, to take effect when in the opinion of the commanding officer, Fort Riley, his services can be spared.

Changes in the Medical Corps of the U. S. Navy for the week ended April 22, 1905:

TOLFREE, H. M., assistant surgeon, ordered to report to the Surgeon-General, April 23, for a course of instruction at the Naval Museum of Hygiene and Medical, Washington, D. C.—April 14.

DENNIS, J. B., surgeon, detached from the Detroit and ordered to Philadelphia, Pa., for special duty, and thence to Washington, D. C., to report to the Surgeon-General—April 15.

LEDBETTER, R. E., passed assistant surgeon, detached from the Dixie and ordered to the Detroit—April 15.

PORTER, F. E., assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Dixie, sailing from New York, N. Y., about April 26—April 15.

STURT, A., passed assistant surgeon, ordered to the Naval Hospital, Chelsea, Mass., April 24—April 15.

GEIGER, A. J., assistant surgeon, detached from the Naval Station, Port Royal, S. C., and ordered to the Chesapeake—April 18.

DEAN, F. W. S., surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the Frolic—April 19.

OMAN, C. M., assistant surgeon, detached from the Frolic and ordered home—April 19.

OWENS, W. D., and CHAPMAN, R. B., assistant surgeons, detached from the Naval Hospital, Mare Island, Cal., May 12, and ordered to the Asiatic Station, via the Lawton—April 19.

STRITE, C. E., assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Asiatic Station, via the Lawton—April 19.

MINK, O. J., assistant surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Asiatic Station, via the Lawton—April 19.

NEILSON, J. L., and MUNSON, F. M., assistant surgeons, detached from the Naval Station, Guam, L. I., and ordered home to wait orders—April 19.

STOOPS, R. E., assistant surgeon, detached from the Pensacola, May 12, and ordered to the Asiatic Station, via the Lawton—April 19.

MCLEAN, N. T., assistant surgeon, detached from the Naval Hospital, Boston, Mass., April 29, and ordered to the Naval station, Guam, L. I., via the Solace—April 19.

CLIFFORD, A. B., assistant surgeon, detached from the Navy Yard, New York, N. Y., April 29, and ordered to the Naval Hospital, Canacoa, P. I., via the Lawton—April 19.

SMITH, H. W., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Naval Hospital, Canacoa, P. I., via the Lawton—April 19.

WICKES, G. L., assistant surgeon, detached from the Lancaster, April 29, and ordered to the Asiatic Station, via the Solace—April 19.

BERRYHILL, T. A., surgeon, detached from the Oregon and ordered home to wait orders—April 19.

NASH, F. S., surgeon, ordered to the Oregon, via the Lawton, May 15—April 19.

Changes in the Public Health and Marine-Hospital Service for the week ended April 19, 1905:

CARRINGTON, F. M., surgeon, granted leave of absence for one month and 15 days from May 2—April 13, 1905.

TRASK, J. W., assistant surgeon, relieved from duty at Chicago, Ill., and directed to proceed to Washington, D. C., and report at the Bureau for duty—April 11, 1905.

ROBERTSON, H. MCG., assistant surgeon, detailed as inspector of un-serviceable property at the Hygienic Laboratory, Washington, D. C.—April 17, 1905.

COLLINS, G. L., assistant surgeon, Bureau telegram of April 5, 1905, granting Assistant Surgeon Collins an extension of leave of absence for 5 days from April 6, 1905, amended to read 3 days—April 9, 1905.

DUKE, B. F., acting assistant surgeon, granted leave of absence for 2 days from April 20—April 15, 1905.

HAMILTON, H. J., acting assistant surgeon, granted leave of absence for 6 days from April 24—April 18, 1905.

JACKSON, J. M., JR., acting assistant surgeon, granted leave of absence for 7 days from April 10—April 13, 1905.

KURTZ, W. E., acting assistant surgeon, granted leave of absence, on account of sickness, for 16 days from March 25—April 17, 1905.

SOCIETY REPORTS

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Session, Held at Nashville, Tenn., April 11, 12, and 13, 1905.

[Specially reported for *American Medicine*.]

Officers.—The following officers were elected: President, Cooper Holtzclaw, Chattanooga; vice-presidents, S. W. Woodyard, Greeneville; Alfred Moore, Memphis; A. F. Richards, Sparta; secretary, George H. Price, Nashville; treasurer, W. C. Bilbro, Murfreesboro; delegates to American Medical Association, W. J. Miller, Johnson City; alternate, G. O. Bicknell, Madisonville; W. D. Haggard, Nashville; alternate, Louis Leroy, Nashville. Memphis was selected as the place for holding the next annual meeting; time, second Tuesday in April, 1906.

Melancholia.—S. T. RUCKER (Memphis) defined the disease, and then referred to the etiology, symptoms, varieties, pathology, diagnosis, prognosis, and treatment. Heredity was encountered in about 50% of the cases. Ill-health, mental strain, worry over financial affairs, domestic troubles, and disappointment in love were also factors largely responsible for most cases of melancholia. Autoinfection undoubtedly played a considerable role in some cases. Pregnancy, especially in primiparas, was an aggravating cause, and generally began about the third or fourth month. The puerperal state did not so often produce melancholia as pregnancy and lactation. Severe forms of agitated melancholia were occasionally associated with chronic alcoholism. The sobering-up after a prolonged spree or debauch would precipitate an acute attack of melancholia, not infrequently ending in suicide. The onset of melancholia was almost always gradual. At first it might be only a feeling, which took no definite shape, and there might be no delusions. Every thought and everything in the environment had a sorrowful color. When questioned, the patient would simply say he felt depressed or he had the blues. The morbid feeling constituted the disorder. The symptoms varied from a simple state of dejection to a state of profound depression, in which the patient was either paralyzed by the dreadful nature of his concepts or was thrown into a state of agitated suffering, associated with marked precordial distress and peculiar pains in the back or top of the head.

Diagnosis of Kidney Diseases.—LOUIS LE ROY (Nashville) said that in renal diseases possibly more than in some other classes of ailments, accurate discrimination in diagnosis was important with reference to the prognosis as well as treatment. It was a matter of some interest to a patient as to just what his life expectancy was, and how long a period he might expect to devote to settling estates or arranging business matters. The physician should exercise care and judgment in his diagnosis, as a failure to distinguish between the parenchymatous or interstitial nephritis, or to at once make a snap diagnosis of nephritis from a trace of albumin without further investigation of general clinical conditions, and the exclusion of some other lesion microscopically, or a repeated examination, in the absence of casts, microscopically to determine some cyclic or functional albuminuria, might render him with some justice a subject of ridicule, for which years of careful and conscientious work could scarcely atone. While malformations of the kidneys were of great rarity, their importance in surgical cases should cause the possibility to be constantly borne in mind. The absence of one kidney, or fusion of both into one mass, should be considered, and the presence of an organ on both sides determined, if possible, while debating the advisability of operative measures. It was not always possible, and frequently quite difficult, to determine the presence of the kidney when in normal position, either by percussion or palpation, especially in patients with thick abdominal walls, or large, well-developed spinal muscles. In such cases the presence of the organ might be determined by the röntgen rays, or both ureteral orifices might be determined by a cystoscopic examination, in which case the presence of two kidneys might be considered as assured, the possibility of a single kidney having two pelves and ureters being so extremely slight as to be negligible. In case of movable kidney, however, it was usually possible to recognize the condition by palpation, sometimes assisted by percussion, and one might sometimes be surprised to find no clinical symptoms associated. With some cases the kidney readily returned to its normal position, where it remained for some time, and it might be necessary to make several examinations at different times before finding it when displaced.

Perinephric Abscess.—W. A. BRYAN (Nashville) discussed the differentiation of this form of abscess from other abdominal conditions. He reported the following case: Mr. F., locomotive fireman, aged 28, had no evidence of disease since childhood. In August, 1904, he got a superficial burn on his left olecranon, which became infected, but healed kindly. After a few days an abscess developed near the burn. This was opened and healed. A few weeks later three or four other abscesses formed around the site of the original abscess, were opened, or ruptured, and healed. In October he began to have pains in the lumbar region on the right side, and soon afterward quit work and took to his bed. Pain in the right side was described as a "catch," and in his back there was constant

aching. He became distinctly septic. Liver dulness was elevated 1 in. in the right nipple line; right side, 1½ in. larger than the left. Enlargement of the right loin was very perceptible, and fluctuation was present; pus on aspiration, and urine normal. December 15, 1904, Bryan operated, removing 24 oz. of pus. Patient improved, but had pain again from the beginning after the operation in his left side. It was aspirated, pus was found, and two weeks from the first operation a second one was performed, removing 8 oz. of pus from the left side, after which patient made an uninterrupted recovery and had since gained 40 lbs. The pus gave a pure culture of *Staphylococcus aureus*. There was no connection between the two abscesses. He learned from the patient, at the second operation, that another surgeon had aspirated both sides and found pus before he saw patient.

Treatment of Hypertrophied Tonsils.—J. F. HILL (Memphis) protested against the promiscuous and wholesale excision of children's tonsils. There were three kinds of diseased tonsils: 1. A tonsil which was constantly swollen, red, and easily irritated; this tonsil was of a specific scrofulous or tuberculous nature, and the only logical method of dealing with it was by excision. 2. A tonsil which was diseased in the interior, which formed occasionally into an acute abscess. 3. A tonsil with ulcers on the surface, which might be either indolent or active, and were easily managed by a 2% solution of silver nitrate. As to treatment, tonsil No. 1 was treated by complete excision. Tonsil No. 2, which was diseased internally, had openings leading from the surface to the interior, and at the bottom of these openings there was a quantity of a fungous tissue, with the formation of acute abscesses. The openings to the tonsils, as the crater was to the volcano, allowed the escape of diseased mucus from the interior of the tonsil. When these openings were closed from cold or otherwise, the mucus was retained, and decomposition set up; hence an abscess. Tonsil No. 3, which had ulcers on the surface, could be relieved with 2% solution of silver nitrate, but tonsil No. 2 gave considerably more trouble. His method of treating tonsils of this character was to pass a small curet through these openings into the bottom of the tonsil and remove all the diseased or granular tissue, then carry a 10% solution of silver nitrate into the tonsil. This should be repeated in from three to six days, and continued until the tonsils were cured, which usually required six treatments. By this method the tonsils were cured and left to perform their natural functions. He laid down two general rules: 1. Cure all tonsils which could be cured, and leave them intact. 2. Excise all tonsils which could not be cured.

Treatment of Hypertrophied Tonsils.—J. T. HERRON (Jackson) quoted from some of the best authorities to show the importance of removing hypertrophied tonsils by some operation, and not allow them to remain, thus weakening the mental and physical strength of boys and girls. He detailed a number of patients upon which he had operated with gratifying results. Advice properly given would do much to dispel from the minds of the laity the old idea that hypertrophied tonsils must not be removed.

Gastric Dilation without Stenosis.—FENTON B. TURCK (Chicago) discussed the pathology of this subject, and cited the class of cases usually observed, advancing the statement that many severe diseases may go on indefinitely without symptoms and without serious consequences, but as soon as there was gastric atony and dilation the medical adviser was called in for the relief of pressing symptoms. In childhood the dilation was usually acute, due oftentimes to indiscretions in diet, but the stomach proved its own best relief by ejecting the cause of the trouble, giving itself the only remedy required—rest. In these cases the symptoms are mostly confined to vomiting and rarely proved troublesome, yielding readily to treatment by rest. In adults the severest lesions might have been present for indefinite periods of time—gastroparesis from various causes; gastritis, either acute or chronic, including atrophy, and yet the symptoms be wholly absent. But when gastric atony with dilation supervened, there were at once symptoms of a most positive character; and many diseases that progressed to a fatal ending without recognition were on postmortem examination discovered to be gastric atony with dilation, the fundus of the stomach often resting on the pelvic apparatus. If metabolism created certain products which were toxins, and the stomach muscles which had created these toxins were capable of renewing their function after a period of rest, then it was inevitable that these toxins had their antibodies in the circulation; that when the state of fatigue had commanded the muscle to rest—that is, to cease creating these toxins, then it became a matter of time when the antibodies in the circulation would be in the majority, and by their presence restore the muscle to its former state. He deduced from these experiments, as well as from the nature and course of fatigue in the stomach, that rest was the means at hand for the cure of the condition. In dietetics, no fast and hard rule could be laid down; the prime requisite being to give the greatest possible amount of rest, the shortest possible period of muscular activity, and the most serviceable foods to maintain the strength of the patient. In connection with the diet, certain mechanical methods were employed, most of which he had found to be fruitful of harm rather than good in these cases, such as lavage, galvanic and faradic electricity, exercise, and the more or less systematic bathings and drugs.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SALISBURY'S (1858) TRICHINA CYSTICA, PROBABLY IDENTICAL WITH OXYURIS VERMICULARIS.

BY

CH. WARDELL STILES, PH.D.,
of Washington, D. C.

Chief of Division of Zoology, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.

Recently occupied with an attempt to classify the various species of filaria reported in man and to straighten out their synonymy, I have come across a very interesting case of confusion which is quoted in numerous medical and zoologic writings, namely, *Trichina cystica*, Salisbury, 1858.

This supposed new species of parasite was reported by Salisbury¹ as having been found in the urine of three patients. The chief case was that of Mrs. R., of Cleveland, aged about 65, insane, partially paralyzed, and suffering from "cystinic rheumatism"; "she was laboring under severe cystinemia, which was regarded as the main cause of the rheumatism and paralysis. When this patient came into my hands, there were 5 to 15 ovums in every drop of urine voided. Her urine was passed milky, with granular cystin, and was dense and scanty. There was partial paralysis of the bladder, so that her water was constantly dribbling from her."

Just what led Salisbury to classify this parasite as a trichina is not clear; later authors (with few exceptions, as Looss) apparently because of the milky condition of the urine, have almost universally assumed that the worm must be the larval stage of *Filaria bancrofti*, frequently known as *Filaria sanguinis hominis*. The presence of eggs in the urine is, however, sufficient to negative both of these interpretations, and an examination of Figs. 29 and 30 as published by Salisbury gives us a clue to the correct interpretation. Fig. 29 shows an elongate egg which is practically straight on one side and very convex on the other; Fig. 30 shows an elongate egg with included embryo which is coiled longitudinally. Both of these characters are typical for the egg of *Oxyuris vermicularis* which is sometimes found in urine from females.

From these data I believe that Salisbury's *Trichina cystica* can be definitely classified with *Oxyuris vermicularis*.

PERMANENT CURE BY SURGICAL INTERFERENCE OF ANEURYSM OF THE SUPERFICIAL FEMORAL ARTERY.

BY

WILBUR A. DRAKE, M.D.,
of Norfolk, Va.

In a case of aneurysm of the superficial femoral artery recently treated by me, the good results obtained from the removal of the aneurysmal sac by surgical procedure was clearly demonstrated.

Mr. H. B., aged 45, laborer, married, consulted me on January 7, 1905, suffering with intense pain in the region of Hunter's canal. The pain was more severe at night than during the day. He gave a history of rheumatism and syphilis. On palpation I found what I supposed were enlarged glands, the chain of glands being enlarged all the way up to Poupart's ligament, the swelling being greatest in Hunter's canal. The patient was put on specific treatment, and in a few days was relieved of pain and returned to work.

On February 10, 1905, a little more than four weeks from the time I first saw him, I was called again. This time I found the enlargement in the region of Hunter's canal much increased, being about 3 in. or 4 in. in diameter and distinctly lobulated. Careful palpation failed to elicit any pulsation and the mass felt hard and elastic to the touch and the integument moved freely over it. Still believing it was possibly a glandular enlargement, measures were taken to abort the condition and prevent suppuration of the glands. These measures were continued for ten

days, when the mass began to show symptoms of suppuration. Poulitices and antiphlogistine were used to hasten the process. By February 25 the enlargement had become a boggy mass and I felt justified in making an incision to drain it of pus.

After anesthetizing the patient I made a superficial incision through the integument and fascia, guarding carefully against going into important vessels and the possibility of cutting down into an aneurysm of the superficial femoral. There appeared in the incision a large clot of blood, which not only cleared up the diagnosis, but warned me of the critical situation.

I grasped the superficial femoral with the thumb of my right hand, pressed it against the femur and with the left I increased the length of the incision over the aneurysmal sac, and with two fingers of the left hand removed the entire sac, packed the cavity with iodoform gauze and applied pressure with a roller bandage which took the place of my thumb. In this way the hemorrhage was controlled. Over the site of the sac a roller bandage was firmly applied. Five days after the operation the gauze packing was removed and the compress was relaxed. There was no bleeding. The cavity was washed out with an antiseptic solution. The dressings and compress reapplied and the dressings changed daily until the wound had healed by granulation. The patient was instructed to continue the specific treatment and 23 days after the operation was able to return to his work feeling entirely well.

The sac of the aneurysm had ruptured, possibly due to degeneration, as the superficial femoral was found so degenerated in the neighborhood of the sac as not to admit of ligation.

I believe that in aneurysm of an artery of an extremity, the removal of the entire aneurysmal sac and treating it as stated will insure a permanent cure.

The ligation of the vessels on the proximal side of the aneurysm and then leaving the sac in situ does not prevent the reestablishment of the circulation in the sac by collateral circulation. While such a procedure may check the growth of the sac temporarily, to ligate on both sides of the aneurysm does not insure the success which may be attained by a complete removal of the aneurysm, in selected cases, and the use of gauze packing occludes the mouths of all bloodvessels which communicate with the sac.

AMYL NITRITE IN MALARIA.

BY

W. H. RAND, M.D.,
of Washington, D. C.

To the Editor of *American Medicine*:—The suggestive article by Dr. Hare, of London, on the treatment of hemoptysis, published in *American Medicine* of April 1, prompts me to record an experience with amyl nitrite in malaria.

Every one recognizes the clinical picture of the first stage of an ague fit, the pinched features and exsanguined skin of the subject of a chill. Remembering the effect of amyl nitrite on the peripheral circulation, it occurred to me several years ago that this agent might serve a useful purpose in the algid period of intermittent fever. Accordingly, a three-minim pearl of amyl nitrite was left with a tertian-ague patient, with instructions to crush it and inhale the vapor at the onset of an expected chill. Relief was immediate. In his own words, "a hot flush went all over me, and I didn't have any headache after it." Subsequent trials of the remedy appear to justify the conclusion that it will often (not always) abort the seizure in its primary stadium. The late Professor Palmer used to advise ligation of the thighs in cases of "congestive chill." By this means, it was claimed, many ounces of blood could be held back in the veins of the extremities until the paroxysm had passed. The treatment seemed rational, but its object was merely to prevent hyperemia of the internal organs, not to restore circulation in the superficial capillaries, which is one result of administering amyl nitrite.

Others may have anticipated me in this use of the drug, but if so, I have no knowledge of the fact.

Asylum Attendants Freed.—The jury in the case of the four State Asylum (New Jersey) attendants accused of the murder of Patrick Corrigan, an inmate of the asylum, returned a verdict of not guilty in the case of each of the men, and the Court immediately ordered their discharge from custody. It was alleged that they had beaten Corrigan and inflicted injuries which caused his death.

¹ 1858, pp. 376-377, Figs. 29-31.

ORIGINAL ARTICLES

ADAPTATION AND TUBERCULOSIS.¹

BY

J. G. ADAMI, M.A., M.D., F.R.S.,
of Montreal, Can.

McGill University, Montreal.

In casting around for some aspect of the tuberculosis problem upon which to address this meeting, it struck me that it might be serviceable to take up the matter of adaptation in its relationship to the disease. The term possibly is unfamiliar to you, but it embraces a series of processes, both on the part of the organism—the human body—and of the microorganism—the tubercle bacillus—which are of the highest importance. And I am of the opinion that it is the failure to realize the existence of these processes which renders it difficult for the majority of men to appreciate the various happenings in the course of this disease, and again the points at issue and their significance in the controversies that have arisen of late years regarding the same. It has seemed to me that all those, and they are many, who are interested in the work of prevention, would possess a more intimate appreciation of that work if they could acquire, as it were, a mental picture of the moves in the game, of those moves whereby now the organism, now the microorganism seeks to gain the advantage and checkmate the other. In truth, it is a gruesome game, but one of most vital import, this of the cells against the bacilli and the bacilli against the cells. Some of our moves are instinctive, or have been practised before against other bacteria; many have to be learned and tested during the course of play. Too often, not knowing the science of the game, and playing "Bumble puppy" (I forget its equivalent in chess) we make a wrong move at a critical moment, and the game is lost—and loss is death.

Let us consider first the moves on the part of the organism, and in order to gain a clearer picture let us take the case of a disease of briefer course and apparently more self-contained in its gross effects upon the body. Has it ever struck you, I wonder, what takes place in a case of acute pneumonia? This, as you know, is a bacterial disease, due to a micrococcus, a minute rounded or lance-head shaped organism that hunts, if I may so express it, like the Irish Constabulary or the Northwest Mounted Police of the old days, in pairs—hence we often speak of it as the diplococcus of pneumonia. You all know the disease develops very rapidly. That rapid development is associated with an extraordinarily rapid multiplication of the diplococci, so that these, which under ordinary circumstances are not present in the lung, come to be present in teeming millions in the air sacs of the same, and there by their poisons set up so much irritation that all the air sacs of one or more lobes of the lung become solid through the intense inflammatory exudate that is poured out into them from the bloodvessels, displacing the air that should be there. So it is that in a very few hours the affected part of the lung comes to look more like a piece of liver than like a sponge with abundant air in its cavities. Then, if all goes well, in four, six or eight days, suddenly, in the course of a few hours the crisis comes, the fever drops sharply, the patient feels better, and after this crisis we find the diplococci for the most part dead, or if not dead, so weakened that they can have little effect on small animals.

This has always seemed to me as something approaching the miraculous, that bacteria grow abundantly in one of the tissues of the body for a few days, then as suddenly they are killed off and disappear. If they grow at

first, why do they not continue to grow? if eventually killed, why not killed at the start? Years ago we found out that this was not because they had exhausted the food supply. I do not know if this has been tried in connection with pneumonia, but it has been repeatedly tested in the lower animals in connection with one or other of the diseases from which these may suffer; it has been found that the blood and tissues of the diseased animal will afford abundant nutriment for the bacteria. It is not that they are poisoned by the products of their own growth—this occurs, it is true, when we grow them on broth in a closed test-tube outside the body—but we can make an emulsion of a pneumonic lung, and, while if we add the diplococci to this, some will be killed (for, as I shall point out, there are substances poisonous to the bacteria in such a lung), yet when a certain number have been killed the rest will grow freely. If the poisons were produced by the diplococci themselves then the greater the number of bacteria destroyed the more of these poisons would be liberated into the lung emulsion and still less the chance would be for any to remain alive and multiply.

Neither of these explanations will suffice. The only adequate explanation for this eventual destruction of the bacteria is that of adaptation. When first the diplococci began to grow in the lung they did so because the tissues could not neutralize their poisons and kill them; by the very act of growth and production of poisons on the part of the bacteria the tissues become educated until the moment is reached when the cells of the body produce sufficient counteracting poison to kill off the bacteria and to neutralize their toxins, which toxins do all the damage to the system.

And here is the interesting and important fact—a fact, I think, too little realized by most medical men, although instinctively all strive to act up to it. It is not the lungs alone that are in action in destroying the germs of the disease and so bringing about recovery, it is not even the white corpuscles or leukocytes which, passing into the lungs, accomplish the good effects; the whole organism, or practically the whole organism, is actively engaged in the process.

You have all, I doubt not, heard much of late years about these white blood-corpuscles or leukocytes; how they are, as it were, at once the main avenging army and the scavengers of the body; without doubt these play a great part. We can see them in various stages full of bacteria which they have taken up and at times we can make out that these bacteria are undergoing digestion and destruction. Nay, it is not difficult for anyone to experiment on himself, as Leishman has shown, to take a few drops of his own blood, separate off the white blood-corpuscles and taking a drop of blood-serum, holding these in suspension, add to it a number of disease-producing bacteria of one or other order; in 15 minutes time, kept at the body temperature, each little leukocyte can be seen to have taken up, it may be a score or more separate bacteria. But here is another fact. This eating up of the bacteria does not depend upon the white blood-corpuscles alone. It depends, as Wright and Douglas have shown recently, upon a curious interaction between the cells and the fluid of the blood. If you take the white corpuscles of a man who has not had a given disease and place some in the fluid of his own blood, and place some others in the blood-serum of a man who has successfully resisted that same disease—who has recovered from an attack—you will find that these little white blood-corpuscles will take up very many more of the particular bacteria causing that disease in the latter case than in the former. There is, therefore, something circulating in the general fluids of the body after it has gone through an infective disease, something not local but generalized, something which was not there before in any amount and has therefore been elaborated during the course of the disease, and this aids in the destruction of the bacteria of the disease.

¹ An address delivered at the annual meeting of the Dominion Association for the Prevention of Tuberculosis, Ottawa, March 15, 1905.

The same was noted some years ago in connection with typhoid fever and that not merely after recovery but during the process of the disease. We utilize the fact now as a most useful means in diagnosing doubtful cases. In typhoid the bacilli grow more particularly in the lymphoid tissue of the intestine—for here is an interesting point to remember, that the different bacteria of disease have their seats of election. Once they gain a footing in the body there are certain tissues in which they grow in greatest abundance, while at first they do not grow to any extent in other tissues; or, in other words, if they do find their way into the other tissues they are easily destroyed. But while the typhoid bacilli thus grow locally if we take the fluid of the blood of a typhoid fever patient on the fifth day of the disease or so, we find that this now has new or greatly exalted properties. Although we dilute that blood 40 or 50 times, if we place in it some of the actively growing typhoid bacilli they become motionless and clump together in masses. The blood fluid has acted upon them. Nothing of the kind occurs in similarly diluted blood from one who has not had typhoid. What does this all mean? It means that during the course of the disease there is gradually developed on the part of the organism as a whole the power of coping with and neutralizing or destroying the microorganisms of that disease. Something has developed, not locally, but generally, which either was not there before or which now is developed in greater quantity than before. There is an adaptation to changed conditions. The body as a whole reacts and produces substances which tend to give it the advantage in the fight against its foes.

Need I remind you that the modern treatment of diphtheria makes use of this fact. We employ the fluid of the blood of animals which have been inoculated with the diphtheria bacillus, in order to utilize the antitoxic substances which those animals have produced, and produced in excess, in order to cope with the inoculated microbes. Where precisely these antitoxic substances are produced, we are still engaged in determining. We know that the leukocytes produce one set, but the substance or substances which activate these and render them effective, we know less about. Some are inclined to believe that the leukocytes also give origin to these. Recent evidence tends to show that certain tissue cells—of the liver, brain, etc.—elaborate them. It may well be that in tuberculosis the muscle cells play some part.

So now to return to the case of pneumonia. Let us try to translate what happens there. Through some lowering of vitality, the tissues of the air sacs, which in health can destroy individual bacilli finding an entrance into the lungs, are overcome, and the bacteria multiply and set up disturbance. Then the second line of defense comes into action—not so much the lung tissue itself as the leukocytes which belong to the general circulating blood. These make their way into the damaged area, are unable to take up diplococci in sufficient numbers and destroy them; on the contrary, they themselves tend to be destroyed, and the diplococci continue to multiply. In the meantime, the poisons from the diplococci have diffused out of the air sacs into the blood and so are carried all over the body, and with this we have the development of high fever. And now the cells of other parts of the body take up these less concentrated poisons or toxins, and taking them up, proceed to manufacture the counteracting bodies which neutralize, or help in the process of neutralization of the poisons, and once they start to do this, they continue, and produce more and more of these antitoxic bodies, so much in fact that the excess passes into the blood, and from the blood passes into the damaged lungs, until the moment is at last reached, when sufficient of these antitoxic bodies are present there to reinforce the action of the leukocytes, and with this, all the diplococci are killed and recovery ensues. I say reinforce the leukocytes, for the leukocytes are developed largely in the

marrow of the bones, and the later relays of young leukocytes have, before they reach the lungs, become accustomed and adapted to the bacterial poisons, and thus are much more powerful than the earlier drafts of leukocytes which passed into the lungs. These, aided by the fluid of the blood, are effective, the former were not. Hence, it is through the general adaptation of the tissues of the organism, and not merely through local efforts, that the body overcomes infective disease.

Once one realizes this it is all so clear, and, if I may so express it, so very human—so like, for example, what happened in the Boer war. There we had local irritation in one part of that vast organism, the Empire; local efforts were unable to quell the disturbance, and war flared up and there was great local damage and arrest of the normal local activities. It looked as though the part might be completely lost. The effects of this local disturbance rapidly diffused through and influenced the whole empire, and, like the leukocytes, soldiers were drafted to the seat of irritation from all parts of the organism, even from distant portions like our own Canada. We contributed, as it were, from the marrow of one of the limbs. Those soldiers, at first unused to Boer methods of warfare, were at a great disadvantage and we had Nicholson's Nek and Colenso and other terrible disasters. But as the Boer methods became better understood our soldiers adapted themselves to them; the spirit of depression gave way to one of grim determination to overcome the enemy; more and more soldiers, contingent after contingent, from all parts of the empire were collected and sent to the front. Supplies of all kinds were produced at a distance and poured into the focus of inflammation, and at last the pathogenic organisms were completely overwhelmed and recovery ensued.

Now to apply all this to tuberculosis and its arrest. The disease, it is true, is of a different type—it is of slower development and more progressive character. To pursue my simile, if I may venture to do so without offence and without wishing to give offence, tuberculosis is to the human organism something like what Irish discontent is to the body politic. If we are healthy our first line of defense, the surface cells of the nose, mouth, throat, air passages, and digestive tract, can directly destroy occasional tubercle bacilli taken up by them, only if an excessive number be taken up are they killed by the bacilli. Healthy people can breathe in tubercle bacilli without harm resulting. That this occurs has been proved by examining the nasal secretions of nurses and students in tuberculosis wards and finding tubercle bacilli in the same, and I may point out the remarkable fact that in a well-conducted tuberculosis hospital the nurses are found not to contract tuberculosis. They keep themselves in good condition.

The bacilli may get beyond this first line of defense into the lymph and blood, and there may not cause any disturbance, being killed before they can multiply. Quite a number of cases are on record in which tubercle bacilli have been found in apparently healthy lymph-glands showing no signs of tuberculosis. Again we can, for example, take two healthy young dogs and feed them with milk to which we have added a fair but not excessive number of active tubercle bacilli, and killing one two or three hours later, we can detect the tubercle bacilli in the lymphatic fluid draining away from the intestines. This is a process which, as I and others have pointed out, is constantly proceeding to a slight extent in connection with the abundant bacteria of various kinds which people the intestines. Keeping the other dog for some weeks or months, it may show not a sign of tuberculosis, and killing it at the end of this time we may not detect a sign of this disease in any region of its body.

But now if even temporarily the general health is depressed the history may be very different. The tubercle bacilli at the point of entrance, or it may be when they

are carried into the circulating lymph or blood, are not necessarily destroyed. In many parts of the body they are, but if an organism possesses an Ireland—a region of constitutional weakness, with poor nutrition and poor circulation—if by chance the bacilli find their way into this, the cells cannot destroy them, but, on the contrary, they multiply, produce their poisons, killing the cells, and developing a focus of inflammation—a tubercle. Such a region, as everyone knows, is the apical part of either lung. From its relationship to other parts, there is there poor circulation and nutrition, and, added to this—although here remembering my simile, I must speak delicately—there may be something innate in the properties of the tissue cells themselves. Certain it is that here more particularly the tuberculous process may manifest itself. *A priori*, one would think that the bacilli having once gained a footing in a part would continue to grow and spread from this focus; that growing their concentrated toxins would depress the vitality of surrounding cells, rendering them an easy prey, so that of necessity once the disease was established in the system, it would go on from bad to worse with progressive invasion, poisoning and destruction of the tissues throughout the body until a merciful death ended the scene. This does occur in some cases in which the tissues seem to have no resisting power, but as a matter of fact, it is by no means necessarily or usually the case. Progressive invasion we know is the exception, not the rule. As a matter of interest, I looked last week through the records of the 139 postmortem examinations performed last year in my department at the Royal Victoria Hospital, and I found that while there were 18 cases out of the total in which tuberculosis had assumed a progressive character, and had surely been the cause of death, there were 41 cases, or more than twice as many, in which there were absolute evidences of old arrested, and even healed tuberculosis. There were, in addition, three cases of progressive tuberculosis in which death was from some other cause. The disease, as has been often stated before, is more often arrested in man than it is fatal, and the process in this arrest and healing must from every consideration be not so much by local effort as by the cooperation of the other tissues. We have clear evidence that this is so. Just as in typhoid fever so here it has been shown, more particularly by Courmont, that the blood and body fluids of tuberculous patients contain a substance not present in healthy blood, a substance which causes the clumping of the tubercle bacilli. And, as pointed out long ago by Koch, if an animal has localized tuberculous affection of one region, say the eye, the injection of virulent tubercle bacilli into another region at a distance, say the skin of the flank, leads, it is true to a temporary local inflammation during which the bacilli are destroyed, but it is followed by no local development of the disease proper, and by no extension from that region; a clear proof that under ordinary conditions the primary local development of the disease is accompanied by the development of increased resisting powers on the part of the rest of the tissues. Here again there is adaptation, by means of which these other tissues of the organism protect themselves, and as a whole reinforce a local effort, tending to produce so much antitoxic or antibacterial substance that at last the system overwhelms and arrests the local growth of the bacilli.

I have not seen this matter hitherto worked out adequately, and I believe it is useful to present it to those interested in our work, even though at first hearing—being perhaps to some extent novel—it may be difficult to follow and fully grasp. Once grasped we grasp with it the whole rationale of the treatment of tuberculosis. Let us just glance at this.

First as to Koch's treatment by injections of tuberculin; that is, of the body juices and toxins of the tubercle bacilli. The basis of this treatment is clearly the carrying further of this natural process of stimulat-

ing the tissues in general to produce antibacterial substances by means of the circulating toxins. As we know by observation outside the body the individual tubercle bacilli do not produce much toxin; indeed, it is only when they die or are destroyed that much poison escapes from them. Probably one of the reasons why tuberculosis tends to gain a foothold in the body is that the bacilli are at once so slightly irritant and so resistant. As there is no extensive diffusion of toxins at the beginning of the process, the rest of the tissues are not adequately stimulated; this especially when the body as a whole is in a low state of nutrition. By injecting these diffusible toxins we stimulate the cells in general to manufacture increased amounts of antitoxic substance and thus aid the local resistance. [I put this purposely in a general way; to discuss this matter in the terms of complements and amboceptors and all the armamentarium of the modern bacteriologist, would utterly confuse, but this obviously is at base the rationale of the process.]

But as all now know, Koch's treatment is but partially successful. It is useless in advanced cases in which the disease is extensive and in which there must already be relatively abundant circulating toxins. To inject more toxins in such cases is to poison rather than to stimulate the cells. In dealing with the treatment of tuberculosis there are two factors to be taken into account: You may take a horse to the water, but you cannot make him drink. You may supply a cell with the tubercle toxins which are necessary in order to stimulate it to produce antitoxins, but it may be so feeble that it will not react—will not produce these toxins. All its energies may be used up in the performance of ordinary everyday functions. And here we have the basis of the modern treatment in which, as you know, we do not try to do anything specifically against the disease itself; on the contrary, we leave the disease as such severely alone. But we do everything in our power to improve the general bodily condition. We enforce rest so that the cells shall not be overworked, and may have spare energy; we give abundant, easily assimilable food so that they may build themselves up; we demand life in the open air with abundant oxygen, and that toning up of the system which the freshness and coolness in the air bring about more naturally than does anything else. For just as a lax violin string will give no note, while made taut it vibrates to the slightest touch, so by improving the tone of the tissues in general, they respond more immediately and more fully to the stimulus of the circulating toxins, and produce the counteracting bodies which, developed in greater abundance and poured out into the blood, can now act locally on the tubercle bacilli in the areas of disease.

We in short do everything we can to help the body adapt itself to the changed conditions and this adaptation we know means also counteraction. The success of our modern treatment of tuberculosis—treatment, be it remarked, purely empiric in its inception and based upon no adequate theory of the modes of defense on the part of the organism—this success is the strongest proof of the correctness of the conclusion reached along other lines, that recovery from infective disease is not merely nor mainly a local reaction, but is a process in which the tissues not directly involved and the body as a whole take a most active part; becoming educated thereto during the course of the disease.

I have taken possibly too much of your time in discussing the moves on the part of the organism and have dived, it may be, too deeply for a general address. I would gladly think that my digging, if deep, has also been sufficiently broad in its scope to let in the light. Before closing, some words must be said of that other matter, the moves made by the bacilli.

You must not look upon these producers of disease as fixed in their properties and unalterable; rather we have to realize that they also are capable of adaptation.

For us it is a fortunate fact that their power of adaptation is not so extensive and so rapidly developed as that of the healthy human organism. This we may take as another instance of the fact that union is strength. It may well be that the individual cells of the body have not the same power of adaptation as has the tubercle bacillus, but while the bacilli are isolated and independent the cells of the body are united and cooperate and the sum of their reactive changes may well be greater than the adaptative changes possible in an isolated tubercle bacillus. Nevertheless, bacteria are capable of great changes, suiting them to altered conditions of their surroundings. There is, for example, a large bacillus, *Bacillus megatherium*, first found, if I remember aright, upon a cabbage; this is absolutely harmless for warm-blooded animals—one can inject it by the million into the rabbit without setting up any recognizable disturbance—but, as Vincent has pointed out, place some of these in a thin-walled celloidin capsule in the abdominal cavity of the rabbit, such a capsule that the fluid part of the lymph can easily penetrate through the walls and so afford nourishment to the bacilli while the leukocytes and antitoxic bodies cannot enter—we find that after sojourning there for several weeks the bacilli have become accustomed to their surroundings so that now they will grow in the tissues of the rabbit without any capsule being needed. From having been perfectly harmless they are now pathogenic and can set up disease.

What is to be said regarding the tubercle bacillus in this connection? In the first place, we may have the complete assurance that Adam was not created suffering from tuberculosis. The bacillus, we may be fairly sure, from living it may be on foodstuffs outside the body, accustomed itself first to living on the surface and in the passages of the organism as a harmless saprophyte and only later gained the power of living not on, but in the tissues, and from that moment it became pathogenic. This, it is true, must have happened centuries and centuries ago, for the disease was known to and well described by the early Greek writers on medicine. While this is so, I do not think that we must imagine that the virulence of the bacillus has remained the same from that day to this; the probability is that were the ancient Greek to come to life again and mingle with us moderns his would be but a brief visit to this earth, he would be carried off by fulminating malignant tuberculosis in a very short space of time, if even before that the modern influenza bacillus or the pneumonia diplococcus had not marked him for its own. I mean that, the indications are that there has been a steady adaptation of both organism and microorganism, the one to the other; as the system has become more resistant, the bacillus has become more toxic. We have a parallel to what is here suggested in the remarkable history of the way in which the South Sea Islands were devastated by measles when that most puerile disease was first introduced by Europeans. We must suppose that measles had originated in Europe and Asia at some period after the first natives found their way across to the South Sea Islands, or that the colonizing aborigines did not happen to carry it with them in their canoes and so henceforth remained free. Probably it began as a mild disease and as it became habituated to the human organism so did that organism become more resistant, and the microbe increase in virulence *pari passu*; what continued to be a mild disease to Europeans therefore was most fatal to the Melanesians who had not undergone this progressive adaptation.

We have abundant evidence bearing upon this matter of modification in the virulence of bacilli by growth in the organism of one or other species; adaptation that is, to the surroundings whereby existence is rendered more sure. By the passage of a given pathogenic bacillus through a given series of animals, by inoculating one animal of a species—a guineapig for example—with a

feebly pathogenic microbe, then when the disease is in full activity taking some of the body fluids containing the germs and inoculating that into another guineapig, and from this again into another, and so on through a succession of a score or so—we can render the bacilli extraordinarily virulent, so that whereas the disease in the first of the series ended in natural cure, at the end of the series the greatly diluted body fluids, diluted so as to contain only a few rare microbes when injected, may cause death in from six to ten hours.

By this artificial process, bacteria adapt, and more than adapt, themselves to the organism of the one particular species; but this does not necessarily mean that they have adapted themselves at the same time to the conditions found in the organisms of other species. That may or may not be the case. An organism which, by passage through a series of human beings has acquired greater virulence for man, may or may not gain increased virulence, say for oxen, and vice versa. On the whole, the reverse is more often the case. As a matter of fact, we have positive evidence that if we take two calves and inoculate them subcutaneously with equal amounts of cultures of tubercle bacilli, which have been gained from the cow and man respectively, the disease is much more rapid in its progress, spreads much more rapidly, and leads to earlier death when the bovine bacillus is employed than when the human strain has been used. This may be laid down as a general rule. Nay, more; if only a moderate dose of bacilli gained from man be injected, nothing more than a local nodule is produced in the inoculated calf; there is no generalization, and after a few weeks or months no signs of the tubercle bacilli are to be made out.¹ So much so is this the case that von Behring is now utilizing bacilli gained from cases of human tuberculosis, to vaccinate cattle and to prevent them from becoming infected from their fellows by means of the bovine tubercle bacilli. This is all now freely accepted; the opposite case remains still a matter of some debate, though the two parties are coming to take a more intermediate position. This matter was discussed very thoroughly by Dr. Ravenel in the address before this Association last year, and Dr. Ravenel, you may remember, took the position that tuberculosis is rather frequently conveyed to man from cattle. I still hold that such conveyance is not so frequent as is generally accepted. I have never from the first taken the position that it never occurs, but I still firmly believe that a tubercle bacillus which has passed from cow to cow for a long period, while it becomes more and more virulent for cattle, becomes less and less virulent for man, so that under ordinary conditions we have not so much to fear from milk and other products containing these bacilli, so far, that is, as the fully developed adult is concerned; but with weakly, young children the case is different. They are susceptible, and if a large dose of tubercle bacilli be given to them in the milk, I firmly believe that even a relatively slightly virulent bovine tubercle bacillus may gain entrance into their system in such large numbers that the cells are unable to kill them, and that here or there they may gain a point of growth, and once they grow they may gradually adapt themselves to the human organism and so set up the fatal disease. I doubt if this necessarily occurs in all children; we have, that is, cases brought forward in

¹In view of the Interim Report of the British Royal Commission on Tuberculosis, I would lay special emphasis upon this point. That Commission has, in quite a number of cases, caused tuberculosis in cattle by the injection of human tubercle bacilli. Because disease can be transmitted experimentally by injection of a number of bacilli far in excess of the number which in nature could possibly gain entry at any one focus, it is by no means proved that under natural conditions these same bacilli are liable to cause infection. What the Commission should demonstrate, in order to establish that human tuberculosis is dangerous to cattle, is that the minimum dose of human tubercle bacilli capable of setting up tuberculosis in cattle approximates to the minimum dose of bovine bacilli producing the like effect. This I am convinced, is not the case. There may be examples of bovine infection of man in which the bacilli still retain the high grade of virulence for cattle, but everything indicates that these are the exceptions.

which children have been fed upon the milk of cows suffering from tuberculosis of the udder, without showing a sign of the disease.¹ Still, undoubtedly, the danger is there.

Here I would only say that certain very interesting observations recently published support my view that the relative frequency of tuberculosis of the intestine of children must not be ascribed positively to drinking the milk of tuberculous cows; it may equally well be due to swallowing saliva containing breathed-in tubercle bacilli, discharged into the air from the lungs of men and women suffering from the disease, or may have been sucked up by the fingers after a child has been crawling on the floor. And these are observations by one of the greatest bacteriologists of our time, the man who first gained pure cultures of the tetanus bacillus, and who was one of the first to work out the antitoxin treatment in infections, the discoverer also of the plague bacillus, and that man is the great Japanese bacteriologist, Kitasato.

Nowadays we have a thorough and wholesome respect for the Japanese and his methods, and not the least for his thorough knowledge and practical application of bacteriology. The nation which has taken to heart the dictum of King Edward, "If preventable, why not prevented?" has applied bacteriologic methods in the conduct of warfare, sending bacteriologists with each division, which has had the wisdom to recognize that *le Général Microbe* would be for her a far more powerful ally than Czar Nicholas' *Général Février*, that from the experience of recent wars for every one Russian put out of action by shot, or shell, or bayonet, four would be invalidated by pestilence, and, accepting the warnings and advice of the bacteriologists, has managed to much more than reverse these figures in her own army; that nation and the bacteriologists of that nation deserve our respect. It is a recent paper by Kitasato that I wish to bring before you.² In this, with a wealth of statistical data, he has shown that the deaths from tuberculosis in Japan are just about in the same proportion to the total deaths and the total population as are the deaths from this disease in European countries. There is, in fact, a remarkable similarity in his tables, suggesting very strongly that the factors at work are identical. In the second place, though here I confess his data might be fuller, he shows that in those under 18 years of age the number of cases of evident primary intestinal tuberculosis is certainly not less, but on the contrary, rather more than among Europeans and Americans, namely, 30% of the total deaths from this disease, whereas in Europe of late there has been a rather remarkable consensus of observations giving the proportion at about 25%. But, as I have already stated, it is usual to attribute these cases in early life to infection from cow's milk, while von Behring goes so far as to attribute most human tuberculosis to this cause—the use of cow's milk in infancy. But now, says Kitasato, the use of cow's milk for feeding infants is unknown in Japan; if a mother is unable to feed her child a foster mother is employed. Singularly little milk is consumed in Japan, and a careful calculation made from the total population, from a census of milch cows throughout Japan, and the average daily amount of milk yielded per cow, indicates that the individual Japanese on an average consumes daily just about three-quarters of a teaspoonful of cow's milk. Even in Tokio, the largest city, where most milk is consumed, the amount per individual works out to two and a third teaspoonfuls.

Next it is shown that bovine tuberculosis is unknown

among the native Japanese cattle, while by cross-breeding with imported European cattle they become infected. Experimentally, subjected to a severer test than is ever likely to occur in nature, a certain number can be given the disease. A few, very few, cases have been reported in which the disease has been notified as found in native cattle, and this is only in Tokio and Yokohama where most foreign cattle have been introduced and these so-called native cattle may have been of mixed breed; for, in accordance with Mendel's law a certain proportion of cross-breeds are likely to have the characters of the native sire or dam, and be indistinguishable from the native race.

To epitomize: The facts gathered in Japan show that intestinal tuberculosis, which is as frequent there as in Europe, cannot be attributed to the ingestion of infected cow's milk, cannot therefore be of bovine origin, and the inevitable conclusion is that if intestinal tuberculosis is moderately frequent and not of bovine origin, then similarly, a large proportion of the cases of European intestinal tuberculosis are in all probability not due to infection from milk. In other words, these observations support the view that I have maintained for the last six years that undue stress is laid upon tuberculosis as a source of human infection. The danger is there; do not let me be misunderstood, I am convinced that weakly children are susceptible to the disease conveyed through the milk of cows suffering from udder tuberculosis; only the danger has been exaggerated. With Koch I hold that infection in the great majority of cases is from man to man, and that our main efforts should be in the direction of preventing such infection.

This does not mean that I would restrict the legislation regarding tuberculosis in cattle. Far from it. These observations of Kitasato support what I have urged all these years, that it is possible to eradicate bovine tuberculosis independently of our efforts to eradicate the disease in man. Kitasato points out that so far as the chronicles of Japan extend back through the centuries they tell of the existence of human tuberculosis, and yet, although the disease has been present all these centuries, the cattle of the present day are not infected. If the human strain of bacilli easily adapt themselves to existence in the bovine organism this could not be possible. This is another link in the chain of evidence which led me to urge in 1899 before the Canadian Medical Association,¹ and repeatedly since, that we in Canada should lead the world in completely banishing the disease from among our cattle. The disease is altogether too prevalent in European countries, for example, for this to be possible—the cost there would be too great. We are remarkably free from the disease, freer than any other western country, still it exists and its eradication is obviously a national and not a provincial concern. We are told that the Federal Government hesitates to interfere in the prevention of human tuberculosis, not because it does not recognize that this is a work of national import, but because doing this it would be trespassing upon provincial rights, and the law is above the people and their welfare. But the health of animals has been from confederation onward, a matter both of national concern and of federal legislation. I would once again urge that it is for the government to select some one well-defined section of our country and there to root out completely the disease from among the cattle. Let it take Prince Edward Island, for example, appoint inspectors, and be prepared to superintend the health of the animals on the Island for, say five years; let those inspectors make a census of all the cattle on the Island, let them apply the tuberculin test and take over and compensate for all reacting cattle; disinfect the byres and forbid any fresh animals to be landed without rigorous determination that those animals are free from the disease. I am convinced, first, that by the end of two years, if from

¹ It must not be thought that I recommend that milk from tuberculous cattle should be drunk with impunity; there is something repugnant in the idea that milk containing any form of infective disease should be used as a food. The fullest precautions should be taken and legislation developed to prevent the use of milk from animals suffering from any form of infective disease.

² *American Medicine*, January 7, 1905

¹ *Philadelphia Medical Journal*, December 30, 1899.

the start they thoroughly enter into their work, the inspectors would find not a single case of the disease cropping up anew on the Island. That disease, I say, only passes from animal to animal and not from man to animal, under natural conditions, and if there are no infected animals to convey the disease, no new case can show itself. In the second place, the farmers would be benefited materially; no longer would they be subject to loss from the disease decimating their herds, and what is more, the certainty that their stock was free from the disease would enhance the value of that stock and afford a market for it for breeding purposes, not merely at home, but in distant countries which despair of obtaining uninfected animals, their own stock being so riddled with tuberculosis. And lastly, the experience gained in eradicating the disease in one locality would show how it can be accomplished most economically and surely in other parts, and eventually throughout the whole of the Dominion, so that Canada, our Canada, should stand before the world as the first country to solve the great problem and to possess stock wholly free from this devastating disease, so ruinous to agricultural communities throughout the world.

This is no chimeric plan; it is a perfectly feasible experiment, assured of success from the first, causing little disturbance and capable of being carried out at no great cost. If the Government has not merely the fear of the provincial politician before its eyes, but possesses a statesman-like foresight, if it has the welfare of the community at heart, the wellbeing of this Canada of ours, then I urge that it take up this work; that it make a forward move fraught with advantage to what is by far the greatest industrial interest of the country, even if it does not immediately see its way clear to take up measures for the benefit of the greatest national interest of all—the health and the well-being of the people.

BILIARY DRAINAGE IN OPERATIONS ON THE GALLBLADDER AND BILIARY DUCTS.*

BY

EUGENE A. SMITH, M.D.,

of Buffalo, N. Y.

Adjunct Professor Clinical Surgery, University of Buffalo.

The diagnosis and the treatment of diseases in the upper right quadrant of the abdomen are attracting the attention now which a few years ago was given to the lower right quadrant in the study of appendicitis and its sequels. Exact diagnosis in the upper quadrant is far more difficult than in the lower because the liver, bile-ducts, gallbladder, pyloric end of the stomach, duodenum and pancreas are here found within a small area, and disease of any one of these organs involves the others more or less by reason of continuity of tissue, association of functions, or the sequels of adhesions due to accompanying localized forms of peritonitis. The most careful clinical diagnosis with every scientific aid is unable to foretell the exact condition of disease and complications in these cases. We may go further and say that the operator after opening the abdomen frequently finds that the full extent of the pathologic process is beyond his sight, touch and judgment.

Having these general considerations in view I mean in this paper to emphasize the importance of drainage of the biliary tract following operations on the gallbladder and the biliary ducts, including the methods and indications for this procedure.

The etiology of disease of the biliary ducts and gallbladder bears strongly on the question of treatment, especially as the bacterial theory of the origin of such disease calls for surgical interference to establish drainage. Opie's work on disease of the pancreas studies the

etiologic influence of biliary backflow into the pancreas, due to gallstone occlusion of the duct of Wirsung, and points to biliary tract drainage for at least some forms of pancreatitis.

It has been the habit of thought among medical men to consider the inflammatory diseases of the biliary tract to be due to gallstones, or at least to expect gallstones as a constant accompaniment of such disease. In a similar way in the bygone days, grape-seeds or other foreign bodies or fecal concretions were looked for in all cases of appendicitis.

We must school ourselves to another point of view. Ten percent of people have gallstones, but only 5% of this number have gallstone complications which need radical surgical treatment for fulminating attacks, or prolonged medical treatment, sojourns at mineral springs, or finally surgical measures for the relief of chronic manifestations. Accumulated facts point to infection of the biliary passages as the origin of gallstones in all cases. A continuation of the infectious process with exacerbations, or a new infection grafted upon the old occurs in the class of people having gallstones who are victims of chronic disease. Gallstones are therefore to be regarded as a predisposing cause of such disease. In themselves they are the cause of disease when they mechanically obstruct the cystic or the common duct, causing biliary colic or cholemia, or both. It is probable that both biliary colic and cholemia are always accompanied by infection more or less pronounced.

If future diagnostic methods can point out with reasonable certainty the distinguishing features of biliary tract infections, and the favoring conditions in the patient and his biliary passages which class him with those who are later to have chronic disease, the surgeon will operate at the time of the original infection, draining the gallbladder and the biliary ducts. Operative work will thus save the individual the alteration of structures and disturbances of functions which progress slowly in chronic cases to serious or fatal termination accompanied by distress and suffering, both mental and physical.

Diagnosis of cholecystitis and cholangitis is now more frequently made than formerly, especially as complicating or following typhoid fever, enteritis and enterocolitis. Operative work is seldom done at present for original typhoid or colon bacillus infections, but we operate today more frequently to drain the biliary tract in cases of mixed infection due to the more virulent and dangerous pyogenic organisms. Such infections without biliary drainage proceed to suppurative cholangitis, suppurative cholecystitis or perihepatic or hepatic abscess, septicemia and death.

Since October, 1903, I have operated on the gallbladder and biliary ducts 25 times. I drained the gallbladder and biliary ducts in 22 cases, making cholecystectomy without biliary drainage in three cases. Previous to October, 1903, I had a series of 15 operations on gallbladder and biliary ducts reported in the *Buffalo Medical Journal*, January, 1901, and in the *International Journal of Surgery*, of October, 1902. In all of these cases biliary drainage was made.

Cholecystectomy without biliary drainage was followed by slow recovery, and was unsatisfactory as a method of treatment in the following case:

Dr. H. R. Hopkins referred Mr. G. S. to me in January, 1904.

The patient, a man of 54, had never had jaundice nor typhoid fever; had been a gastric dyspeptic for two and a half years, dropping in weight from 180 pounds to 130 pounds, and had several times had colicky attacks in the epigastrium, pain radiating to back and hypochondriac region; nausea and vomiting occurred also. I found a thickened, shortened gallbladder densely bound to the liver, so that some liver tissue was cut away in removing the sac. The gallbladder was contracted down upon the contained calculi, and the cystic duct was later found quite occluded. The gallbladder was removed as a shut sac by ligation of the cystic duct. After operation, on incision of the sac, three calculi the size of hickory nuts were found. This patient made a precarious recovery; vomiting, tympan-

*Read before the Medical Society of the State of New York, Albany, N. Y., February 1, 1905.

ites, pain, constipation, and weak digestion being features of his progress through the first month after operation. Digestion and assimilation thereafter slowly improved. At present he has a fair digestion and far better health than before operation.

Two cholecystectomies without biliary drainage were followed by quick recovery and restored health. The following is the history of one of them:

Mrs. B., aged 37, treated by Dr. Jack, of Depew, and Dr. Ewell, of Lancaster. She suffered about nine years, having recurring attacks of biliary colic. She had jaundice on one occasion, six years before coming to me. Infection had entirely subsided at the time of operation, so far as could be judged by clinical features. The gallbladder contained four good-sized calculi, and seemingly normal bile. Its walls were normal and there were no adhesions. It was unusually free in range of motion, which probably accounted for the colicky attacks, the history going to show they were of short duration. No difficulty was experienced in separating the gallbladder from the liver, and ligating low in the cystic duct. Recovery was rapid, with no fever nor discomfort after the second day.

Biliary drainage was made in nine cases in which there had been no history of jaundice. All gave histories of attacks of cholecystitis and biliary colic. Drainage had no bad effect to say the least in all these cases, and following the operation all developed good digestions while bile was flowing freely from the fistulas, stools at the same time showing bile in normal quantity.

The quantity of bile discharged in 24 hours was excessive in the following case:

Mrs. L., referred to me by Dr. Russell, of Warren, Pa. Patient, aged 24, had suffered four years with colicky attacks and jaundice. She had been for weeks intensely jaundiced on coming to me, and had been having persistent vomiting for ten days, being urged to operation because she could retain nothing on her stomach. After cholecystostomy, measured quantities of bile discharged by the tube for a week ranged from 16 oz. to 30 oz. daily. During this time she retained no nourishment, but was given salt solution and nourishment per rectum. She rapidly bleached and soon ceased to vomit. She had dangerous capillary oozing from the wound for several days, beginning at the end of the first week. However, 10 m. (.6 cc.) doses of 10% solution of adrenalin seemingly held the hemorrhage in check. Gauze used in packing was also saturated with adrenalin solution.

Why do patients who have suffered for months or years with the dyspeptic conditions of low grade infection of the gallbladder and biliary duct improve as a rule so markedly, if they do not entirely recover, after biliary drainage? Why do they have better health, or to express it in other terms, better digestion and assimilation? Because a septicemia and toxemia have been cured. Drainage overcomes the septicemia, disposing of infected bile and enabling infected biliary tracts to throw off the infecting agent. Drainage also overcomes the biliary toxemia by relieving biliary pressure. Hepatic function is restored or partially restored according to the amount of organic change produced by the pathologic process.

Deaver argues ably and at length to prove that biliary obstruction with infection is productive of cirrhosis of the liver. To me he proves his case and the consequent deduction that biliary drainage is the rational procedure to stop the process before alteration of hepatic tissue and biliary radicals and ducts have progressed to the hopeless point.

I will go further, stating my belief that enlargement and later cirrhosis result from damming back of bile which is not infected. The toxemia of cholemia is the necessary consequence and is to be distinguished from the septicemia due to biliary tract infection. Cholecystostomy or cholecystenterostomy is indicated in chronic conditions of jaundice for temporary or permanent relief of toxemia and chronic hepatitis. I did cholecystostomy four months ago in a case of rapidly deepening jaundice and cholemia diagnosed by exclusion before operation to be due to malignancy. During operation the diagnosis was changed to chronic pancreatitis. This man has been helped by biliary drainage out of what seemed to be his dying bed and into a slow but steady progress to recovery. The history of this case is as follows:

I. O. was seen with Dr. Irving Potter on October 15, 1904. The patient, aged 49, is married, having six living children; always well, excepting that as a boy he frequently had colic, saying that he suffered many attacks until he was 15 years old, from which time on he had no more attacks and had good health until ten weeks before I saw him. At this time he began to lose appetite, and two weeks later consulted Dr. Potter because of dyspepsia, loss of appetite and indigestion. About a month before I saw him he developed jaundice, which slowly became more and more pronounced, with clay-colored stools and bile in the urine. He lost flesh steadily, although his appetite improved under tonic medicines and he ate quite heartily. He had occasional sweats, but no fever and no chills.

On examination I found a tender pyriform mass in the region of the gallbladder without irregularity of outline and with no rigidity of muscle. Upon operation, done October 21, 1904, I found a distended gallbladder filled with gelatinous white-of-egg-like fluid. The pancreas was evenly indurated, pyloric end of stomach, stomach itself, transverse colon, biliary ducts and liver seemed normal. The liver was, however, moderately enlarged. Some bile flowed from the opening in the gallbladder before the conclusion of the operation. Biliary drainage was followed in this case by the discharge of huge quantities of bile for a period of six weeks, the daily quantity averaging a quart and often reaching three pints. During this time the patient took food in good quantity, but upon examination the stools showed no bile. The patient slowly bleached, held his own for two months, and in the last six weeks has improved in health and strength, is gaining weight and bile is found in the stools, jaundice having entirely disappeared. The fistula is not yet closed.

In a case already reported, in which I operated for Dr. Himmelsbach, I cut into the liver near the anterior border by going too deeply, due to a sudden deep inspiration by the patient as I opened the abdomen. The incision into the liver was an inch long and about half an inch deep. It bled profusely till stopped by deep catgut sutures. In irrigating the gallbladder with salt solution, after removing the gallstones, water was observed by onlookers and myself to well out between the sutures freely. No better demonstration of the possibilities of the damming back of bile either sterile or infected could be asked, applying the knowledge we have of pathologic processes in the light of this demonstration of the perfection of the system of hepatic ducts. I use such irrigation to cleanse cyst and ducts and also to dislodge small calculi in the hepatic duct or its branches and to carry them outward and into reach during operation.

The following history shows what biliary drainage does when gallstone obstruction is naturally relieved. The gallstones passed by this patient were the accompaniment of a serious infection of the biliary tract, and their escape the occasion of its relief, normal biliary drainage being restored:

On September 30, 1902, Dr. Carlton Jewett called me to see Mr. R. with him. The patient, aged 43, had always been well until a year before I saw him. He was a hearty eater and lacked exercise, being a stationary engineer by occupation. A year before he had an attack of colicky pain, and a week later a second attack. The condition was called intestinal colic. In June, 1902, he had a third attack, during which gallstones were passed after a short period of jaundice and clay-colored stools. On September 20 he was taken with a fourth attack of biliary colic, which was very severe on September 22 and 23, followed by jaundice on September 24; continued vomiting on September 26, with a severe chill. His temperature ran to 103.4°. He was delirious in the next two days and then became drowsy and stupid. On September 29, 124 calculi were found in the stools. They were small, the largest the size of a small bean. When I saw him on September 30 his temperature and pulse were nearly normal, jaundice was disappearing, he was having no pain, and as operation was declined earlier, I did not at this time urge it. During the following four or five days he passed over 200 more small gallstones, and since then has been quite well.

Beyond doubt numerous cases of cholecystitis, if closely watched, would be found to clear up in the same way, but of necessity the number of cases in which the gallstones are all small, as seemed to be the condition in this case, would be small in proportion to the cases in which calculi of irregular and larger size occur.

There is no question of the need of biliary drainage in fulminating cases operated upon for acute cholecystitis with cholangitis. The nature of the infecting organism cannot be determined by bacteriologic examina-

tion at the time of operation, nor can the extent of the invasion be positively known. It therefore behooves the surgeon to treat the patient in a way to cope with virulent organisms by biliary drainage. The biliary tract to the most distant of bile radicles can be best relieved by free drainage of the hepatic duct via the cystic duct by cholecystostomy, or the common duct by choledochotomy.

If the common duct must be opened, it does best, in my experience, by drainage with a rubber tube tied into the duct opening with a catgut suture, and guttered in the gallbladder fissure of the liver by gauze packed snugly below and around it, the roof of the gutter being the liver substance. As a rule, no effort is made to sew up the incision in the duct.

When the common bile duct is obstructed by stricture or by pressure from granulomas, or tumors, the resulting cholemia may be relieved by cholecystenterostomy; in other words, a drainage of bile into the intestine. In stricture due to adhesions without malignancy, or cicatricial in nature, such as follows the traumatism of calculi, cure may result.

I have at present the following case under observation awaiting cholecystenterostomy:

After several attacks of biliary colic, with jaundice, P. R. was operated on in July, 1904, just after a severe attack, while he was still jaundiced and septic. I found cholecystitis with adhesions, but careful search revealed no calculi nor neoplasm. He has done well since operation, excepting that when the fistula closes he promptly develops severe pain in the distended gallbladder and jaundice. No bile is found in the stools. He complains only of the nuisance of the fistula and a failure to regain his working strength. When the fistula closes, a tumor forms within a few hours in the right hypochondrium, due to distention of the gallbladder, and pain begins. Incision in the scar evacuates bile and gives prompt relief.

Arguing from my experience, drainage of the biliary ducts externally by cholecystostomy is wise in 90% of cases coming to operation for disease of the gallbladder and biliary ducts. It is the safest and best way to dispose of infectious bile and to cure infected tissues.

Cholecystendysis, the ideal operation of removing calculi, suturing the cholecyst and closing the abdomen, was done once under my observation by a colleague. The patient recovered from operation nicely, but the further progress was unsatisfactory. One year later she consulted me, saying she had suffered pain and indigestion, persisting from the time of operation. Cholecystectomy was advised and accepted, the patient returning to my colleague for operation.

Cholecystectomy without drainage must be guardedly recommended. In my estimation it is indicated only when the patient suffers from biliary colic due to calculi in the gallbladder with extreme low grade infection or no infection of the gallbladder and biliary tract and with no marked evidence of old inflammatory processes in liver or surrounding organs and with common duct patulous beyond doubt. Such a case I report in Ewell's patient in this paper.

Drainage by cholecystostomy is preferable because it is easier and safer than drainage with cholecystectomy. The mortality rate of cholecystectomy is put between 4% and 6% by different authorities. Cholecystostomy mortality rate is put at 1% to 2%. Advocates of cholecystectomy urge against cholecystostomy that it is at times followed by long lasting biliary fistulas which may demand later cholecystectomy for a cure; that it may be followed by formation of new calculi; that hydrocholecyst from cystic duct stricture may result; and that malignancy may develop in the gallbladder which has long been a storm center of disease.

So far in 40 cases I have met no permanent fistulas, excepting the case herein reported of common duct stricture. A few persisted several weeks to three or four months. Hydrocholecyst, or mucoid filling of the gall sac due to cystic duct stricture persisted in one case nearly a year, operation being done in 1899. The sac

filled, and was opened after pointing in the scar from time to time. The quantity gradually diminished, finally ceasing to form. I have now one other such case under observation, persisting for five months, but with decreasing quantities.

Reformation of gallstones and cancerous degeneration in the sac I have not encountered in my cases. Mayo reports 4% of cancer of the gallbladder in 800 cases operated upon for gallbladder and biliary tract disease, cancer not having been diagnosed nor suspected at the time of operation in many of the patients.

Cholecystostomy is more readily performed with less hemorrhage and shock. Drainage can usually be more safely established by fixing the gallbladder to the abdominal wall than can be done after cholecystectomy with deep drain to the cystic or common duct. Calculi which are overlooked, work to the surface with the current of bile readily after cholecystostomy. This occurred in one of my cases, and I saw it in two cases in the practise of my colleagues, Mayer and Clinton.

In my first 15 cases of operation upon the gallbladder and biliary ducts I made one cholecystectomy. In my second series of 25 I did this operation six times. While urging cholecystostomy as preferable to cholecystectomy in most cases, I think cholecystectomy wise in its place. Cholecystectomy is indicated when marked stricture of the cystic duct is present, in cases with thickened, distorted gallbladders or perforated gallbladders, and when malignancy is suspected or found. In empyema and gangrenous exfoliation of the mucosa Mayo's operation of stripping out the mucosa with biliary drainage through the muscularis of the sac has been successful in my experience.

I practise the following method to remove the gallbladder and at the same time to establish drainage: Split the gallbladder to the duct on the lower surface, pass a ligature of chromic catgut around each half of the cystic duct by piercing the upper wall with a needle and tying in two sections. Cut away the gallbladder and sew a rubber tube into the duct with catgut suture through tube and flaps of cystic duct distal to ligatures. Make gutter of gauze as already described to aid in preventing leakage.

In making cholecystostomy I sew a rubber tube of one-fourth inch diameter into the incision in the gallbladder. One can more snugly close the opening around a good-sized tube. The tube is retained by a catgut suture through cut gallbladder edge, or later through fascia or skin. The gallbladder is fixed by silk or silk-worm sutures through all the layers of the abdominal wound and the cut edges of the gallbladder on outer and inner sides, bringing peritoneal surfaces of gallbladder and abdominal wall together, but sinking gallbladder orifice below the cut fascial and muscle edges of the abdominal wall. One end of a gauze compress is tucked in, above and below to fill in space between peritoneal edges and to drain if bile leakage should occur around the tube as it emerges from the gallbladder. Rubber tubing is joined by a bit of glass tube to the rubber tube in the gallbladder, and the outflowing bile is carried into a bottle beside the bed.

When the gallbladder is too short to reach the abdominal wound, the tube is sewed into place as before, and a gutter of gauze is placed so that the tube is roofed by hepatic substance and another strip of gauze if needed, and thus reaches the surface in a protected channel. Such a tube comes away when the catgut retaining suture softens in from ten days to two weeks.

Five deaths occurred in the series of 40 cases herein reported. In 35 patients operated upon for cholecystitis and cholangitis, due to cholelithiasis, one death occurred. The history follows:

Mrs. T., aged 60, mother of 12 children, first attack of biliary colic two years before I saw her, bedridden four weeks before operation, with frequent attacks of colic and jaundice, came for operation in June, 1904. I can account for her death in only

one way, a necropsy not being allowed. The gallbladder was thick, small, and full of small calculi. Traumatic perforation of the deep cystic duct in delivering calculi must have occurred. There was no external discharge of bile through the tube, and intraperitoneal biliary drainage must have occurred, causing death in 48 hours.

Two deaths after cholecystenterostomy occurred in cholemic patients operated upon for malignant disease involving pylorus, common duct and pancreas, and obstructing the common duct. One died of shock within 36 hours, and one of hemorrhage from the wound, stomach, and intestine a week after operation. Autopsy revealed no septic developments in the field of operation.

One death occurred within 24 hours, of shock following cholecystenterostomy for supposed malignant disease. This patient had been jaundiced four weeks, without colic, and was losing flesh and strength. He had been a "dyspeptic" for years. The findings at operation were similar to those given in the cases herein reported of chronic pancreatitis, relieved by biliary drainage. Necropsy was not allowed.

The fifth fatal case resulted after cholecystostomy. Hepatic abscess had been diagnosed, but was not found. Cholecystitis and cholangitis were present and pure cultures of colon bacillus were obtained from the bile. Calculi were not present, but the bile was thick and viscid. Biliary drainage relieved the septic symptoms in this case for three days. Recurrence of chills, sweats, and high temperature then took place, and death from septicemia resulted on the fifth day after operation. Necropsy could not be obtained.

In this paper the importance of drainage of the biliary tract following operations on the gallbladder and biliary ducts has been mainly under discussion. I realize that many questions bearing on the subject have been just touched upon and some have been omitted.

BIBLIOGRAPHY.

- Deaver, J. B.: *American Medicine*, March 19, 1901, and July 2, 1901.
 Mayo, W. J.: *American Medicine*, June 11, 1901.
 Opie: *Diseases of the Pancreas*, 1903.
 Moynihan: *Gallstones and Their Surgical Treatment*, 1904.

A CASE OF CHOREA, FATAL, APPARENTLY, FROM EXCESSIVE MUSCULAR ACTION.

BY

J. P. CROZER GRIFFITH, M.D.,
 of Philadelphia.

Although chorea is of such common occurrence, instances of death directly dependent upon the disease or its complications, though not actually rare, are still far from frequent. The Collective Investigation Committee of the British Medical Association found 9 deaths in 439 cases of chorea, *i. e.*, 2%. Sinkler found but 64 cases of death from chorea reported in Philadelphia during 74 years, and textbooks in general refer to the disease as having a most favorable prognosis, so far as recovery from the actual attack is concerned. We cannot know how many of the recorded deaths depended upon some complication, such as a rapidly fatal endocarditis. Undoubtedly the majority are due to such causes, and it is extremely likely that Baginsky is entirely correct in saying that death as a result of the fearful muscular action which continues night and day is seen but seldom.

In view of these facts the report of the following case is not without interest:

R. B., male, aged 11, was admitted to the Children's Hospital of Philadelphia, under my care, January 3, 1905. The family history was entirely negative as far as could be ascertained. The patient had had good health except for the occurrence of measles when five years old, and for an attack of what was called "nervousness" at the age of 9, which lasted seven or eight weeks, and was said to be similar in nature to, although less severe than, the present one. He was treated in a hospital and recovered completely. Since that time he had been well until a month before admission, when the parents noticed that he was becoming restless, could not sit long in a chair, and twisted his hands and fingers about. At night-time he was

quiet. Soon grimaces and rolling of the eyes developed, and later general choreic movements of the arms, legs, and body. In the last week these movements had become excessive, the slightest excitement causing general and very violent tossing about of the extremities and of the trunk.

On admission the child appeared pale and ill. Nothing abnormal was found in the throat or the lungs, but a systolic murmur was audible over the heart in the mitral region. The abdomen was retracted, and some of the inguinal glands were enlarged. There appeared to be no control over the tongue, but the mouth could be opened fairly well. Speech was so much affected that it was almost incomprehensible. The child appeared, however, to understand, although he could not well do what he was told, nor did he seem able to make his desires known satisfactorily. There was frequent loud crying and moaning. The choreic movements were widespread, constant and very violent. Respiration was jerky and irregular, the diaphragm acting irregularly and sometimes one side of this or of the thorax appearing to move while the other side did not. Rigidity of the arms alternated with violent tossing of them about from the shoulder-joint. The grip in both hands was weak. The movements of the right leg were somewhat greater than those of the left, and the patient was able to flex the left leg only after great exertion and excitement. The patellar reflexes were slightly increased. There was no ankle-clonus. The movements were so constant and severe that the skin showed widespread excoriations and bruises.

The child was given a purgative, and administration of Fowler's solution was started, while for immediate relief he received chloral hydrate and potassium bromid in full doses. Later a hypodermic injection of morphin was given, but as this had little effect it was repeated twice during the night. In spite of this treatment he slept very little—not more than half an hour on the night of January 3. On the night of January 4, he slept about three hours, but on the morning of January 5 he became extremely restless again and was now violently delirious and threw himself about to such an extent that he broke the straight-jacket by which he was restrained. His mental state was clearly distinctly worse and it was questionable whether he would have been able to understand and answer questions, even had the muscular inability not prevented it. The administration of chloral and of potassium bromid was continued, but with little effect. Morphin, too, having proved of no avail, a hypodermic injection of .1 mg. (.005 gr.) of hyoscin hydrobromate was administered in the afternoon and again during the night, and broken sleep amounting to eight hours in all was secured. January 6 found him quieter, but very stupid. When disturbed he showed at once the extreme choreic movements, attended by violent delirium. On this date the chloral and bromid were stopped, and the boy was kept quiet by hyoscin.

Examination on January 6 showed the child had emaciated very decidedly. The color was pale with some degree of cyanosis. The cardiac dullness extended upward to the third rib and reached the right border of the sternum, but did not seem to be specially increased. The apex beat was in the nipple line in the fifth interspace and was of fair strength, but rather diffuse. The mitral systolic murmur could be heard all over the precordium, was transmitted well to the axilla and to the angle of the scapula behind, and was certainly louder than when the child was admitted to the hospital. Control over the bladder and rectum had been lost on the preceding day and there was now some difficulty in swallowing; solid food not being taken at all, and liquid only very slowly.

A blood count made on this date showed red blood cells 5,730,000, leukocytes 22,400, hemoglobin 85%. The urine had shown neither albumin, sugar nor casts on examination, although some acetone was present.

The patient was quieter during the greater part of January 8, this being partly the result of hyoscin and partly apparently due to failing strength and increasing mental torpor. He was fed at times with a nasal tube and occasionally was able to swallow well. He apparently tried to talk, but was unable to do so. In the afternoon of January 9 his color became very bad, his pulse almost imperceptible, coma deepened, weakness increased, and he died shortly after 8 p. m.

The temperature was slightly over 101° on admission and had ranged from 101° to 103° until the afternoon of death, when it reached 104.8°. A blood culture was taken by C. Y. White on the morning of the day of death, but no conclusions could be drawn, as the result showed there had been decided contamination.

An autopsy was performed by Dr. Wadsworth, the coroner's physician, on January 10, but circumstances prevented this from being entirely satisfactory, no microscopic study of the brain or spinal cord being possible, and the cultures which were attempted from different parts of the body being necessarily made under such circumstances that contamination was unavoidable. The report given me by H. C. Carpenter is as follows:

MACROSCOPIC APPEARANCES.

Skin is a purplish yellow, as in septic conditions. Bronzing over body, especially over abdomen and hips. Abrasions

over all the bony prominences. Finger-nails blue, and sordes on lips and nose. Black mark over right eye. The pericardium is slightly thickened. Heart muscle is pale, and the mitral valve has a fringe of granular vegetations from 1 mm. to 2 mm. in diameter, all along the edge. Small spots of yellow atheroma are seen running transversely across the beginning of the aorta. Over left lung, posteriorly, are seen the remains of an old pleurisy. The lungs show some hypostatic congestion and edema posteriorly. Liver: Section slightly yellowish. Spleen somewhat softer than normal, slight increase of fibrous tissue of capsule. Kidney: Lobulated, capsule slightly adherent; stellate congestion of cortex, parenchyma swollen. Adrenals are very large; right, 12 cm., 2.5 cm., 1.5 cm. Left, 10 cm., 3 cm., 1.5 cm., otherwise normal. Stomach is very large and distended. Intestines are markedly congested in places. Pancreas is slightly congested, and very firm. Lymph-glands of mesentery and retroperitoneum are enlarged, but not congested or caseous. Brains: Increase of fibrous tissue about vessels of arachnoid, cerebrum congested, cortex normal, no flattening of convolutions.

HISTOLOGIC EXAMINATION.

Heart muscle: The connective tissue is increased, and there is considerable round-cell infiltration around the vessels, and, in isolated areas, round-cell infiltration between the muscle bundles. In places heaps of cells. Muscle fibers in close proximity to vessels show interfibrillary infiltrations. Some few muscle fibers hypertrophied. Section from mitral valve shows cellular infiltration with moderate amount of congestion.

Lungs: Moderate congestion. Alveoli filled with fluid. Slight anthracosis. Some parts of the lung show round-cell infiltration into the alveoli.

Lymphatic glands: Moderately congested.

Diaphragm: Muscle bundles in good condition with the exception of a few individual muscle fibers, which stain paler than normal. Some increase of connective tissue between the muscle bundles.

Liver: Slight fatty infiltration. Slight amount of congestion throughout.

Kidney: Moderate amount of congestion. The cells of the tubules normal, except, in a few isolated tubules, where there is cloudy swelling.

Pancreas: Normal.

Suprarenal gland: Peripheral zone congested slightly, otherwise the gland is entirely normal.

Intestines: Moderate congestion. Slight increase of intertubular tissue.

Appendix: Same condition as bowel.

Spleen: Congestion, vessels thickened. Malpighian bodies few and small.

BACTERIOLOGIC EXAMINATION OF TISSUES.

Heart muscle contains a small coccus. In the cellular infiltration there is a mixed infection, bacilli, cocci, diplococci, and streptococci.

Lymphatic glands contain a small coccus in groups, and also a diplococcus.

Only one who has seen a case of the kind described can conceive of its terrible nature. I may, in passing, mention that I have never before witnessed any one at all parallel to it, and hope never to do so again. While it is impossible to state absolutely in this instance that the death did not depend upon the complicating endocarditis or the general toxic state of the system the result of the infection, yet the fatal issue had all the appearance of being the direct result of the movement. Certainly a long continuance of life was incompatible with the excessive muscular action.

A METHOD OF UNITING INTESTINES OF VERY SMALL OR OF UNEQUAL CALIBER.¹

BY

J. SHELTON HORSLEY, M.D.,
of Richmond, Va.

Professor of Principles of Surgery, Medical College of Virginia; Surgeon to Memorial Hospital, Richmond, Va.

No operation on the intestines, depending wholly or in large part upon suturing for approximation, can be satisfactorily established without going somewhat into the relative merits of the various methods of suturing in general use. The continuous and the interrupted sutures may be termed the two generic divisions, subdivisions and modifications of these being numerous. The advantages of the continuous suture penetrating all

the intestinal coats over the interrupted suture—such as uniform pressure, rapidity of application, and splint-like action—have been described in a previous paper in the *Annals of Surgery*, November, 1903; but in the study of these two methods there is one feature so frequently overlooked that I hope I may be pardoned for emphasizing it—the phenomena of the process of repair in intestinal union.

When two serous surfaces adhere, there is always a



Fig. 1.

reason for it. Adhesions of the pleura indicate a previous lesion; adhesions of the pia mater are proof of a former inflammation; and it is common knowledge that peritoneal adhesions exist because of preexisting damage to this serous membrane. There must be something beside mere approximation necessary to cause serous surfaces to adhere, else immobilized joints would be rendered functionless, and a strapped chest would cause obliteration of the pleural cavity. No one would think



Fig. 2.

of doing a perineorrhaphy by merely putting in sutures without denuding the surfaces to be approximated. Except for the fact that the peritoneum is a much more delicate structure, and consequently more easily injured than a mucous membrane, there is no difference in principle between a perineorrhaphy thus performed and an intestinal union done with interrupted sutures.

These conclusions were derived mainly from the following experiments: Two coils of intestine were laid side by side and united by a row of continuous stitches

¹ Read before the Southern Surgical and Gynecological Association, at Birmingham, Ala., December, 1904.

about 4 cm. long. At a distance of about 1 cm. a second row of sutures, of the same length as the first and parallel to it, was placed. The area of the peritoneum included between these two rows of sutures was in accurate apposition, but without pressure except near the region of the sutures. The dogs were killed on 1, 2, 3, 4, 6, and 8 days after the experiment, and the specimens removed and sent to Dr. J. S. Davis, professor of path-

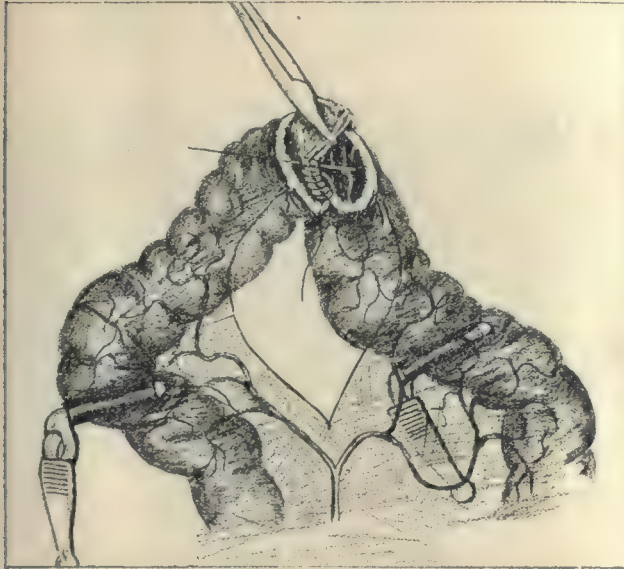


Fig. 3.

ology in the University of Virginia, whose report is appended to each experiment. In the first six, No. 1 twisted black silk was used, and in the last three No. 2 white braided silk.

EXPERIMENT 1.—Large, black, short-haired, mongrel male dog, medium weight. Two coils of intestine sutured together with fine black silk, the rows of sutures running parallel and in the long axis of the gut; specimens removed after one day (24 hours).

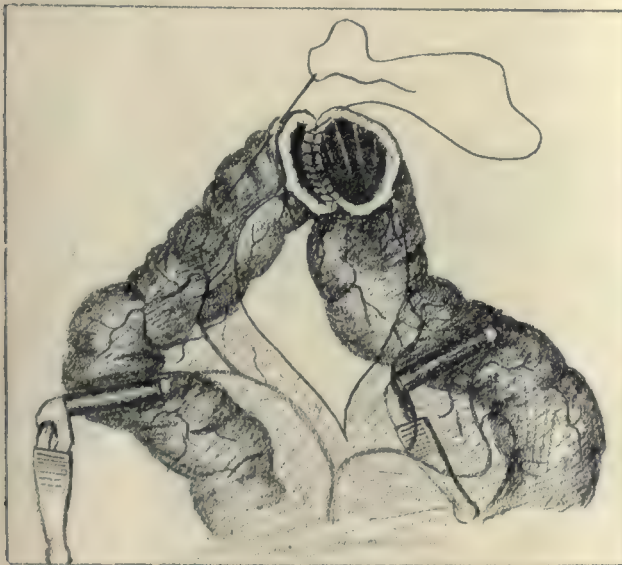


Fig. 4.

Pathologic Report.—About three-fourths of approximated surfaces between the rows of sutures were adherent; average distance of rows from each other, 9.3 mm.

EXPERIMENT 2.—Heavy set, black, shepherd, male dog, medium weight. Same procedure as in preceding experiment; specimen removed after two days (48 hours).

Pathologic Report.—Nearly all the area between the rows of sutures was adherent; average distance of rows of sutures from each other, 13.3 mm.

EXPERIMENT 3.—Rather small, liver and white spotted, male, setter dog. Same procedure as in preceding experiments; specimen removed after three days.



Fig. 5.

Pathologic Report.—Nearly all adherent; average distance of rows of sutures from each other, 11 mm.

EXPERIMENT 4.—Rather small, male shepherd dog. Same



Fig. 6.

procedure as in preceding experiments; specimen removed after four days.

Pathologic Report.—Not more than three-fourths of area



Fig. 7.

between rows of sutures adherent; average distance of rows of sutures from each other, 11 mm.

EXPERIMENT 5.—Long-bodied, long-haired, black male

dog, medium weight. Same procedure as in preceding experiments; specimen removed after six days.

Pathologic Report.—All adherent; average distance of rows of sutures from each other, 9.3 mm.

EXPERIMENT 6.—Small, heavy set, yellow, male cur. Same procedure as in preceding experiments; specimen removed after eight days.

Pathologic Report.—All adherent; average distance of rows of sutures from each other, 12.5 mm.

EXPERIMENT 7.—Small, brown, spaniel bitch. Experiment similar to the preceding ones, except that No. 2 white braided silk was used instead of fine black twisted silk; specimen removed after four days.

Pathologic Report.—Nearly all adherent; distance between rows of sutures, 9.4 mm.

EXPERIMENT 8.—Young black and tan, mongrel male dog, medium weight. Procedure same as in Experiment 7, using white braided silk; specimen removed after six days.

Pathologic Report.—All adherent; distance between rows, 10.9 mm.

EXPERIMENT 9.—White and black spotted, setter bitch,

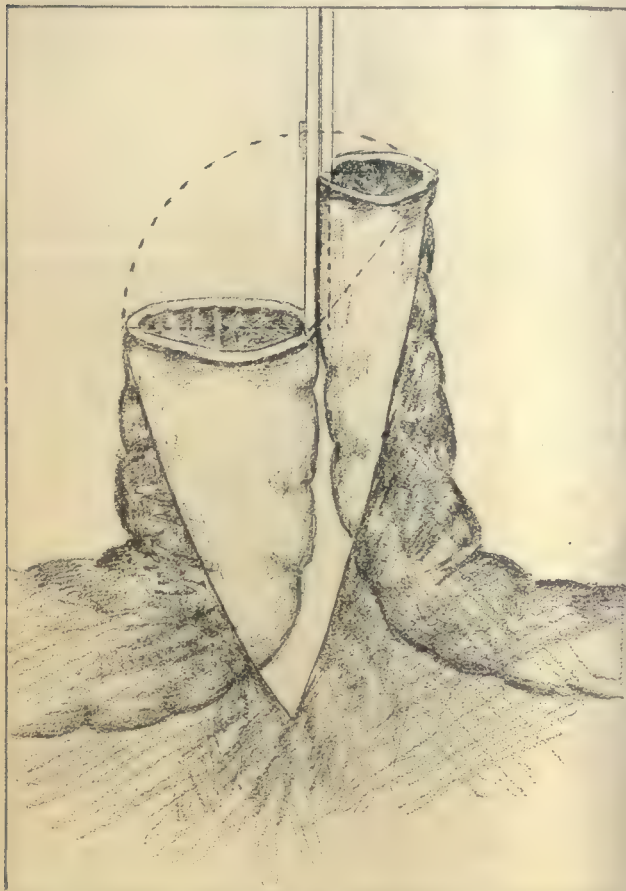


Fig. 8.

medium weight. Same procedure as in Experiments 7 and 8, using white braided silk; specimen removed after eight days.

Pathologic Report.—All adherent; distance between rows, 10.9 mm.

Thus, it will be seen, that in these nine experiments the whole area included between the rows of sutures united only four times, and in two instances the large coarse silk was used, which excited more hyperemia of repair than the small, black silk which was employed in six of the experiments. These results indicate clearly that approximation alone is not sufficient to secure union of peritoneal surfaces.

Intestinal union by interrupted sutures is obtained within the bite of the suture by hyperemia excited by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures, as pressure from the thin intestinal tissues is practically nil, union depends solely upon the extension of this hyperemia, and if this process does not extend from one stitch to another, leakage will surely occur.

If continuous and moderate pressure is made on two approximated serous surfaces, sufficient injury will be done these surfaces to cause adhesions. In the case of the interrupted suture, this condition obtains only within the bite of the stitch, but when the continuous

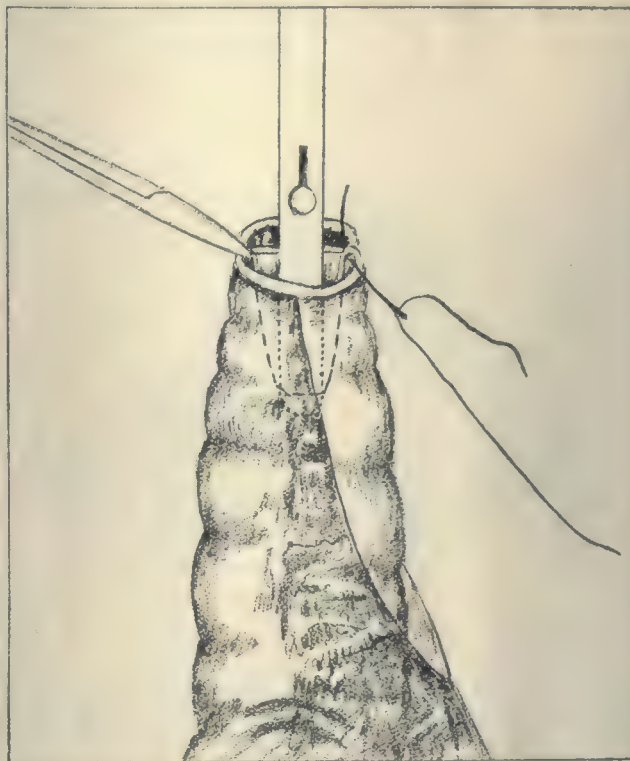


Fig. 9.

suture, penetrating all coats, is employed, there is continuous pressure at every point of the sutured wound. As a matter of fact, many surgeons who use the interrupted suture employ that form which most nearly approximates the continuous. The mattress stitch and the pursestring suture produce pressure upon a much larger area of the peritoneum than the Lembert, and are,

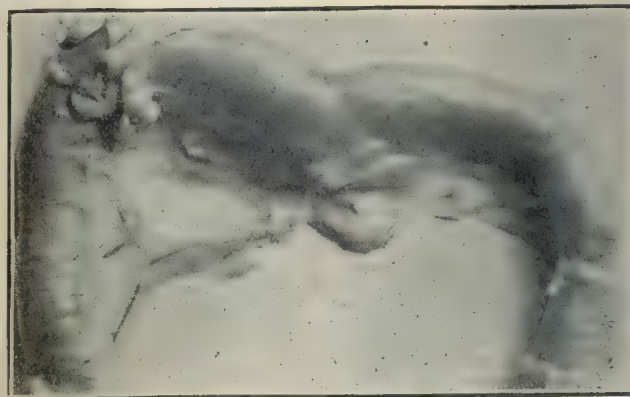


Fig. 10.—Photograph of intestine from Experiment 26. The wax cast was broken while being taken from the intestine; so it could not be photographed. Note the adhesions of the omentum to the portion of the intestine compressed by Murphy clamp to coprostasis.

therefore, superior to it. But only the continuous suture fulfils the ideal condition of uniform pressure along the entire margin of the intestinal wound.

When the intestinal ends are of moderate and equal diameter there is, under ordinary conditions, no better method of uniting them than by the continuous, pene-

trating, right-angled suture. It is where the segments are usually small or unequal in size that the method about to be described seems particularly applicable. Not only is this latter condition found when ileum is to be joined to colon, but after chronic obstruction the proximal segment is always larger than the distal. In intestines, both of unequal and very small diameters, stricture is liable to occur after union by most methods now in vogue, and avoiding this undesirable complication is one of the advantages of the new operation.

After experiments in other directions, this operation

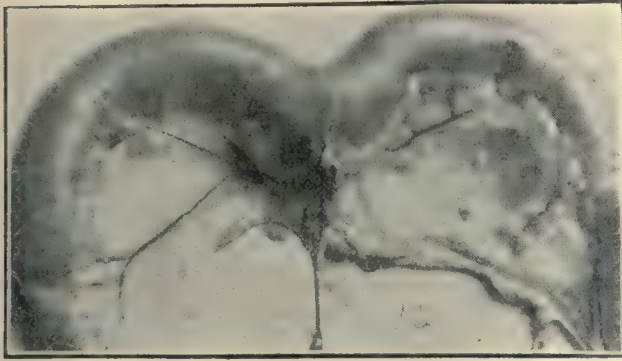


Fig. 11.—Photograph of intestine from Experiment 16. Slight omental adhesions; 82 days after operation.

has proved satisfactory in every instance. Of 19 dogs operated upon by this method, none died.

Operation.—A single knot of a soft, rubber tube is used, as recommended by Ballance and Edmunds, to obtain coprostasis. The mesentery is incised; in resection, a triangular portion may be removed. The vessels at the mesenteric border of the intestine are clamped before being cut. The forceps that clamp the vessels are also made to include both layers of peritoneum as they separate from the mesentery to encircle the bowel. The tissue within the bite of the forceps is ligated with fine silk, so drawing the peritoneum over the area of bowel usually devoid of a serous coat and at the same time closing the vessels. This stage is shown in Fig. 1. Next the bowel is divided or resected, as the case may be, and the convex borders placed in contact and held in this position with hemostatic forceps. An ordinary No. 8 sewing needle, threaded

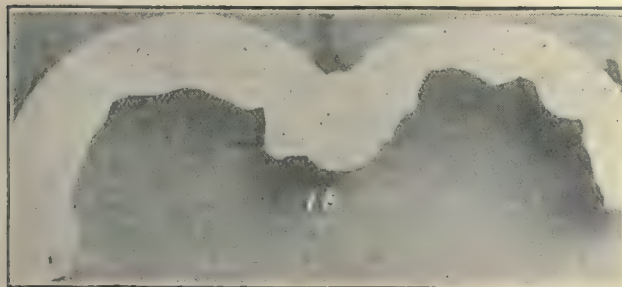


Fig. 12.—Wax cast of intestine from Experiment 16.

with braided silk, transfixes both walls of the intestinal ends about half way between the mesenteric insertion and the forceps (Fig. 2). The suture is drawn through and tied. A portion of the intestinal walls forming a crescentic area, the center of which is grasped by the hemostatic forceps, is now cut out with scissors, by cutting about a third of an inch at a time and suturing the cut edges together with a continuous circular (overhand) stitch, penetrating all coats, and then cutting another third inch and suturing, and so on until the crescentic area is excised (Fig. 3); or the continuous Connell suture may be used, suturing first for a few stitches and then cutting. The needle is inserted about six times to the inch, and moderately firm tension is constantly kept on the thread with the left hand. When this crescentic area has been removed, and the margins from which it was cut have been sutured in the manner described, the needle is thrust directly through the intestinal wall just to the right of its last puncture, and emerges from the serosa. The character of the stitch is now changed to a Cushing right-angled, continuous suture,

penetrating all coats, which readily inverts the remaining margins of the wound (Fig. 4). The stitch is continued (Fig. 5) with moderately firm traction on the thread. When the first knot is reached it is invaginated, and the suture continued by two more insertions of the needle. With these last two insertions of the needle as secure a hold as possible is obtained without penetrating to the mucosa. The very last insertion is in the reverse direction of the other insertions, so that when the knot is tied it is partly buried (Fig. 6). If desired, it may be completely buried by a single mattress stitch, though I have never thought this necessary. After this suturing is completed, but little of the thread can be seen. The bowel is then turned to its natural position, and with another needle, similarly threaded, the mesentery is sewed up with a continuous stitch (Fig. 7). The needle is inserted in the mesentery at its junction with the bowel, and the first knot when tied acts as a mesenteric stitch. It is placed close to the bowel, though no attempt is made to include any portion of the intestinal wall in its grasp, as in the Mitchell-Heamner or Halsted mesenteric stitch.

When bowel of unequal caliber is to be united, the two segments are clamped by taking a deeper bite on the small bowel

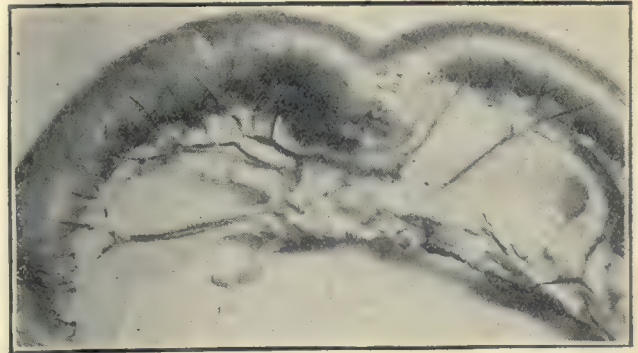


Fig. 13.—Photograph of intestine from Experiment 18; 82 days after operation.

than on the large, so when the mesenteric borders of both segments are lifted up these borders will be on the same level (Fig. 8). One corner is caught with a hemostat and the suturing is begun at the other corner (Fig. 9). All of the crescentic

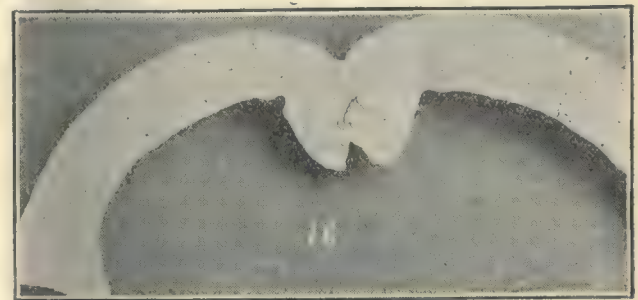


Fig. 14.—Wax cast of intestine from Experiment 18. The stitches which had not entirely loosened from the intestine are seen embedded in the cast.

area is cut from the small gut, except at the points where the hemostats are applied, as here both bowels are clamped. Otherwise the operation is finished as described.

In order to test the caliber of intestines that had been subjected to this operation the specimen, including the site of operation, immediately after removal was filled with melted paraffin and photographed. The intestine was then removed and the paraffin model photographed. Some of these pictures are herewith submitted and show one of the advantages contended for, that is, the large diameter of the intestine at the point of union, a diameter which may be extended much more if deemed necessary. Attention is also called to the fact that there are very few adhesions to the site of the union. Halsted lays great stress upon the absence of adhesions following an intestinal union and claims that no intestinal operation is satisfactory in which numerous adhesions result.

BRIEFS ON GENITOURINARY SURGERY.

BY

G. FRANK LYDSTON, M.D.,

of Chicago.

Professor of the Surgical Diseases of the Genitourinary Organs and Syphilology in the Medical Department, Illinois State University; Surgeon to Saint Mary's and Samaritan Hospitals.

Etiology of Prostatic Enlargement.—Increasing experience in the radical treatment of obstructive prostatic disease has demonstrated the inaccuracy of the old nomenclature of the pathologic conditions of the prostate which produce obstruction of the urinary way. The term hypertrophy of the prostate is not only a fallacious nomenclature, but as a surgical omnibus, so to speak, comprising a variety of dissimilar conditions, the only bond of union being their mechanical results. It is further coming to be understood that pathologic changes of a permanent character in the prostate are by no means limited to the past mid-period of life. The term prostatic enlargement, as applied to the conditions that obstruct the outflow of urine is, as a generic term, much more accurate than the old nomenclature.

Careful clinical observation demonstrates (1) that an increase in size of the prostate, producing a greater or less degree of urinary retention, is by no means limited to any period of life. Such obstructive conditions may be temporary or permanent, the tendency to permanency being greater as age advances; (2) obstructive conditions of the prostate discovered after middle life are no longer to be considered as a concomitant of advancing age, the time of their discovery being later by some years than the commencement of the pathologic overgrowth, the lack of correspondence between the period of discovery and the beginning of the condition being due to the fact that not until the overgrowth has assumed a form or size which results in an encroachment upon the lumen of the prostatic urethra do symptoms become manifest that are sufficiently serious to impel the patient to seek counsel, the slighter symptoms characteristic of the period of incipency being either overlooked or disregarded from the fatuous premise that they are incidental to advancing age. It is obvious that the pathologic conditions characteristic of prostatic obstruction in advanced life being exceedingly chronic and slow of development, it is not until a prolonged period has elapsed that the growth assumes the size and form requisite for obstruction of the urinary way.

Varieties of Obstructive Prostatic Disease.—Careful clinical observation will enable the surgeon to formulate a simple and practical classification of the varying pathologic conditions of the prostate that produce obstruction to the urinary outflow. My own classification I will present as follows:

TEMPORARY OBSTRUCTIVE CONDITIONS.

1. Acute or subacute inflammation: (a) Simple. (b) Specific.
2. Accumulations of pus.
3. Congestion; subacute, acute or chronic; superadded to chronic condition of the organ.
4. Foreign bodies.

PERMANENT OBSTRUCTIVE CONDITIONS.

5. Neoplasms of various kinds.
6. Atheroma.
7. Tuberculosis.
8. Calculus.

Acute inflammation producing prostatic obstruction is most frequently found in young subjects as the result of infection from the anterior urethra. Retention of urine as a consequence of the swelling produced by acute inflammatory engorgement is a complication by no means infrequently met in the course of acute gonorrhea. From a mechanical standpoint, precisely the same condition may result from septic infection or trauma. The importance of the relation of septic and specific infection in young subjects to prostatic enlargement occurring later

in life is not appreciated by most writers on the subject. Increasing experience in radical surgery of the prostate and especially in the removal of the adenomatous new-growths, has convinced me that the relation between prostatic obstruction in advanced life and infection of one kind or another occurring at an earlier period is most intimate. Even the most superficial knowledge of the pathogenesis of glandular overgrowths should be sufficient to corroborate this opinion. That a large proportion of the prostatic tumors enucleated in the operation of prostatectomy have their point of departure in the lymphatic tissues of the prostate, said point of departure consisting of inflammation due to infection, seems to me quite clear.

The permanency of the damage done by gonorrheal infection of the prostate in early life is largely dependent upon the secondary infective involvement of the lymphatic glands and ducts, with which the prostate is probably abundantly supplied. I would say, in passing, that this particular feature of the anatomy and physiology of the prostate has not received the attention it deserves. A careful study of the prostate from this standpoint will undoubtedly clear up much of the obscurity which now exists in the field of prostatic pathology. The profession at large is beginning to realize what some of the special workers in the field of genitourinary pathology have long held, that a prostate once infected is always diseased to a greater or less degree. The organ may recover symptomatically, but I am convinced, from personal study of a large number of prostates and bladders taken at random, that the frequency of chronic prostatic inflammation and glandular hyperplasia is greatly underestimated.

That sexual irregularities, producing constant congestion of the prostate, in early life form a very important etiologic factor in obstructive prostatic disease occurring at a later period, I am firmly convinced. It operates in two ways: By predisposing to infection, congestion playing here the preparatory or passive, and infection the active role. Pus may form at any time in the course of prostatic inflammation, whatever its cause or degree. Abscess is much more frequent in young subjects with acute infection of the prostate than is ordinarily supposed. The recurrence of urethral discharge after a temporary suspension during the existence of prostatic inflammation, with or without retention, means the spontaneous evacuation of an abscess of greater or less size, very frequently. Abscess producing acute retention in old subjects is a condition that is often overlooked. Both young and old subjects are occasionally permitted to die from a large accumulation of pus about the prostate without either diagnosis or operation.

Typhoid fever is one of the fallacious diagnoses that I have known to be made in such cases. The element of congestion in the etiology of prostatic obstruction is a very important one. In very many instances there is no great degree of urinary obstruction, or perhaps none that the patient is aware of, until the supervention of acute congestion and retention suddenly occurs, lasting until the pus condition of vascular engorgement has been relieved. Each attack of acute congestion, especially in patients at or past middle life, leaves behind it a varying amount of damage, in the way of connective-tissue hyperplasia. In the course of time, chronic congestion and hyperplasia supervene. Acute or chronic congestion resulting from what I have elsewhere termed prostatic overstrain, resulting from sexual indiscretions, is in my estimation, one of the most important factors in the production of chronic prostatic obstructive disease. Prolonged congestion and circulatory strain result here, as elsewhere, in a proliferation of connective tissue, *i. e.*, a greater or less degree of hyperplasia. The fact that the prostate is a sexual and not a urinary organ is in itself suggestive that it is to an abuse of its glandular or sexual function that we must look for an explanation of at least a part of its pathology. It appears clear to me

that when infection of one kind or another is superadded to the circulatory disturbance resulting from unhygienic conditions of the prostate, the principal etiologic factors in chronic prostatic disease are accounted for.

Obstruction of the prostatic urethra from foreign bodies is a condition occasionally met. This may be due to calculi formed *in loco* or descending from the kidney or bladder, or to foreign bodies introduced from without. I recently had a case of retention due to the impaction of a tenpenny nail in the prostatic urethra, introduced by a sexual neurasthenic for purposes best known to himself. By calculus of the prostate I do not mean corpora amylacea, which rarely, if ever, produce disturbance. I refer to calculi formed in the kidney or bladder, and composed of phosphatic, uratic or other salts. Obviously, calculus of the prostate may be a temporary condition. Small calculi may be dislodged and discharged by the outgoing stream of urine. When they become lodged so that a surgical operation is necessary for their removal, they constitute a permanent factor in the etiology of prostatic obstruction. Once lodged with the surface free in the prostatic urethra, or a communication having been established between the sac in which the calculus is included and the urethra, the growth of a prostatic calculus from a deposition of urinary salts is extremely rapid, much more rapid in fact than the growth of a similar calculus within the cavity of the bladder.

Neoplasms of the prostate producing obstruction of the urinary outflow are very frequent. The newgrowth may be either primary or secondary, benign or malignant. Benign newgrowths are practically always primary. Of these, adenomas are the most frequent. Adenomas merge into adenofibroma, or even fibromas, as age advances. The earlier the case is observed, the more likely we are to find typical adenoma. As the congestion and irritation produced by the adenomas, and incidental to the chronic inflammation, which perhaps is the primary point of departure of the glandular enlargement, increase, there is an enhancement of connective-tissue formation that subsequently undergoes fibrosis. The small adenomas that constitute the point of departure in many cases may become practically obliterated by the fibroid tissue.

The foregoing explains why in many advanced cases we find the prostate practically in a condition of diffuse fibrosis. It also explains why we find varying degrees of circumscription of adenomas, and varying facilities of enucleation of the tumors. The same infection that is responsible for a large proportion, if not all, of the cases of adenoma may, therefore, be accepted as an etiologic factor in prostatic fibrosis. Individual predisposition is to be taken into consideration in the etiology of prostatic disease. This is evident, if we consider the varying degree of predisposition to fibroid degeneration and glandular enlargement found in different individuals. It is obvious that the same special tendency to fibrosis that accounts for hypertrophic cicatrices, pseudokeloid and keloid, observed in certain cases, may be rationally suspected to be a factor in the etiology of fibroid degeneration of the prostate. The mechanical disturbance incidental to micturition, and especially when the frequency of the act becomes increased by the irritation resulting from the prostatic disease and imperfect drainage of the bladder, is an important element in the etiology of prostatic obstructive disease. It enhances the already existing congestion and irritation, and, in many instances, tends to circumscribe the prostatic tumors. Thus spasmodic and violent attempts at micturition result in the circumscription and extrusion into the urethra or bladder, as the case may be, of adenomas, situated in immediate proximity to the prostatic urethra, or at the base of the prostate near the vesicle outlet.

Malignant disease, sarcoma or carcinoma, of the prostate, while usually secondary, is more frequent, and more often primary than is generally believed. It is

true that in many instances of apparently primary carcinoma of the prostate no opportunity for autopsy is to be had, and we are compelled to rely upon the clinical features of the case for a diagnosis. I am confident, however, that were all cases of prostatic obstruction in advanced life gone into more carefully, and by men specially trained for the work, a by no means insignificant proportion would be found to be due to primary malignant disease. In brief, it is my belief that malignant neoplasms of the prostate should be given more serious consideration than has hitherto been accorded them, as a factor in obstructive prostatic enlargement.

In the light of recent operative and pathologic studies of the prostate, it is somewhat remarkable that Guyon and his school should have maintained for so long that obstructive prostatic disease practically consists of a local manifestation of general atheroma. Increasing experience in prostatic work shows that the role of atheroma in the production of prostatic obstruction is extremely circumscribed. Cases are met, however, in which, associated with an extremely thickened atheromatous condition of the walls of the bladder, the prostate is the seat of atheroma, but in these cases the symptoms, are, in my experience, usually due, not to prostatic obstruction, but to the change in the walls of the bladder itself. The diffuse atheromatous enlargement of the prostate does not usually assume a form which results in obstruction of the urinary outflow. I have met cases in which the bladder walls were enormously thickened from atheromatous degeneration, yet the prostate, while involved in the change, was not enlarged in such degree or form as to produce obstruction.

Tuberculosis of the prostate may produce enlargement of the organ sufficient to interfere with the urinary outflow. This occurs in several ways:

1. Infection of the prostatic glandular tissue secondary to primary tuberculosis of the urethra, bladder or kidney through the medium of a tuberculous prostatitis and ulceration of the prostatic urethra.

2. From infection of the lymphatic structures of the prostate via the blood, the infection being secondary to tuberculosis of the lung, kidney, bladder, urethra or other tissue or organ. The gradual encroachment of tuberculous ulceration of the urethra, rectum or bladder upon the prostatic tissue does not result in prostatic obstruction. When the prostate becomes sufficiently enlarged to produce obstruction of the urinary outflow, there is, in my opinion, always secondary involvement, on the one hand, by direct infection of the lymphatic tissues via the lymphatic vessels, and, on the other, through the medium of the blood.

When obstruction to the urinary outflow is produced by tuberculous deposit, the breaking down and elimination of the mass is likely to relieve the obstruction.

In conclusion, I desire to call attention to the fact that congenital anatomic defects of the bladder and prostate are met, which may possibly bear an important etiologic relation to prostatic obstruction in advanced life. I have met several instances of what might be termed congenital stricture of the prostate.

INTRAABDOMINAL ANASTOMOSIS.¹

BY

A. GROVES, M.D.,
of Fergus, Ont.

Medical Superintendent Royal Alexandra Hospital, Fergus, Ont.

Considering first, cases of cancer of the pylorus, I would say that if they have gone beyond the stage when a resection can be done, and too often this is the unfortunate state of affairs, then an anastomosis should be made. In doing this operation I make an incision, either in the median line or to the right of and parallel to it, through

¹ Read before the St. Thomas Medical Association, of St. Thomas, Ontario, November 9, 1904.

the sheath of the rectus, but not splitting the muscle, which is drawn outward. Having examined the stomach and decided upon the point at which the anastomosis is to be made, a loop of jejunum is drawn up and fastened to the stomach by a line of Lembert sutures; then a McGraw ligature is passed and tied as tightly as possible and the Lembert suture continued so as to close completely the site of the anastomosis. In order to prevent the possibility of a vicious circle, the two limbs of jejunum are joined by a McGraw ligature and Lembert suture.

I usually make the anastomosis in the lowest part of the lower border of the stomach anteriorly in order to secure thorough drainage; this point is comparatively near the pylorus, the place where nature intended the stomach to empty itself, and it is usually good surgery to keep as close to nature as possible. Instead of using the elastic ligature, as recommended by McGraw, I have been using strong silk ligatures and have had perfect results. There is no doubt a silk ligature can be drawn tightly enough to strangle the tissues, and that is all that is required. Nature proceeds to remove the crushed stomach and bowel wall and an opening results. Should there be any doubt as to the sufficiency of the crushing power, two ligatures may be used, each embracing half the tissue to be dealt with, and by so doing an opening will result sooner, which is often a matter of importance. Should it be feared that an opening made in the manner described is not of sufficient size, a square or triangular fenestrum can be obtained by putting in ligatures so as to surround and cut off the blood supply of as much tissue as may be judged sufficient, but usually a single ligature is all that is required.

Care is necessary in selecting the knuckle of jejunum which is to be applied to the stomach wall and it should never be chosen haphazard, for cases have occurred in which the lower part of the ileum within a short distance of the ileocecal valve has been attached to the stomach and the whole small intestine short circuited. The proper portion of the jejunum to be attached is about 18 or 20 inches from the duodenum.

Since the advent of the McGraw ligature, I no longer use the Murphy button, Senn's plates or any other appliance or method, the ligature being superior in every respect save only that an immediate opening is not secured; but, on the other hand, no foreign substance that can cause future trouble is left in the body; no viscus is opened, and therefore the danger of sepsis is greatly lessened and the operation can be done more rapidly. I believe it is immaterial whether the ligature is passed longitudinally or transversely in the bowel, but it is better to join the limbs by a lateral anastomosis.

As this operation is a type of all intraabdominal work, so far as general technic is concerned, I will describe the method:

I use no antiseptic solutions of any kind, unless sterile saline solution be so designated, because I believe that chemical antiseptics are injurious to normal tissues, especially when used in sufficient strength to be of any value as germicides. Tissues injured by corrosive poisons are not in a condition to resist the invasion of pathogenic germs, nor are they in a state favorable for the normal processes of repair. In preparing my hands, I use soap and hot running water, and at least six sterile brushes. I do not use any of the so-called antiseptics, and always devote 40 or 50 minutes to the work. I insist upon my assistants carrying out the same cleansing process, each finger, and especially each nail, being separately brushed and scrubbed. The washing of the hands in basins, even if the water is changed several times, is not by any means as certain or as satisfactory as a stream running over the hands and carrying away impurities. The cleansing of the hands cannot be too thoroughly done, and often is only half accomplished; a surgeon cannot be too careful of his hands.

During the operation sterile normal saline solution alone is used. That this is sufficient is fairly well proved by the fact that we have had many hundreds of operations without one case of sepsis if the parts were not infected when we began. Bringing powerfully poisonous and irritant substances like mercuric chlorid, for instance, into contact with a clean wound is injurious and unnecessary. The idea is to keep the wound free from germs, poisons and foreign matter generally.

Silk is invariably employed for ligatures and sutures, and meets every indication; it can be made absolutely sterile very rapidly, is easily manipulated and can always be depended upon. In making openings through the abdominal wall, the muscular tissues are separated, and if possible, not cut, and the nerve supply of parts is interfered with as little as possible. The wound is put together layer by layer, good surgery requiring the abdominal wall to be left as nearly as possible in its normal condition, and no one will pretend that through-and-through suturing will produce such a result. It is claimed by some that by this means the wound can be closed more rapidly, but even if that were true, which it is not, speed does not justify bad methods. When each layer of tissue is brought together neatly, there are no cavities left in which blood can collect as so often happens in mass suturing.

Anyone who compares the accurate apposition secured in a wound where tissues are joined carefully as nature intended, with one where clumsy, inaccurate, through-and-through suturing is done, will be convinced that theoretically and practically the former is the only method that should be employed. A surgeon who has grasped the true principle will never use the slovenly through-and-through method. When accurate apposition of layer to layer is secured, the fact that fascial integrity is restored prevents the possibility of hernia. A hernia following an ordinary laparotomy is very unfortunate for the patient and is not creditable to the surgeon, and yet that is what too often results from the unscientific through-and-through sutures. I well remember a case in which the medical attendant removed an ovarian tumor and then closed the abdominal wall by through-and-through sutures. A ventral hernia resulted, and some months later when the patient was straining at stool, the thin cicatrix gave way, her bowels gushed forth, and she died the victim of a bad method.

It is possible that in competent hands even a bad method may be followed by a fairly good result and such a catastrophe as the foregoing avoided, but no one is justified in exposing a patient to such a risk, when by following the normal anatomic method all danger is removed.

Operators should accustom themselves to rapid work, for every minute increases the danger. The man who completes an intraabdominal anastomosis, including the closure of the abdominal wound in 20 or 30 minutes or less, will have better results than the one who takes an hour or two for the same work. A distinction is made between hurried work and rapid, the latter is to be aimed at, the former avoided.

No powdering, dusting or medicating of any kind is done after the sutures are placed. Plain sterile gauze with absorbent cotton is all that is used. If the bacteriologist finds his culture medium kept sterile by a plug of absorbent cotton, the surgeon need not fear to trust the same means to protect wounds from infection.

I would advise an exploratory laparotomy in every case of pyloric cancer, unless there is some special reason why it should not be done. This exploration should be performed early, usually before a tumor can be made out. If the disease cannot be removed, a gastroenterostomy is imperatively indicated. On account of the free drainage, the stomach can empty itself into the bowel and thereby the vomiting is relieved and the patient will gain in weight, in many cases to a marked

extent. The disease in the pylorus, being no longer irritated by the stomach contents passing over it, ceases to progress so rapidly, so that the patient is not only relieved, but also has his life prolonged.

In cases of chronic ulcer of the stomach, and in many cases of acute ulcer, the importance of an early anastomosis cannot be too strongly urged. If a patient has chronic dyspepsia, even if a tender spot cannot be made out, whether vomiting of blood has occurred or not, the propriety of an operation should be considered.

The dyspepsia may be only a symptom, and many patients can be cured by a simple and comparatively safe operation. I believe the time is fast approaching when the rule for immediate operation will be applied to chronic disease of the stomach. We all see patients to whom every imaginable tonic has been given, the stomach washed out, and all kinds of dieting tried, without effect, and very often these patients are said to be neurasthenic to a high degree, while the original and sole cause of all their trouble is a diseased stomach, which is entirely curable by establishing free drainage.

I wish to protest against what I believe to be an error that is widespread and is even taught by good authors and teachers; I mean the use of such terms as "functional neuroses of the stomach independent of organic disease." One of our leading authors says that diagnosis of this condition is often difficult and that "organic disease either of the stomach or nervous system must be excluded."

To my mind there can be no functional diseases, either of the stomach or of any other organ. A function is not tangible; it is but an expression to convey the idea of what the work of an organ is, and if the work is not done normally there is some definite cause, either in the organ itself or in some other part of the body. We may be unable to find the cause, but it exists nevertheless. To illustrate: We all know the function of a watch is to keep correct time, but if it did not do so and it were taken to a watchmaker he would never be guilty of the absurdity of saying that the watch was in perfect condition and the fact of its not keeping time was a functional derangement. So in the human body, and especially in the stomach, there is a cause for the disturbance of function and the practitioner who thoroughly believes this will often find a cause in an unsuspected ulcer, a pyloric stenosis, a chronic gastritis, or some other condition, which, if not curable without operation, may be cured by it.

Again, the term neurasthenia, like neuralgia, is simply a euphemism for the truth that we do not know what the disease is and do not like to say so. How many of us dismiss cases which we do not understand with the assurance that the patients are neurasthenic or neuralgic, forgetful of the fact that both conditions depend upon a cause and are not of themselves diseases. Loose, inexact expressions such as these have a paralyzing effect upon investigation, and many patients are doomed to drag out a miserable existence because physicians fail to think precisely, taking effects for causes, or appearing to believe an effect can exist without a cause. Especially is this true in conditions arising from eyestrain, which as a rule is not diagnosed. Up to the time that McGraw devised the method of making anastomosis by means of a ligature, these operations were necessarily serious, but now the element of danger is largely eliminated and a vast field opened up for the relief of human suffering. Again, in cases of dilated stomach, with all its accompanying distress, when the usual treatment fails a gastroenterostomy will give immediate relief and accomplish permanent cure.

It is not only a much simpler operation than gastroplication, but is founded upon sounder principles. Gastroplication aims to remove the effect of disease by artificial means, but an anastomosis, by providing drainage, removes the cause of the disease, and nature

gradually restores the stomach to its normal size and condition. After an operation of this kind it is remarkable how the vomiting ceases and the catarrhal symptoms subside. The appetite returns, and the patient is able to take any ordinary diet without discomfort.

While it is true in cases of displaced stomach that shortening of the ligaments of fixation of the stomach is of great value, still even in these cases an anastomosis is sometimes necessary, so great is the degree of dilation. The great truth that especially needs to be urged is that if the stomach can freely and easily empty itself into the bowel, it is placed in the best possible condition to return to its normal state and have its normal functions restored.

I do not think the so-called "Y" operation is the best in these cases. It is more difficult to do than anastomosis by ligature, on account of the bowel having to be cut in two, and both the stomach and bowel opened; beside, the danger of infection is greatly increased, the operation is prolonged, and there is always the possibility of defective closure of the openings. Other things being equal, the simpler of the two operations should always be chosen, and especially as it is safer. There is also a considerable number of cases in which, on account of cancer for instance, the lumen of the bowel is narrowed, and in consequence the passage of its contents interfered with; here if the diseased portion cannot be removed, the ideal means of giving relief is an anastomosis of the bowel above the obstruction with that below by the ligature method.

When there is occlusion of the bowel on account of its being fixed at an acute angle, or from cicatricial contraction, a ligature passed into the bowel an inch or an inch and a half from the angle on its inner side, brought around over the spur and out of the bowel the same distance from the angle at which it entered, then tied tightly and the two limbs of bowel united by Lembert sutures so as to enclose the ligature, will be followed by complete relief. When an end-to-end anastomosis is required, the first essential is that the junction shall be absolutely impermeable to the contents of the bowel; second, the final result should leave the lumen of the bowel unimpaired and with no stricture or tendency to stricture or narrowing; third, the operation should be such that it can be completed in a short time. If these indications can be met without leaving a foreign body other than the stitches in the bowel, the highest ideal will be attained.

I prefer to join the ends of the bowel by continuous suture passed through all the coats, so as to bring the peritoneal surfaces into apposition, and over that a continuous Lembert suture. Probably it takes a little longer than the putting in of a Murphy button, but the difference in time is very slight and the danger from the presence of a foreign body in the bowel is avoided. It should also be remembered that the lumen of the bowel is narrowed when an anastomosis is made by means of the button. Mechanical appliances left in the intestine are always a source of danger, and should never be used if the end to be attained can be reached without them.

I have tried a method in which a ring of mucous membrane is separated from the lower end of the cut bowel, the muscular and peritoneal coats being turned back like a cuff, then the upper end of the bowel is stitched by continuous suture to the cut mucous membrane of the distal bowel, the muscular and peritoneal cuff is turned up and stitched by the Lembert method to the invaginated proximal bowel. In this way an absolutely tight joining is assured. The greater the pressure within the bowel the tighter the joint becomes and the less the danger of leakage. The closure of the wound does not depend entirely upon accurate stitching, but upon the apposition of the overlapping coats of bowel.

Neither of these methods requires the use of any special instruments or appliances which is a point of considerable value. I prefer the simple end-to-end

anastomosis on account of the ease and rapidity with which it may be done, and the good results following.

The following are some cases which occurred in my regular practice:

CASE I.—Cancer of the stomach which had involved not only the pylorus and a large part of the stomach walls but had also invaded the retroperitoneal glands so that a resection was out of the question. A gastrojejunostomy was done but the two jejunal limbs were not anastomosed, and although the woman recovered and lived many months, I believe the result would have been better had a jejunal anastomosis been done at the same time.

CASE II.—The patient was greatly wasted as a result of persistent vomiting and indigestion. For the relief of this, she had taken large quantities of medicine and carried out every kind of treatment that had been advised, but without effect. Her condition grew continually worse. The stomach was dilated, and its function as an organ of digestion was practically in abeyance. A pyloric stenosis was found to exist as a result of gastric ulcer, and in addition to a pyloroplasty, a gastrojejunostomy was done by the McGraw method, using silk in place of rubber ligatures. The two limbs of jejunum were also anastomosed. At the end of three weeks the patient was taking ordinary diet without the slightest discomfort, and a perfect recovery followed. Her dyspepsia is cured, and as she says, she would not know she had a stomach were it not that the cravings of hunger remind her.

CASE III.—Traumatic stricture of the bowel, held at an acute angle by adhesions. A ligature was passed into the bowel at the inner side of the inner angle, as described before, tied tightly, covered by means of a Lembert suture, and the patient had no further trouble.

CASE IV.—Cancer of the ascending colon, which was practically closed by the newgrowth, so that nothing remained but operative measures. An artificial anus might have been made, with all its repulsiveness and trouble to the patient, but I did not do this, and instead, made an opening over the lower part of the descending colon and united the ileum to it, as near the ileocecal valve as possible, by the ligature method, using strong silk, which evidently established an opening by the second day, with great relief to the patient. The contents of the small intestine now pass directly into the descending colon, the remaining part of the colon being sidetracked, as it were, and the affected portion placed at rest; the progress of the disease is retarded and the patient's condition one of comparative comfort, in contrast to what it would have been had an artificial anus been made.

Regarding end-to-end anastomosis, I shall refer to a case of Dr. Morrow, of Arthur, late resident surgeon of St. Luke's Hospital at Ottawa, and more recently of the Royal Alexandra Hospital, Fergus. His patient had a strangulated hernia. The bowel was found to be gangrenous, and was accordingly resected. The ends were put together by a continuous suture, including the whole thickness of the bowel, and over this a line of Lembert suture. The result was a perfect recovery.

These cases are types of many one meets, and to go on quoting more, would be a needless waste of time. Let it suffice to say that the great relief from chronic stomach troubles which hitherto have been among the bugbears of the profession, is rapidly being placed upon a rational basis, and that in this field, if I read the signs aright, we are on the eve of great advancement.

ON THE PATHOGENESIS OF LEAD INTOXICATION APROPOS OF THE PATHOLOGIC FINDINGS IN A CASE.*

BY
ALFRED GORDON, M.D.,
of Philadelphia.

Chief of the Neurologic Clinic, Jefferson Medical College; Examiner of the Insane at Philadelphia Hospital; Neurologist to Douglass Memorial Hospital.

[From the Jefferson Medical College Laboratories.]

The present report is a contribution to the question of the effect of lead on the nervous system. While it does not elucidate completely the pathogenesis of the disease, it nevertheless shows the inadequacy of the views of those who adhere persistently to one certain theory. Lead carries its deleterious effect not to one special element of the nervous tissue, but to all its constituents

simultaneously; the difference may lie in the degree, but not in the localization.

C. A., male, aged 48, a leadworker by occupation, was admitted to the Philadelphia Hospital in June, 1903, with double wrist-drop, and history of colic. After a course of treatment, lasting four weeks, he was discharged, practically cured. In December of the same year he began again to lose power in both arms. He was readmitted to the hospital January 7, complaining of severe pain in the abdomen, chest, back, and legs, of frequent micturition, and of loss of power in the upper extremities.

Examination shows an emaciated and cachectic-looking individual. The eyes have a yellow-tinged conjunctiva. Pupils react to light and accommodation. Tongue is heavily coated, and a blue line at the margin of gums is distinct. The peripheral arteries show arteriosclerosis. There is a total brachial palsy on both sides. A test for each individual muscle shows complete loss of power, except both triceps muscles, which are preserved to some extent. Musculature of shoulder girdle, including the muscles of the scapula are flabby; the latter are distinctly atrophied. Grip in both hands is markedly reduced, and the wrist-drop is double. Tendon reflexes in left arm are entirely abolished, but only diminished in the right. Bechterew's reflex is abolished on the left side, and very much diminished on the right. The knee-jerks are normal; there is no foot-drop on either side. No Babinski, no ankle-clonus. There are no objective sensory disturbances in the upper and lower extremities. The nerve trunks are not painful on pressure, but patient complains of pain in the right upper limb.

As death occurred on the third day after admission, no detailed examination could be made.

Autopsy showed a vesicular emphysema of both lungs, fibroid myocarditis, simple atrophy of the heart, chronic interstitial nephritis, chronic cystitis, and atheroma of the aorta and large vessels. The pia arachnoid of the brain was edematous; the cerebrospinal fluid was quite abundant. No gross lesion was noticed on the brain or spinal cord.

The spinal cord and pieces of the following nerves of both sides were kept for microscopic study: Musculospiral, median, ulnar, and sciatic. The brain, unfortunately, was given in a condition unfit for examination.

Left Ulnar Nerve (Weigert).—Degeneration is slight, but distinct. Out of five or six nerve bundles only one shows degenerated fibers. The latter bundle is in the vicinity of a very large and dilated bloodvessel. The small nervi nervorum situated at the periphery show some degeneration. There is no thickening in the perineurium, endoneurium, or epineurium. The bloodvessels in the epineurium show thickening, especially of the intima, so that their lumen is almost entirely occluded. No recent degeneration could be seen with Marchi.

Right Ulnar.—Some degeneration of the same character as on previous section, which is better seen with Marchi stain, but there is no recent degeneration. The bloodvessels are very thickened and enlarged.

Left Median.—Degeneration is more pronounced than in the ulnar nerve; the walls of the bloodvessels are decidedly thickened, even within the individual bundles. There is perhaps a slight thickening of the epineurium. No recent degeneration is seen with Marchi.

Right Median.—Some degeneration in the bundles, also in the nervi nervorum. Bloodvessel changes are also very slight. There is a distinct increase in the connective tissue surrounding the nerve bundles. No recent degeneration with Marchi.

Right Musculospiral Nerve.—A certain amount of degeneration in many bundles. Bloodvessel changes are distinct. No recent degeneration with Marchi.

Left Musculospiral Nerve.—Degeneration is somewhat more marked than in previous sections, but the vessel changes are unusually marked, dilated, deformed, thickened. Some recent degeneration is noticed in this nerve.

Left Sciatic Nerve.—Distinct vessel changes. A few scattered, slightly degenerated, bundles; degeneration is more marked in nervi nervorum. No recent degeneration with Marchi.

Right Sciatic Nerve.—Scattered slight degeneration in nervi nervorum. Vessel changes marked.

Cord.—Fourth cervical segment: No degeneration of tracts or roots is seen with Weigert. Bloodvessels show thickening of the walls, particularly those which are in the vicinity of the anterior and posterior roots. Marchi's stain shows no recent degeneration. Fifth cervical: Marchi. No degeneration is seen in the cord itself, but the anterior and posterior roots are covered with black droplets, not abundant, but still distinct. Sixth cervical: Weigert shows only some slight degeneration of the anterior roots, none in the posterior. Bloodvessels present marked changes, but of the same nature as above. No recent changes are seen with Marchi. Seventh cervical: Weigert shows some degeneration in anterior and posterior roots (in the latter more than in the former). In the posterior columns near the middle line adjacent to the septum and at equal distance from the posterior commissure and the periphery a light area imperfectly stained is seen and contrasts strikingly with the neighboring portions which are deeply stained. Bloodvessel changes not marked, but distinct. Marchi shows some droplets in the anterior roots, but not in the posterior. In the previously-described light area of the posterior columns are seen black droplets when stained by Marchi.

* Read before the Philadelphia Neurological Society, February 28, 1905.

Thoracic.—Traces of degeneration are found in some bundles of the anterior roots; vessel changes are very marked. Marchi negative.

Lumbar.—Distinct degeneration in the posterior portions of the posterior columns, more marked on one side than on the other. The posterior roots also show distinct involvement in their extramedullary and intramedullary portions, more on one side than on the other. Some bundles of the posterior roots are slightly degenerated. The periphery of the anterior columns as well as the neighboring portions of the anterior roots are distinctly degenerated. Marchi's stain shows recent degeneration in the posterior roots, but none in the anterior. The vessel changes are the same as in the other section. The posterior roots show very marked loss of axis cylinders, while in the anterior this is only slightly noticed.

Cells.—While many cells are apparently normal, there are nevertheless quite a number showing deformities, nuclear displacement, pigment degeneration and chromatolysis. Changes are more marked in the cervical region than in the lumbar.

Meninges are moderately thickened, no leukocytic infiltration can be seen. Staining for axis cylinders shows a very marked destruction in the left musculospiral nerve, and very slight destruction in the right musculospiral nerve. In the right median nerve only a small number of axis cylinders are missing, while in the left median they are all preserved. Quite a large number of destroyed axis cylinders were found in the left ulnar nerve. In the sciatic nerves they are normal. As to the cord, in the cervical segment the anterior roots show more destruction of axis-cylinders than the posterior. In the lumbar cord the posterior roots and posterior columns show a very marked loss of axis cylinders, also to a great extent the anterior roots and anterior columns.

A brief review of the findings shows that degeneration is found in all the nerves examined, but in a moderate degree very few bundles are affected. Exception may be made for the musculospiral nerves. In the latter are found more degenerated portions than in any other nerve; this difference, however, is only quantitative, not qualitative. The same cannot be said about the bloodvessels; the changes of the latter, although markedly present in all the nerves, are unusually pronounced in the left musculospiral nerve. Marchi's method shows no trace of recent degeneration. Connective-tissue changes are detected only in the median nerves, in the left more than in the right.

The spinal cord presents some interesting changes. No changes in the tracts or roots are noticed in the upper cervical segments, but in the lower portions some degeneration is seen in the columns of Goll, in the anterior roots—with the Weigert and Marchi; although the degeneration is slight, it is nevertheless distinct. The thoracic cord shows some degeneration in the anterior roots only with Weigert's method. The lumbar cord presents the most interesting findings; Weigert's stain shows distinct degeneration not only in the posterior and anterior roots in their extramedullary and intramedullary portions, more on one side than on the other, but also (a fact which is quite unusual) in the posterior portions of the posterior columns, and in the very anterior portion of the anterior columns.

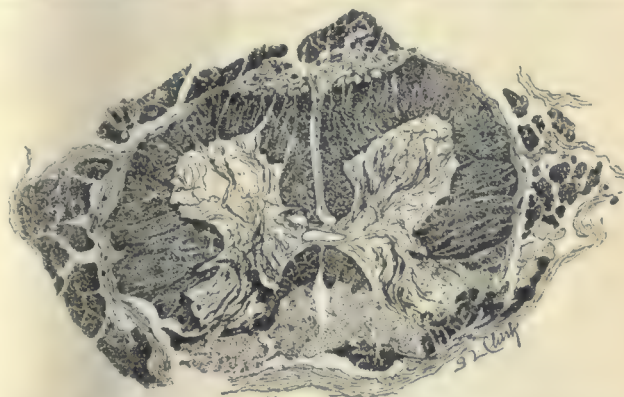
Repeated examination of a large number of sections showed distinctly a deep, dark staining of the white matter except the areas mentioned, which always appeared very light gray. Marchi's method showed recent degeneration in the posterior roots, but none in the anterior. The bloodvessels throughout the cord showed the thickening, dilation, and thrombi mentioned.

Among the nerve-cells of the anterior cornua we found some which present distinct changes (chromatolysis, nuclear displacement, etc.).

When we attempt with these pathologic findings before us to explain the clinical phenomena observed during the patient's life, we find a discrepancy at first glance. The changes in the cord are more marked in the lumbar region than in the thoracic and cervical segments, and still there was no paralysis in the lower extremities and the knee-jerks were preserved. At the level of the lower cervical cord the anterior roots are only slightly involved, and still the brachial palsy was almost complete, but if we take into consideration the conditions of the cells and of the peripheral nerves themselves, this apparent paradox can be somewhat explained.

We said before that the cells in the lumbar region are only very slightly involved as compared with the lower cervical; also that the sciatic nerves show very slight changes. The absence of paralysis and the preservation of the patellar reflexes find therefore their explanation. The only obscure point, we find, concerns the changes in the posterior columns with intramedullary and extramedullary portions of the posterior roots. This case therefore proves that the knee-jerks do not entirely depend upon the condition of the posterior columns. In the palsied condition of the upper extremities the most conspicuous phenomenon was the wrist-drop, which, as we know, is the clinical manifestation of an involvement of the musculospiral nerves. This corresponds to the pathologic findings of these nerves, which showed more degeneration than any other nerve.

Let us see if the pathologic changes in the cord and nerves of the present case will throw any light upon the question of the pathogenesis of lead-poisoning which,



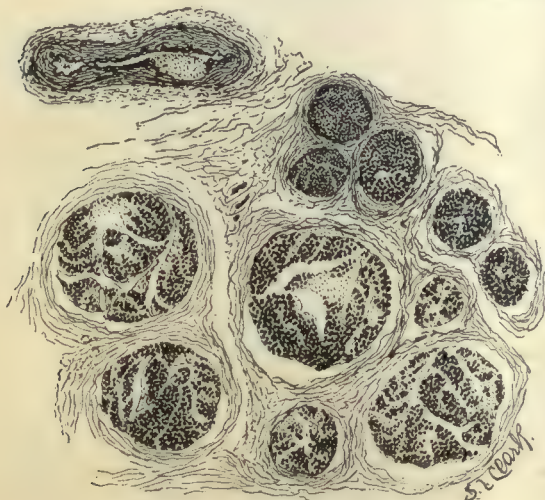
Lumbar segment. Degeneration of the roots and posterior columns.

as is well known, is still debatable. All the experimental studies on animals show a remarkable uniformity of changes in the cells of the anterior cornua, but in man, cell changes were found by a comparatively limited number of investigators (Vulpian, Oppenheim, Monakow, Oeller, Zannker, Goldflam, Stieglitz, Spiller.) The great majority failed to find cellular changes, but undoubtedly noticed changes in the peripheral nerves or roots. On the other hand, no changes whatever were found by some observers. How to reconcile the fact that in some cases the ganglionic cells were altered and in some not?

The clinical picture of the disease, the symmetric distribution of motor disturbances, met in every case, the want of parallelism between the seat of the disturbance and the course of the nerve trunks, finally the comparatively slight changes found in the nerve trunks, while the clinical manifestations were pronounced, all these facts certainly argue in favor of a central origin of the disease; in those cases in which no cellular alterations were found, perhaps there was only a dynamic or circulatory disturbance sufficient to interfere with the functional activity of the cells, and thus produce the symptomatology of poliomyelitic palsies. The question whether a functional disturbance of the central end of a neuron (cell), is capable of being followed by a degeneration of its peripheral end, is still to be determined, but apparently it has its *raison d'être*. The central theory, therefore, explains the pathologic findings of the anterior roots and nerve trunks, but it is certainly incapable of accounting for the changes of the posterior roots, which were found affected in a certain number of cases. In such cases we must admit a peripheral origin of lead palsy. In other words, lead has no special predilection for special elements of the nervous tissue; while in some cases it affects primarily the cells, in others it involves the roots, and in still others the peripheral trunks, or all

the three portions simultaneously. Perhaps the *locus minoris resistentie* is a potent factor in localizing the deleterious effect of the poison. It seems, therefore, to me, that this view is more in accord with clinical and anatomic data, and that neither of the two theories *per se* can be accepted.

In my case cellular changes were found in the cervical and lumbar segments, in the first more than in the second. The anterior roots were involved from the lower cervical segments down to the lowest lumbar portion. The posterior roots and partly the posterior columns showed some changes in the cervical and considerable in the lumbar cord. All the peripheral nerves showed some degeneration. It is true that all these changes were not pronounced, and sometimes even exceedingly slight, they were nevertheless undoubtedly present. A careful analysis of the foregoing findings shows with evidence that the condition of the cells alone will certainly not explain all the root changes throughout the cord or the nerve changes. The presence of posterior root and posterior column changes cannot be explained by the slight changes in the lumbar cells or by the slight changes in the sciatic nerves. In the latter case, if the peripheral theory is correct, the sciatic nerve changes must



Left musculospiral nerve. Degeneration.

be pronounced, or at least more marked than the root changes, while in our case the condition is reversed. The mixed view mentioned should therefore be accepted; the poison carries apparently its action simultaneously to all the elements of the neurons.

It remains to consider the vascular theory. That a deficient blood supply caused by vessel changes is apt to produce degeneration or destruction of nervous elements is easily conceived. In chronic lead intoxication, arteriosclerosis is almost a common finding. In our case the alteration of the bloodvessels was almost uniform through the entire cord and all the nerves. The most marked changes were found in the musculospiral nerves, especially on the left side, where the elastica is broken down and new fibrous formations are seen almost to obliterate the lumen of the vessels; the arterioles in each nerve bundle between isolated nerve fibers are considerably thickened. Such changes are certainly sufficient to interfere with the function of the peripheral nerves, and still, in spite of the generalized arteriosclerosis, the paralysis was limited to the upper extremities. Consequently, it is reasonable to conclude that the vascular theory alone, similar to the cellular and peripheral, cannot explain the nervous phenomena of lead intoxication. However, there can be no doubt that it plays some role, as it is seen from the marked arterial changes found in the musculospiral nerves, at which level the motor phenomena were the most pronounced. The

socalled mixed theory mentioned should also include the influence of the altered vascular system.

In reporting this case I wish to call attention to the following points: 1. Involvement of the cells of anterior cornua. Comparatively few cases reported in the literature showed cellular changes. Although the diseased cells are not numerous, they are, however, present. 2. Very slight degeneration in all the nerves and roots. The paralysis of the upper extremities was nevertheless almost complete. 3. Involvement of the posterior roots and posterior columns in the lower cervical and in the lumbar cord. The involvement of tracts in the cord is an infrequent occurrence in lead intoxication. The majority of those cases in which cord changes were found presented degeneration of a disseminated character. There are however, a few cases on record showing systemic involvement. Pal, in his work on multiple neuritis in 1891, describes a case of chronic lead-poisoning which came to autopsy; polyneuritis of the peripheral nerves with extensive changes in the posterior roots and posterior columns was found. In E. D. Fisher's¹ observation the columns of Goll were sclerosed. E. Redlich's² case is one of chronic lead-poisoning associated with tabes and verified on autopsy. Carl Bechtold³ has reported recently a case of spastic paraplegia caused by lead-poisoning. The findings in my case are therefore of special interest from the standpoint of the pathogenesis of lead-poisoning. It shows that not one theory advanced can be accepted individually, but that several elements play their role in the causation of paralysis. With Vierordt, Raymond, and Perrier I think that lead exerts its deleterious influence upon the central tissue, peripheral nerves and bloodvessels simultaneously.

BIBLIOGRAPHY.

¹ American Journal of Medical Science, 1892.

² Wiener medicinische Wochenschrift, 1897.

³ Münchener medicinische Wochenschrift, September, 1904.

Treatment of Varicose Veins and Phlebitis by Movement.—Dr. Lucas Championnière, member of the Academy of Medicine, presents a memoir from Dr. Marchais on the treatment of varicose veins and phlebitis by walking. The therapeutics of varicose veins by walking is inseparable from the surgery of the veins, which has followed the advent of antiseptic surgery. It is, indeed, this latter that has allowed veins to be submitted to the operative traumatism that the tissues support, provided all septic complications can be avoided. Phlebitis and embolism are not under the dependence of traumatism and movement, and as far back as 1878 Dr. Lucas Championnière forbade the immobilization of women suffering from phlebitis in the Maternity Hospital. Embolism is not dependent upon movement. The very rare but redoubtable embolisms occurring in the treatment of fractures are never caused by movement. The rare cases observed have occurred with fractures absolutely immobilized while still in a state of immobilization. Generally in cases of phlebotitis or phlebitis the most serious accidents are due to the treatment by immobility, rather than the consequence of the malady itself. Dr. Marchais' method of treatment consists in a prudent massage, and in making the varicose patients walk. This treatment recalls to mind the long known fact that while omnibus conductors, attacked by varicosity, suffer very much, country postmen, on the contrary, when suffering from the same malady, bear it well, and in spite of it walk long distances. As a preliminary to his treatment, Dr. Marchais recommends varicose patients not to stand motionless. He condemns elastic stockings. He gives a preparatory massage treatment during 15 or 30 days, in order to diminish the sensibility of the limb and the infiltration, as well as to give tone to the muscles. This done he treats by rapid walking, which should be practised at a minimum rate of 100 steps a minute. In order to avoid fatigue he fractions this walking, but he reaches gradually one hour, two hours, and then more. These elements of treatment are excellent, and the observations show what good can be derived from it. Gymnastic exercise, while lying down, as in the Swedish method is also an excellent means of treatment. Much good can also be derived from the tricycle and bicycle, of which a moderate use with low gearing is advised. This exercise avoids a vertical position, which is desirable. Modern experience shows that the use of movement is not a cause of phlebitis nor embolism, while it prevents the necessary use of the elastic stocking, a treatment only to be used as a last resource, as it means the definite consecration of the infirmity for many who by the rational treatment of movement might escape the pains and complications of this disease.

MISCELLANEOUS

THE SMOKE QUESTION VIEWED FROM A NATIONAL STANDPOINT.¹

BY

CHARLES A. L. REED, M.D.,

of Cincinnati, Ohio.

The smoke problem is in no sense local, but on the contrary, presents questions of distinctly national interests. It is, in fact, a practical problem that presses for solution upon every class of people in every manufacturing city in the country. But it is a singularly pertinent theme for serious consideration by Women's Clubs, if for no other reason than that women, over and above all others, are martyrs to this existing and unfortunately growing order of things. Their rights never seem to be considered by the manufacturer of that class who fancies that in the assumed interest of his business he has a right to manufacture smoke without let or hindrance. The extra drudgery in housekeeping thus imposed upon women is never taken into account by the company whose factories fill the air with soot that filters alike into the parlor and bed-room. The health of women and of children is not a factor in the calculations of the corporation whose power plants load the atmosphere with irritating and otherwise deleterious vapors. A woman's cherished privilege to wear clean clothing, to say nothing of light becoming gowns, and to keep them clean is not regarded by the municipality that permits its streets to become defiled with the grime of its furnaces. For these and for other equally pertinent reasons it is but natural, indeed, it is high time that women individually, and through their organizations should voice their sentiment by entering a vigorous protest against conditions that, as applied to them, not only violate their sense of decency, but that outrage everybody's convictions of justice.

INTERESTS DAMAGED BY SMOKE.

But martyrs as are women to the smoke nuisance, there are other interests that are equally violated by its existence and perpetuation. Thus it would be interesting to know if it were possible to ascertain how many thousands of dollars worth of merchandise is annually lost by our dry goods merchants, solely through the ravages of smoke and soot. Clothiers, milliners, dressmakers, tailors, outfitters, grocers, druggists are singularly subject to damage from the same cause. Jewelers are put to extra labor and expense to protect their wares, especially silverplate, against the influence of corroding gases that impregnate the atmosphere as the result of imperfect combustion in numerous manufacturing establishments. The damage that has been done and is being done to residence property in Cincinnati and other cities similarly enshrouded with smoke is beyond computation. And the worst of it is that the inhabitants who have fled from their homes, many of them elegant and even palatial establishments, leaving them at a great loss to the ravages of smoke, are followed by the same pest that presumably in the interest of the manufacturer, now threatens to make our suburbs as untenable as our down-town districts. There is, in fact, not a single branch of the mercantile business, there is no private property interest that is not forced in this way to pay tribute to what I am convinced are totally unnecessary conditions imposed upon our great urban communities by the manufacturing interests that are, in fact, not in the least advanced by those same conditions. I am reliably informed that quite to the contrary, these same manufacturers who thus insist upon defiling our cities, sacrifice from 15% to 25% of their fuel to accomplish the purpose—not deliberately perhaps—not maliciously, certainly—but ignorantly, or at least thoughtlessly. For, as Dr. Ohage, the able health commissioner of St. Paul, recently remarked, "smoke is not a mark of industrial activity, but of industrial stupidity."

¹ Read before the Woman's Club of Cincinnati, April 7. The club at once invited the cooperation of other local civic bodies in issuing a call for a national antismoke convention to consider the subject in all of its bearings, and arranging for such a convention to be held in Cincinnati next autumn.

SANITARY AND MORAL ASPECTS OF THE QUESTION.

The material, that is to say the dollar-and-cents side of the question—and I have alluded to only one part of even that side of the question—is not, however, its only important phase. The sanitary, moral, esthetic and ethical aspects of the subject have possibly a still further-reaching influence—an influence which if reduced to its final analysis, if carried to its ultimate calculation, may tell even more seriously on the wrong side of the ledger. "The Cincinnati lung," black and pigmented in contrast with the lungs of those who live and die in the country, was a proverb among physicians until other cities became as smoky and thus deprived Cincinnati of the questionable distinction. The slight morning cough with the equally slight expectoration of black mucus, is an experience familiar to the denizens of smoky towns, but an experience which, to the medical mind, suggests a persistent, although slight irritation of the upper air passages that are thus made hospitable avenues for tuberculous infection. Physicians of smoke-ridden cities testify to the greater frequency there of catarrhal or other disorders of the upper air passages induced by the irritating products of incomplete combustion. But the trouble is not alone physical. It is not, on the face of it, a good thing for any community to become too tolerant of dirt. Physical dirt is close akin to moral dirt, and both combined lead to degeneracy. It is precisely against these influences, against this combination of influences, that practical philanthropy is today directing its most strenuous efforts in the crowded centers of London, New York, Chicago and other large cities. It is too much to expect the best results from public schools that exist beneath the somber shade of smoke. A dingy atmosphere is not conducive to a clear intellect. It is difficult to imbue the young with a sense of the beautiful when the beauty itself is bedaubed with soot. It is likewise difficult to instill a sense of justice in the minds of youths who are brought up in a community that permits one interest needlessly, but flagrantly and with impunity, to violate the equal rights of other interests. Ministers of the gospel would find it an easier task to teach the religion of a clean life and a happy eternity in a material atmosphere less suggestive of a gloomy present and a cheerless hereafter.

THE ETHICS OF THE AIR.

Then, too, there is something to be said about the ethics of the air. Air is necessary to existence. This being true, to breathe pure air, must be reckoned among man's inalienable rights. No man has any more right to contaminate the air we breathe than he has to defile the water we drink. No man has any more moral right to throw soot into our parlors than he has to dump ashes into our bed-rooms. No man has any more right to vitiate the air that sustains us than he has to adulterate the food that nourishes us. Poison taken into the body through the lungs is just as much a poison as is some other poison swallowed into the stomach. Poisonous air is probably more disastrous to infants than is adulterated milk. A man's proprietorship extends as distinctly into the air above him as into the earth beneath him. If every man is entitled to the ground he stands upon, so is he entitled to the air that envelops him.

Public-spirited citizens of smoke-ridden cities all over the country are at last becoming enlightened on the subject, and, having failed to take preventive steps, are now formulating curative measures. They have come finally to realize that their rights have been encroached upon and they are at last moving vigorously to protect them. New York, after the anthracite coal strike, became the victim of the smoke nuisance—to remedy which a section was inserted in its sanitary code, forbidding the obnoxious discharge of smoke, dust, cinders, and offensive odors from premises. It was put into vigorous operation, but some obstructionists contested its validity, and the Supreme Court of New York finally resolved that the provision was "unreasonable, in restraint of trade, against public policy, and void." The measure, however, had been in operation long enough, and it had been enforced vigorously enough, to show good results, and to develop the public sentiment, which is the most valuable of all laws, and which has been carrying on the excellent work, until the metropolis of our country is today practically free from smoke. The city of Baltimore,

long noted for its beauty and cleanliness, has found it necessary to formulate an ordinance, which is to go into effect in July of this year. Similar steps have been taken in Philadelphia. Pittsburg, probably even more unfortunate than ourselves, has been laboring in the direction of legal regulation—hopeless, without the sustaining influence of public opinion. Cleveland, Toledo, Chicago, and St. Louis are struggling to enforce ordinances to the same end; but, in each instance, little headway has been made, and for the same reason. The trouble is less perplexing in New Orleans and in Denver; while St. Paul stands out conspicuously as a city which has probably accomplished the most in the way of smoke regulation. In Washington but a single establishment became a menace to the beauty and cleanliness of the city, with the result that it aroused the just indignation not only of the populace, but more particularly of the President, who, in a letter to the District commissioners, went so far as to say that "it would seem to be wise to go to the very limit of the law, and to arrest the member of the company, or those highest up in the company, again and again with the shortest possible intervals, in order to put a stop to this nuisance that, so conducted on their part, amounts to a flagrant defiance of the law, and respect for public opinion, and is fraught with serious consequences to the city of Washington." What would be the sentiment of our Chief Executive if, instead of a single objectionable smoke stack, he were confronted by several hundred, such as contribute their volume of black smoke to the pollution of the atmosphere of Cincinnati or Pittsburg or St. Louis?

Here in Cincinnati the effort has been made to regulate the condition by an ordinance passed in May, 1903, which provides for a supervising engineer as a department of the city government. This ordinance, apparently far-reaching, would seem to be all the law that is necessary to cure our local conditions. But here, as in some other cities, the attempt to enforce the law is confronted by a public sentiment that is made acquiescent in the existing order of things by the constant representation that the production of smoke is a necessary condition of our industries and cannot in consequence be avoided.

SOME PRACTICAL DIFFICULTIES.

These representations only indicate a few of the practical difficulties encountered in the enforcement of antismoke ordinances. There are, indeed, many factors to be taken into account. In the first place, American cities are very generally ambitious to increase their business, to make themselves big, by protecting and holding every possible class of industry. They are, therefore, very reluctant to formulate and enforce any regulations which may be construed as onerous to the industries thus established.

Many of these manufacturers begin with small capital, often as lessees of poorly adapted premises, and consequently speedily find themselves installed in plants that are totally inadequate to the requirements of their developed business. Their boilers are not satisfactorily constructed, and neither are their furnaces the full capacity of which is not what it should be; as a result an excessive amount of fuel is consumed, combustion is incomplete, and disproportionately large volumes of smoke are discharged. Poor fuel used in such furnaces produces the maximum smoke. But these enterprises have been permitted by the city to become established in this wise, and the city, through its government, naturally feels reluctant to disturb conditions to the construction of which, by acquiescence at least, it was a party. Then, too, the manufacturers desiring to evade the expense of changing the character of their steam plant, and failing to appreciate the economy that lies in such change, listen with too willing ears to the cry that "smoke preventers do not prevent." This is the inevitable answer that one gets when one goes among the less enterprising and less progressive of our manufacturers.

I have a list of 30 or more establishments operating steam generating plants, varying from 60-horse power up to 4,000-horse power, that produce no smoke. One firm writes me that it has been using a device in each of its three large plants, "for more than 20 years, and our experience is that it is entirely feasible to prevent smoke in factories where these automatic stokers are used. The device is, also, economical in coal con-

sumption." Another firm writes me that, as a matter of fact, "the passerby, judging indications from the top of our smoke-stack, would be unable nine-tenths of the time, when we are running, to state whether there was any fire under our furnaces or not. There is no question whatever, in our minds, concerning the feasibility of abating the smoke nuisance, as it is caused by factories in this city, if the question of expense of installing the proper steam plant is not considered. The great trouble with the average steam producer is that he totally disregards the question of smoke prevention, and constructs cheap furnaces that but partially consume his fuel, the balance being thrown out into the atmosphere. To install a proper furnace, more space and more money are required on the plant. Given these, and you need not have any smoke whatever from factory furnaces. Any automatic mechanical stoker ought to be a smoke-preventing device, providing boilers are not driven beyond their rated capacity. This is one of the crying evils of this and almost every manufacturing community." Another establishment—one of which I have personal knowledge—has been operating smokelessly for over 10 years without any change in the original installation, and with a saving of fuel that repaid the proprietor for the cost of installation by the end of the first year. Still another manufacturer, equally interested in the welfare of the city, uses hand-feed altogether and depends upon the fireman, holding him responsible for any smoke the furnace may make. "I have come to the conclusion," he adds, "that the most efficacious method of restricting smoke production is a good fireman and continuous firing."

Unfortunately, however, the establishments represented by these enterprising and progressive citizens, 30 or more, are not sufficient to change the general situation, and our city, in spite of these inspiring examples, remains submerged under the smoke.

EXAMPLES OF SUCCESSFUL MUNICIPAL REGULATION OF SMOKE.

There are, however, cities which have mastered this problem. I have already alluded to New York, which in spite of the adverse decision of its courts has carried on the work by sheer force of public opinion. Philadelphia is practically equally as successful. St. Paul stands as a conspicuous example of an effected reform. Our most hopeful examples, however, are to be found in Europe, where, in many instances, they have successfully overcome precisely the conditions with which we are now contending. In each instance they have solved the problems without sacrificing their industries. Paris, with manufacturing industries vastly more extensive than those of our own city, with domestic chimneys nearly 10 times as numerous, is probably the most conspicuous example of successful smoke regulation, and visitors to the French metropolis, especially visitors from our smoky American cities, will recall the inspiration derived from its clear, buoyant atmosphere. Dresden, remembered by Cincinnatians as being, 40 years ago, one of the smokiest of cities, is today probably the clearest, and one of the most attractive places in Europe. Brussels, with a population larger than ours, with manufacturing interests more extensive, is comparatively free from smoke. My attention has recently been called to Dusseldorf, a city of over 200,000 inhabitants, with very extensive iron manufacturing establishments, which, by virtue of proper laws enforced by an enlightened public opinion, is almost as free from smoke as a country village. Numerous other examples could be cited in which similar results have been obtained by the cooperation of public opinion and legal enactment.

SOME DEFECTS OF THE ANTISMOKE CAMPAIGN.

But, as I have already stated, many of our municipal ordinances to control the smoke situation, seem, on careful examination, to be immature efforts at legislation. Some of them seem to lack the essential elements of law. In instances they fail to define specifically, and upon a scientific basis, what comprises objectionable smoke. Some of them fail to place the execution of the law in the hands of the proper departments of the city government. They nearly all contain a mistaken provision for their enforcement by an elective officer—a fatal defect in the absence of a dominant public sentiment on the side of the law. This is, indeed, a most important practical question,

and suggests the expediency of organizing and incorporating societies somewhat analogous to our humane societies, to be known as Antismoke Leagues, whose object should be actively to foster public sentiment and to establish a fund with which to employ inspectors, whose business it should be to swear out warrants and to push the prosecution of offenders. These are only a few of the observations which suggest that, regardless of outraged feelings, public thought is possibly not as mature on the question as it ought to be to formulate an efficient policy for the regulation of the evil. The example of Cincinnati is, however, enough of itself to convince us that one public-spirited manufacturer, or even a goodly group of them, cannot change the smoke conditions in an entire city.

NECESSITY FOR A NATIONAL MOVEMENT.

It is equally impossible for one city, such, for instance, as St. Paul, or New York, or Philadelphia, to change conditions that are essentially national in their extent and influence. One city is afraid to move in the matter for fear that it will drive away some industry to some rival city. This is shown by the letter of a health commissioner of one of our largest interior cities, who among other things, says: "Our attitude toward industrial enterprises of the manufacturing kind has been one of encouragement, and we have been reluctant to deal seemingly harshly with them, and I fancy that this attitude has something to do with the nonenforcement of the smoke ordinances."

It is, therefore, important for this movement, if it is to move, that there should be cooperation between different cities looking to the regulation of the evil. For this reason, it seems that cooperation, to be effective, must be national in extent, and must have several distinct objects in view, such, for instance, as:

1. The development of an enlightened and quickened public sentiment on the subject.
2. A careful determination of all economic facts and an equitable adjustment of all conflicting interests involved in the controversy.
3. The determination and demonstration of all principles, practices, plans, and appliances for practical smoke prevention.
4. The formulation of a standard law which, with modifications to meet local conditions, can be adopted by all cities, and which will, therefore, result in the practically uniform regulation of the evil all over the country.

A NATIONAL ANTISMOKE CONVENTION.

With these objects in view, and in my capacity as the chairman of the legislative committee of the American Medical Association, and in behalf of that organization, I take the liberty to suggest that a National Antismoke Convention, with an exhibition of smoke-preventing devices ought to be called in the near future.

Such a convention ought to be made distinctively representative of every interest concerned in the controversy. Every fundamental and scientific question should be discussed by competent specialists. The economic aspect of the subject should be gone into by those who would bring to its elucidation a familiarity with the broad subject of economics. Legislative problems should be presented by attorneys who have made a careful study of smoke-preventing laws. Administrative problems should be discussed by those who have had actual experience in enforcing experimental and tentative provisions already in existence. The sanitary phase of the question should be discussed by physicians whose experience in smoky cities entitles them to speak with authority. The individual and domestic viewpoint should be presented by women, who, above all others, are in a position to discuss it intelligently. The exhibition should be as comprehensive as possible, care being taken to procure representations of foreign as well as domestic smoke-preventing devices. To carry out this program delegates should be invited from each city government, all Women's Clubs, all medical and public health associations, all institutes of engineers and of architects, all manufacturers' clubs, mercantile bodies, trade unions and from every organization and corporation possessing either a direct or a contingent interest in the solution of the problem. Above everything else, the influence and cooperation of the press

ought to be invoked. With the influence thus set in operation, and subsequently carried out in the different cities, smoke ought to be speedily eliminated as an opprobrious feature of American life.

AN OPPRESSIVE TARIFF.

To the Editor of the Evening Post:

SIR:—The following two letters explain themselves. I trust you will be able to give them a place in your columns. It is only by having such matters constantly presented to the people that public sentiment can be aroused to the injustice wrought by our tariff laws. The tax on microscopes is very similar to the tax which was formerly levied on quinin. The microscope has become one of the indispensable tools of the physician. That every physician in the United States should pay a tax to the few makers of microscopes in the United States and should be debarred from the possession of the very much better instruments which are manufactured abroad seems almost incredible. The duty is a purely protective one, and yields little or no revenue.

W. T. COUNCILMAN.

Department of Pathology, Harvard University Medical School.

Boston, April 15.

DEPARTMENT OF PATHOLOGY,
HARVARD UNIVERSITY MEDICAL SCHOOL.

BOSTON, Mass., April 10, 1905.

To the Honorable L. M. Shaw, Secretary of the Treasury,
Washington, D. C.

MY DEAR SIR:—My object in writing you is to obtain some redress from the customs in the following case:

Dr. W. R. Brinckerhoff in 1902 bought a microscope with objectives and accessories from Carl Zeiss in Europe, on which he paid full duty, and used in his researches in the Harvard Medical School for two years. This microscope was taken with him to Manila in 1904, and used there in some researches which he was making. One of the lenses belonging to the microscope became damaged and was sent to the laboratory of Carl Zeiss in Jena to be repaired. Such repairs would not be possible in this country. The initial cost of this lens was 140 marks; after use of several years its probable value would be 100 marks. The lens after being repaired in the Zeiss laboratory in Jena was returned to Boston. It is now in the Custom House, held there for a duty of \$14.50. I respectfully request that in this case the duty, which seems on the face of it to be opposed to the common principles of justice, may be omitted. The collector of Boston informs me that he is powerless to do anything under the circumstances.

Respectfully yours,

W. T. COUNCILMAN.

Professor of Pathology, Harvard University Medical School.

Treasury Department, Office of the Secretary, Washington,
April 13, 1905.

Professor W. T. Councilman, Department of Pathology, Harvard University, Boston, Mass.

SIR:—The department is in receipt of your letter of the 10th instant, complaining of the action of the collector of customs at Boston in demanding duties amounting to \$14.50 on a lens of a microscope which was sent abroad for repairs, duty having been exacted on such lens when originally imported into the United States.

Under the law and regulations of the department, dutiable merchandise imported, and afterward exported, although it may have paid duty on the first importation, is liable to duty on every subsequent importation into the United States.

The department can afford no relief in the premises, and the lens can be delivered only upon the payment of duty thereon, as though it were a new importation.

Respectfully,

J. B. REYNOLDS,
Assistant Secretary.

Yellow Fever and Mosquitos.—At the session of February 21, 1905, of the Academy of Medicine at Paris, Dr. Chantemesse delivered a communication on yellow fever and mosquitos, in the course of which he declared that the study of cases of yellow fever observed in Europe, especially during the last century,¹ is in perfect accord with the etiologic theory of the relation of the mosquito *Stegomyia fasciata* with that disease. The habitat of *Stegomyia fasciata*, said Dr. Chante-

¹A full account is given in a special bulletin of the Yellow Fever Institute, United States Public Health and Marine-Hospital Service, entitled "Yellow Fever in Europe."

messe, is limited by the forty-third parallel of north latitude. In sections of countries north of this parallel (*i. e.*, England and nearly all of France) yellow fever has never appeared in epidemic form, the cases occurring, few in number, having always been aboard the vessels importing the malady, whereas in countries situated south of the parallel in question (Spain, Portugal and Italy) true epidemics have often been observed. The speaker remarked that during the last 40 years the number of epidemics of yellow fever in Europe has notably diminished, without any modification of the system of sanitary defense. The cause of this diminution is to be found in the progress of navigation and in the construction of vessels. Modern iron vessels are better ventilated than were the old style wooden ships, with their wet holds and omnipresent bilge water. The swifter navigation by steam than by sails results in ships sooner reaching cold latitudes where the yellow fever mosquito cannot easily live long enough to become infected by stinging sick persons on board the vessel. These etiologic ideas, said Dr. Chantemesse, control the rational prophylaxis of yellow fever. In an infected country, protection should be taken aboard against mosquitos. In France, on arrival of a vessel from countries contaminated with yellow fever, it should be considered that such ships fall into one of the following three categories, and they should accordingly be subjected to the corresponding treatment, namely: 1. If the vessel is free from mosquitos and has had no yellow fever aboard during the voyage it should be given free pratique in whatever season of the year and no measures of disinfection should be adopted. 2. If one or two cases of yellow fever have occurred aboard, from infection contracted in a contaminated country, without giving rise to any consecutive accident aboard, free pratique should be given to the vessel on arrival without any restrictive measures either for the personnel, the baggage, or the cargo. 3. If a series of cases of yellow fever has occurred during the voyage, the vessel should, on arrival, be emptied, far from shore if possible, and all habitable parts of the vessel should be fumigated with sulfur; and the same procedure should be adopted for the hold, if the cargo is of a nature likely to lodge mosquitos (such, for example, as bananas, other fruit, sugar, or moist wood), and all yellow fever patients should be transported to hospital immediately on arrival of the vessel, no objection being made to taking such patients to the city hospitals at ports where suitable lazarettos do not exist, because yellow fever cannot be considered, in France, to be a contagious disease. Rigorous measures, added Dr. Chantemesse, are naturally necessary in the French colonies, such as Algeria, where it is possible for the stegomyia to live, as well as in other French territory, like the Isles of Hyeres and Port Vendres, which are situated south of the forty-third parallel.—[*Marine-Hospital Reports.*]

The Blending of Races.—According to Dr. Deniker, the eminent French anthropologist, in his Huxley memorial lecture to the Anthropologic Institute, nowhere else in the world is there so great a blending of races as in Europe. Observations on more than 3,000,000 individuals show that in regard to "cephalic index," or general form of the head, Europe is divisible into four regions: A region of long-headed people, with areas of medium-headed people, occupies the northwest—namely, Great Britain, Holland, the north of Germany, and Scandinavia. A region in the southwest, including Portugal, Spain, the south of Italy, and the east of the Balkan Peninsula, is even more long-headed. A region comprising Russia and Poland, moderately long-headed in the center, and medium-headed in the east and west. A region in West Central Europe, including Southeastern France, South Germany, Switzerland, the north of Italy, and west of the Balkan Peninsula, where the people are very short-headed. Europe contains the "tallest race known"—namely, the Highlanders of Scotland. Tall statures are common in the northwest, and medium or short in the rest of Europe. The Swedes are the blondest, and the South Italians the darkest people. Northern Europe is mainly blond, Southern Europe dark, and Central Europe intermediate. Dr. Deniker classifies the population of Europe into six main races or types: 1. A tall, blonde, long-headed, straight-nosed,

northern race (the "Cynric" race of Broca and "Teutonic" race of Ripley), with a less tall, blond, medium-headed, "pug-nosed" sub-race found near it. 2. A blond, short, square-faced, "Eastern" race of Eastern Europe, with a sub-race like it, and very short, occurring in Poland and Prussia, and called "Vistulian." 3. Short, long-headed brunets, or Mediterranean race. 4. Very short, round-headed, broad-nosed, dark Cavenole, or Alpine race. 5. A very dark, fairly-tall, long-headed, Atlanto-Mediterranean or Littoral race found on the coast from Rome to Gibraltar. 6. A tall, dark, short-headed, Adriatic or Dinaric race.—[*London Globe.*]

Plague Mortality in India, 1901-1905.—The *Pioneer* of Calcutta says: The way in which the figures of plague mortality are mounting every week over any previous records shows what the country must look to endure before the disease reaches its accustomed climax in April or early May. Not only is the accession in mortality as the season advances as steady as in previous years, but the total deathrate is once more moving on a level above that of the year preceding. The following figures, giving the mortality for the week covering January 31 for the last five years, show how regular is the advance of the disease, taking India as a whole from winter to winter:

1901.....	3,415
1902.....	12,192
1903.....	24,500
1904.....	23,203
1905.....	33,087

The one gleam of comfort about these dismal weekly returns is that there seem at least to be some signs of remission on the part of the disease in Bombay. The figures for Bombay, city and district, on the same date of the last five years stand thus:

1901.....	4,622
1902.....	4,200
1903.....	12,200
1904.....	6,670
1905.....	3,500

The last figure, supposing it represents the average rate of a twelve-month, would mean a mortality of 182,000 a year; but the latest actual yearly mortality upon record (that for the official year ending with last March) is 281,269 deaths. The present rate would, therefore, represent a gain of 100,000, if maintained. More than that, the last week in January is a period in upper India when plague is very greatly above the annual mean level. The total of 281,269 represents a deathrate of nearly 15½ per mille per annum on the whole population of the Presidency. In other words, the deathrate from plague alone in Bombay is not short of the deathrate from all causes combined in a healthy English town. One death in every three that occurred during the year was due to plague. Owing to plague, the total deathrate reached 43.91 per thousand. Thanks to the plague, the deaths over the whole Presidency largely outnumbered the births. The births were only 576,949, the deaths 811,525, leaving the Presidency with a population diminished in the course of the year in round numbers by a quarter of a million souls.

Barbers and Osteopaths.—Barbers are making as eager efforts as osteopaths to gain the exclusive dignity of State examinations. "The other evening we discovered a man shaving people who was nothing in the day time but a machinist in the railway shops," it is objected. "We made him take out a license, and then his machinists' union expelled him. 'You've got another trade now—work at that,' they said. Pretty soon he found that there was not so much money in barbering as he thought (he only wanted to earn fifty or seventy-five cents extra at night, till we made him take out a license), so he tried to go back to the machinist's trade and the machinists would not let him." This indicates how the labor unions are restricting the opportunity, by State law and union regulations, for a man to work when and at what he pleases. Assemblyman Hartman's barber measure would assess each barber a dollar a year to provide funds for rigid inspection of shops—not really to keep the shops cleanly, but to make entrance into the trade more difficult. The Assembly has recommitted this bill, and that will probably dispose of it unfavorably.—[*N. Y. Times.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 22, 1905. [Vol. XLIV, No. 16.]

1. Laboratory Diagnosis of Variola. R. L. THOMPSON.
2. Large Carcinomatous Tumor of the Liver: Removal Seventeen Months after Nephrectomy for Carcinoma of the Left Kidney. Temporary Recovery. THOMAS S. CULLEN.
3. Reclination of the Lens: Under Certain Conditions a Justifiable Operation. F. T. ROGERS.
4. Eyestrain. LEWIS S. DIXON.
5. Some Fallacies in the Agglutination Tests: A Plea for the Employment of a More Uniform Technic. OSKAR KLOTZ.
6. The Scintillating Scotoma or Transient Functional Hemipia. CHARLES J. KIPP.
7. Intestinal Perforation Complicating Typhoid Fever. GEORGE L. HAYS.
8. The Extraction of the Intracellular Toxin of the Colon Bacillus, with a Preliminary Statement Concerning Its Physical and Chemic Properties. SYBIL MAY WHEELER.
9. Local Anesthesia in Major and Minor Operations on the Ear, as Observed in Professor Politzer's Clinic in Vienna. GEORGE PAULL MARQUIS and OSCAR H. KRAFT.
10. Pus Tubes in the Male, Their Surgical Treatment. W. T. BELFIELD.

1.—Laboratory Diagnosis of Smallpox.—R. L. Thompson (St. Louis) comments on the difficulties in the early diagnosis of smallpox and suggests the use of laboratory methods. A rapid method of paraffin imbedding recently described by Henke and Zeller is recommended by Dr. Thompson as specially available. It consists in using snippings from the lesions by fixation in pure acetone for from three-fourths to one and a half hours and then directly transferring them to paraffin at 56° C. The subsequent treatment is that of any paraffin material; applying with the dropping bottle successively, xylol, absolute alcohol, thin celloidin, 95% alcohol, and water to the sections and then using the hematoxylin eosin stain. The whole process requires about three hours and the specific skin lesions and smallpox bodies can be observed. He considers that by this method fewer mistakes will be made by a microscopist of reasonable skill in smallpox diagnosis than in the ordinary microscopic tumor diagnosis.

2.—Adenocarcinoma of Liver.—T. S. Cullen (Baltimore) reports a case in which the notable symptoms were rapid growth of the tumor and the rather rare occurrence of a single metastatic nodule in the liver following the removal, seven months previously, of the primary growth in the kidney. The urine from the remaining kidney contained blood and pus and the temperature was 102° F. Notwithstanding these facts, the patient recovered from the operation, but there were early symptoms of recurrence. Dr. Cullen goes into the history and technic of surgery of the liver at length, and concludes from his experience with this case, which was as unfavorable as any he finds reported, that he "would hardly hesitate to attack almost any hepatic tumor without regard to its size."

3.—See American Medicine, Vol. VII, No. 26, p. 1009.

4.—Eyestrain.—According to L. S. Dixon (Boston), it is not a medical fad, but a serious reality. The eye as an optical instrument is, in most cases, more or less imperfect, and while a vigorous constitution and nervous organization in some cases may compensate for the overtaxing of the ciliary muscles, in others this is a decided tax, producing sooner or later serious consequences, both local and general. He emphasizes the necessity for complete rest for the eyes and for properly fitted glasses. The patient should learn to accept as much correction as he can and to follow the oculist's directions. Easy vision without fatigue, Dr. Dixon says, is the test of a good eye, not sharpness and clearness of vision, which may exist with serious discomfort. He advises early search for errors in the child before habits are formed that it is necessary to break and when the child can learn to accept full correction. The use of glasses part of the time at home in the house may be sufficient to ward off present and future trouble.

5.—Defects of the Agglutination Test.—Oskar Klotz (Montreal) calls attention to certain possible sources of error, aside from the necessity of a more uniform technic rendering possible comparisons of work by different observers. The age of the culture affects the result, as its susceptibility to agglutinins increases for the first six months after isolation from the animal body and growth on artificial mediums. Inoculations in animals with broth culture produces in their serums, beside the agglutinins, precipitins whose reaction in broth culture

cannot be distinguished from true agglutination, the organisms being deposited mechanically in the precipitate. Pseudoclumping may be obtained by using emulsions of bacteria in undiluted broth and testing against the above serum. The agglutination of a microorganism varies with the medium in which it is grown, the reaction of that medium, the temperature of incubation, and the number of organisms present in the emulsion. Pseudoclumping may be due to sudden changes of temperature or to the addition of certain chemicals. Carbolic acid or chloroform added as preservatives to immune serum does not affect the agglutination reaction. In using the dried blood test, paper having a soluble gloss should be avoided for collecting the blood. Dr. Klotz finds the macroscopic method for determining agglutination the most useful and rapid, and places a time limit of three hours on all these reactions.

6.—Transient Functional Hemipia.—C. J. Kipp (Newark, N. J.) describes the condition known under this name, and sometimes spoken of as scintillating scotoma, telchopsie, ophthalmic migraine, etc. He finds it generally hemiopic in form. It is not always described in textbooks, but its first appearance is apt to be alarming to the patient. Dr. Kipp is inclined to believe that in most cases there is a temporary functional derangement of the cells of the cerebral optic mechanism. For treatment, he suggests rest during the attack, usually in a recumbent position. As regards cutting off the attacks, he has no definite advice to offer.

7.—Typhoid Perforation.—G. L. Hays (Pittsburg, Pa.) reports 12 cases of intestinal perforation in typhoid fever, within 21 months, with 5 recoveries. One of these latter, however, was an appendiceal perforation. Together with 7 cases previously reported, this makes a total of 19 cases with 8 recoveries, a percentage of 42.1 in his practice. In his opinion, the perforation is often caused by interference with the blood supply. He has observed that the coats of the intestines over the site of a nonperforated ulcer are always darker in color than elsewhere, thus showing that the circulation is impaired. He considers the deficiency in the blood supply to be due to the extreme degree of inflammation with accompanying swelling of the tissues, and to the position of the ulcer. He insists on the necessity of early recognition of the condition and prompt operation as essentials to success. Patients who recover without operative interference are not over 5%. Except in cases of abscess formation, recovery is impossible, and when abscesses do not occur the symptoms are not due to perforation if recovery ensues. While it is possible that abscesses may occur elsewhere than with perforation of the appendix, he does not think it likely. In closing the perforation he uses a pursestring suture, over which he makes one or two tiers of Lembert sutures transversely to the long axis of the bowel. In his last four cases he has adopted the plan of anchoring the bowel, at the site of the perforation, to the peritoneum at the upper angle of the incision through the abdominal wall. This prevents the prolapse of the bowel to the site of the most intense inflammation, giving it a better chance to heal, and giving the contents a chance to escape outside in case the sutures tear out. It likewise favors the formation of an artificial anus, if required for partial or complete obstruction.

8.—The Colon Bacillus Toxin.—Sybil May Wheeler (Ann Arbor, Mich.), describes in detail the methods of extracting the intracellular toxin of the colon bacillus by treatment with 2% solution of sodium hydrate and absolute alcohol, leaving a water soluble and nontoxic residue. The toxin is obtained from cultures either on agar or on Fränkel's modified Ushinsky's medium, showing that it is an integral part of the cell. The use of the modified Ushinsky's medium also shows that the organism is able to build the toxin synthetically from chemic compounds. The toxic substance, freely soluble in water and perfectly in absolute alcohol, gives all the ordinary proteid color reactions, but does not yield a reducing carbohydrate. There is no evidence of its alkaloidal nature. It may be broken up by concentrated acid and a toxic crystallizable body precipitated with mercuric chlorid.

9.—Local Anesthesia in Ear Operations.—G. P. Marquis and O. H. Kraft (Chicago), describe Neumann's method of employing local anesthesia for ear operations, using 1% solutions of eucain and cocain to each cubic centimeter, of which five

drops of tonogen as a substitute for adrenalin have been added for the injections; the eucaïn injections externally to the ear, and the cocain solution within the meatus. A pledget of cotton soaked with a 2% cocain solution is introduced through the perforated tympanum, and a bichlorid dressing placed over the ear till the operation is begun. They believe that by this method pain is successfully avoided without recourse to general narcosis.

10.—Pus Tubes in the Male.—According to W. T. Belfield (Chicago), due attention is not often enough given to the fact that the genital duct proper in the male—including the seminal vesicle, the vas deferens and the epididymis—is as liable to suppuration as the urethra. The pus infections of these parts present a close but neglected analogy with the familiar infections of the fallopian tubes, and he draws from this the practical conclusion that the rational treatment should often be surgical. The acute hydrocele and scrotal edema often accompanying epididymitis are, he says, infallible signs of suppuration, and incision is followed by relief of pain and swelling, even if no pus escapes. The pus may in some cases burrow from the vas into the urethra, and thus produce the familiar phenomenon of relief of the epididymitis with increased urethral discharge. A gleet may also be kept up by epididymal suppuration and incision be required for its cure. Chronic suppuration with pain may also require surgical treatment, and destruction of the testis by extension of the disease be also thus averted. In acute or chronic pus infection, the lower end or tail of the epididymis presents the chief swelling, and here the incision should usually be made. Simple puncture may sometimes suffice, but a half inch or more incision with stitching the edges of the pus cavity to the skin and drainage is usually the better way. In a few cases Dr. Belfield adopted a novel method, namely, injections into the vas deferens and seminal vesicle through a needle introduced into the vas just above the epididymis. The therapeutic value of such injections is not yet fully decided, but Dr. Belfield considers it a practicable method and so far, the only one by which we can directly medicate the male genital tube.

Boston Medical and Surgical Journal.

April 20, 1905. [Vol. CLII, No. 16.]

1. Manuel Garcia. JOHN W. FARLOW.
2. A Method of Producing Ether Narcosis by Rectum, with the Report of 41 Cases. JOHN H. CUNNINGHAM and F. H. LAHEY.
3. Serum Treatment in Multiple Infectious Arthritis. E. G. BRACKETT.
4. The Communicability of Cerebrospinal Meningitis. E. M. BUCKINGHAM.

2.—Ether Narcosis by Rectum.—J. H. Cunningham and F. H. Lahey report 41 cases. Comparatively little ether is used. There is no stage of excitement. Vomiting is rare. Bronchial secretions are absent. Recovery is quick. The bowels are slightly constipated, probably from the preparatory purging and limited diet. Unless the bowel is free from feces, it is difficult to produce narcosis. When administered by the rectum, concentrated vapors may be given, absorption takes place more rapidly, and fatalities are less likely, as the lung is free to eliminate the ether as fast as absorbed. There is no ether-laden saliva to irritate the stomach, and no remaining excess of ether to be eliminated as when the alveoli are filled. The writers describe the apparatus used and the technic of administration. [H.M.]

3.—Serum Treatment in Multiple Infectious Arthritis.—E. G. Brackett states that in using antistreptococcic serum one may assume that the lesion is caused by the streptococcus or allied bacilli, or that antitoxin from one bacillus may be inhibitory to the growth of another. Many forms of multiple articular disease are not due to the direct action of the bacillus, but to the toxin secreted at a place remote from the joint. The use of the serum is to cut short the acute stage. It has no effect on deformity or stiffness, except to diminish that which is caused by sensitiveness. Adhesions and contractions must be treated by the usual means. [H.M.]

4.—Communicability of Cerebrospinal Meningitis.—E. M. Buckingham reports the admission of 110 patients to the Children's Hospital in eight years. In all of these *Diplococcus intracellularis* was found. The patients were treated in the open

wards and yet no case has ever originated in the hospital. The only precautions taken are absolute cleanliness and constant watchfulness for early symptoms. Personally, he has been careful as to disinfection of hands and of articles that may have become wet in cases of lumbar puncture, and he supposes his colleagues have used the same care and have instructed the nurses to do so. The same disinfection should follow autopsies or nasal feeding. [H.M.]

Medical Record.

April 22, 1905. [Vol. 67, No. 16.]

1. Visual Function the Cause of Slanted Handwriting: Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature, and Myopia. GEORGE M. GOULD.
2. Simple Ulcer of the Stomach and Its Surgical Treatment. JOHN J. McGRATH.
3. Erysipelas with an Excessive Production of Fibrin. ROLFE FLOYD.
4. An Unusual Case of Bradycardia. JULIUS H. COMROE.
5. Acute Posterior Peritubercular Abscess. FERDINAND C. WALSH.
6. Report of an Interesting Case. E. B. VAN ARSDEL.

1.—Visual Function the Cause of Slanted Handwriting: Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature, and Myopia.—George M. Gould says: "Slanted handwriting is bad, but not for bad reasons." It is not the cause of the spinal curvature which exists in 27% of all school children, but a method of avoiding the extreme malposture which causes the spinal curvature. An analysis of the five chief objections to slanted handwriting is made, and also of nine factors which determine the posture and malposture of the body, as related to the writing. George Sand's command—"Vertical writing, vertical paper, vertical body," is not obeyed, because the writer so placed cannot see the writing which is being done. It is hidden by his fingers; hence he skews the paper, bends his head and body to the left, slants the penholder to the right, etc., in order to get a freer view of the "writing field." But in doing so he makes a habit curve of the neck, with convexity to the right, which is the initial morbid factor causing lateral curvature of the spine below by compensation. This malposture in writing may be prevented by peculiar penholders, devised by Dr. Gould, or by an uncommon method of holding the ordinary holder, but better by placing the paper vertically opposite the right shoulder on a desk-leaf pitched at an angle of at least 30°. The slanting of the common handwriting is due to a lessening of the canting of the head to the left and rotating it to the right, facts governed entirely by dextrocularity and the prevalent axes of astigmatism. The Chinese and Japanese avoid malposture in writing by their method of holding the brush, procedures in writing, etc., and hence, probably, their children will not show 27% of spinal curvatures. The proper style of school desks in occidental schools is described and urged. The history of slanted and vertical handwriting is glanced at. It is conclusively urged that myopia is due not to the desks, malposture, etc., but to faulty correction or noncorrection of astigmatism and eyestrain. To this unscientific ignoring of eyestrain is, finally, charged much of the general systemic disorders of school children, so widely prevalent and increasing all over the civilized world.

2.—Simple Ulcer of the Stomach and Its Surgical Treatment.—J. J. McGrath reviews the subject of gastric ulcer and discusses the various operations possible for relief from the condition. The most satisfactory of these is usually gastroenterostomy, which is curative in its effects, and when properly performed by competent surgeons on patients not too greatly reduced through inanition and hemorrhage should be almost devoid of fatalities. It is to be hoped that the intractable and persistent cases of gastric ulcer will come into the hands of the surgeon while there is still good promise of cure without undue risk of a fatal issue.

3.—Erysipelas with an Excessive Production of Fibrin.—R. Floyd's patient was a coachman, aged 38, who, in addition to the usual lesions of erysipelas, exhibited an exudate of fibrin so excessive and so disposed as to constitute a croupous inflammation, presenting the same essential characters as a croupous colitis or a croupous inflammation of the throat. The man presented symptoms of an ordinary erysipelas of the hand and forearm, until, on the seventh day, vesicles began to form. These became confluent bullas, extending over the dorsum of

the hand and the lower half of the forearm. On removing their epidermal covering, a layer of fibrinous false membrane, varying in thickness from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. and less, was revealed. On the thirteenth day the erysipelas was practically over, though convalescence was retarded by the slow healing of an ulcer on the back of the hand and wrist.

New York Medical Journal.

April 15, 1905. [Vol. LXXXI, No. 15.]

1. Cases of Enteroptosis and Cardioposis with Return to the Normal. MAX EINHORN.
2. Dietl's Crisis and Some Cases of Movable Kidney. L. W. ATLEE.
3. Inflammation of the Glands of Bartholin. CHARLES C. MILLER.
4. Atony of the Rectum and Anal Sphincters: Its Etiology, Pathology, Diagnosis and Treatment. (Concluded.) WM. BODENHAMER.
5. Erythema and Urticaria, with a Condition Resembling Angioneurotic Edema, Caused Only by Exposure to the Sun's Rays. S. B. WARD.
6. A Contribution to the Alcohol Question. S. P. BEEBE.
7. Prophylaxis in Pregnancy and Labor. T. AVERY ROGERS.

1.—Enteroptosis and Cardioposis.—Max Einhorn says that a high degree of long-continued subnutrition is sufficient to cause marked enteroptosis and cardioposis, and that the treatment indicated is the rebuilding of the organism. Cases are reported in which the prolapsed kidney has been restored to its normal position by medical means. Several cases of visceral ptosis are reported. They illustrate two points: 1. That a complete return to the normal of the prolapsed organs is possible. 2. The importance played by an increase of the bodily weight. In all these cases after the patient had gained in weight, a better position of the organs resulted. He believes that an increase of fat around certain organs (kidneys, heart), as well as an improved general condition is an important factor. The treatment in these cases consisted mainly in the wearing of a properly fitted abdominal supporter and ample feeding. The feeding is the more important of the two. [C.A.O.]

2.—Movable Kidney.—L. W. Atlee reports several cases in which the movable kidney produced symptoms due to the physical effects of its malposition. These symptoms are known as "Dietl's crisis." The attacks come on suddenly and are characterized by severe abdominal pain, nausea, vomiting, and collapse; there are chills, and sometimes high fever. Among the more serious effects produced by a floating kidney is interference with the continuity of the intestinal tube, or stoppage of the bile duct. The circulation in the renal vessels and the patency of the ureter may also be impaired, causing a temporary, or in time a permanent, hydronephrosis. The cases reported were suggestive of gallstones, intestinal obstruction and appendicitis. [C.A.O.]

4.—See *American Medicine*, Vol. V, No. 23, p. 906.

Medical News.

April 22, 1905. [Vol. 86, No. 16.]

1. Alcohol as Food. RUSSELL H. CHITTENDEN.
2. Alcohol in Disease. GEORGE L. PEABODY.
3. The Health of the Nation. WALTER WYMAN.
4. The Health of the Port of New York. ALVAH H. DOTY.
5. What the State of New York is Doing for the Insane. FREDERICK PETERSON.
6. Abdominal Nephrectomy, with Illustrative Cases. NATHAN JACOBSON.

1.—Alcohol as Food.—R. H. Chittenden states that while alcohol lowers the rate of proteid katabolism, it increases notably the output of uric acid and purin bases. The increase of uric acid is due to change in the rate of oxidation in the liver, of uric acid of exogenous origin or else there is change in the rate of production of uric acid from the precursors of uric acid contained in the food. There is also the possibility of other oxidative processes in the liver being affected. Alcohol, therefore, presents a dangerous side wholly wanting in carbohydrates and fats. The deleterious influence is exerted only in connection with exogenous uric acid; hence, in many diseases in which a nonpurin diet is used the urates would not be increased. [H.M.]

2.—Alcohol in Disease.—G. L. Peabody calls attention to the power of alcohol to penetrate to the deepest layers of the skin, thus disinfecting it. By bringing about local changes in the blood supply it affects inflammations not entirely superficial. Compresses soaked in alcohol and covered by gutta

percha and cotton wool have given great relief in peritonitis, neuritis, phlebitis, and herpes zoster. By its persistent use suppuration can often be averted in buboes, mastitis, carbuncle, furuncle, paronychia, etc. When the epidermis is thin, as in children, and over the scrotum, coccyx, etc., care must be used that sloughing does not occur. It is an agent of great value in poisoning by carbolic acid internally and in external burns from the same. In acute febrile diseases it is sometimes worth more than all the other cardiac stimulants, since fever does not interfere with its usefulness. To decide on the patient that needs it is not always easy. There is little danger of engendering the alcohol habit by giving it during fever. This increases progressively during convalescence. [H.M.]

3.—See *American Medicine*, Vol. IX, No. 4, p. 158.

4.—Health of the Port of New York.—A. H. Doty believes the theory that the clothing of well persons, merchandise, vessels, etc., commonly transmit infectious disease, militates against the careful inspection necessary to discover the true origin of outbreaks, which are frequently due to unrecognized cases. Neither the bill of health, nor the captain's or surgeon's statement is taken at the quarantine station in lieu of a careful personal examination when called for by the regulations of the department. [H.M.]

5.—What New York State is Doing for the Insane.—F. Peterson describes the increased facilities for scientific research, the greater stress on the clinical as against the administrative duties of alienists, the establishment of training-schools for nurses, the almost entire abandonment of restraint and solitary confinement, and the segregation of the tuberculous, etc. [H.M.]

6.—Abdominal Nephrectomy.—N. Jacobson advocates operation through the abdomen when the size of the mass makes removal through a lumbar incision difficult, and when there are extensive adhesions. Drainage through the loin must accompany this operation. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Progressive pernicious anemia is a term which comprises a number of most dissimilar affections, and a fatal outcome of a given disease is not sufficient for assigning it a special place in pathology. In progressive pernicious anemia the disease is not one, but in reality is an affection presenting divers aspects. One finds the pernicious anemia of carcinoma, of tuberculosis, of repeated hemorrhages, of pregnancy, of intestinal parasites, and the list could be continued indefinitely, so that this disease may be divided into two groups, the symptomatic, and the essential anemias. The latter alone concerns us. In the normal condition any loss of blood, for example, from hemorrhage, becomes repaired by the phenomena of regeneration. A mild anemic condition, necessitating only slight regenerative processes, shows upon examination very trifling changes, such as an increase in the diameter of the red blood cells and the apparition of a few nucleated globules, as was recently pointed out by Vaquez and Aubertin at the Société médicale des Hôpitaux. This type of anemia might be called orthoplactic and has always a favorable prognosis, because the process of repair remains normal. In more serious cases, either from a more rapid destruction of the blood or from an insufficiency of the hematopoietic organs, abnormal forms coming from the marrow will appear, showing an exaggerated or deviated physiologic work. These cases are included in the term of metaplastic anemia given by Ehrlich and are characterized by the presence of a large number of nucleated, mononucleated, or granular red blood-corpuscles and myelocytes. This latter form of anemia has a most serious prognosis, because it indicates an insufficient organic reaction. Nevertheless, death is not always the result, because a few cases of cure have been recorded. In a still more serious type, the aplastic form

of Ehrlich, one is unable to discover any myelocytes or abnormal or normal nucleated red blood cells; the organic reactions no longer operate and the disease is incurable. This latter type, in which hematopoiesis is completely arrested, is infrequent and usually it is metaplastic anemia where the embryonal type of globules is still present or where the hematopoietic organs still react that one has to deal with. Launois and Weil¹ have published three cases of the last-mentioned type of anemia, all of which were fatal.

An examination of the hematopoietic organs was obtained in two of them. The clinical picture appeared in the midst of excellent health by the appearance of a very intense and markedly increasing anemia; loss of strength was absolute, there was a complete absence of appetite, and the integuments took on a livid greenish tint. Toward the end of the disease epistaxis appeared. A very marked anemia was noted with a progressive decrease of the red blood cells, which attained 700,000 in one case and 500,000 in another. The nucleated red globules were numerous, while the number of white cells was usually found normal. However, there was a predominance of large-size mononuclears and a few temporary myelocytes. Necropsy showed nothing which could explain this decrease of the blood elements and no trace of latent malignant disease or intestinal parasites could be discovered, and during life no source of infection or intoxication could be elicited.

Atrophy of the gastric mucosa was formerly considered a cause of anemia, but the atrophic process is frequently absent in these cases, and also is often present in conditions other than anemia. Labbé and Jacob endeavored to demonstrate that renal lesions were the etiologic factor, but these were also found when no pernicious anemia existed. Lesions of the hematopoietic organs, such as proliferation of the lymphatic and cellular tissues, represented by the number of lymphocytes and macrophages, intense hematic destruction in the spleen, liver, and lymph-nodes, do not explain the why, but simply the how of the disease. A cell poison, as yet unknown, probably acts on the entire hematopoietic apparatus, producing the lesions and the symptoms of the disease.

The inefficaciousness of treatment in general has been pointed out by all writers on the subject. In one case in which signs of syphilis were present, mercurial treatment did not give favorable results, while in two others iron and arsenic, as well as medullary opotherapy were tried without success. Sodium cacodylate and arrhenal are certainly less toxic than other forms of arsenic, but their action is not nearly so certain. The subcutaneous injection of Fowler's solution has given satisfactory results in cases where gastric intolerance has prevented the medication from being taken internally. Out of 48 cases in which arsenic was not used, Padley had 47 deaths and 1 recovery, and in 22 cases in which the drug was given, 6 patients died and 16 recovered. Fiessinger reported several cures from arsenic, and in one patient, a woman of 45, there was an excessive nervous depression, complicated by gastrointestinal accidents. An irregular fever then occurred, accompanied by diarrhea, vomiting, a straw-colored skin, and cachectic edema. The hemoglobin fell as low as 20. The continuation of the treatment with arsenic resulted in a complete cure within a few months. In pernicious anemia, as in leukemia, Fowler's solution is usually well supported by the patient, but nevertheless signs of poisoning may appear, and should be watched for. Success has been obtained by Fraser and Danforth by the use of bone marrow. The former prescribes the raw marrow of the cow or the calf, at about the dose of 100 gm. a day, combined with iron. Others have employed subcutaneous injections of the extracts. Generally speaking, the results obtained appear to be more uncertain than with arsenic, even admitting that the latter remedy is not tolerated by the stomach, as occasionally happens.

REVIEW OF LITERATURE

Syphilis of the Lung.—T. A. Claytor¹ believes that this condition, though not common, may be present more often than is diagnosed, even by pathologists. Clinicians are more apt to make the diagnosis, but at postmortem it is often difficult to distinguish from tuberculosis. As the latter is known to be common, and syphilis is thought to be rare, doubtful cases are pronounced tuberculous. The only absolutely certain point of difference in many cases is the presence or absence of the tubercle bacillus, and even then there may be associated syphilis. The lesions of syphilis of the lung are gummas, pneumonia or fibrosis. Claytor reports a case occurring in a man of 44, in which there were gummas and also fibrosis, the latter possibly, but not probably, being due to pigmentation. The diagnosis of gummas in the lung was based on (1) history of a chancre, the scar of which remained; (2) the history of a paralytic stroke at 38; (3) the presence of undoubted gummas of the liver and on the sternum; (4) the absence of tubercle bacilli in the sputum before death and postmortem; (5) the absence of bacilli from the sections of the nodule; (6) extensive amyloid change in the liver, spleen and kidneys; (7) the absence of tuberculous involvement of the apices or other parts of the lung; (8) the presence of numerous bloodvessels in the new tissue. [A.G.E.]

Hypertrophy of the Pylorus in Infants.—According to the experience of G. F. Still,² congenital hypertrophy of the pylorus occurs much more frequently in males than in females. The symptoms rarely begin to develop until the infant is 2 to 4 weeks old, and in no case develop later than the seventh week. The most conspicuous symptom is vomiting, which is persistent, but not necessarily frequent. It is forcible in character, occurs in infants who have been carefully fed, persists in spite of treatment that usually controls dyspeptic vomiting, and is large in amount, showing that the vomit represents an accumulation of several feedings in a dilated stomach. It may occur only once or twice in 24 hours. It is almost always associated with constipation. Wasting is another symptom which naturally results from the condition. The two physical signs, upon which the diagnosis rests, are visible and marked peristalsis of the stomach and a palpable thickening of the pylorus. To elicit these signs, the abdomen should be carefully and persistently examined immediately after feeding. The peristaltic movements must be distinguished from voluntary contraction of the abdominal muscles and a reverse peristalsis of the transverse colon. The thickened pylorus is found on deep palpation just outside the right nipple line, about a third of the distance from the umbilical level to the costal margin. If the condition of the child warrants it, nonoperative treatment should be tried first, consisting of the careful feeding of whey, raw meat juice, weak peptonized milk mixtures, etc., together with gastric lavage once or twice daily, just before giving food. If the infant steadily loses weight, however, operation should not be delayed too long. [B.K.]

Cystitis in Childhood.—B. N. Swart³ reports a few cases of cystitis in children, evidently due to *B. coli communis*. All authors agree in acknowledging the frequency of cystitis as a complication of enteric affections of children, especially girls. There is only one plausible explanation—the coli bacillus, which admittedly often causes cystitis, migrates from the rectum into the urethra. In girls the distance is shorter, and the entrance into the bladder very easy, hence their predisposition. The clinical picture of cystitis varies from the mildest forms with no local symptoms to the severest forms with local and general disturbances. In mild cases only an examination of the urine shows the presence of cystitis. Concerning prophylaxis, utmost cleanliness is enjoined in the care of children suffering from enteritis. Especially is soiling of the vulvar parts with the discharges to be guarded against. [L.J.]

Accidental Vaccination of the Nasal Mucosa.—Lublinkski⁴ reports the case of a woman of 26, who presented herself with a swollen nose and upper lip. She had evidently infected

¹ Revue de Médecine, August, 1904.

² American Journal of the Medical Sciences, April, 1905.

³ The Lancet, March 11, 1905.

⁴ Medizinske Obosrenie, LXIII, No. 2.

⁵ Münchener medicinische Wochenschrift, 1904, II, 2328.

her nose with pus wiped from the vaccination pustule of her child, and which afterward had been brought into contact with a bleeding point in her nasal cavity. Examination revealed two typical vaccination pustules, each the size of a lentil, in the right side of the nose. The author emphasizes the danger of vaccinating children suffering with general eczema and prurigo, relating the case of a child with general eczema, who, when vaccinated, had developed a general vaccinia, and died as the result of this. [E.L.]

Concerning Dialyzed Diphtheria Poison.—P. H. Römer¹ describes a series of tests in which he dialyzed diphtheric toxin, similar to the experiments of van Calcar. He illustrates his article with a drawing of the apparatus employed, and gives the various tests in detail; van Calcar claimed that he succeeded in separating the diphtheric toxin from the toxin by means of dialysis. According to his findings, the fluid containing the dialyzed poison failed, when injected into guinea-pigs to cause the typical acute death of diphtheria, but instead only brought on paralysis. Römer, because of the results of his experiments, disagrees with this observation of van Calcar, and states that it is impossible to separate, by dialysis, under pressure, the toxin from the toxin, or to effect qualitative changes in the diphtheric poison. [W.E.R.]

Ankylostoma Duodenalis in Japan.—Zenjiro Inouye² says that the disease occurs everywhere except in the mountains and affects above all the farmers who are in the habit of eating insufficiently-washed green vegetables. Among symptoms he mentions especially the absence of Charcot crystals, the frequent occurrence of parorexia or desire for peculiar articles of diet, the large number of eosinophiles, always more than the 10% of the leukocytes and the occurrence of a characteristic deformity of the nails, which corrects itself when the parasites are expelled and whose degree may be an index of the number present. Under diagnosis the only thing of interest is the statement that chlorosis does not occur in Japan. The prognosis is good. The stools should be disinfected with slaked lime. Thymol and filix mas are specific medicines, the former is preferable and should be given in doses of 3 gm. to 5 gm. every other day, given on an empty stomach and followed by a purgative. [T.S.G.]

Some Physical Properties of Enzymes.—D. J. Levy³ records a series of experiments demonstrating (1) the removal by paper filtration, of ptyalin, rennet, pepsin, and pancreatin; (2) the fixation of ptyalin by hardened filter paper; (3) the injurious effects of aeration and of surface action on taka diastase, rennet, pepsin, and pancreatin; (4) the passage of ptyalin and taka diastase through the Berkefeld bougie; the partial retention of pepsin, the partial (in one case total) retention of pancreatin; (5) the total retention of rennet by the Chamberland bougie; (6) the total retention of ptyalin, rennet, pepsin, and pancreatin by the collodion filter, and the partial passage through this filter of taka diastase; (7) the dialysis of ptyalin, taka diastase, rennet, and pepsin, but not of pancreatin, through the collodion membrane. [H.M.]

Significance of Albuminuria.—F. C. Hyde⁴ says albuminuria means invariably disease of the kidney; if not actually present, at least a susceptibility to it. He is entirely in sympathy with insurance companies, which refuse applicants who show albumin in the urine. He concludes: 1. Physiologic albuminuria does not occur. The terms dietetic, postural, cyclic, and intermittent can be properly used if they are understood not to mean distinct clinical entities. 2. Urine examinations are not complete without the investigation of urine from the whole 24 hours, and especially of the afternoon urine. Life insurance companies should accept only afternoon specimens. 3. Slight afternoon albuminuria is usually the first sign of a beginning chronic interstitial nephritis in individuals over 40; the progress of this can be stopped, at least temporarily, by proper change of habits. [A.G.E.]

The Determination of Occult Blood in the Stool, and Its Diagnostic Value.—Walther Clemm⁵ considers Boas'

method of the guaiac test to be extremely delicate and considers the test of great value, especially in bleeding from the stomach, when the blood is apt to be seen with difficulty, even microscopically. Blood can always be found in cases of cancer in any part of the digestive tract, as well as in gastric polyp and severe alcoholic gastritis. It is rarely found from tuberculous and typhoid ulcerations. The peptic ulcer and benign pyloric stenosis show blood in varying amounts and inconstantly. Blood is commonly found in cases of hemorrhagic pancreatitis and gallstone, and more rarely in hysteria, tabes and other nervous and trophic diseases. [T.S.G.]

Anilin Dyes and Digestion.—The use of artificial dyes for purposes of falsifying food products is an evil, calling for energetic measures. A. T. Vinogradov¹ studied the influence of the various anilin dyes on digestion. He found that in the test-tube the dyes exercise an unfavorable action on the function of pepsin, and concludes that a similar injurious effect takes place when the dye is introduced into the stomach. The cumulative effect resulting from a chronic consumption of such colored foodstuffs may be easily granted. It is interesting to note in this connection that workers in anilin dyes are subject to numerous gastrointestinal troubles. [L.J.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Mixed Tumors of the Lacrimal and Salivary Glands.

—F. H. Verhoeff² says there is no reason to believe that tumors of the lacrimal and salivary glands are different in type, although not all of the former have been classed as endotheliomas. He reports five cases of tumor of the lacrimal gland and gives his reasons for believing these groups of newgrowths are derived from epithelial structures, and hence are not endotheliomas, in either location mentioned. The stroma is not derived from mesoblastic cells misplaced from other structures, but is probably produced by an atypical development of cells, which ordinarily would have gone to form part of the stroma of the normal gland. Owing to their situation, the tumors of the lacrimal gland are not only dangerous to sight, but are more dangerous to life than are those of the salivary glands, hence should be extirpated as soon as possible. In case the tumor cannot otherwise completely be removed, or in case of a recurrence, exenteration of the entire orbital contents should be performed. [A.G.E.]

Treatment of Varicocele.—After considering the etiology, frequency, and pathology of varicocele briefly, D. Tait,³ of San Francisco, discusses the treatment of the affection at some length. He disapproves of resection of the spermatic veins, the operation most in vogue, for the following reasons: In the most cases the veins are simply dilated, the walls being thin and showing no sclerotic changes: therefore, from the standpoint of pathology it is not rational. The affection in most instances is a phantom tumor; therefore, the severe and not altogether harmless operation is not warranted. Recurrences after excision are not unknown, and complications are not uncommon. The frequent association of hydrocele and varicocele calls for a method capable of curing both conditions. He advises the operation of transposition of the testicle, with eversion of the tunica vaginalis. He describes the various steps of the procedure in detail. The operation removes no tissue, the arterial and nerve supply of the testicle is not endangered, the operation is simple, rapid, bloodless, and painless; the patient is not compelled to remain in bed. Five patients, two with painful varicocele, and three with voluminous varicocele, were thus operated by him, with the best of results. No suspensory is worn by the patients. He never operates in neurasthenics and genitourinary hypochondriacs, nor in cases of simple dilation without symptoms. [E.L.]

A Method of Total Excision of the Ureter.—A. Schwyzer⁴

¹ Berliner klinische Wochenschrift, February 20, 1905.

² Archiv für Verdauungs-Krankheiten, Vol. xi, 1.

³ Journal of Infectious Diseases, January 12, 1905.

⁴ Yale Medical Journal, February, 1905.

⁵ Archiv für Verdauungs-Krankheiten, Vol. x, No. 4.

¹ Rusaki Vrach, January 15, 1905.

² Journal of Medical Research, February, 1905.

³ California State Journal of Medicine, 1904, II, 303.

⁴ St. Paul Medical Journal, January, 1905.

thinks that while it is true that a tuberculosis of ureter and bladder can heal if the kidney alone is excised, it is nevertheless best that a markedly diseased ureter should be removed. He describes a case in which he first did a nephrotomy, making a four-inch incision an inch below and parallel to the twelfth rib, beginning just outside the sacrolumbalis muscle. A silver probe was passed into the ureter through an incision in the convex border of the kidney, and left there for a week, the abdominal wound being closed to an inch. The left kidney being active, the right kidney and ureter at the end of a week were excised. An incision a little over an inch was made in the right vaginal vault over the region of the ureter, which could be felt. After freeing, a blunt hook was introduced over it, and it was dissected out of the bladder wall. Its end was caught and the bladder wall sutured with catgut. The lumbar incision was extended to five and a half inches. The kidney was freed and the ureter dissected out with the fingers for a considerable distance. The kidney was drawn outside the wound, still attached to the ureter. The fingers of the two hands worked from above and below about the ureter till they met, the assistant pulling alternately on the kidney and the string attached to the lower end of the ureter. A small drainage-tube was left in the vaginal opening, and another with gauze in the upper wound. By this method there are no sharp instruments working in the dark. In males, a perineal section would be necessary. [H.M.]

Hepatocholelenterostomy.—Enderlen and Zurnstein¹ performed a large number of experiments with a view to making a permanent fistula between the bile passages in the liver substance and the duodenum. They were always unsuccessful, and decided that such a result was impossible, at least unless the bile ducts were dilated much beyond the normal. [T.S.G.]

Pneumococcic Epityphlitis.—Emil Haim² concluded that epityphlitis of pneumococcic origin is a moderately rare disease. It can be clearly differentiated from the epityphlitis of other origin by reason of its clinical symptoms, and particularly by a blood-examination. The treatment consists of an operation at the earliest possible moment. Haim reported two cases in detail, in a girl of 9 and a boy of 14. In both the usual symptoms of appendicitis were present, namely, pain in the right lumbar region, fever, vomiting, and constipation. The severity of the general symptoms was characteristic in both cases, and consisted of apathy and somnolence, and later disorientation. The heart's action was weak, the tongue dry, the pulse rapid, and there was dyspnea. Beside a severe leukocytosis, in which the large nucleated leukocytes preponderated, there was a distinct increase in the fibrin ("fibrinnetzes"). Haim has not seen the condition in any other form of peritonitis, and he claims that it constitutes an important diagnostic sign. [J.H.W.R.]

Traumatic Rupture of a Malarial Spleen.—Fontoynt³ reports the case of a woman of 28, who had been having malarial paroxysms since early youth. While suffering from an attack of this condition she was struck in the side by an automobile and forcibly thrown to the ground. The symptoms of shock and internal hemorrhage existing, she was operated on, and the spleen found torn. It was much enlarged, and almost immovable on account of numerous diaphragmatic and other perisplenic adhesions. After ligation of the pedicle it was removed. A portion of the pancreas was also injured and removed. Convalescence was uninterrupted, barring the formation of a pancreatic fistula, which gradually closed of itself, and which was the only sign of reaction on the part of the pancreas. The author believes the patient's recovery due only to the promptness and rapidity with which the operation was performed. For some time after the operation the blood was found to contain a large number of nucleated red blood cells; the leukocytes were also increased in number for some time. The malaria was treated during the convalescence from the injury by means of hypodermic injections of quinin in normal salt solution, and these injections prevented effectively the recurrence of malarial paroxysms. [E.L.]

Transplantation of the Cord in the Radical Cure of Hernia.—F. G. Connell¹ says the objections to transplantation of the cord are: 1. Interference with the circulation of the testicle. 2. Strengthening of the posterior wall at the expense of the anterior. 3. Complexity of the operation. 4. Recurrence. These objections are slight when compared with the value of a cure of the hernia. The question then comes, is it necessary for the cure of hernia to subject the cord to such manipulation that the functional integrity of the testicle may be threatened? If so, the possible danger must be disregarded; if not so, it is certainly far better to leave the cord in its natural position. Connell has operated on 32 patients without transplanting the cord, the internal oblique being sutured to Poupart's ligament according to the Ferguson technic. Of this number, 14 have been traced, two showing recurrences. As one was complicated by an undescended testicle, and the other was operated upon for a recurrence after the Bassini operation, neither is considered an argument against the method preferred by Connell. The great ease and simplicity, with elimination of danger to the testicle, are conspicuous reasons for its further trial. [A.G.E.]

Surgical Treatment of Facial Paralysis.—F. Munch² states that grafting a facial nerve on a neighboring nerve may restore a certain degree of tonus to the facial muscles, and thus in some measure remedy the asymmetry; but it cannot restore spontaneous movement to the facial muscles, while, on the other hand, it often entails inconveniences not devoid of gravity. Moreover, the atrophy of the muscles previously under control of the anastomosed nerve, which is inseparable from the procedure, is an unquestionable evil. Although in some cases the atrophy of the trapezius or semilingual atrophy does not determine grave constitutional embarrassment, in others the results have been disastrous. The inconveniences of facial paralysis are less serious than those caused by the operation for its relief. The hypoglossal facial graft causes less serious troubles than the spinofacial graft. [H.M.]

Technic of Plastic Operations on Nerves.—Hans Spitzzy³ called attention to the fact that two nerves with different relations may be united, a fact proved experimentally, as well as from operations upon man. The hypoglossus and vagus have been grafted successfully. Spitzzy exposed the ischiadic nerve of a dog to its division into the tibial and peroneus nerves. He then cut the peroneus nerve 2 cm. below its origin, and sutured the proximal end to the biceps muscle. The tibial nerve was then incised and the peripheral end of the peroneus was inserted and sutured. Contraction in the extensor muscles could be obtained by a strong current only. At the end of two months the dog began to use the leg, and at the expiration of the fourth month no difference between the leg operated upon and the corresponding leg could be determined. The wound was opened later and the failure of union between the central and peripheral portions was proved. Upon stimulating the ischiadic nerve or the central portion of the tibial nerve there ensued contractions in the peroneus and tibial distributions. Stimulation of the tibial nerve peripherally from the site of operation caused contraction in the musculature of the nerves; while stimulation of the peroneus peripherally from the site of implantation was followed by contractures in the peroneal muscle groups and slightly in the tibial distribution. Stimulation of the tibial nerve central to the site of implantation caused contractions only in the peroneal group of muscles. This demonstrated the transmission of nerve impulses along the new paths. Spitzzy states that (1) a flap with a central base from a healthy nerve may be implanted into a horizontal incision into the affected nerve and sutured; or (2) a flap from the palsied nerve with a peripheral base may be implanted into a healthy nerve. The first method may be used when the paralyzed nerve is near a healthy nerve of less value, so that if its function suffers no great harm may be done. For example, neurotization of the facial nerve with the accessory nerve, or the crural with the obturator nerve. The second method is employed when only similarly important nerves are in the vicinity of the diseased nerve, as in the median, ulnar, radial, tibial and peroneal nerves. To implant a flap from the median

¹ Mittheilungen aus der Grenzgebiete, Vol. xiv, No. 1.

² Wiener medicinische Wochenschrift, 1905, No. 4, p. 82.

³ Bull. et. Mem. de la Soc. de Chir. de Paris, 1905, xxxi, 26.

¹ American Journal of the Medical Sciences, March, 1905.

² Medical Press and Circular, January 18, 1905.

³ Wiener klinische Wochenschrift, No. 3, 1905, p. 67.

into the radial nerve would be risky. Spitzzy uses especially constructed instruments, the object of which is to injure the nerves as little as possible. Plastic operation is indicated when the period of spontaneous regeneration is past, and the palsy persists after other therapeutic measures have been exhausted and other operations such as excision of the scar, primary and secondary suture, and neurolysis have been useless. [J.H.W.R.]

Surgical Treatment of Stomach Trouble and Biliousness.—J. E. Summers¹ uses this title to call attention to the fact that many people are still being treated for indefinite, un-diagnosed conditions. It is possible for the physician or surgeon in most instances of these indefinite ailments to separate between medical and surgical cases, if he takes the time for careful study; if the exact lesion, as gallstones or gastric ulcer, cannot be positively identified, the necessity of surgical interference can at least be made plain in many cases now treated medically until too late for operation to be of benefit. Summers pays high tribute to the physician, and says he should always be associated with the surgeon in deciding for or against an operation; too often the patient's hope is in the surgeon when his safety should have been in his physician. The physician is generally a better all around man than the surgeon, and must protect the patient by his broader knowledge; to do this he must be aware of surgical possibilities in his cases, and not depend upon medicines alone. Waiting too long for so-called positive laboratory findings very often lets pass the time of election for doing the patient most good by operation. Summers cites several cases to illustrate the value of timely surgery in these indefinite digestive disorders. [A.G.E.]

A New Point of View in the Examination of Ether Anesthesia.—Engelhardt,² after performing a series of experiments, states that although he was not able to demonstrate clearly his belief, he is of the opinion that the red blood cells assume an increased resistance to ether just as they protect themselves against other hemolytic agents, such as the toxins of carcinoma. The increased resistance of the red blood cells against the action of the ether and against the lowering of the osmotic pressure, have nothing to do with one another since the action of the ether rests upon a direct chemic change on the superficial membrane, also upon a change which acts directly on semipermeable membrane, which is partially dissolved, but not to such an extent that the hemoglobin escapes to produce a difference in the pressure of the fluids within and without the vessels. Nor is it to be assumed that when destruction of the red cells once begins increasing the molecular concentration of the blood plasma, the difference in the osmotic pressure between the blood plasma and the contained red blood cells will induce a new erythrocytolysis. Koeppe has observed that erythrocytolysis occurs when the number of hemolytic acting OH-ions are increased, a condition seen in etherization asphyxia when the blood contains too much CO₂. The changes incident to etherization are not confined to the blood cells alone but damage is done to the parenchyma of the other vital organs, especially the lungs. Engelhardt holds Gottlieb responsible for the statement that the alteration occurs in the liver only after advanced changes have taken place in the brain. [J.F.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Prevention of Disagreeable Results from Diphtheria Antitoxin.—C. G. Roehr³ says these results are susceptibility to another attack and edema, urticaria and arthritis. By the use of antitoxin we prevent the system forming its own antitoxin, and hence do not gain a permanent immunity. This can be avoided by using the antitoxin in small but repeated doses, enough to check but not abort the disease. This is possible only when the patient is under constant supervision, and even then is dangerous in infants or when the trouble is laryngeal. Urticaria, edema, or arthritis may be surely prevented by

giving the patient large doses of potassium acetate, well diluted, and securing free action of the bowels with low diet. According to the amount of antitoxin used, from 0.3 gm. to 2 gm. (5 gr. to 30 gr.) of potassium acetate in a glass of water is given every hour for two to six days or longer. By this method all disagreeable symptoms may be avoided. This was the case in a boy of 7, to whom was given 68,000 units of diphtheria antitoxin in five and a half days. The action is explained by the remedy favoring elimination which has been overtaken by the foreign serum. [A.G.E.]

Caffein in Hypodermic Injections.—Caffein acts as a general tonic, as a tonic to the heart and as a diuretic. It is indicated in diabetes, against fatigue and overwork, in grave pneumonia of old persons and in all cases of adynamia. Huchard¹ recommends that hypodermic injections should be made deeply in the tissues to avoid abscess and pain. He recommends one of the two following solutions, of which he injects from 4 to 8 syringefuls daily:

1. A weak solution:

Sodium benzoate	3 gm. (45 gr.)
Caffein	2 gm. (30 gr.)
Distilled water	6 gm. (1 1/2 dr.)

Dissolve with heat.

2. Strong solution:

Sodium salicylate	3 gm. (45 gr.)
Caffein	4 gm. (1 dr.)
Distilled water	6 gm. (1 1/2 dr.)

Dissolve with heat. [L.F.A.]

Neuronal in Epilepsy.—P. Rixen² employed neuronal (bromidethylacetamid) in 80 cases of epilepsy because of its high bromin percentage. He gave it in instances of epileptic excitement in doses of 1 gm. to 1.5 gm. (15 gr. to 22 gr.) and always with quiescent results; sleep resulted within a half hour. Postepileptic headache never appeared when neuronal was given; in cases of delirium, 3 gm. to 4 gm. (45 gr. to 60 gr.) kept the patient quieted. The drug had no influence on the severity or number of epileptic attacks. It acted well in nervous dysmenorrhea; no unpleasant after-symptoms were noted at any time. [E.L.]

Relation of Chronicity to Treatment.—S. Solis Cohen³ says that when functional disturbances tend to persist indefinitely—that is to say, in chronic disorders or affections—the expectant plan obviously ceases to be applicable. Natural processes of recovery or adaptation are evidently lacking, insufficient, inappropriate, or disproportionate; and therapeutic intervention is desirable. As a rule, etiologic indications are not present, unless we accept as giving such certain secondary causes more or less imperfectly recognized—as in gouty conditions and in diabetes. Pathologic indications may be clear or obscure; that is to say, the morbid anatomy or the pathologic chemistry may be known or wholly or partially unknown, or, if known, may be beyond correction by means available. In general, the nutritional and other functional indications are those of highest importance in the therapeutic diagnosis. As a rule, the adaptive efforts of the organism are directed toward the maintenance of special function, despite impairment of structure, and toward the maintenance of function in general, despite the impairment of special function. The physician must be similarly guided. The natural and artificial compensations of valvular lesions of the heart offer the most striking and common illustrations. But processes, which, so far as known, nature does not compensate, are to be dealt with on similar lines. For example, in the chronic fibroid changes of bloodvessels, nerves, or viscera, while it would be highly desirable to find means by which integrity of structure could be restored, it would be idle to assert that we now have such means. We therefore endeavor to maintain function in the damaged viscus or tissue, and in the organism at large, notwithstanding the existence and perhaps the progression of the fibroid change. Thus, nitroglycerin, carbonated saline baths, massage, the gentle resistance exercises of the brothers Schott are used to restore the balance of circulation, Turkish baths to

¹ Iowa Medical Journal, February 15, 1905.

² Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiii, 1904, Heft 4 and 5.

³ Chicago Medical Recorder, January 15, 1905.

¹ Bulletin Général de Thérapeutique, Vol. cxlviii, No. 5, 1904, p. 192.

² Münchener medizinische Wochenschrift, 1904, II, 2138.

³ Principles of Therapeutics, Cohen's System, Vol. xi, Blakiston, 1905.

promote elimination, and so on. Concomitantly, however, attention must be directed to the prevention of further changes; regulation of life, correction of diet, perhaps the use of arsenic, of mercury, of gold, of iodids, and application. Moreover, in accordance with the view of modern pathologists, that sclerosis of organs is frequently secondary to destruction of parenchymatous tissue, search is to be made for the cause of the parenchymatous lesion and its removal or neutralization attempted. Treatment of chronic disorders and affections must necessarily be modified with the progress of the case, just as in the expectant treatment of acute diseases, measures are chosen with reference to the existing stage of the morbid process and to the effect of previous treatment. It is to be observed, however, that progress is necessarily slow; that we do not, as a rule, aim to produce sudden changes or violent perturbations; and that hence the line of procedure having been determined with due care, is to be persisted in long enough to demonstrate its worth. Chronic cases necessitate chronic treatment; in their management the physician must emulate that great general who, having deliberately and wisely planned his campaign, replied to objectors discouraged by apparent want of progress: "I'll fight it out on this line if it takes all summer."

The Use of Typhoid Filtrates in the Treatment of Typhoid Fever.—M. W. Richardson¹ has treated 22 cases of typhoid fever with the filtrate of a bouillon culture of the typhoid bacillus, with results that lead him to hope we have in this substance an agent of therapeutic value. Filtrates from cultures grown for six weeks have but little toxic power and produce a certain degree of immunity in healthy subjects. Typhoid patients react, in some instances, quite sharply to injections, because the filtrate presumably destroys typhoid bacilli, and thus liberates intracellular toxins. The best results are obtained in patients not yet beyond the ability to respond to extra stimulation and also able to withstand a temporary hyperintoxication resulting from increased destruction of bacilli. The best conditions are seen in cases of threatened relapse. The value of the treatment can be determined only by its use in a much larger number of cases. In five early cases the disease seems to have been shortened, the temperature becoming normal between the twelfth and twentieth days. [A.G.E.]

Balsam of Peru in the Treatment of Wounds.—In cases of contused, lacerated and badly infected wounds of all parts of the body, F. Burger² has been employing for 12 years and with the best of success Peruvian balsam. He describes his method thus: All large extraneous particles are removed, the wound is cleansed thoroughly with sublimate solution, Peru balsam is dropped into it, and lastly the wound is dressed with gauze soaked with the balsam. The dressings are changed every two to three days; the wound cleans up quickly, granulations are healthy and plentiful and recovery is brought about earlier than with other dressings. Another factor of importance is that the dressings do not adhere to the wound. [E.L.]

Digestants.—W. Carter³ finds that recent pepsin excels all other preparations in the quantity of proteid it will digest and the shortness of the time required. After four months' keeping it deteriorates. For two months it is quite active. Papain is uninfluenced by age, at least up to five and a half years. Oxidizing agents, as potassium permanganate and hydrogen dioxid, seem to hinder or prevent digestion; chlorin water may increase it. Quinin diminishes digestive activity. Antiseptics, as lysol, iodic hydrargyrum, formalin, and alcohol, diminish or stop activity. During digestion mercuric chlorid, chlorin water, and quinin sulfate have no definite power of inhibiting the growth or killing *B. typhosus*, while hydrogen dioxid, lysol, and formalin render the flasks quite sterile, killing the organism. [H.M.]

Treatment of Rheumatoid Arthritis.—John Orr,⁴ during the past 10 years, has treated a number of cases by the method instituted by the late Dr. Balfour, and believes it should be more widely known. This treatment falls under three heads: (1) Diet; (2) internal medication; (3) counterirritation. The object aimed at in the first is to give a diet which is easily

digested and assimilated and not likely to cause gastric or intestinal fermentation; all red meats are to be abolished. Internal medication consists in the exhibition of arsenic and iron in small doses during three weeks of every month. Codliver oil is beneficial when well borne. Counterirritation is best carried out by means of blisters. Each large joint has applied to it a blister every 7 or 10 days, each time in a different site. This treatment should be conscientiously pursued for 2 or 3, or even more years. Other remedial agents are of value in relieving intercurrent symptoms, but are never curative. As a result of his experience, Dr. Orr approaches a case of rheumatoid arthritis not with a feeling of helplessness, but with the belief that in many cases a considerable amount of good can be done in the way of alleviating suffering, preventing deformity, restoring the use of limbs, or even effecting a cure. [A.G.E.]

Successful Treatment of Foreign Bodies which had been Swallowed by the Internal Administration of Cotton Wool.—W. B. Bell¹ reports two cases, in which he gave a small handful of absorbent cotton mixed with the food. When the baby pin and brass knob were evacuated, they were packed in the wool. The knob lay several days in the stomach before the wool was administered. [H.M.]

The Treatment of Sciatica by Injection of Beta-eucain.—After discussing the various methods of treatment in vogue for sciatica, J. Lange² reports a method devised by him after the infiltration method of Schleich, and employed by him in 12 inveterate cases. The needle is inserted at the point of exit of the nerve through the great sciatic foramen, which corresponds to a point of tenderness; the patient experiences no pain while it passes through skin and muscle, but as soon as the nerve sheath is touched pain like an electric shock flies through the entire limb; it lasts but a moment, as the infiltration begins at once. He injects from 70 cc. to 100 cc. (in one case even 150 cc.) of a solution of beta-eucain, 1 to 1,000, and sodium chlorid, 8 to 1,000; this is easily sterilized, and possesses but little toxicity. The sciatic pain disappears almost at once, as the injection is made into the nerve itself. The patient is told not to lie upon the painful side for a few hours, and for several days the point of injection is tender to touch. In a few cases slight symptoms of intoxication appeared and lasted a short time; there was slight nausea, loss of taste, and slight rise of temperature; no alarming symptoms were noted in any case. Seven of his patients were cured, 4 were markedly improved, and in but 1 was the treatment a total failure. In some of them two injections became necessary. In all recoveries the results were permanent. The cause of the betterment the author finds more in the infiltration and overfilling with blood than in the eucain, which he says stays there but a few moments. [E.L.]

FORMULAS, ORIGINAL AND SELECTED.

Tooth Wash.³—

Thymol	0.5 gm. ($\frac{7}{16}$ gr.)
Sodium borate	5.0 gm. (75 gr.)
Carbolic acid	2.0 gm. (30 gr.)
Rose water	200.0 gm. (7 oz.)
Essence of peppermint	15.0 gm. ($\frac{3}{4}$ dr.)
Boiled water	300.0 gm. (9 oz.)

S.—Several drops to a glass of water. [E.L.]

Treatment of Acne.⁴—The following preparation should be applied to the face every evening by means of a brush:

Precipitated sulfur . . . . .	.25 gm. (6 dr.)
Glycerin . . . . .	.20 gm. (5 dr.)
Mix in a mortar and add:	
Spirit of camphor . . . . .	.30 gm. (1 oz.)

In very rebellious cases, this mixture may be replaced by the following paste recommended by Tassar:

Powdered white chalk . . . . .	.1 gm. (15 gr.)
Camphorated naphthol . . . . .	.4 gr. (1 dr.)
Precipitated sulfur . . . . .	.5 gm. (75 gr.)
Green soap . . . . .	.3 gm. (45 gr.)
Vaselin . . . . .	.4 gm. (1 dr.)

This should be left in place for only a quarter of an hour. The face should then be washed and dried and finally dusted with finely-powdered starch. [L.F.A.]

¹ Journal of Medical Research, February, 1905.

² Münchener medizinische Wochenschrift, 1904, II, 2139.

³ Liverpool Medico-Chirurgical Journal, January, 1905.

⁴ The Practitioner, February, 1905.

¹ Liverpool Medico-Chirurgical Journal, January, 1905.

² Münchener medizinische Wochenschrift, 1904, II, 2325.

³ Bulletin Général de Thérapeutique, 1904, cxlviii, p. 400.

⁴ Bulletin Général de Thérapeutique, Vol. cxlviii, No. 10, 1904, p. 400.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 18.

MAY 6, 1905.

\$5.00 YEARLY.

Recent life insurance scandals are of considerable importance to physicians, who, though not connected in any way with the financial side of the matter, are nevertheless reflexly affected through their professional relations with policy holders. It is said that, including all the defaulting companies, for every dollar paid by the insured, but 50 cents are returned to the beneficiaries, who theoretically should receive, on an average, the total premiums paid plus a reasonable interest. It is evident that the profits on the investments do not yield enough to pay the enormous commissions and running expenses. The men who have become wealthy in this business have therefore received money which in all equity should have gone to the bereaved families, even if there has been no diversion of profits from the companies to syndicates of directors and their friends. The sociologic bearings of this matter deserve much more attention than they have hitherto received, and the medical profession, more than any other, is vitally interested in this side of the present deplorable state of affairs.

Life Insurance is at Basis a Sociologic Charity.

—Those who live longer than the average must assist the families of those who die prematurely. Premiums are really based upon the supposition that each of the insured will attain to the average years of life for men of his age at the time of insurance. For every death which occurs before the expected time there is paid out more than is received, and the loss is compensated by the extra income from those who live longer than the expected time. It is an illustration of the great biologic law of "mutual aid," which is of such vast importance in the evolution of all social organisms and of civilization itself. Even self-sacrifice is occasionally demanded, as in war, for in no other way could the organism or nation survive. Nor can any social body survive unless each unit does something for the general welfare. Public duties of the strong for the weak are not myths, but vital realities, and society suffers for every neglect. Men are dependent upon each other, even though they all struggle for existence. Private ownership of insurance companies is, therefore, so unnatural—such a violation of natural law in a cooperative affair—that the present tangle was inevitable. It is as absurd as for one bee to claim the ownership of the hive. It naturally leads to misapplication of funds or worse.

Gambling or speculation enters largely into life insurance, though it is rarely if ever mentioned seriously. The basis of evolution is economy, and the survivors are those who can struggle for existence with the least expenditure. In this respect all animals are alike and take the path of least resistance even if it ends in parasitism. The desire to obtain something for nothing is thus natural, is part and parcel of man's nature, is found in every race from the lowest to the highest and is flippantly called the gambling instinct. It crops out in all lower races, who are gamblers to the last man. Among the higher races, the men of arrested or perverted development and immature boys turn to gambling instinctively like the savage. The tendency to invest a little to reap much for one's family is therefore irresistible and it becomes a powerful weapon in the hands of the skilful agent who rings the changes upon the possibility of early death and the fact that for a small sum the family can be protected from want. Few men can resist such allurements and it is regrettable that this weak side of the mind should be so played upon.

One life insurance evil is the unscrupulous agent who skilfully evokes the emotions of the father of a family to the end that a larger policy is written than can be sustained. In the standard companies lapsed policies are a distinct loss, for their calculations are based upon a continuance of each one, yet it is claimed that as a rule they are a source of great revenue. When it is remembered that a very large percentage of all policies are allowed to lapse—some say 25% or more—it is evident that it is a great evil. In view of the tender nature of the emotions played upon, the natural anxiety for the family's future, it is a grewsome business, to say the least. No safe company will insure anyone for a larger amount than can be kept up by the insured's known income, but there is no way of checking the evil in the case of the poor, who take out small policies. Cannot the examining physician do his share toward correcting the matter in cases when he is certain that there has been undue influence on impressionable people? It surely is a duty he owes to the man and the company, and to society also.

Life insurance without a physician's examination has been repeatedly discussed as a remedy for

fraudulent insurance of the diseased. In this case, the amount paid upon death depends upon the time elapsing since the policy was written. If death occurs soon, the beneficiaries receive but little, perhaps only the payments made, with interest, and there is no loss to the company. After some years there is full insurance. The health of the insured is immaterial to the company, and the only medical problem is an estimate of the length of time after an insurance is contracted that it is safe to presume that the insured, if still alive, can be considered to have been healthy at the time of insurance. After this time the company can apply the ordinary tables of life expectancy. Such a system is at first a mere savings bank and contains no mutual aid feature. It is therefore unnatural and can never become a prominent part of the business. Civilization cannot tolerate a cooperative system which is purely selfish. When there is in any habit the happy combination of helping others while ostensibly helping one's self, it survives in any social organism, and upon this natural law has grown the tremendous institution of life insurance in its present form.

Great Ability is a Sociologic Necessity in Life Insurance.—Proper management of the immense capital requires aptitude which few possess and to secure these exceptional men the insured must pay high salaries because the modern competition by corporations for such rare men is very keen. Hence the managers must receive as great an income as they would obtain if in business for themselves. This great expense is a necessary drain upon the policy holders who, being devoid of such ability, really gain greater profits than if they invested their funds individually. It is the same law of mutual aid. It is said that 97% of all business enterprises fail through incapacity of their projectors, and insurance companies managed by cheap men generally fail. Governments are notoriously poor in business enterprises, as they are organized for the opposite purpose—spending money collected from the wealth producers, so that it is probable that life insurance never will and never should become a function of government. Nevertheless, as it is really a part of our civilization, it must be regulated to prevent the evil conditions now being brought to public notice. Policy holders are, without doubt, the brain and brawn of the nation—the prudent, stable and healthy—the very ones to be preserved, and the medical profession is vitally interested in all means which promote the welfare of this class and safeguard the families of those whom accident removes prematurely.

The study of medical history has been taken up in earnest by German physicians, and in our country there is a praiseworthy awakening as to its value. The work done at Johns Hopkins is followed by the noteworthy establishment of a section on medical history by the College of Physicians of Philadelphia, the first meeting of which was held April 24, with the presentation of the admirable paper by Dr. Jacobi which appears in this issue. In praise of these movements are a hundred facts and arguments. We have long been turning out young

men from our medical colleges without giving them a slightest glimpse of the historic origins and relations of their science. There are a thousand eponymic terms, the names of the organs and parts of the body, of operations, diseases, tests, signs, symptoms, etc., they should know if they know anything of medicine, and yet of these historic men themselves, of their relations to their own times, and of the position in which they stood to the rest of medical science and history, and to general biology and literature—of such things these young graduates knew nothing. In this our medical colleges have been guilty of a profound failure in duty. One cannot grasp his present-day knowledge and use it intelligently and adequately, unless he knows what led up to it. Whither his art is tending can only be foreseen by a study of the past. And while he receives his degree and license to practise, the graduates' science has to some extent become history, an outlived and transformed science. There would not be the strange persistence of prejudice, the foolish ignoring of new discoveries, the everlasting rediscovery of old but unknown truth, if the student had been made conversant with the long, involved, but enheartening and illuminating story of the groping after, and at last the finding of the knowledge we prize so highly. That prized acquirement would then be recognized as only a half truth at last, the point of departure for other, and still better knowledge.

The Pneumonia Season.—The end of the pneumonia season is at hand. In the mortality tables of the two chief American cities, pneumonia has for three successive years scored above the record long held by tuberculosis. New York has a special pneumonia commission which must report before the autumn campaign begins. Chicago has made resistance against the disease by keeping the people constantly admonished about the propagation of respiratory diseases in general. In both cities the story of the figures is believed, and pneumonia is hailed as the new "captain of the men of death." The agents of death appear to have been realigned in such a way as to vastly increase the effectiveness of pneumonia without markedly diminishing the effectiveness of the former champion, pulmonary tuberculosis. Tuberculosis is still credited with more than 10% of the total mortality, while pneumonia, formerly credited with 6% or 7%, now claims over 18% of the total mortality. The two diseases which formerly scored together about 17%, now score over 28% of the total mortality. Other diseases have steadily grown in importance during the same period, notably cancer and Bright's disease. Meanwhile the general deathrates have not increased, but on the contrary, have diminished, in New York slightly, and in Chicago very markedly. But the figures do not show what items of the mortality account have diminished at such a rate as to give this story consistency. The infant mortality of both cities has lessened, and in Chicago, deaths from external violence have diminished. The saving of infants, resulting in an absolute gain, is not considered by the authorities of either city to have been largely compensated by an increased mortality from pneumonia in

the period of infancy. The gains in the account of violence are not large enough and their course is too irregular to materially profit the pneumonia account. No other falling accounts are attracting much attention. Conceivably the many agents of death, if able to plan their campaign, might distribute the lessened efficiency of their majority so as to bring forward a new champion, without revealing other changes in the general alignment. Sentient cleverness would be required to rearrange the men of death in such a way as to proclaim a new champion without disturbing the general death-rates and without producing glaring alterations in other items of the mortality account. Of those causes of death which we are accustomed to watch, but one, tuberculosis, could possibly spare enough victims to swell pneumonia to its present apparent importance. But tuberculosis has not shrunk to any such proportions. The other agencies of this class, if they combined to make way for the great increase of pneumonia, would display their shrinkage obtrusively. Since no very striking gains are pointed out among the items which we habitually watch, and since compensatory changes are necessary to the consistency of the statistical showing, the suspicion arises that the compensatory changes are to be found in those parts of the mortality account which we do not scrutinize.

The Medical Diversity and Statistical Unity of Pneumonia.—Examining the nosologic classification commonly used for statistical purposes one finds that out of its 179 separate titles, 34 are evidently intended as waste baskets for the causes of death, which are either numerically unimportant or very vaguely certified; 22 titles are waste baskets for assembling rare causes of death under anatomic heads, as eye, ear, nose, thyroid, urethra, prostate, spleen, etc.; five titles refer to diseases nonexistent in the United States; seven other titles refer to diseases causing no mortality in New York or Chicago; 21 titles refer to deaths by violence and may be counted as one title; 10 titles given to tuberculosis, seven to cancer, eight to the puerperal state, may be counted as one each, or four titles in all. Of the 179 titles, only 69, therefore, imply more or less pathologic distinction. Of these 69, however, very few possess both the definiteness and importance one might hope to reach by this process of analysis. Tetanus stands for a very definite but not important cause of death; pulmonary tuberculosis stands for both definiteness and importance; pneumonia for numeric importance, but for no more definiteness than is implied by the title dropsy or encephalitis. Dropsy, indeed, includes causes of death, which, with respectable diagnosis, would be distributed to four definite titles; pneumonia, partly for want of diagnosis, partly through careless certification, and possibly through erroneous registration, includes no less than ten distinct causes of death, each capable of correct diagnosis, accurate certification, and separate statistical statement. Why a term of such conglomerate medical significance should be treated as a statistical unit is a puzzling question to mere medical men. Explanation has more than once been asked for, but it does not appear that statisticians have ever thought of pneumonia other-

wise than as a pathologic unit. In all the official publications of New York and Chicago on the subject but one reference is made to the "pneumonias." This plural form occurs in a very recent Chicago bulletin, and it does not appear to be a printer's error. The situation in New York and Chicago is fairly analogous to that of a sick person whose physician has pronounced a diagnosis of anemia. An unenlightened patient may be satisfied with such a diagnosis, but every physician knows that it expresses a very little knowledge and a very large ignorance concerning the nature of the existing disease. So in the case of a sick city, the statement that pneumonia is increasing, given without any particulars of the alleged increase, displays but a superficial acquaintance with an important phase of the city's health. Arrived at by inspection of gross mortality rates and ratios, the opinion has about the same scientific value as a curbstone diagnosis of anemia. If pneumonia has risen to the foremost place among causes of death, while general death-rates have fallen, and while the absolute efficiency of other familiar agents of death has not been strikingly diminished, then pneumonia has established some very remarkable relations. The particulars of these relations are necessary data of the hygienic problem, and so long as the data do not include such particulars it is open to the many observers who prefer the negative side of all questions to say that pneumonia has not increased.

The New Harvard Medical School.—The *Popular Science Monthly* for May, 1905, has an article giving the details of the new buildings and equipment that are approaching completion for this the second oldest medical school in the country. The work upon the new buildings was begun in September, 1903, and they will not be completed until near the close of the present year, so that they will not be ready for occupancy until the fall term of 1906. Altogether, two millions of dollars is being spent on the new buildings, most of the money, by the way, coming from New York. Special care has been taken that the wings of the present buildings may be capable of facile extension, so that ultimately the various departments may have, if desired, three times the working capacity that is now being provided for. This is, perhaps, the first time that this much farsightedness has been exhibited in the erection of buildings for any educational purpose, and it is refreshing to think of it as part of a medical college plan. As might be expected from the wellknown thoroughness of Harvard's methods, the arrangements for the practical and laboratory teaching of medicine are to be as perfect as the ideas of the present generation can well make them. In this matter, expense has been no object, and the one idea has always been to secure what was best and most suitable.

The hospital connections that will form so important an auxiliary in the teaching of medicine, will undoubtedly be the most interesting feature of the new medical school. When the grounds for the new site were purchased, enough land was secured to permit the erection of a number of hospital buildings adjacent to

the medical school structures. Appreciating the advantages that would surely accrue from adjacency to and more or less intimate connection with the Harvard Medical School, the trustees of a number of Boston hospital foundations have availed themselves of the opportunity offered by the University, and have secured building sites in the vicinity of the medical school. These trustees have signified the intention of giving every advantage possible in the carrying on of the humane work of medical teaching. Among the most important of these hospital foundations is the new Brigham Hospital, with a fund of about \$5,000,000. The trustees of this fund have signified their intention of purchasing 10 acres of the Harvard Medical School grounds as a site for their proposed building. This is not to interfere with the absolute independence of the hospital, and there is to be no formal alliance. It is rightly considered, however, that cooperation will mean much to the new hospital, as well as to the Harvard Medical School. The new Boston Children's Hospital has a location on the grounds just west of the medical school buildings, and the Thomas Morgan Rotch Infants' Hospital is to have a site on the grounds. Not far away, the new building of the Samaritan Hospital is now well on in course of construction, having been commenced last May. With all of these hospitals in the neighborhood presided over by trustees, who are in thorough sympathy, the Harvard Medical School will have the best hospital connections of any medical school in America. We add our congratulations on this consummation, and hope for the new school the success that its wise planners have merited for it.

Organization in Scientific Research.—While there is so much to be deprecated in municipal and in State government in many parts of the United States, there are departments of our national government that stand as models of their kind for the world. This is so true that now when the problem of the organization of work for scientific research has become so prominent, the model of how that work can be accomplished, the exemplar of what has been done and the stimulus for unceasing efforts to secure such organization is to be found in the work that has been accomplished under governmental supervision by such departments as the United States Geological Survey, the United States Marine-Hospital Service, and certain bureaus of the Department of Agriculture. These, with the additional lesson that is to be learned from the astronomers of the country, are held up in the May number of the *Popular Science Monthly* by Professor E. Ritter of the University of California as "splendid instrumentalities of research that are getting right at the kernel of the question of organization and other sciences should be profiting more than they are by the example." Professor Ritter suggests that each university, in addition to its teaching, should take upon itself the carrying out of some special form of research for which its situation or some circumstance connected with its location, or the organization of its faculty fits it. In order to accomplish this purpose, such a department would have to employ something more than the specialists in the regular branches. A

department of geology, for instance, beside the ordinary teaching staff, would contain for the special need of the investigation, persons belonging primarily to other fields of science and to other university departments. There would be no reason why these should not be members of other universities at the same time. There would be need for a chemist and a paleontologist and these might be employed for the special service, though still belonging to their respective departments.

Labor-saving organization is undoubtedly needed for research work, for it is becoming more and more obvious that in some of the sciences, continued progress, particularly in certain directions, calls for the helping hand of workmen whose training and interests are not primarily in the science directly concerned, but in neighboring sciences. It is no longer possible for an investigator engaged upon some of the problems of science, however broad and clever be his training in other sciences than his own, to use the tools borrowed from other fields with real effectiveness in his own field. There must then be a solidarity among scientific workers that will at the same time prevent the useless repetition of observations being made over and over again and save time and labor by coordination of energy. Whether this organization in scientific research will come in our day or not remains to be seen, because of the independent spirit of the various educational institutions. There are some hopeful signs on the horizon, however, and the recent announcement that even certain of the German universities are willing to send professors to give occasional courses to America and receive American professors in return shows how the wind of the spirit is blowing in this important matter of reciprocity in educational work.

The Origin, not the Survival of the Fittest.—As Professor Cope insisted many years ago, in his "Factors of Organic Evolution," it is not the survival of the fittest that is the most important problem in evolution, since it may be presumed that the fittest will survive, but it is how did the fittest originate. It is this old-time problem that has become acute in recent years, because of the recognition of the value of the work done by Mendel in Austria and its confirmation by DeVries and others in more recent times. In an article in the *Popular Science Monthly* for May, on "The Origin of Species through Selection, Contrasted with Their Origin through the Appearance of Definite Variations," Professor Thomas Hunt Morgan, formerly of Bryn Mawr, but now of Columbia University, New York, calls attention particularly to the failure of Darwinism in this matter and the supreme value of Mendel's work. In explaining the influence of natural selection, it has been the custom to say that by adaptation animals acquired qualities which enabled them to survive. It was this adaptation to their surroundings for survival that actually enabled them to outstrip others in the struggle for existence. Professor Morgan points out, however, that certain adaptations may be more perfect than survival requires. This shows at once that the force at work producing the adaptation in question

was not merely natural selection and the exigencies of the struggle for existence, but some already existent force in the animal tending to produce in it the qualities in question. As Professor Morgan says:

It is a wellknown fact that through use, many, perhaps all, parts of the body are capable of doing more than they are called upon to do during the ordinary life of the individual. The muscles, through practice, not only become larger and stronger, but can even be educated to do more rapid work, as seen in the fingers of the skilled pianist. The sensation of touch can be made more perfect through practice. The skin thickens wherever continued pressure is brought to bear on it. The bones will change their form and even make new sockets under suitable conditions. The walls of the bloodvessels become thicker if more blood is thrown into the blood channels. These are typic examples of what the body is capable of doing, and the responses in each case are obviously to the advantage of the individual. What is the meaning of this power to do more than the ordinary requirements of life demand? . . . In other directions also we find an apparently superfluous perfection of development. It is improbable that the extraordinary adjustments of which the eye is capable have all been acquired little by little through a life and death struggle. The eye is, however, such an important organ for the welfare of the individual that it is hard to demonstrate positively that each stage was not of great use, but for the ear it seems improbable that its perfection in certain respects could have been of vital importance for the maintenance of the race.

This superfluous perfection exemplified in the symmetry of plants and in the exact resemblance between the right and left sides of the animal body is so much more perfect than competition requires that even enthusiastic followers of Darwin have not always attributed it to natural selection, but have appealed to certain "laws of growth." Now, these laws of growth represent just the innate tendency of the individual to grow in certain ways and assume the fundamental problem of the whole matter. Questions of the same kind come up with regard to coloration. While color may have much to do with the preservation of the individual animal, there is no doubt that its beautiful distribution and the regularity and gradation of colors that exists is far beyond what could possibly be accounted for as a protective quality or whose origin could be found in any mere possibility of selection with regard to survival without the innate tendency to produce beautiful color effects that is so characteristic of many animals. Professor Morgan therefore considers that we are beginning to see the process of evolution in a new light. Nature makes new species outright. Some of these new species manage to find a place where they survive. "From this point of view the process of evolution appears in a more kindly light than when we imagine that success or survival is only attained through the destruction of all rivals." "Evolution is not a war of all against all, but is then a creation of new types for the unoccupied or poorly occupied places in nature." In Professor Morgan's opinion, then, it appears that new species are born; they are not made by Darwinian methods, and the theory of natural selection has nothing to do with the origin of species, but with the survival of already formed species. The primary problem is the problem of origin. The central idea is not what species survive, but how species originate, no matter whether they are going to become victorious or not. While he does not yield to

any one in admiration for what Darwin has done in behalf of the biologic sciences, he considers that this should not blind us to the insufficiency of the theory of natural selection to account for the origin of species.

The Canteen Problem to be Solved Rightly.—

The pros and cons of the army canteen question have so often been stated, particularly by those who know not whereof they speak, that the subject has become well worn. The latest news from Washington is that the War Department is to settle the matter largely upon the evidence of those who alone are qualified intelligently to discuss it. According to the *Army and Navy Register*, a circular has been sent out to army officers calling for unbiased and colorless statements of facts in relation to the post exchange canteen. This is the proper way to arrive at a sane conclusion, instead of being vacillated by persons who, on theoretic grounds, may be right in their contention, but who do not know the conditions governing the thing against which they inveigh. Army officers are familiar with what they have to contend in the way of enforcing discipline among the troops. If that discipline is rendered easier to maintain and morality is conserved by the canteen, as compared with conditions now existing, then the canteen should be restored. The question appears to be narrowed down to a choice between two evils; we trust the inquiry now under way will show plainly which is the least.

AMERICAN NEWS AND NOTES

GENERAL.

Miscellaneous.—The Naval Medical School, at Washington, opened its postgraduate or summer course April 28 for those medical officers who have been in the service more than three years; in other words, for those who have not been graduated from the naval medical school.—**Memorial to Dr. Drown:** It is stated that Lehigh University proposes to erect a memorial hall to cost \$80,000 to the memory of Thomas Messenger Drown, the late president of the university.

Personal.—Colonel Valery Havard, of the medical department of the army, has arrived in Washington. He has been on duty in Manchuria as military observer, and is one of the two American officers captured at Mukden by the Japanese. He will make a full report of his observations. **Captain Thomas W. Jackson** will deliver the annual course of lectures on Tropic Medicine at Jefferson College, Philadelphia. **Wilfrid Grenfell in Toronto.**—Wilfrid Grenfell, the young English medical man who has made it his life work to administer to the fisherfolk of Newfoundland and Labrador, has been visiting the United States and Canada, endeavoring to interest philanthropists in his mission, and is now in Toronto. He gives an interesting account of the work done in the three hospitals he has established along the coast, and of the hospital ship donated for the work by Lord Strathcona. The territory in which Grenfell and his colleagues work covers over 2,000 miles of the coast, and 2,000 people are treated every year. The hospitals are wooden structures, and that they are not of the modern variety is attested by the fact that a patient had his ear frozen while lying in bed last winter. Two specialists have agreed to sail with Grenfell this year and assist him in his work.—**L. Pierce Clark**, of New York, has been appointed consulting neurologist at the Craig Colony for Epileptics.—**Rochester:** **Louis A. Weigel**, who was severely burned by continuous exposure to röntgen rays, has returned from Jamaica and will resume practice. He suffered amputation of the right hand and part of the left.

The Interurban Clinical Club was organized at the Johns Hopkins Hospital, Baltimore, April 28, by the following six representatives from each of four cities—Baltimore, Philadelphia, New York and Boston—who responded to an invitation extended to them by Osler: Llewellys F. Barker, William S. Thayer, Thomas B. Fletcher, Thomas McCrae, Charles P. Emerson, and Rufus L. Cole, of Baltimore; Alfred Stengel, David L. Edsall, Joseph Sailer, David Riesman, A. O. J. Kelly, and Warfield T. Longcope, of Philadelphia; Walter B. James, Samuel W. Lambert, Charles N. B. Camac, Theodore C. Jane-

way, Lewis A. Conner, and Frank S. Meara, of New York; and Richard C. Cabot, Elliott P. Joslin, Joseph H. Pratt, Frederick T. Lord, Edwin A. Locke, and Wilder Tileston, of Boston. Osler, the father of the club, was elected an honorary member. The objects of the club are to stimulate the study of internal medicine, to promote the scientific investigation of disease, to improve the methods of work and of teaching of the members, and to disseminate a knowledge of the methods of work used in the different cities. Meetings will be held twice a year, in the different cities in rotation, at which there will be demonstrations and discussions, but few formal papers. The next meeting will be held in New York, November 10 and 11, 1905. The following officers were elected: Richard C. Cabot, president; Thomas McCrae, secretary-treasurer; Thomas B. Fletcher, A. O. J. Kelly, Lewis A. Conner, and Elliott P. Joslin, councillors. The following is the program of the meeting held at the Johns Hopkins Hospital, April 28: A general medical clinic, by Osler; exhibition of three cases of Stokes-Adams disease, by Osler; experimental demonstration of heart block (the essential feature of Stokes-Adams disease), by Erlanger (by invitation); influenza infection, by Boggs (by invitation); exhibition of several cases of gout, by T. B. Fletcher. On April 29: A ward visit, by Osler; a discussion of methods of keeping hospital records, by Bloodgood (by invitation), Cullen (by invitation), and McCrae; a description of the methods used in the clinical laboratory, by Emerson; a clinical lecture, by Osler. The club was entertained at dinner by Osler, on Friday evening, April 28.

EASTERN STATES.

An anticigarette crusade is to be started in Holyoke, Mass., by Catholic and Protestant clergy working jointly. The movement is not against the use of tobacco, except as it enters into the manufacture of cigarettes. It is proposed to ask every clergyman of every denomination in the city to use his influence against the habit in his own parish. The crusade will be conducted primarily upon physiologic grounds, the moral right of grown men and women to smoke cigarettes being conceded a matter for each to determine. The Massachusetts statutes forbid the sale of cigarettes to children under 16, and a fund will be raised for the rigid enforcement of the law. Leading tobaccoists have promised to cooperate in the movement, so far as it relates to the sale of cigarettes to minors.

NEW YORK AND VICINITY.

Physician's Information in Cases of Minors.—Governor Higgins has signed the bill amending the code of civil procedure relative to disclosure of information of physicians and nurses by providing that where the patient is a child under 16 years of age the physician or nurse may be required to testify fully in relation to evidence of a crime.

State Hospital Bill Passed.—The Assembly and Senate have passed the bill abolishing the boards of visitation for State hospitals, and restoring the board of managers which Governor Odell had abolished. Each hospital now will be under the control of a board of managers. They are to be appointed by the Governor and each is to consist of seven members, two of whom shall be women. Each board shall take care of the general interests of its hospital, according to its own rules, and may investigate charges against its own employees. The bill goes to the Governor for signature.

Meningitis Waning.—Deaths from cerebrospinal meningitis in New York City for last week numbered 87, compared with 76 for the same week of 1904. There has been a steady decline in the number of deaths from this disease in the last five weeks. In the last week of March there were 131 deaths from meningitis, while in the four weeks in April the deaths ran, week by week, 120, 117, 104, and 87. The total deaths from meningitis in the first four months of 1905 have been 1,120. Deaths from pneumonia in the week ended Saturday noon numbered 245. There were 213 from the same cause in the corresponding week of 1904. The deathrate of New York for April, as announced by the Department of Health, was 21.62 per 1,000. For the corresponding month of last year it was 22.23 per 1,000.

PHILADELPHIA, PENNSYLVANIA, ETC.

The Oleo Law is Constitutional.—The Supreme Court has affirmed the finding of the Superior Court in the case of the Commonwealth against Philip E. Caulfield. In Blair county Caulfield was convicted of selling oleomargarin colored so as to look like butter.

The new State Department of Health created by the bill which was signed last week goes into full effect as soon as the Governor appoints the Commissioner of Health. The new Department of Health will be always "in session," while the old board met but twice a year, except when special sessions were called. The real warden of the public health under the old system was the secretary of the board. It was the duty of the board to investigate and report, to gather and disseminate information, but with very little authority to act. It is made the duty of the new Commissioner of Health not simply to investigate and disseminate information, but "to protect the health of the people of the State and to determine and employ the most efficient and practical means for the prevention and suppression of disease."

Pure Food Legislation.—Governor Pennypacker has affirmed the act regulating the manufacture and sale of fruit syrups. The act seeks to prevent adulteration or use of preservatives in syrups. Under it a fine of not less than \$60 or more than \$100, or imprisonment not exceeding 60 days, or both, is imposed on violations. Any person is deemed a violator who sells or has in his possession for sale any fruit syrup containing formaldehyd, sulfurous acid or sulfites, boric acid or borates, salicylic acid or salicylates, saccharin, dulcin, glucin, bela, naphthol, azaristol, asapol, fluorids, fluoroborates, fluosilicates, or other fluorin compounds, also all coal tar dyes, sulfate of copper, and all other coloring matter injurious to health. The bill is the outcome of the raids made by the Pure Food Department on soda fountains in Philadelphia and other cities.

WESTERN STATES.

Epidemic Diseases Increase in Kansas.—According to reports for the month of March, there is an increase in epidemic contagious diseases throughout Kansas, particularly smallpox. The State Board of Health urges a thorough disinfection of infected districts, so that the epidemic may be under control before the return of cold weather.

Cerebrospinal Meningitis in the West.—Five deaths from spinal meningitis within two weeks, and reports of two other persons suffering from the disease, have aroused the health board of Galesburg, Ill., to activity in coping with a threatened epidemic. The second death in Sheboygan, Wis., from spinal meningitis occurred last week.

Chicago Health Conditions.—Pulmonary tuberculosis was the cause of 78 deaths reported to the health department last week, and pneumonia was the cause of 72. Total deaths from all causes were 558, against 643 for the corresponding week last year. Only 2 deaths from smallpox were reported. Between November 1, 1904, and April 22, 1905, a total of 2,489 deaths was reported from pneumonia and 1,588 from pulmonary tuberculosis—these figures showing 556 fewer pneumonia and 75 more tuberculosis deaths than for the previous corresponding pneumonia season, when the totals were 3,045 pneumonia and 1,513 tuberculosis deaths. Except for the almost epidemic prevalence of measles and whoopingcough, heretofore noted, public health conditions are unusually satisfactory for the season of the year. The deathrate per 1,000 population last week was 14.56, against 17.41 for the corresponding week last year.

FOREIGN NEWS AND NOTES

GENERAL.

Plague's Ravages in Chile.—The present sanitary condition of the coast of Chile is, in general, very serious. Bubonic plague, which is generally admitted to have existed sporadically for months in various cities and towns in northern Chile, broke out some weeks ago in epidemic form in Pisagua and has practically depopulated that town, such of the inhabitants as were not victims leaving for fear of being attacked. On April 25 it was reported that there were 103 cases of bubonic plague under treatment in Pisagua. The deaths are said to range from 10 to 30 per day, and the authorities were unable to enforce burials. Corpses were thrown into the streets to decompose and spread contagion. But little headway had been made in the fight on the disease, and it looked as if the entire population of that Chilean port might be wiped out by the plague. Many persons had been shot down by the soldiers on guard while attempting to escape from the stricken city. Pisagua has direct train connection with Iquique. On April 27 four cases of bubonic plague were verified and reported in Iquique and cases were also discovered and verified in Chañaral. During the last few days plague has been declared to exist at Mollendo, in Peru, and at Copiapo, in Chile, though its existence in Copiapo was almost immediately denied. A dispatch of April 23 states that there have been no further cases of plague in Valparaiso. On the following day it was reported that the disease was declining in the northern parts of Chile, and that it had completely disappeared from Valparaiso. One dispatch of April 26 states that the government, aroused from inaction by the appearance of some cases in Santiago, the capital, has ordered the disinfection, daily, of all the churches of that city. The same dispatch says that an examination of the blood in the case of the patient who died from suspected plague in Valparaiso revealed the presence of the bacillus of Yersin. The infection of these cities in Chile has apparently been very rapid, as according to reports received from there two months ago there were no cases of this disease in Chile. Now so many places are infected that it is probable that there will be an outbreak of some magnitude. It may, however, be simply a case of recrudescence as the disease has been more or less endemic on the west coast for some years, appearing from time to time in epidemics of more or less severity. It is now, however, very widely distributed, although there is no large number of cases at any one place with the exception of Pisagua. All along the coast smallpox is also uncommonly prevalent. In Valparaiso an unusual number of cases exists and many deaths have occurred.

OBITUARIES.

Charles Smart, aged 64, April 23, at St. Augustine, Fla. He was born at Aberdeen, Scotland, and obtained his medical education at the University of Aberdeen, graduating in 1862. He served with distinction during the Civil war, and was brevetted captain for meritorious services in the field, being the first assistant surgeon in the United States Army to receive that honor. He was promoted to colonel and assistant surgeon-general in 1901. He was a member of the American Medical Association, the Association of United States Military Surgeons, the American Public Health Association, the Loyal Legion, and other scientific and patriotic organizations.

Ernest J. Mellish, aged 44, April 24, at his home in El Paso, Texas, from tuberculous meningitis. He was a graduate of Rush Medical College, Chicago, in 1886. He was formerly instructor of surgery at the Rush Medical College; surgeon to the Union Hospital, and attending assistant gynecologist at St. Joseph's Hospital, Chicago. He was a member of the American Medical Association, American Association for the Advancement of Science, Cook County Hospital Alumni Association, State Medical Association of Texas, El Paso County Medical Society, and many other medical societies.

William Edwards, aged 49, of Kalamazoo, Mich., April 26, at the University Hospital, Ann Arbor, from heart trouble. He was a graduate of the University of Michigan, medical department, in 1884. He was a member of the medical staff of the Michigan Asylum. In 1903 he was a delegate from the American Medical and Psychological Association to a convention of alienists in London. He was the originator of many of the modern methods of treating insane patients.

Charles M. Taylor, aged 72, April 15, formerly of South Bend, Ark., at his home in Little Rock, Ark. He was a graduate of the Transylvania University, medical department, Lexington, Ky., in 1858. He served as surgeon and assistant surgeon-general in the Confederate service during the Civil war, and was assistant superintendent of the Kentucky State Asylum.

William Wallace Burns, aged 83, April 18, from senile debility, at his home in Polo, Ill. He was graduated from the University of Louisville, medical department, in 1843. He served as a commissioned surgeon in both the Mexican and Civil wars, and was one of the oldest practitioners of northern Illinois. He was a member of the American Medical Association.

Patrick J. Lynch, aged 76, April 21, at his home in New York City. He was a graduate of the University of the City of New York in 1857. He was a member of the American Medical Association, New York State Medical Association, New York County Medical Association, New York Academy of Medicine, and many other local associations.

John H. Hinton, aged 78, April 26, at his home in New York. He was a graduate of the College of Physicians and Surgeons, New York, in 1852. He served as surgeon in the army during the Civil war. He was a member of the New York Academy of Medicine, the American Geographical Society and many scientific societies.

J. Howard Pugh, aged 78, May 1, at his home in Burlington, N. J. He was a graduate of the medical department of the University of Pennsylvania in 1852. He served as physician at the United States General Hospital at Beverly during the Civil war. He was a member of the Burlington County Medical Society.

J. Wadsworth Terry, aged 71, April 10, at his home in Englewood, N. J. He was a graduate of the medical institution of Yale College, New Haven, Conn., in 1862. He served as surgeon during the Civil war; was a member of the American Medical Association, and of the Medical Society of the State of New Jersey.

A. L. Brown, aged 42, April 22, from pleural pneumonia, at his home in Springfield, Mass. He graduated from the academic and medical departments of the Howard University at Washington, D. C. He was a member of the Springfield Board of Health and was the only negro physician in Springfield.

Julius Adolph Nordbrock, aged 37, April 26, at his home in Brooklyn. He was a graduate of Columbia College, and was visiting physician to the Manhattan Dispensary and Hospital. He was a member of Kings County Medical Society.

James J. Glittenan, aged 62, April 20, of Chicago, in Alexian Brothers' Hospital in that city. He was a graduate of Cincinnati College of Medicine and Surgery in 1867. He was medical inspector of the Department of Health.

J. B. Grady, aged 55, April 30, at his home in Los Angeles, Cal., from apoplexy. He was graduated from the Jefferson Medical College in 1873. During the Civil war he served as surgeon in the Sixth Cavalry.

A. Muckle, aged 75, April 29, at his home in Philadelphia. He graduated from the medical department of the University of Pennsylvania. He was assistant assayer and refiner at the United States Mint.

Willard H. Coffron, aged 44, recently, at his home in Grindstone City, Mich. He was a graduate of the University of Georgetown, medical department, Washington, D. C., in 1888.

Franklin H. Allen, aged 49, April 23, at his home in Haverhill, Mass. He graduated from Bowdoin Medical School in 1877 and also from the University of Michigan.

George William Hays, aged 31, April 6, suddenly, at his home in Highlands, N. C. He studied at the Kentucky Medical College and at the University of Louisville.

William B. Warren, aged 52, April 29, suddenly, at his home in Groton, Mass. He was a graduate of Dartmouth Medical School in 1881.

FOREIGN.—**Edwin Thomas Truman**, aged 86, April 8, at his home in London. **David Smith**, aged 70, April 4, at his home in Glasgow; he was a graduate of the Universities of Glasgow and St. Andrews; for the last twenty years he has devoted his attention to ophthalmology and has contributed to the literature on this subject. **David Steele Moon**, April 8, at his home in Dundee; he received his medical education at the Anderson College, Glasgow; he gave special attention to surgery; he was highly esteemed by his patients and associates. **Paul Garnier**, aged 57, March 20, at his home in Paris; he was medical inspector of the public insane asylums, and official medicolegal expert in the Paris courts; his works on neurology, criminology and pathology were numerous and important. **Ludwig Glaevecke**, aged 50, of Kiel, recently, while on a visit to Rostock; he was titular professor of gynecology in the University of Kiel. **Georg Meissner**, aged 75, March 30, at his home in Göttingen; he was professor of physiology and anatomy at Göttingen, and his name was associated with early investigations of the so-called touch corpuscles and of various phases of the digestion of albumen.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 29, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	Los Angeles.....	Apr. 8-15.....	3	
District of Columbia:	Washington.....	Apr. 15-22.....	2	1
Florida:	Jacksonville.....	Apr. 15-22.....	5	
Illinois:	Chicago.....	Apr. 15-22.....	29	2
	Danville.....	Apr. 15-22.....	2	
Louisiana:	New Orleans.....	Apr. 15-22.....	22	
			4 cases imported	
Michigan:	Detroit.....	Apr. 15-22.....	2	
	Grand Rapids.....	Apr. 15-22.....	9	
Missouri:	St. Joseph.....	Apr. 15-22.....	1	
	St. Louis.....	Apr. 15-22.....	8	2
Ohio:	Toledo.....	Apr. 1-15.....	2	
Pennsylvania:	Lebanon.....	Apr. 15-22.....	3	
	York.....	Apr. 15-22.....	13	
South Carolina:	Charleston.....	Apr. 15-22.....	2	
	Greenville.....	Apr. 8-15.....	1	
Tennessee:	Nashville.....	Apr. 15-22.....	1	
SMALLPOX—INSULAR.				
Philippine Islands:	Manila.....	Mar. 4-11.....	1	
SMALLPOX—FOREIGN.				
Brazil:	Pernambuco.....	Mar. 1-15.....	181	
	Rio de Janeiro.....	Mar. 26-Apr. 2.....	16	7
Chile:	At many ports.....	Mar. 31.....	Present	
China:	Shanghai.....	Mar. 4-11.....		
			2 cases, foreigners; 3 deaths, natives	
Colombia:	Cartagena.....	Mar. 26-Apr. 1.....	1	1
France:	Nantes.....	Mar. 18-Apr. 8.....	42	8
	Paris.....	Mar. 18-Apr. 8.....	41	8
Great Britain:	Birmingham.....	Apr. 1-8.....	1	
	Bradford.....	Mar. 25-Apr. 8.....	19	1
	Cardiff.....	Apr. 1-8.....	1	
	Hull.....	Mar. 25-Apr. 1.....	1	1
	Leeds.....	Apr. 1-15.....	3	
	Leith.....	Apr. 1-8.....	1	
	London.....	Mar. 25-Apr. 1.....	2	
	Southampton.....	Apr. 1-8.....	2	1
	South Shields.....	Apr. 1-8.....	5	1
India:	Bombay.....	Mar. 21-28.....	127	
	Calcutta.....	Mar. 18-25.....	7	
	Karachi.....	Mar. 19-26.....	8	8
Malta:	Christania.....	Mar. 25-Apr. 1.....	1	1
Norway:	Christiania.....	Apr. 1-8.....	2	
Russia:	Odesa.....	Mar. 25-Apr. 8.....	18	2
	St. Petersburg.....	Mar. 18-Apr. 1.....	8	6
	Warsaw.....	Jan. 28-Feb. 11.....	4	
Turkey:	Constantinople.....	Mar. 19-Apr. 9.....	4	
YELLOW FEVER.				
Brazil:	Rio de Janeiro.....	Mar. 26-Apr. 2.....	13	5
Mexico:	Coatzacoalcas.....	Mar. 18-Apr. 8.....	3	1
	Tehuantepec.....	Apr. 9-15.....	1	
CHOLERA.				
China:	Tientsin.....	Mar. 4-11.....	1	1
India:	Bombay.....	Mar. 21-25.....	1	
	Calcutta.....	Mar. 18-25.....	68	
PLAGUE—INSULAR.				
Philippine Islands:	Manila.....	Mar. 4-11.....	2	3
PLAGUE—FOREIGN.				
Africa (British):	Cape Colony.....	Mar. 11-18.....	2	2
	Uganda.....	Feb. 11.....	25	
Arabia:	Aden.....	Mar. 24-31.....	83	32
Australia:	Brisbane.....	Feb. 18-Mar. 11.....	4	8
Chile:	Arica.....	Mar. 31.....	2	2
	Pisagua.....	Mar. 31.....	150	
			Many deaths	

India:	(General).....	Mar. 11-18.....	47602	42088
Bombay	Mar. 21-28.....		652	
Calcutta.....	Mar. 18-25.....		570	
Karachi.....	Mar. 8-25.....		140	127
Peru:	Arequipa.....	Mar. 3.....	Reported	
	Chiclayo.....	Mar. 19-26.....	12	9
	Eten.....	Mar. 19-26.....		1
	Lambayeque.....	Mar. 19-26.....	3	1
	Huanchaco.....	Mar. 19-26.....		1
	Chepen.....	Mar. 19-26.....		1
	San Pablo.....	Mar. 19-26.....	1	1
	Mollendo.....	Mar. 19-26.....	24	3
	Lima.....	Mar. 19-26.....	2	
Straits Settlements:	Singapore.....	Feb. 25-Mar. 4....		1

Changes in the Medical Corps of the U. S. Army for the week ended April 29, 1905:

ROBERTS, ERNEST E., contract surgeon, is granted leave for three months, with permission to visit the United States. He will report on the transport scheduled to leave for the United States May 15, for duty en route to San Francisco, Cal., where upon arrival, he will report to the commanding general, department of California, and take advantage of the leave granted.

THOMAS, WILLIAM H., sergeant first class, Calaoag, Tayabas, is relieved from duty at his present station and will be sent to Cottabato, Mindanao, for duty.

O'CONNOR, First Lieutenant RODERIC P., assistant surgeon is relieved from duty in the office of the chief surgeon, department of Luzon, and as attending surgeon, headquarters, department of Luzon, and is assigned to duty as surgeon on the transport Sherman.

CHAMBERLAIN, Captain WESTON P., assistant surgeon, is relieved from duty at Camp Gregg, Pangasinan, and will report for assignment to duty in command of the Convalescent Hospital, Corregidor Island.

HANSEN, MORRIS J., contract surgeon, will proceed to Zamboanga, Mindanao, for assignment to duty.

DAVIS, Lieutenant Colonel WILLIAM B., deputy surgeon-general, having arrived on the transport Sherman, will report to the commanding general, department of the Visayas, for assignment to duty as chief surgeon of that department.

LAMKIN, EDWARD E., contract surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Mindanao, for assignment to duty.

GUITTARD, ALVIN M., contract surgeon, having arrived on the transport Sherman, will report to the commanding general, department of the Visayas, for assignment to duty.

HESS, JOHN H., examining and supervising contract dental surgeon, having arrived on the transport Sherman, will report to the commanding general, department of Mindanao, for assignment to duty in charge of Dental Base Station No. 3, Zamboanga, Mindanao, relieving Contract Dental Surgeon John A. McAllister.

MORRIS, Major EDWARD R., surgeon, is granted leave for two months, with permission to visit China and Japan, effective about April 25.

KOEFER, First Lieutenant CONRAD E., assistant surgeon, is granted leave for one month, with permission to visit Japan, effective about April 15.

MCCOWN, THOMAS B., contract surgeon, now at Fort William McKinley, Rizal, will proceed to Calamba, Laguna, for duty, relieving First Lieutenant Edwin D. Kilbourne, who will proceed to Cuartel Meisic, for duty.

SPRINGWATER, SAMUEL A., contract surgeon, now at Malate Barracks, will proceed to Pasay Garrison for temporary duty, during the absence of First Lieutenant James M. Phalen, and upon completion of this duty will return to his proper station.

BANTA, First Lieutenant WILLIAM P., assistant surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

O'CONNOR, First Lieutenant RODERIC P., assistant surgeon, will report to the commanding officer, transport Ingalls, for temporary duty as surgeon, that transport.

HOGUE, GUSTAVUS I., contract surgeon, is relieved from duty at Fort McDowell and will report at depot of Recruits and Casuals, Angel Island, Cal., for duty.

PROBERT, MERTON A., contract surgeon, leave granted for ten days is extended twenty days.

YOST, First Lieutenant JOHN D., assistant surgeon, will proceed from Honolulu, H. T., to San Francisco, Cal., on the transport sailing from Manila about May 15, and report to Lieutenant Colonel George H. Torney deputy surgeon-general, president of the examining board at the General Hospital, Presidio, San Francisco, for examination for advancement to the rank of captain, and upon the completion of his examination will return to his station at Honolulu on the transport sailing from San Francisco about June 30.

SILL, HARRY A., sergeant first class, Springfield, Armory, Mass., so much of orders as direct that he will be sent to San Juan, P. R., are revoked.

He will be discharged from the army to enable him to enter the Soldiers' Home, Washington, D. C.

So much of paragraph 10, S. O. 63, March 18, 1905, W. D., as relates to First Lieutenant Henry L. Brown, is revoked. Lieutenant Brown will when able to perform duty, proceed to Fort Myer and report to the commanding officer of the first squadron, Seventh Cavalry, for duty to accompany that squadron to the Philippine Islands. Upon arrival at Manila Lieutenant Brown will report to the commanding general, Philippines Division, for assignment to duty.

CRAIG, First Lieutenant CHARLES F., is relieved from duty at the General Hospital, Presidio of San Francisco, to take effect upon the next arrival of the transport Logan at San Francisco, and is assigned to duty as surgeon of that transport during its next voyage to the Philippine Islands, relieving First Lieutenant Sanford H. Wadhams. Upon arrival at Manila Lieutenant Craig will report to the commanding general, Philippines Division, for assignment to duty. Lieutenant Wadhams will report by telegraph to the secretary of the army for further orders.

RICHARDSON, WILLIAM H., contract surgeon, will proceed from Cleveland, Ohio, to Fort Sheridan for duty.

SCOTT, First Lieutenant GEORGE H., assistant surgeon, will proceed to Pasay Garrison, Manila, for duty, relieving Contract Surgeon Edward Bailey, who will return to his proper station, Cuartel de Espana, Manila.

MORRIS, First Lieutenant SAMUEL J., assistant surgeon, now at Camp Gregg, Pangasinan, will proceed to Fort William McKinley, Rizal, for duty.

TALBOTT, First Lieutenant EDWARD M., assistant surgeon, now at Fort William McKinley, Rizal, will proceed to Manila, P. I., and report to the chief surgeon of the department of Luzon, for duty in his office and as attending surgeon, headquarters, department of Luzon.

STRAUB, Captain PAUL F., assistant surgeon, will report to the chairman of the Isthmian Canal Commission, for duty with the commission.

MABRY, WILLIAM C., contract surgeon, is granted leave for one month, to take effect upon his arrival at his home.

WILLIAMS, First Lieutenant ALLIE W., assistant surgeon, will proceed to Fort Hamilton to accompany troops going to the artillery district of the Chesapeake, for temporary duty at Fort Monroe in connection with the joint Army and Navy exercises. Lieutenant Williams will return with the troops to Fort Hamilton and thereafter rejoin his station.

ROBERTS, First Lieutenant WILLIAM, assistant surgeon, will proceed to Fort Greble, for temporary duty during the absence of First Lieutenant Allie W. Williams, assistant surgeon, at the joint Army and Navy exercises. Upon the return of Lieutenant Williams to Fort Greble, Lieutenant Roberts will rejoin his proper station—Fort Hamilton.

BUSHNELL, Major GEORGE, surgeon, is detailed to represent the medical department of the army at the meeting of the National Association for the Study and Prevention of Tuberculosis to be held in Washington, D. C., May 18 and 19.

REYNOLDS, Major FREDERICK P., surgeon, is relieved from duty at the Presidio of San Francisco, to take effect about August 1, and will then proceed to Fort W. H. Seward, Alaska, for duty, relieving Captain Jere B. Clayton, assistant surgeon. Captain Clayton will proceed to Seattle, Wash., and report by telegraph to the military secretary of the army for further orders.

ROCKHILL, First Lieutenant EDWARD P., assistant surgeon, is relieved from duty at the Presidio of San Francisco, and upon the expiration of his present leave will proceed to Fort Wingate for duty, relieving Captain Frederick F. Russell, assistant surgeon. Captain Russell will proceed to the Presidio of San Francisco for duty.

CHIDESTER, First Lieutenant WALTER C., assistant surgeon, is granted leave for two months, to take effect when in the opinion of the commanding general, department of the Columbia, his services can be spared.

EDWARDS, First Lieutenant JAMES F., assistant surgeon, is granted leave for two months, to take effect August 1, provided his services can at that time be spared by his department commander.

HUTTON, First Lieutenant PAUL C., assistant surgeon, leave granted April 18 is extended one month.

The following named contract surgeons, having completed the course of instruction at the Army Medical School, will proceed to the places designated after their respective names, and report to the surgeon-general of the army for annulment of contract: Earl H. Bruns, Brookville, Ind.; William C. Duncan, Franklin, Ky.; Herbert C. Gibner, Bridgeport, Conn.

BROWN, First Lieutenant HENRY L., assistant surgeon, is granted leave for fourteen days on surgeon's certificate, from about April 25.

LIVINGSTON, WILLIAM C., sergeant first class, will be sent from Fort Douglas to Fort Riley for duty.

BEALE, GEORGES E., sergeant first class, will be sent from Fort Sam Houston to San Juan, P. R., for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended April 29, 1905:

URIE, J. F., surgeon, ordered to the Pennsylvania, April 25—April 21.

BELL, W. L., passed assistant surgeon, ordered to the Naval Hospital, Mare Island, Cal., for treatment—April 21.

MANCHESTER, J. D., assistant surgeon, detached from the Petrel when put out of commission, and ordered to the Princeton—April 21.

GARTON, W. M., passed assistant surgeon, ordered to Washington, D. C., and to report to the surgeon-general April 29, for a course of instruction at the Naval Museum of Hygiene and Medical School—April 25.

FURDON, F. M., passed assistant surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, April 29, and ordered to report to the surgeon-general for course of instruction at the Naval Museum of Hygiene and Medical School—April 25.

DESSEZ, P. T., assistant surgeon, when discharged from treatment at the Naval Hospital, Norfolk, Va., granted sick leave for two months—April 27.

REYNOLDS, C. F., pharmacist, detached from the Hancock, April 29, and ordered to the Navy Yard, Mare Island, Cal., for duty in the medicine and surgery storehouse of that yard—April 22.

Changes in the Public Health and Marine-Hospital Service for the week ended April 26 1905:

SAWTELLE, H. W., surgeon, to report at Washington, D. C., for special temporary duty—April 20, 1905.

CUMMING, H. S., passed assistant surgeon, leave of absence for ten days granted by bureau letter of April 10, revoked—April 25, 1905.

BILLINGS, W. C., passed assistant surgeon, to proceed to Quebec, Canada, for duty in office of United States Commissioner of Immigration—April 20, 1905.

FRANCIS, EDWARD, assistant surgeon, to proceed to Missoula, Montana, for special temporary duty—April 22, 1905.

BURKHALTER, J. T., assistant surgeon, granted leave of absence for three days from April 27—April 21, 1905.

TRASK, J. W., assistant surgeon, assigned as chief of Miscellaneous Division in the Bureau, Washington, D. C.—April 22, 1905.

SMITH, F. C., assistant surgeon, granted leave of absence for seven days from April 22, 1905, under paragraph 191 of the regulations.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for four days from April 25—April 21, 1905.

RICE, W. E., acting assistant surgeon, granted leave of absence for fourteen days from May 1—April 24, 1905.

Promotion.

McKAY, MALCOLM, pharmacist of the second class, promoted to the grade of pharmacist of the first class, effective January 8, 1905—April 22, 1905.

Board Convened.

Board convened to meet at Port Townsend, Washington, April 27, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon D. E. Robinson, recorder.

ORIGINAL ARTICLES

THE METHODS OF INDUCING LABOR.¹

BY

B. C. HIRST, M.D.

of Philadelphia.

Since de Ribes advocated the use of his bag for inducing labor it has been a disputed point whether the older plan by bougies or the newer one by the inelastic bag in the lower uterine segment is preferable. We have given both methods an extensive trial with the result that we find the bougie method the easier for the patient and operator, and if it is properly used, about as efficient as the bag.

The following statistics are mainly from the University Hospital. They by no means represent my total experience, as many private cases and other hospital services are omitted, but the number is sufficient to draw conclusions from and the addition of the omitted cases would not materially alter the percentages. Labor induced by bougies alone, 174; by bags alone, 23; by bougies and bags, 11; by bougies followed by Bossi's dilator, 7; by bougies followed by vaginal hysterotomy (misnamed vaginal cesarean section), 2; making a total of 217 patients operated on.

A brief statistical review of the cases gives the following results:

Induced Labors by Bougies Alone, 174.—The child was born in less than 6 hours after the introduction of the bougies in 8 cases; between 6 and 12 hours in 23; between 12 and 18 hours in 33; between 18 and 24 hours in 15; between 24 and 30 hours in 11; between 30 and 36 hours in 23; between 36 and 42 hours in 11; between 42 and 60 hours in 12, and in more than 60 hours in 2, the longest time recorded being 92 hours. There were 36 cases in which the time was not recorded. In 81% of 138 cases, therefore, the child was born in less than 36 hours from the time the bougies were introduced.

Induced Labors by Bags Alone, 23.—The child was born in less than 6 hours after the insertion of the bags in two cases; between 6 and 12 hours in 3; between 12 and 18 hours in 3; between 18 and 24 hours in 7; between 24 and 36 hours in 0; between 36 and 42 hours in 1; between 42 and 60 hours in 2; over 60 hours, 1. The longest time recorded was 91 hours. In 5 cases the time was not noted. The delivery was accomplished under 36 hours in 83%.

In the labors induced by bougies and bags, 11 in number, the time required was considerably over 24 hours in all, because that much time was allowed the bougies before bags were used. In one of these cases 96 hours were required, and even then, in spite of the fact that the full-sized Champetier de Ribes bag passed spontaneously out of the cervix, there were no pains, and the fetus was extracted from the uterus by its foot.

In the cases in which Bossi's dilator was used or vaginal hysterotomy was performed, delivery was naturally promptly concluded.

In selecting a method of inducing labor, the physician considers the patient, and secondarily himself. For the patient, he desires the method that will cause the minimum of discomfort and risk. For himself, he desires a method that will give him the least trouble and take the least time. The bougie method, in our experience, best meets these requirements. In private practice, before leaving his office the physician puts two bougies, size 17, French, in a long glass tube, filled with water, into which a mercuric chlorid tablet is dropped. The tube is corked. By the time he arrives at the patient's house, the bougies are sterile. An operative nurse is sent ahead to arrange the patient and get the materials ready to scrub the vagina. When the doctor arrives, all he has to do is to cleanse his hands, don his

sterile gloves, scrub the vagina, rinse the bougies in sterile water, anoint them with carbolated vaselin, and insert them in the uterus, the whole process taking less than 15 minutes. Before the bougies are put in, one or two fingers should be inserted through the cervical canal and swept around the lower uterine segment, to separate the membranes. A small tampon of iodoform gauze is placed in the vagina after the bougies are inserted. The physician then takes his departure, being notified when the labor pains become strong and active. He makes no examination, and does not remove the vaginal packing or the bougies till expulsive pains begin. He simply devotes the time and attention required in an ordinary labor case, plus about 15 minutes or less, for the insertion of the bougies. The patient has to endure the usual suffering of an ordinary labor, plus the scrubbing of the vagina. She does not feel the introduction of the bougies. In more than four-fifths of the cases, she is delivered easily after a labor of average length. Any more complicated or more active treatment to bring on the labor, would have been unnecessary. In many instances, patients respond extraordinarily well to this simple plan. In 64 out of 138 cases, the child was born in less than 18 hours from the time the bougies were inserted.

Contrast the bag method with the bougies. The bags must be boiled. Their insertion is usually painful. If a large one is used, preliminary instrumental dilation of the cervix is required, for which the patient ought to be anesthetized. After the insertion, it is customary to have the nurse pull on the tube attached to the bag every 10 or 15 minutes; this, with the pressure of a large foreign body in the lower uterine segment adds to the pains of labor. The physician usually makes frequent examinations to be sure that the bag has not been expelled from the uterus and to detect the degree of dilation of the os, thus increasing the risk of infection. The bags do not remain sterile. The Voorhees bags, commonly used in America, quickly become foul. The nurse has pulled the bag out prematurely or has pulled the tubing off the bag in some of my cases, necessitating a reinsertion; and in one case a head presentation was converted into a shoulder presentation by the largest-sized Voorhees bag. Finally, in about a fifth of the cases, or in about the same proportion as with the bougies, delivery is not secured in 36 hours, and something else must be done. This suggests the question how to manage an induced labor if the bougies or bags fail. My present preference is to insert two bougies and wait 24 hours; if there are no labor pains by that time, there is, at least, always a marked softening and elasticity of the cervix. The patient may then be anesthetized and placed on an operating table. With Bossi's dilator the cervical canal is dilated slowly to 6 cm. or 7 cm. Up to this point there is no danger of injuring the cervix. A forceps is then applied and the child extracted, the whole process taking about 35 minutes. I have induced labor by this plan seven times. The woman suffers nothing at all in her labor. She has not felt labor pains and knows nothing about the delivery. If there is a moderate laceration of the cervix or pelvic floor, the injuries are repaired in the puerperium and there are no permanent ill-consequences. There is no reason for the prejudice against Bossi's dilator, exhibited usually by those who have had no experience with it. I have used the instrument altogether 25 times, 19 times for accouchement forcé. The only serious lacerations of the cervix have occurred in women delivered in less than 12 minutes. At first the instrument was used in this way for desperate cases of eclampsia. Even in them there was no dangerous laceration. With a slow dilation, 20 minutes or more, up to 6 cm. or 7 cm., there is not much more danger of lacerated cervix than in the average labor.

If the cervix is not easily dilated with Bossi's dilator after the bougies have been in place 24 hours, a slow

¹ Read before the Philadelphia Obstetrical Society, March, 1905.

dilation with bags, or a rapid delivery by hysterotomy is available.

Dr. Richard C. Norris' proposition, like all the suggestions of this experienced and successful specialist, deserves careful attention. It is to dilate the cervix up to 7 cm. with an improved and modified Gau's dilator, then to insert bougies and the largest sized Voorhees bag partially filled with water. But even with this combination of all the plans of inducing labor, an apathetic uterus demands operative delivery in addition, just as it does with bougies alone, bags alone, or both together, and in four-fifths of the cases bougies alone would be enough without the extra trouble and discomfort entailed by the other methods. Nevertheless, Norris' technic is an excellent one and will often be useful, especially in cases at a distance, where the consultant will be detained until the labor is over.

ADULTERATION OF DRUGS.¹

BY

H. W. WILEY, M.D.,
of Washington, D. C.,

Chief of the Department of Agriculture, Bureau of Chemistry.

One of the most promising signs of the times, not only in medical circles, but in public opinion, is the growing feeling that all kinds of adulteration and deception should be abolished. It may be true, as Barnum once said, that "the American people love to be humbugged." But humbugging is a deception which we calmly invite. We are perfectly willing to go to the theater and pay to see an exhibition of sleight of hand, knowing all the time that everything we see is merely a trick which the performer is able to turn. This, however, would be quite a different thing from anyone seriously attempting to deceive the public into the belief that he possessed supernatural powers. If we buy from a faker on the street a magic razor strop or grease eradicator, we have no right to be disappointed when we find how wofully we have been deceived, but when we go into a reputable business house, to have some spurious article pawned off upon us for genuine, we have just cause for complaint.

He who follows the misleading and deceptive advertisements which appear even in reputable journals and magazines, has no cause to feel aggrieved in purchasing a proprietary remedy which cures every ill to which flesh is heir and prolongs life to such a degree that the Millennium seems only a mere possibility, but when he goes into a reputable drug store with a physician's prescription and carries away an article entirely different in its nature from that prescribed, he then has a just cause to feel outraged.

The adulteration of drugs rests practically upon the same foundation as the adulteration of foods, namely, the desire to secure money under false pretenses. The primary object of adulterating drugs is not to work an injury upon the physician nor upon the patient, but to secure a profit on sales, which it would appear could not be had by dealing in the genuine article. It is probable that the extent of drug adulteration is greater than is commonly supposed. You have doubtless all read of the trials which have been made in Chicago and other cities by testing a large number of prescriptions and the materials with which they are filled. The fact has been revealed that the prescription itself has been sometimes adulterated—that is, the physician has not asked for what he meant to get. Carelessness on the part of writing prescriptions, however, grave as it is, does not properly fall within the scope of the present discussion. I, however, would like to say just one word in this connection, which carries me back to almost the first paper

I ever presented to any scientific body, namely, the desirability of substituting a simpler form of nomenclature in prescription writing. In 1873, thirty-two years ago, I presented to the American Medical Association at its Portland, Maine, meeting, a paper entitled—"The Introduction of the Metric System into Medicine." It is not my purpose here even to summarize this paper, nor to call attention to the fact that since that time immense progress has been made along the line which was then stated. I only mention the matter in order to accentuate the opportunity which the medical and pharmaceutical profession has of relegating to the scrap heap the old system of prescription writing, and substituting therefor the metric system, which, for simplicity, ease of reading, and freedom from mistakes, must commend itself to every interested party. The fact, however, that properly written prescriptions may result in a concoction of a remedy which is very much different from that required, is a matter that cannot be ignored.

It hardly seems necessary before this body to go into details respecting the methods of drug adulteration. They consist, first, of substitution, that is, providing an article entirely different from that which is prescribed, or an article which may resemble the one called for in many of its physical, chemical, and therapeutic properties. An illustration of this may be found in using acetanilide instead of phenacetine. These two bodies have, in some respects, the same remedial action, and they are sufficiently alike in their physical properties to escape detection by the eye. The cost of the first is very much less than the other, and the temptation, therefore, to substitute is very great. The substitution, however, may be only partial, that is, a small part of the material which should be really present in the drug is there, but not in the quantities prescribed by the pharmacopeia. This is often the case with crude drugs, as, for instance, it is well known that opium varies in its content of alkaloid, some containing more than the standard requires and some less. The second method of drug adulteration consists in the degradation of the drug in some way by adding a cheaper material or extracting a valuable one, so that in the end its properties are impaired. This form of adulteration, as it is seen, is also a kind of substitution, although in this substitution no attempt is made to use an article of therapeutic value. The mixing of inert substances with a drug would constitute an adulteration of this kind. We are all well acquainted with such a form of adulteration, which is practiced very largely with cream of tartar. You need only consult the records of investigations of various State Boards of Health that have charge of the adulteration of foods and drugs, to see how largely such an adulteration is practiced.

We should not lose sight of the fact here that many drugs, properly so called, are sold directly to the consumer without passing in any way under the inspection of the physician. There are dozens of articles of this kind whose properties are so well known that they are bought directly by the consumer for remedial effect or for other uses. In other words, the druggist keeps on sale a large quantity of material which is either used by other dealers for foods or other purposes, or is purchased directly from the druggist for use in foods or as medicines. Among these I would refer practically to the whole list of alcoholic beverages. Malt extract, which is a form of beer, and beer itself, and ale, wine of all descriptions, and distilled spirits of every character are parts of the permanent armament of the druggist. In these matters we have a very extensive adulteration practiced and to this practice the attention of the public, the pharmacist and the physician should be called. If there is any article which more than another demands purity, it is the one which is used sometimes as a drug and sometimes as a food or beverage.

This kind of drug adulteration may be included under the general term "misbranded." In regard to the malt extracts, beers, and alcohols, perhaps little need

¹ Presented to the American Therapeutic Association at the annual meeting held in Philadelphia, May 5, 1905.

be said, because the practice of misbranding is not so extensive with such goods, except in this respect—I do not see why an ordinary beer, that is, an alcoholic beverage made from malt, should be called malt extract. It seems to me the term "malt extract" should be confined not to the idea of an extract from the pharmaceutical point of view, that is, a tincture made with alcohol, but to an extract obtained through water. Now, a malt extract in this sense would be the substances in malt soluble in dilute alcohol, and these, as is well known, are chiefly maltose or sugar of some kind. Mixed with these also would be a greater or less quantity of diastase, itself the active enzyme which produces the hydrolysis of starch. It is evident that in some forms of indigestion, particularly those which are due to the diminished activity of the amylolytic ferments, the exhibition of a malt extract made with water might prove highly beneficial, whereas the exhibition of alcoholic beverages might not only be not indicated but really injurious. If malt extract is nothing more than fermented malt, it ought to be called beer. At any rate there should be some standard of composition so that the physician and pharmacist and the consumer might know the character of the article.

When it comes to wines and distilled spirits, the case is quite different. Here misbranding is rampant and when combined as it is with other forms of adulteration, it may, in cases of diminished functional activity, cause serious, if not fatal, injury. The wine which the druggist keeps and which the physician procures should be what the name indicates, namely, the pure fermented juice of the grape. Perhaps if the druggist himself knew how rarely he dealt in an article of this kind, he would be astounded. It might as well be known that large quantities of the wines which are offered for sale are made only in part from the grape. Even the alcohol which they contain is often obtained in part from added sugar. But wine is not valued alone for its alcohol. In fact, I am inclined to believe that that is the least valuable part of the wine from the medical point of view. It is not alone the alcohol which the physician wants to give his patient, but the other substances which are so characteristic of wine, and which are produced along with the fermentation of the grape, namely, tannin, tartaric acid, glycerin, ether, aldehydes, salts and coloring matters. There are numerous bodies which go to make up the non-alcoholic part of wines, and these, too, in no inconsiderable quantity of the total non-aqueous portion of the wine. Ordinary sound wine will contain say, 8% of alcohol and from 3% to 4% of other substances, mentioned above, and from 88% to 90% of water. The ports, sherries, sweet wines and other forms of wine which are so often prescribed by physicians, are practically all, to a certain extent, artificial bodies, that is, they are not the pure, untreated juice of the grape. I am inclined to the belief that a turning on the part of the druggist and the physician to the use of pure wine would be on the whole distinctly advantageous to the patient.

Distilled beverages have even a worse character than that which I have given to the promiscuous wines of the drug store. It is a rare thing, indeed, to find one that is true to name. How many druggists, for instance, deal only in pure whiskey, that is, the genuine, straight article, distilled from the fermented mash of cereals in which the starch has been converted into sugar by the action of malt, and stored a sufficient length of time in wood to ripen properly? How many of the brandies which you will find on the shelves of our drug stores today are distilled from pure, sound wine, and this distillate kept in wood a proper length of time for ageing? So great has the adulteration in brandies become that the French Government has attempted to eradicate it, and has just introduced a system of official certificates of the character of the brandy manufactured. They have, for instance, a special "white" certificate, in effect from

last year, to cover the genuine brandy distilled, under the supervision of the Government, from wine. In addition to this, they have a "yellow" certificate, which they give to brandies which have been stored in warehouses and which the Government believes to have been distilled alone from wine. This yellow certificate is to cover distillations prior to 1903.

The brandies of commerce, as can be easily seen by consulting the decisions of the English courts of the last few months, are fearfully and wonderfully made and are found almost free from association with the grape itself. But why should we continue illustrations? We all realize that there is a great feeling of suspicion regarding drug adulteration, and it is the duty of the pharmaceutical profession to free itself from this suspicion. Every pharmacist should be taught the necessity of honor and honesty in his dealings, and be advised to purchase and to sell only pure and unadulterated materials of which his stock should be composed. This is a reformation which ought to come from within the profession and not to be forced upon it from without by the indignant, outraged consumer. Happily, in this profession in our own country, we have all the elements necessary to wholly eradicate this evil. We have the splendid training which our therapeutic colleges and schools are giving; we have splendid material—earnest and capable young men, to take this training, and we have in our commerce the free and untrammelled right to deal only in what is best and to sell only what is pure and unadulterated.

THE COMBINED OPERATION OF ARTHRODESIS AND TRANSPLANTATION OF THE TENDON OF THE EXTENSOR PROPRIUS HALLUCIS FOR THE RELIEF OF FLAT-FOOT.

BY

H. AUGUSTUS WILSON, M.D.,

Senior Orthopedic Surgeon to the Philadelphia General Hospital,

AND

ROSS V. PATTERSON, M.D.,

Resident Physician, Philadelphia General Hospital.
of Philadelphia.

Arthrodesis as an operation for the relief of flat-foot has yielded quite satisfactory results not obtainable by the use of apparatus or other methods previously described. During the latter part of 1904 we employed in the orthopedic department of the Philadelphia General Hospital a modification of Wolf's operation of tendon transplantation in paralytic valgus, combined with arthrodesis as a supplemental means of relieving flat-foot. This procedure has yielded better functional results than is possible by the use of arthrodesis alone. The combined operation, now described for the first time, offers no serious difficulties, the additional damage to the structures of the foot necessitated by this procedure is inconsiderable, the time required for treatment not longer, and the results obtained more certain and satisfactory. It would, therefore, seem well to adopt the combined operation in all suitable cases.

In order to secure the best results, and to be assured of the additional advantages offered by tendon transplantation, careful attention must be given to certain details of the operation and after-treatment. In the first place, before operation the foot must be flexible and easily overcorrected both as to the arch and to the valgus. Forcible manipulation will usually secure this end.

Preliminary examination will show that the muscle and tendon to be transplanted are normal in form and strength and therefore to be relied upon for giving added support to the arch of the foot. Needless to say, careful attention to asepsis is of great importance. Infection will almost certainly be fatal to a proper union of the tendon in its transplanted position, even though a mild infection may not necessarily seriously interfere

with the benefits to be derived from arthrodesis. Hemorrhage, while not severe, should be carefully controlled. The superficial veins to the inner side of the foot are apt to be enlarged and quite numerous, and bleeding from them more severe than would be anticipated in this location. Perhaps the most important requisite of all is that, as in other operations for the transplantation of tendons, the tendon must be united to its new attachment under a proper tension to be assured of subsequent proper muscle action and tone, and therefore, of the greatest possible added support to the arch of the foot. Mechanical loss of power, atrophy, and decreased support will surely follow unless the proper tension is secured. This is not to be construed as meaning tension during the repair of the structures of the foot, but the securing after repair of such tension as is normally found in all healthy muscles, and such as is necessary for their proper function.

The after-treatment requires particularly careful attention. It should be remembered that while a reasonable amount of development of the transplanted muscle may be expected, such result is only to be obtained by gradually increasing the function of that muscle, and therefore it is important to avoid sudden strain and excessive use at the beginning, especially when it is borne in mind that a certain amount of physiologic atrophy follows the decreased function of such muscles during their tenure in plaster-of-paris, if, indeed, some atrophy has not previously arisen from the decreased use of a member rendered painful by an abnormal posture. It is not rational to expect transplanted muscles to do work if that work is thrown upon them suddenly. Increased function will be impossible under such circumstances. Fatigue will cause degeneration, and the muscle will become weaker than before. Function must be brought about gradually and with due regard to the existing conditions. In applying the plaster-of-paris, the foot must be maintained in the proper position, which is described later, and held there until the plaster shall have hardened, not only in order to secure proper approximation of the cut surfaces of the joint, but also to avoid undue tension upon the transplanted tendon until it shall have had sufficient time to unite to the bone and periosteum. This will require from three to four weeks, during which time the foot is to remain undisturbed in the plaster dressing applied at the time of operation.

The operation is performed as follows:

Make a three-inch linear incision, beginning at a point an inch below the base of the internal malleolus and extending forward over the prominence formed by the tubercle of the scaphoid on a line drawn toward the internal surface of the great toe. Control bleeding from the superficial veins, dissect away the soft structures underlying the skin and locate the astragaloscaphoid articulation. This lies just behind the tubercle of the scaphoid bone. Clear the superficial aspect of the joint of its soft structures, and by the use of bone forceps or chisel, open the joint from its internal aspect. With a chisel completely destroy the articulation by removing the articular cartilages and a sufficiently large wedge-shaped piece from either bone, until with accurate approximation the desired arch of the foot is obtained. The normal arch of the foot should be slightly exaggerated. Dissect up the skin above the incision, and locate the tendon of the extensor proprius hallucis. This may be facilitated by alternately flexing and extending the great toe, when the tendon will be found beneath the finger just below the deep fascia. The dorsalis pedis artery lies just without the tendon. Cut through the deep fascia and disengage the tendon from its sheath, and catch with a hook. Perform a subcutaneous tenotomy of this tendon just above the metacarpophalangeal articulation, and draw the tendon out through the first incision. At its end attach a strong silk ligature by means of a clove-hitch. With a bone drill, bore through the scaphoid bone just far enough from the internal superficial aspect to insure an all-bony canal, and at such an angle as will, with the foot in the corrected position, be in line with action of the tendon. This will be found to be at an angle of about $37\frac{1}{2}^\circ$ from the vertical. A convenient form of bone drill to use in this operation will be found to be one having a close fitting tube or canula, which closely follows the point of the drill in its progress through the bone. The drill is withdrawn, leaving the tube in place and the tendon drawn through the tube by means of the previously attached silk ligature. Withdraw the tube, cut off the tendon until an inch projects through the bony

canal, split the tendon, turn the split ends in opposite directions, and sew them to the periosteum on the plantar side of the scaphoid with fine silk, parallel with the line of first incision and at right angles to the direction of the bony canal. During the attachment of the tendon to the periosteum, the foot should be held in the over-corrected position, and while so held, the tendon sewed to the periosteum under very moderate tension. Arrest oozing with hot salt solution, close the incision, make drainage with two or three strands of silkwormgut and apply gauze dressing. Maintain the foot in the over-corrected position while an assistant applies a plaster cast from the toes to well up the leg. The arch of the foot is to be maintained in the improved position, with slight inversion of the front part of the foot until the cast hardens. Make a fenestrum in the cast sufficiently large to observe the incision, through which the usual sterile gauze dressings can be applied. Remove the drainage in 36 hours and the stitches in the usual time. The cast should be removed in four weeks. After removal of the cast, bring about use of the foot gradually. Adopt such gymnastic exercises as will develop the muscles of the foot, and of the extensor proprius hallucis in particular. Massage will be found of service, and the use of electricity will be beneficial.

By this procedure the firmest possible union of the tendon is secured, since a bony canal is obtained in the scaphoid and a periosteal attachment. The function of the transplanted tendon is to give additional increased elastic support to the arch of the foot, overcome the abduction found in flat-foot, and with it the proper correlation of the peronei forces. By its antagonistic action a proper muscle balance and normal muscle tonicity are reestablished between the adductor and abductor groups.

As a flexor of the ankle, adductor of the front of the foot, and inverter of the sole, the action of the extensor proprius hallucis in its transposed position is greatly altered in quality. The gain is one of degree, since as an adductor and inverter of the sole of the foot and a supporter of the arch its power is greatly increased by reason of its more favorable attachment. These functions also belong in greater degree to the tibialis anticus. The function of the extensor proprius hallucis as an extensor of the first and second phalanges of the great toe is, of course, destroyed. This latter function is amply assumed and compensated for by the action of the extensor brevis digitorum, which is attached by its inner tendon to the outer border of the upper surface of the first phalanx of the great toe near its base. There may be temporarily slight inconsiderable toe-drop following the operation until such time as the extensor brevis shall have been educated sufficiently to perform the function of the displaced extensor proprius hallucis. The operation may be performed in substantially the same manner as described with the transplantation of the peroneus brevis instead of the extensor of the great toe.

THE DIET IN TYPHOID FEVER.*

BY

JOHN BENJAMIN NICHOLS, M.D.,
of Washington, D. C.

During the first third of the last century it was the general practice to withhold food in typhoid fever, and practically starve the patients. This practice was based on the antiphlogistic methods then in vogue of treating fever by depleting and lowering the system through free bleeding, purgation, emetics, starvation, etc.

Through the teachings of Robert James Graves, of Dublin, from about 1840 to 1850, the starvation treatment of typhoid fever was abandoned, and the present more liberal dietary came into general use. Graves argued that under the lowering system the "horrible consequences" of starvation were needlessly and injuriously added to the symptoms of the fever itself. So high a value has been set on the reformation of typhoid dietetics brought about by the influence of Graves, that a casual sportive suggestion once made by him that the inscription "He fed fevers" be used as his epitaph, has become historic.

* Read before the Medical Society of the District of Columbia, October 5, 1904.

At the present time the employment of a diet consisting chiefly of milk, the so-called "liquid diet," is all but universal in typhoid therapy. The firmest faith is generally entertained in the adequacy of the milk diet; it is regarded as the limit, the *ne plus ultra* of dietetic possibilities; it is enforced unvaryingly, indiscriminately, and mechanically in all cases of the disease; and the gravest fears are entertained of departures from it or of the use of solid or even of soft food.

There are, nevertheless, not wanting a few who venture to question the entire superiority and efficacy of the present dietetic methods in this disease; some, on the one hand, advocating a return in more or less degree to the old starvation system; others urging a more liberal and more varied diet than that usually given. It is in the thought that there is a possibility that finality has not yet been reached in this matter that this study is presented.

Basic Principles.—At the outset, it is necessary to settle the fundamental question, should typhoid patients be starved, or should they be fed and nourished as liberally as possible? The old antiphlogistic arguments for starvation in fever are now obsolete. The arguments advanced by recent writers against feeding are various. One writer would withhold all food in the early period, in order to arouse the patient's hunger, claiming that when that is evoked the symptoms will subside and the disease can be thus aborted. Another authority advocates withholding proteid food in the early part of the disease, so that, by intensifying proteid starvation, when the capacity for regenerating the nitrogenous tissues returns proteid food will then be taken up with greater avidity, and convalescence proceed more rapidly; forgetting that the less there is lost the less there is to regain.

Several writers urge the withholding of other food and the administration of large amounts of water as practically the sole diet in typhoid fever; they argue that water is the principal element of food, and, citing the experience of Tanner and others who fasted for long periods on nothing but water, they claim from this that water alone is a sufficient diet for typhoid patients. It requires but the slightest consideration to see that such a diet necessarily results in starvation as to the proteid and other essential food elements that are withheld. As for the idea frequently expressed that the feats of Tanner and others can serve in any way as a precedent for the management of typhoid patients, it should be remembered that these fasts were tests of endurance for strong, healthy men, and it would be as reasonable to expect a typhoid patient to undertake them as to engage in a football game or century bicycle run.

Another objection to other food than water is that it affords a culture medium in the bowel for bacterial growth and toxin production; but food always does that, and in typhoid fever the seat of the toxin-generating bacterial growth that does the harm is in the tissues, not in the lumen of the bowel. Even in the fasting condition there is always an abundance of fecal debris in the bowel, derived from intestinal cells and secretions, amply sufficient for bacterial growth. The supposed impairment of the digestive powers, the disadvantage of fermentation, and the possibility of overloading or clogging the circulation with metabolic material, are also advanced as reasons for withholding all food in this disease. Some, seeing the objections to milk, and not conceiving the possibility of giving other articles of diet, would withhold all food except water. It might also be argued that as typhoid fever attacks by preference healthy and robust individuals, the bacilli finding that kind of soil most favorable for their growth, the wasting and enfeebling of the patients is a sort of effort of nature to impoverish the soil so as to stop the growth of the bacilli; and that a starvation regimen would promote that result.

I believe that all these arguments are fallacious, and

that the sweeping condemnation once passed by the entire profession on the starvation system after the practise had been given a universal trial for a third of a century, may be accepted as final. The attempt to revive a practice that belonged to the dark ages of medicine can but be regarded as atavistic. The arguments in favor of liberal feeding are cogent. Insufficient nourishment during so long a period as that covered by typhoid fever will necessarily add the symptoms of starvation to the already bad enough symptoms of the disease, and make the typhoid state far more typhoid. It is plainly advisable to eliminate starvation effects from the symptom-complex. It would also seem reasonable that the maintenance of the patient's strength and nutrition at the highest point possible would increase and promote the resistant, reactive, and recuperative powers of the system against the disease; just as tuberculous and septic patients are now fed to the highest limit as part of the contest against the infectious process.

From these considerations, and others which may appear in the course of this discussion, I adopt in this study as the guiding principle in the dietetic management of typhoid fever the proposition that typhoid-fever patients should be fed and nourished as liberally as is possible, within the limits of their capacity for digestion, and avoiding special harmful effects.

Essential Requirements of Typhoid Diet.—Having formulated this principle for guidance, it next becomes necessary to determine and establish the essential requirements for the diet in typhoid fever. These requirements can be grouped under four heads—nutritive value, digestibility, palatability, and innocuousness.

Nutritive Value.—With regard to the nutritive value requisite in a typhoid diet adequate for proper nutrition, we have to consider the total energy needed and the amounts required of proteid, fat, carbohydrate, and water.

Total Energy.—The physical situation of a typhoid fever patient is the same as that of a person at rest, and we may adopt as the standard of nutrition that of a healthy resting person, with such modifications as are imposed by the conditions of the disease.

The daily metabolism of total energy in a normal adult at rest is about 33 kilocalories per kilogram (15 calories per pound) of body-weight, or about 2,300 calories daily for a person weighing 70 kilos (154 pounds).

Authorities are generally agreed that the energy evolved in fever is somewhat greater than at rest in health, but the amount of excess has not yet been precisely determined. Some recent estimates (on what basis I know not) place the excess at about 500 calories, which would make about 2,800 calories as an approximate estimate of the daily energy output in typhoid fever.

This energy evolved is derived from the katabolism of food and body tissue. Under ideal normal conditions, the energy output of the body is supplied entirely by the food. During the pyrexia of typhoid fever, however, there is necessarily a greater destruction of body tissues than can be made good by the food. It has been found that no matter how much the food is increased, the destruction of body tissue continues to keep in excess; there is a constant balance against the body, which is manifested by the continuous decrease in weight. It should be observed that the energy output of the body is largely an absolute datum, quite independent of the amount of food taken; and if the food is not sufficient to yield all the energy evolved, enough body tissue will be burned in addition to supply the remainder of the energy needed. Under these circumstances, the diet in typhoid fever should obviously be of such amount, other things being equal, as to reduce the inevitable loss of body tissue to the minimum.

A part of the energy output of the typhoid patient will be yielded by this inevitable oxidation of body tissue, and the remainder we must supply by the food. The daily loss of weight of typhoid patients during the

febrile period ranges ordinarily from about 200 gm. to 500 gm. (7 oz. to 16 oz.). This loss comes from the nitrogenous and fatty tissues of the body, with the water associated with these tissues. Water makes up the largest part of the loss, probably about two-thirds. The amount of protein lost by the body can easily be determined by metabolism observations, and with an adequate diet would probably average about 35 gm. daily, or less. This, with the associated water, would account for about 150 gm. of the daily loss of weight. The remaining loss of weight is made up of fat and its associated water. The exact amount of fat is not so easy to determine as that of protein, and there are no exact data on this point for typhoid fever. In simple starvation the ratio of fat to protein lost in three experiments averaged 3.6 to 1. It is believed that in typhoid fever the ratio of fat lost is less than this; and we may tentatively assume the fat lost to be about double the protein, say 70 gm. daily. The daily combustion of 35 gm. of protein and 70 gm. of fat from the body tissues will yield about 800 calories of energy.

Deducting this 800 from the total energy requirement of 2,800 calories leaves us 2,000 calories to be supplied by the food. While there are some uncertain and variable elements in this computation, with our present data we may tentatively accept 2,000 calories as a moderate estimate (subject to future revision) of the daily amount of energy which should be supplied by the diet, to a person of 70 kilos weight, during the febrile period of typhoid fever. During convalescence the requirement is much greater, and the food should then be sufficient not only to yield the 2,300 calories required by the organism at rest, but also to supply the material being stored up in the body tissues.

The energy required can be distributed *ad libitum* among the proteid, carbohydrate, and fatty elements of the food, provided that a certain minimum amount of proteid necessary for nitrogenous metabolism is supplied. The coefficients by which the energy value of the different kinds of food can be computed are, for each gram of

Protein.....	4.1 calories
Carbohydrate.....	4.1 "
Fat.....	9.3 "
Alcohol.....	7.1 "

Proteid.—The nitrogenous equilibrium which the organism tends to maintain in health is profoundly disturbed during typhoid fever. In this condition the destruction of protein and elimination of nitrogen during the pyrexia is practically always much in excess of that introduced in the food; and it is impossible by increasing the nitrogenous elements of the food to make good the deficit and attain a nitrogen balance. This is due to destruction of the protoplasm of the body cells by the typhoid toxins in excess of their capacity for regeneration. Since it is impossible to attain the ideal result of giving a protein ration sufficient to meet the protein loss, it seems obvious that the amount of protein food given should be such as will reduce the drain on the tissue proteids and the net nitrogenous loss to a minimum.

In order to determine this optimum proteid ration and as an exhibit of nitrogenous metabolism in typhoid fever, I have prepared from published reports of metabolism investigations* the accompanying Table I, showing the average daily nitrogenous exchanges during the febrile period of this disease. This table presents the results of 137 metabolism observations, made according to the most accurate and approved methods by 11 different observers, in 73 cases of the disease, and covering a total of about 626 days of investigation.

In this table the observations are classed and averaged in five groups, according to the amount of nitrogen in the daily ration. The figures in the last column show that the daily nitrogen loss, or excess of nitrogen outgo

TABLE I.—AVERAGE DAILY NITROGENOUS METABOLISM AND EXCHANGES DURING THE FEBRILE PERIOD OF TYPHOID FEVER.

Observations in which the amount of nitrogen in the daily ration was	Number of observations.	Nitrogen ingested in food.	Nitrogen in feces.	Nitrogen digested and absorbed.	Percent of food nitrogen digested and absorbed.	Nitrogen excreted in urine.	Nitrogen loss.
Under 5 grams.....	14	Gm. 2.8	Gm. 1.1	Gm. 1.7	60.9	Gm. 13.3	Gm. 11.6
From 5 to under 10 grams.....	69	7.2	1.5	5.7	79.0	14.8	9.1
" 10 " 15 ".....	28	12.1	1.7	10.4	85.8	17.5	7.1
" 15 " 20 ".....	11	17.2	2.0	15.2	88.5	19.4	4.2
20 grams or over.....	15	26.1	4.1	22.0	84.4	29.5	7.5
General average.....	137	10.6	1.8	8.8	82.7	17.2	8.4

over nitrogen income, decreases continuously and markedly from the smallest ration to a ration of 15 gm. to 20 gm., and over that amount again increases. It would therefore appear that a daily ration containing from 15 gm. to 20 gm. of nitrogen, averaging about 17.2 gm., reduces the nitrogen waste to a minimum and would seem the optimum amount for typhoid diet. As proteid or nitrogenous substances contain an average of about 16% of nitrogen, 17.2 gm. of nitrogen would be equivalent to 107.5 gm. of protein.

The amount of protein as thus determined agrees very closely with the amount generally recognized as daily required for the maintenance of nitrogenous metabolism at rest in health, namely, about 1.5 gm. per kilo of body-weight, which, with a person weighing 70 kilos, would amount to 105 gm. of protein daily.

In Table I the figures in the column for nitrogen loss are no mere theoretic abstractions, but represent very obvious and very important clinical conditions, that is, the continuous loss of body-weight. The minimum nitrogen deficit, 4.2 gm., represents the destruction of 26.25 gm. of body protein, or with the associated water, a daily loss of body-weight of about 115 gm. The difference between this smallest nitrogen deficit and that in the next smallest group, 2.9 gm. daily, would mean a daily saving in body-weight of 80 gm. (2 $\frac{3}{4}$ oz.). This is not much for a single day; but continued through the course of the disease it accumulates to a considerable aggregate; and this loss does not include, be it noted, the loss of the comparatively unimportant body fat, but embraces solely the destruction of the far more valuable body protoplasm. Furthermore, the extra weight lost as the result of the difference between the most efficient ration and a less efficient ration is entirely a starvation result and not at all due to the conditions of the disease itself.

On these grounds the ration of protein food which would seem to give the best results in typhoid feeding may be placed at about 100 gm. to 110 gm. (3 $\frac{1}{2}$ oz.) per day for an average sized person.

Fats and Carbohydrates.—As is the case with proteid, there is an excessive destruction of the fatty body tissues in typhoid fever above the power of the food to replace. Exact studies of carbon metabolism in this disease have not yet been found practicable and have not yet been made, so that we have not the same data for determining the ration of fats and carbohydrates that will reduce the body waste to a minimum as we have with protein. We may, however, approach the question in a different way.

The 105 gm. of protein required in the daily diet will yield 430 calories, which, deducted from the total energy required from the food, 2,000 calories, leaves 1,570 calories to be supplied by the fats and carbohydrates. This energy we can divide between these two food elements in any convenient or practicable proportions. We might, for instance, give as much fat (which has the highest energy value) as can be tolerated and well digested, and then make up the remainder of the quota of energy with

*The data are taken chiefly from the abstracts given in Atwater and Langworthy's valuable Digest of Metabolism Experiments.

carbohydrate. Thus, if we give 50 gm. of fat daily (energy value, 465 calories) it would require 270 gm. of carbohydrate to make up the 1,570 calories required; or 75 gm. of fat and 213 gm. of carbohydrate would yield 1,570 calories; and so with other combinations.

The salts required in typhoid diet present no special problem.

Water.—The old fear of water in fever seems to be dispelled, and there is now general agreement as to the advisability in typhoid of giving water in large amount. It is always and constantly an essential element of food. There is a large loss of water from the tissues in typhoid that needs to be replaced. Investigations have shown that the drinking of large amounts of water promotes the digestion and absorption of foodstuffs, especially during the febrile period of typhoid. Ingested cold, it is by some considered antipyretic. It flushes out the bowel, keeps the feces soft, washes out the products of intestinal putrefaction, dilutes the toxic blood, promotes the elimination and excretion of toxins by the kidneys and skin.

About 2 liters to 3 liters (or quarts) of water is generally deemed the proper amount to include in the typhoid diet daily. Some extremists have advocated the giving of much larger amounts, up to 6 liters or 7 liters, not only by the mouth, but also by the rectum, by hypodermoclysis, and even intravenously.

To summarize, the approximate nutritive requirements of a proper typhoid-fever diet for a person of average size, so far as can be estimated from the data available, appear to be 2,000 calories of energy, 100 gm. to 110 gm. of protein, fat and carbohydrate enough to yield about 1,600 calories, and 2 liters or 3 liters of water per day, during the pyrexia; more in convalescence.

Digestibility.—Having attempted to establish a nutritive standard, the important qualifying question next arises as to the ability of the typhoid patient to digest, absorb, and assimilate the food that theoretically seems to be needed. Metabolism investigations, like those summarized in Table I, afford the most accurate known method of precise measurement of the digestion and absorption of food, and we have in these data a substantial basis from which we can form a definite conception of the power of digesting proteid food possessed by typhoid fever patients.

The difference between the amount of nitrogen introduced in the food and that excreted in the feces indicates the amount of nitrogen that has been digested and absorbed. The percentage of nitrogen absorbed is always really somewhat more than this difference indicates, as a part of the fecal nitrogen is derived from the residue of bile and other intestinal secretions, cellular debris from the intestinal mucosa, etc.; but as this part is indeterminate it has to be disregarded, and digestion is always somewhat more complete than the figures indicate.

Referring to Table I, the figures in the sixth column show the average percentage of food nitrogen digested and absorbed in the typhoid cases there summarized. It will be seen that the amount of the daily nitrogen ration seems to have a distinct effect on the proportion of food nitrogen absorbed, the ratio of the latter increasing from 60.9% with a ration of under 5 gm., to 88.5% with a ration of 15 gm. to 20 gm. of nitrogen, and then again decreasing. These figures, for the reasons stated, are below the real values, and the disparity or error is greater with the smaller rations; yet they seem to show clearly that the highest digestive efficiency for proteids in typhoid is found when the daily nitrogen ration is from 15 gm. to 20 gm., the same ration that gives the smallest nitrogenous deficit. This is perhaps because the digestive powers are keyed up to their maximum efficiency when the general body nutrition is at its best, and is another reason for regarding the nitrogen ration of 15 gm. to 20 gm. as the best one for typhoid.

In order to obtain a measure of the digestibility of different kinds of proteid food during the pyrexia in typhoid fever, I have reclassified the metabolism observations summarized in Table I according to the kind of food given. On account of the considerable error in that group, I have omitted the observations based on diets containing less than 5 gm. of nitrogen daily. The results are presented in Table II.

TABLE II.—AVERAGE DIGESTIBILITY OF PROTEID (AND DAILY NITROGEN METABOLISM) OF VARIOUS KINDS OF FOOD DURING THE FEBRILE PERIOD OF TYPHOID FEVER.

Kind of food (daily ration containing over 5 grams of nitrogen).	Number of observations.	Nitrogen ingested in food.	Nitrogen in feces.	Nitrogen digested and absorbed.	Percent of food nitrogen digested and absorbed.	Nitrogen excreted in urine.	Nitrogen loss.
Eggs—whites.....	1	19.8	1.2	18.6	93.4	18.0	.6
Eggs—yolks.....	2	12.4	1.0	11.4	92.3	16.6	5.2
Eggs, milk, cream, gruel, wine.	2	13.9	1.0	12.9	92.8	19.1	6.2
Meat extract.....	1	15.0	1.2	13.8	92.0	22.6	8.8
Ham.....	3	19.9	1.7	18.2	91.3	19.6	1.4
Porridge from coarse flour.....	2	17.4	1.9	15.5	89.1	16.4	.9
Milk.....	32	10.4	1.4	9.0	86.8	16.9	7.9
Milk, oatmeal, bouillon, etc.....	1	7.2	1.2	6.0	83.3	17.2	11.2
Milk, bread, eggs or meal, etc.....	50	10.4	1.9	8.5	81.9	16.0	7.5
Milk and bread.....	23	14.5	2.7	11.8	81.5	22.6	11.0
Milk, broth or bouillon, tea.....	6	7.2	2.9	4.3	59.5	14.0	9.7
Averages.....	123	11.5	1.9	9.6	83.4	17.6	8.0

Column six of this table shows the proportion of the food nitrogen or protein ingested that is digested and absorbed, and ranges from 93.4% for white of egg, through 86.8% for milk, to 59.5% for milk and soup. The average digestibility of proteid in these observations was 83.4% for the period of pyrexia; in the apyretic stage the digestibility is somewhat greater, averaging 87.5% according to Khadgi, 85.6% to 90.5% according to Puritz. With some of the foods the number of observations is less than is desirable, and it is unfortunate that data for a larger number of foodstuffs are not available. Yet, so far as they go, these results are instructive, and afford a basis for judgment.

For purposes of comparison, and to enable a definite estimate to be formed of the degree of impairment of proteid digestive power in typhoid fever, I present Table III, showing side by side the average digestibility of the nitrogenous components of various food articles in health, and in the febrile period of typhoid fever. The typhoid figures are from Table II; the figures for health I have calculated in like manner from published reports of metabolism studies in health.

TABLE III.—COMPARATIVE DIGESTIBILITY OF PROTEIN IN VARIOUS KINDS OF FOOD IN HEALTH AND IN THE FEBRILE PERIOD OF TYPHOID FEVER.

Kind of food.	Digestibility—percentage of food nitrogen (or protein) digested and absorbed.		Number of observations.	
	In health	In typhoid fever.	Health.	Typhoid fever.
Eggs.....	97.6	.....	2	.....
Eggs—whites.....	.....	93.4	.....	1
Eggs—yolks.....	.....	92.3	.....	2
Meat.....	97.4	.....	2	.....
Meat extract.....	.....	92.0	.....	1
Ham.....	.....	91.3	.....	3
Milk.....	94.5	86.8	57	32
Macaroni, etc.....	86.9	.....	2	.....
Porridge from coarse flour.....	.....	89.1	.....	2
Meat and bread.....	92.5	.....	2	.....
Milk and oatmeal.....	80.9	.....	4	.....
Milk, oatmeal, bouillon, etc.....	.....	83.3	.....	1
Milk and bread (chiefly).....	92.0	.....	39	.....
Milk and bread.....	.....	81.5	.....	23
Milk, bread and meat.....	91.7	.....	38	.....
Milk, bread and meat or eggs.....	.....	81.9	.....	50
Mixed diet (animal and vegetable).....	90.4	.....	88	.....
Vegetable diet.....	81.9	.....	25	.....
Bread, white.....	77.7	.....	4	.....

From this table it appears that the power of digesting and absorbing the protein of similar or comparable food articles is in typhoid fever about 5% to 10% less than in health.

Few exact determinations of the digestion of fats and carbohydrates in typhoid fever have been made. As these food elements, especially carbohydrates, are more digestible in health than is proteid, we should expect no greater falling off in their digestibility in typhoid. The few determinations that have been made show about the same or no greater decrease in the digestion of fats and carbohydrate in typhoid fever.

In general, then, it appears from precise determinations that the falling off of digestive and absorptive power in the febrile period of typhoid fever ranges from about 5% to 10%. This decrease is far less than is generally believed, on the basis of vague impressions, to be the case. The difference between digestion in health and typhoid fever is less than the difference in health between various articles of food ordinarily regarded as digestible; for instance, the difference between the digestibility in health of the protein of eggs and of bread, both digestible foods, is 20%. Any food with a digestibility of over 80% may be regarded as satisfactorily digestible; and the high average digestibility of 88.5% with a diet containing 100 gm. to 110 gm. of protein daily shows that typhoid patients can easily utilize that amount of protein. It may be concluded, therefore, that the digestive powers in typhoid fever are or may be so little lowered as to be entirely adequate to meet all proper demands that may be made upon them.

It is to be expected that in different cases of the disease will be manifested different degrees of impairment of digestion, and that in the bad cases the falling off of digestive power may be much greater than I have indicated. The observations that I have collected show, however, how great digestive ability can be expected in some cases, average and typical cases of typhoid fever. Because in bad cases the patients are unable to digest a certain food is no reason for withholding it from a patient who can readily digest it.

What may be called subjective digestibility—the subjective sensations and phenomena accompanying digestion, personal likes and dislikes, the ease or the discomfort with which different kinds of food are digested by different persons—is not amenable to scientific analysis, but is a matter of personal peculiarity and idiosyncrasy that can be determined only by experience or trial in each individual case. Considerations of this character apply as much to milk and soup as to any other diet.

While we can often count on much better digestive power than has been generally supposed, it is obvious that the typhoid dietary should include only the most digestible, plain, and substantial articles of food, excluding those that are notoriously indigestible. Theoretically, foods should be chosen that will be digested and absorbed in the stomach and upper part of the small intestine, where the involvement of the alimentary structures is least; but practically such a distinction would be difficult to make. When necessary the usual measures can be employed to stimulate digestion.

Palatability.—A requirement in typhoid diet which should be more generally recognized is that it be made as palatable, appetizing, and agreeable to the patient as possible. This will conduce greatly to the patient's comfort; it may induce him to take a needed larger amount of nourishment; it should, according to Pawlow's teachings, materially increase his digestive powers. Food that is not relished or is actually disliked is apt to be poorly digested and badly borne. Variety in the diet will similarly conduce to efficiency, as monotonous continuance in any unaccustomed or limited diet excites discomfort, repugnance, revolt, and active indigestion.

Innocuousness.—The diet in typhoid fever should not cause harm under the special conditions present in this

disease. Numerous bad effects are charged, with more or less justice, to dietetic improprieties.

1. Gastric irritability, vomiting, nausea, and intolerance of food sometimes occurring in typhoid fever are usually due more to the conditions of the disease than to improper food. If the food should cause or contribute to the gastric trouble it should be changed accordingly, but the kinds of food that will be best borne must be determined for each case individually.

2. The food should so far as possible be such as not to conduce to undue bacterial growth in the intestine, resulting in fermentation, gas formation, and the production of flatulence and tympanites, or in abnormal putrefactive processes with the generation and absorption of troublesome toxins. It should not irritate the bowels or tend to cause or increase diarrhea. These troubles are usually due to the lesions and conditions of the disease quite irrespective of food; but the diet selected should obviously be such as will be the best borne, and to the extent to which the intestinal indigestion and irritation may be caused by the food should the diet be corrected and rearranged. The cases must be individualized, and the causes and remedies for the troubles specially determined for each. With a large diet list to choose from there is a better chance in both gastric and intestinal indigestion of being able to find articles of food that can be well borne.

3. It is held of the utmost importance that the food in typhoid fever should be such as to cause the least possible disturbance or harm to the ulcerated patches in the bowel. The primary and chief cause of the ulcerative process is the action of the bacilli in the tissues; but it is possible or conceivable that the solution of continuity and the resulting danger of hemorrhage or perforation could be secondarily increased through the action of improper food. (a) Great distention of the bowel by gas, causing tension on a thinned, ulcerated area, might produce further rupture or perforation. This is a question of intestinal indigestion, to be corrected by careful selection of the food, emptying of the bowel, intestinal antiseptics, or other treatment. (b) Continuous peristaltic motion of the ulcerated area is not a condition most conducive to healing. It is, however, impossible to secure absolute rest for the healing of typhoid ulcers. There is necessarily some peristalsis, and the amount of motion induced by ordinary and proper food is probably much less than is caused by the use of those purgatives which there is no hesitation in using in the cases presenting constipation. The conceivable danger from normal peristalsis may therefore be disregarded, beyond the obvious necessity of arranging the diet so as to minimize diarrheal tendencies. (c) Just as poor nutrition retards the healing of superficial ulcers, so insufficient feeding may be supposed to retard the healing of typhoid ulcers; and the same reason would seem to exist for liberal feeding to promote the healing of the latter as prompts the surgeon to feed liberally to hasten healing of surface ulcers. (d) The pressure of solid or bulky masses of food residue upon the ulcers may conceivably cause them to rupture or irritate them to additional inflammation. This possibility introduces the very important requirement that the food in typhoid fever should be such, and so prepared, that the residue in the intestine shall be fluid, or in a state of fine division, non-irritating, of minimum bulk, and kept well softened or in a semifluid or pasty condition by water.

As may easily be seen at autopsies, all ordinary food material, liquid or solid, during its passage through the small intestine is normally in a pasty condition, with the solid elements reduced to a state of very fine division, bland and mechanically unirritating. Three kinds of solid food masses of size sufficient to be mechanically injurious may be present in the small bowel: (a) Solid food that is not sufficiently masticated or otherwise comminuted; (b) indigestible portions of food, chiefly undivided fragments of vegetable tissue containing much

cellulose, as skins of fruits, grains, etc.; and (c) lumps of curdled milk. In the large intestine, in addition, solid fecal masses may be produced by inspissation of the intestinal contents into scybala.

These considerations teach that in typhoid fever the food should be liquid, or soft and easily divisible; or if solid (supposing solid food to be permissible), it should be given in a finely divided condition, with all large undivided masses, as of cellulose, excluded. The food should in general be such as yields a small fecal residue. Plenty of water should be given, that the intestinal contents may be kept properly moistened. The bowels should be kept open (if constipated), to prevent accumulation, inspissation, and hardening of the feces. With these precautions, the food material as it passes through the bowel ought to be, as nearly as can be made, of the bland, finely-divided, semifluid, and nonirritating character indicated in this disease.

This leads to the question as to the necessity that the food in typhoid fever be fluid. It is all but universally held that in this disease exclusive liquid diet is absolutely essential, that milk is the ideal liquid food, and that solid and even soft food is dangerous and counter-indicated. In spite of its general acceptance, the advocates of a more liberal and varied diet disagree with this view in every particular.

So far as can be seen, the advantages claimed for liquid over solid food, are on the grounds of superior digestibility and of leaving less irritating residue in the intestine. Neither of these claims is necessarily true. The liquid forms of albumen have to go through the same process of digestion as the solid forms before they can be absorbed; raw egg albumen, for instance, even if diluted and thinned, is utterly incapable of direct absorption as such, and it is doubtful if raw egg is more easily digestible than is cooked egg. The digestive juices are amply sufficient to convert solid proteid and carbohydrate material into liquid form. As to leaving less fecal residue, the solids of milk in health yield much more fecal residue than do hard-boiled eggs or meat, according to some determinations, two and three times as much; and no solid food can cause more intestinal indigestion or irritation than milk often does.

Liquid foods offer certain distinct disadvantages. Owing to their bulk and degree of dilution, it is often impossible to introduce an adequate amount of nutritive material by their exclusive use. Their diluted condition may actually impair their digestibility, by causing too great dilution of the gastric juice; just as in the treatment of ordinary dyspepsias the drinking of too much liquid at meals is discouraged on that ground.

What is to be regarded as liquid and what as solid food? Proper and properly prepared solid food becomes practically fluid in the alimentary canal. For the purposes of typhoid diet, which has the better claim to being termed liquid food, previously solid food that becomes fluid in the stomach and intestine, or previously liquid food, like milk, that becomes solid in the stomach? Of all foods, certainly of all food that could reasonably be given to very ill patients, milk is or may be the most solid; since no other food is capable of passing through the entire intestinal canal and being ejected with the feces in such large or hard masses. It would seem rational that the previous condition of fluidity or solidity of the food is quite irrelevant; it is its consistency in the intestine that is of importance in typhoid feeding.

4. It is conceivable that relative overfeeding in typhoid fever might overload or clog the circulation with superfluous nutritive materials, or an excess of katabolic products, to the detriment of the patient's general condition. With the present attitude of the profession such as it is, overfeeding is little likely to occur, and the error, if recognized, could be easily corrected.

5. The diet in typhoid fever should be so managed as to minimize any tendency it may have to increase fever

or cause the recurrence of pyrexia in the postfebrile stage.

That the condition of pyrexia *per se* is essentially affected by the kind of food, or within ordinary limits is materially aggravated by or is a counterindication to an abundance of food, properly given, has not been shown. The effect of food is certainly not feared in the fever of such conditions as tuberculosis. Theoretically, a large amount of food by liberating a larger amount of energy convertible into heat might be expected to raise the body temperature, or at least not to lower it; but von Hoesslin found an average increase, with a liberal diet, of only .06° Centigrade, or about .1° Fahrenheit, which is quite insignificant. A decrease in needed food will be compensated by an increased combustion of body tissue which will maintain the fever at the same level.

The true febris carnis, or food fever, is due not so much to the kind of food as to an abrupt change or increase in its amount. An amount of food that if suddenly given will cause fever can be gradually worked up to without any symptoms. The cause of febris carnis is unsettled; some regard it as of nervous origin, similar to the fever that may be aroused by excitement, etc., in ill persons; or, in the unstable condition of the heat-regulating apparatus after typhoid, the sudden liberation of a large amount of heat energy from the unwanted quantity of food may cause a rise in body temperature. Some regard the liability to food fever as largely a starvation effect, and that the tendency to it is increased on insufficient nourishment. Even when it occurs, the true febris carnis is generally of brief duration and very little importance. The temperature in both the febrile and apyretic periods of typhoid fever is subject to sudden and inexplicable fluctuations. Such sudden changes occurring coincidentally with some slight change in diet are apt to be wrongfully charged to the food. These fluctuations may occur under any diet, and are usually entirely unconnected with the food. That true relapses can be caused by food is being doubted more and more; relapses are now regarded as being due to reinfections and repetitions of the disease process, and it is difficult to see how food can have any agency in this.

The advocates of liberal diet therefore believe that, while no exaggerated fear need be felt of the effect of food on the fever, changes in the typhoid dietary should be made gradually, watchfully, and cautiously, never suddenly.

6. The effect of articles of food on the coagulation of the blood may be mentioned as having a possible occasional bearing on the selection of the diet in typhoid fever. In intestinal hemorrhage, it would be desirable to have the coagulability of the blood increased; in the uncommon cases of thrombosis, the contrary effect would be advantageous. From its large content of calcium salts, milk might be expected to increase coagulability of the blood; although the opposite effect has been experimentally found by one observer (Boggs). Gelatin given freely as food, may, from its hemostatic action, be of service in typhoid hemorrhage.

Articles of Food Available for Typhoid Fever.—Having considered the essential requirements of typhoid diet as to nutritiveness, digestibility, palatability, and innocuousness, it is next in order to consider the acceptability in these respects of the various articles of food available for use. In the discussion of this part of the subject I have followed on the question of composition and nutritive value the data given in Atwater and Bryant's bulletin on the Chemical Composition of American Food Materials. On the question of digestibility and fecal residue I have followed the data presented in Tables II and III; and also the results of determinations as quoted by Atwater ("Chemistry and Economy of Food"), of the proportion absorbed and the proportion of fecal residue of the total solids of various foods (in health). Among these determinations I cite the following, as bearing on the present subject:

TABLE IV.—PERCENTAGES OF ABSORBED PORTION AND FECAL RESIDUE OF TOTAL SOLIDS OF VARIOUS FOODS, IN HEALTH (FROM ATWATER).

	Percentage absorbed.	Percentage in fecal residue.
Beef.....	95.6	4.4
Fish (haddock).....	95.1	4.9
Eggs (hard boiled).....	94.8	5.2
Milk.....	92.0	8.0
White wheat bread.....	95.2	4.8
Potatoes (and butter).....	90.6	9.4

Milk: To yield the amount of protein and energy which I have presented reasons for regarding as standard, about 3 liters (or quarts) of milk would have to be given daily, representing about 99 gm. of protein and 2,136 calories. If this amount could be given continuously to all typhoid patients without ill effects, the question of typhoid diet would be a simple one; but it is not often practicable to give this amount. Under the present system typhoid patients generally receive 1,500 cc. to 2,000 cc. (3 pints to 4 pints) of milk a day, or its equivalent, a quantity entirely insufficient for proper nutrition, not much more than half the amount needed. The present general dietetic method in typhoid fever must be characterized as one of partial starvation, by which, thoughtlessly and unknowingly perhaps, but usually unnecessarily, conditions of starvation are added to the conditions of the disease.

As to digestibility, the proteid of milk is in health about 3% less digestible than that of meat or eggs, while in typhoid fever it is 5% or 6% less digestible. The total solids of milk in health are 3% or 4% less digestible than those of eggs and meat, its fecal residue much greater, and it requires an equal length of time for digestion. Of ordinary animal foods, milk is one of the least digestible. The chief trouble with its digestion consists in its coagulation in the stomach, an unfortunate condition that occurs with no other food.

Some patients dislike milk, and it is apt to become especially obnoxious when continuously given in large amounts. Milk is capable of causing the severest kind of intestinal indigestion as often in infants, with fermentation, gas formation, production of irritant toxins, diarrhea, etc.; none of the ordinary animal foods is worse, if as bad, in this respect. No other food that could reasonably be given is capable of passing through the intestine in such large and solid masses as the milk curds that are frequently passed with the stools in typhoid fever.

In view of these manifest disadvantages, it is difficult to see how the general esteem in which milk is held as the safest, most efficient, and best food for this disease is justified. The objections that are urged against solid food apply with equal and even greater force against milk. When milk is badly borne, as frequently occurs in typhoid, it is one of the worst foods, and under these circumstances it produces just the conditions that make it especially objectionable and dangerous in typhoid fever. The appearance of curds in the stools should constitute an unvariable indication for immediate reduction or entire withdrawal of milk from the diet.

When milk is well digested and well borne, however, as it is in the majority of cases, it is within its limitations one of the best foods, and must constitute one of the most important items in the typhoid dietary. Its large content of salts is an advantageous feature. From its bulk and from the fact that it is especially apt to disagree when given in excessive quantity, it is quite impracticable to give enough milk (3 liters daily) for the sole proper nourishment of adult patients; and it would therefore seem that it should necessarily be supplemented by more concentrated food.

With a view to increasing digestibility or "cutting the curds," milk is often given peptonized, in the form of junket, or diluted with water, lime-water, etc. The

practice of giving milk diluted is open to the objections that the bulk is thus increased and the amount of nutritive material that can be given decreased, and that the concentration of the gastric juice is thus much lowered. Dilution with lime-water or other alkaline fluid is open to the further objection—perhaps more theoretic than practical—that these alkalies neutralize hydrochloric acid in the gastric juice and may thus really hamper digestion.

Cream, if well borne, ought to form a specially valuable item in the typhoid dietary, since from its high fat content it has nearly three times the energy value of milk. If the fat of milk is badly borne, or for the sake of variety, buttermilk and skimmed milk are available for use, but their fuel value is only about half that of milk.

Soup: Soups and broths are at present extensively used in typhoid feeding as substitutes for milk or for the sake of variety. Soups are usually satisfactorily digestible and lack some of the special objectionable features of milk. Yet not infrequently broths are badly borne by typhoid patients; and of all the foods presented in Table II the combination of milk and soup in the cases of typhoid fever there collected had much the lowest protein digestibility, the low figure of 59.5%. The protein and carbohydrate contents of various soups differ much, but average near those of milk; the fat content runs very low and the total energy value of soups is in general much lower than that of milk. The energy value of bouillon, for example, averages less than a sixth that of milk. Soups, therefore, have very little food value in proportion to their bulk; it is futile to attempt to give an adequate amount of nourishment by their use in substitution for or addition to milk; and they would seem to be among the least efficient and useful articles for typhoid feeding.

Barley water and other gruels are open to similar objections. Soups thickened with flour or starch, or regular porridges, might have satisfactory nutritive value and form useful foods. Two observations of a diet of porridge from coarse flour in typhoid showed a surprisingly high digestibility for vegetable protein and a very low nitrogen loss.

Eggs: One hen's egg on the average yields about 7.5 gm. of protein, 5.3 gm. of fat, and 80 calories. Egg proteid is highly digestible, about 98% in health, 93% in typhoid fever; of the total solids of hard-boiled eggs, about 95% is absorbed in health. These figures indicate a greater digestibility for eggs than for milk; eggs are quite free from objectionable features, and they should form one of the most valuable articles for typhoid diet, especially for furnishing proteid.

While the value of eggs in typhoid feeding is generally recognized, there are great differences of opinion and practice as to the best method and amount of administration. Some prefer the yolk, others the white. The yolk contains practically all the fat of egg, is richer in protein, and has seven times the energy value of an equal weight of the white.

Albumen water is much in vogue at present, made by mixing the white of an egg with a considerable amount of water. This method of administration is apparently based on the supposed necessity that the food be liquid and dilute in typhoid. This is an extremely inefficient way of giving egg. Only an insignificant amount of food material can be thus given, and that the least nutritious part of the egg. I see no reason for supposing that egg albumen is more digestible in this dilute and liquid form; on the contrary, the dilution might weaken the action of the gastric juice.

It would seem on general principles that the best and an unobjectionable way of giving eggs in typhoid is poached or soft-boiled; or, if the patient prefer, raw or even hard-boiled or scrambled. Beginning with half an egg or a whole egg a day, the amount may be gradually increased until, in many cases, four or more eggs are taken with advantage and safety daily.

Custards (preferably steamed or baked) and plain ice creams are highly nutritious, digestible, and palatable, combining as they do the elements of eggs, milk and sugar, and to those not committed to an absolute liquid diet seem almost ideal articles for use in typhoid fever. Ice cream is often especially well borne when there is gastric irritability. Egg-nog, milk punch and Stokes' mixture (2 egg yolks, 50 cc. of brandy, 120 cc. of aqua aurantii florum, sugar or syrup enough to sweeten) have considerable nutritive as well as stimulant value and are eligible for use when such a combination is indicated.

Meat: It may seem revolutionary to feed meat to typhoid patients, yet most of the advocates of liberal feeding do not hesitate to do so under proper conditions, and the objections commonly raised seemingly disappear on critical examination. Meat is the most concentrated and most efficient natural source of proteid, and is one of the most digestible and least irritating of all foods. The protein of meat is in health 3% more digestible than that of milk, while in typhoid fever even ham, the only meat of which I have data, shows 4.5% higher protein digestibility than milk. The total solids of meat are almost entirely absorbed, leaving in health a fecal residue of only 4% or 5%, not much over half as much as milk. If properly divided before reaching the stomach, meat becomes practically fluid in the alimentary passages, forming in the bowel a bland, pasty, unirritating mass; to insure this result, it is only necessary that the meat, if not properly masticated, be given in minced or finely divided form. For these reasons it would seem as if meat, instead of being esteemed the worst, should be regarded as a perfectly eligible food for typhoid fever, its main use being to furnish, in conjunction with milk and eggs, the proteid needed. No one contends that meat should be given in every case, or that it would be needed if sufficient protein could be obtained from other sources; but it is held that the alleged dangers of meat are largely mythical, and that if for any reason its use is desirable, to furnish protein, to satisfy the patient's appetite, or for other objects, there need be no hesitation in giving it.

In selecting the kind of meat, the least digestible meats, like pork and veal, may be excluded. Oysters are eligible on the ground of digestibility and palatability, but from their low nutritive value have little efficiency. Beef, lamb, chicken, and fish are regarded as acceptable for typhoid feeding and afford considerable field for selection and variety. These all have a similar protein content, 15% to 24%, but vary much in fat content, from practically zero to 20% or 30%. The loin steaks of beef (sirloin, tenderloin, porterhouse) contain much more fat than does lean round steak. Lamb, both leg and chops, is rich in fat. Young chicken contains little fat; fowl and turkey contain more. Most fish (bass, cod, flounder, etc.) are poor in fat; salmon and shad are among those containing a considerable amount. Meats made up of short and loosely united muscle fibers, like the breast of chicken and the flaky meat of fish, are more digestible than those with long and closely united fibers; the more fatty meats are also sometimes somewhat less digestible. If the fatty meats are well digested, however, they yield much more energy than the lean ones. In the preparation of meat, the visible fatty and indigestible portions should be removed; it should be cooked in wholesome manner, as by broiling or roasting, and finely minced either before or after cooking, provided the patient is unable to masticate properly.

Jellies: Chicken jelly, wine jelly, etc., are nutritious, palatable, digestible, and seemingly unobjectionable, and may be freely and advantageously used. They may be especially and liberally employed on the occurrence of intestinal hemorrhage, to take advantage of whatever hemostatic action the gelatin may exert.

Fats are the richest source of energy, and within the limits of their easy digestibility are for that reason an advantageous ingredient in the diet. They are apt to be

indigestible, especially in large amount, and to lower the digestibility of the protein with which they are associated. The fat in egg, milk, and butter is highly digestible; that in meat slightly less so; that of vegetable origin much less. Given as freely as possible within the limits of tolerance, cream and butter should seemingly form an excellent source for this class of food in the typhoid dietary. One writer (Lehlbach) recommends that fat—preferably lanolin—be administered by inunction or rubbing through the skin when there is difficulty in giving it by the mouth in this disease.

Carbohydrates and vegetable food: Carbohydrates are highly digestible, their chief disadvantage being that they may ferment and produce gas. They must be relied on to furnish the energy required beyond that supplied by the protein ration and the fat that can be taken. Except for the sugar in milk, we must look to vegetable products for our supply of carbohydrate. Vegetable food has two disadvantages, the low digestibility of vegetable protein and the presence of a residue of undigestible cellulose. Vegetable protein is about 15% to 25% less digestible than that of animal origin; on which account it is doubtless advisable to look to animal food for the bulk of the proteid ration, taking only such vegetable protein as necessarily accompanies the carbohydrate needed. The undigestible cellulose adds to the fecal residue, and if in large undivided masses may conceivably cause intestinal injury in typhoid fever. Different vegetable foods vary much in the amount of fecal residue; white wheat bread yielding (in health) only about 5%, vegetables two or three times as much. For the typhoid dietary vegetable foods can (by those who regard them as admissible) be selected that yield the smallest undigested residue; fibrous and membranous vegetable tissue, skins, seeds, etc., being excluded; and the vegetable material used being finely divided and having its cellulose well broken up, by mechanical means (flour, cornstarch), by thorough cooking (rice, potato), or otherwise.

Theoretically the most efficient form of carbohydrate food is sugar, which is pure and free from cellulose, protein, and fat, and being the end-product of carbohydrate digestion should be immediately absorbable without requiring any digestive preparation. For these reasons, sugar, syrups, honey, etc., might well be introduced into the food for the typhoid patient as liberally as possible. Unfortunately sugar is not tolerated as food in unlimited quantities; and typhoid patients often seem especially intolerant of it. Possibly other sugars than cane sugar, as maltose, would be better borne.

Cornstarch is regarded by the advocates of soft diet as a very useful material for typhoid feeding, given in the form of puddings, blanc mange, chocolate pudding, etc., or used to thicken soups. Rice and perhaps other cereals, thoroughly cooked, flour products like milk toast, bread or crackers and milk, bread and butter, and bread pudding, also mealy baked potato, are also available, cautiously introduced.

Fruits are questionable; their energy value is low, and the chief use of such as could be allowed, as the pulp of baked apple, orange juice, etc., would be to add relish to the diet or act on the bowels.

Beverages: Coffee and tea may be allowed as beverages or for their stimulant action, though they have little nutritive value. Cocoa often makes a welcome addition to the typhoid diet, and has food value.

Alcohol has been shown to be capable in health of furnishing a portion of the energy needed for the body, taking the place of fat and carbohydrate for this purpose, and to this extent it is a food. Whether, in view of other possible counterbalancing detrimental effects, it would be advisable to use alcohol regularly for its food and energy value in typhoid fever I am not prepared to say. If its use were advisable it would have the advantage of being easily absorbable, and of having high caloric value.

Proprietary foods: There are a large number of predigested and otherwise specially prepared foods on the market which are highly exploited by their proprietors for use in disease conditions, typhoid fever included. Most of these foods yield but a small amount of actual nutriment in comparison with what is needed by the body or what is afforded by ordinary food. Experiments (in health) do not show any great difference between the absorbability or efficiency of native albumins and artificially predigested proteids (albumoses and peptones). Meat extracts and meat juices, at least in the amounts ordinarily given, yield an insignificant and entirely inadequate amount of nitrogenous material. The foods described as "predigested carbohydrates" are, if they are what they purport to be, nothing more nor less than one or another kind of sugar. Most of the liquid proprietary foods contain from 10% to 25% of alcohol, and if given in the quantities recommended are not only insufficient for nourishment, but yield a dosage of alcohol which should be distinctly recognized and appreciated by the physician. Ordinary food if satisfactorily digested is far superior to proprietary foods. The only field of usefulness for the latter in typhoid fever is found in the cases in which there is great gastric intolerance of food; in such cases the proprietary foods may be tried in the hope that some of them may be borne by the stomach, and such nutriment and stimulant as they yield may be utilized.

Rectal feeding is indicated when there is extreme gastric intolerance of food. It is often impossible to keep it up long, on account of the rectal irritability produced, yet it can sometimes be maintained for a long time.

I have now considered, in critical detail, the acceptability of various food articles for the typhoid dietary, and their sufficiency to meet what seem to be the essential requirements of an adequate and safe diet in this disease. The list is quite extensive, affording considerable field for selection, and the articles mentioned are all such as are recommended by advocates of a more liberal and varied diet than is now customary.

Method of Feeding.—Success and safety in liberal feeding depend not only on the kind of food, but also on the manner in which it is given. Each case should be individualized and managed on its own merits; the patient should be treated "rather than the name of his disease." The supervision of every detail of the feeding will require and repay the constant attention of the physician. The intervals between feedings should not be less than two hours, perhaps more. The feedings should be timed to follow and not precede the baths.

The advocates of liberal diet are unanimous in following as the main guide in feeding, the patient's appetite and digestive powers. Due attention is, of course, paid to the general condition, but the temperature is left largely out of consideration. Hunger is taken as a reliable indication that food is needed and can be assimilated. Food is not to be forced unduly on an unwilling patient; but whenever a genuine appetite and desire for food is evinced, when the patient answers affirmatively to the daily question "Are you hungry?" there should be no hesitation in immediately increasing his diet and putting it on a generous basis.

Abrupt changes should be avoided, and increase in the amount of food should be made gradually, with careful observation of the accompanying effects. In many cases the appetite continues from the first, and is not at any time completely lost; in such the feeding may be more or less liberal from the beginning. In cases in which the appetite is entirely lost and the diet falls to a low plane, the food should be carefully and gradually increased when the appetite returns.

While this practice will seem revolutionary to most physicians, yet it has the approval of some of the very highest authorities. It is the belief of its advocates that the fears of deleterious consequences generally held

against mixed feeding in typhoid fever are groundless. All the complications which it is generally asserted would arise from the use of soft and solid food occur under the strictest milk regimen. While it is recognized that dietetic improprieties may cause trouble in typhoid fever, as great and even greater trouble and danger can be caused by the improper use of milk as by any other food. Even if in some one respect mixed diet were deleterious and yet on the whole its general effects were beneficial, its use would be warranted; just as, in spite of the admitted fact that the cold-bath treatment seemingly increases the frequency of hemorrhages and relapses in typhoid fever, the bath method is nevertheless approved.

The object and the advantage of adequate feeding in typhoid fever (as in other conditions) is the maintenance of body nutrition at the highest point possible under the circumstances. In other diseases, as tuberculosis, indigestion, and the like, the importance of attaining a high state of nutrition—the measure and index of which is the body-weight—is generally appreciated. In typhoid fever the condition of body nutrition and the dangers of malnutrition are as generally quite ignored; yet there is no reason to suppose that the organism suffering from typhoid fever is not subject to the same laws of nutrition, metabolism, and dietetics as apply under all other circumstances. If it could be made practicable to weigh typhoid patients at proper short intervals, so that changes in body nutrition could be followed as closely and exactly as can changes in body temperature, the weight record in its bearings on treatment and prognosis might be found to have a practical importance approaching that of the temperature record; and the reduction of emaciation to a minimum might be found an object in its actual results worthy of the keenest and most solicitous endeavors of the physician.

It would seem as if generations ago, in the dark ages of medicine, the profession imbibed a deep-seated fear of giving food in many diseases, that caused enormous harm by deliberate and wholesale starvation of patients. That distrust has been partially eradicated; but it is feared that some of that traditional unreasoning and unreasonable prejudice against food still persists, and harm is still caused by needlessly starving patients, not only in typhoid fever, but in other conditions. Physicians ought to be just as solicitous about the very real and certain dangers of starvation as they now are about the occasional or fancied or mythical evil results of feeding; and if they were as bold in giving food as they are now willing to withhold it, results might in many instances be better.

An opinion as to the general harmfulness of mixed diet in typhoid fever, to carry any weight, would have to be based on actual experience and fair trial of such a diet. Since this kind of diet has never been generally used, where has the experience been obtained to warrant the present sweeping belief in its harmfulness? The starvation treatment was once universally tried and universally condemned by the profession; the present medium diet has likewise been universally tried and found more satisfactory. Trial of liberal mixed diet has not, however, been made on a like extensive scale; and if its advantages have not had a chance for demonstration, neither have its alleged dangers been really shown. Because a ravenous starved patient develops a fever (almost always brief and harmless) from surreptitious over-indulgence in unaccustomed food is no proof that a liberal and varied diet, properly regulated, is essentially harmful; nor does the fact that most patients recover on milk prove that other food is dangerous.

Practical results.—The discussion hitherto has been mainly along theoretic lines. The final settlement of the question must depend on the results of actual trial and experience. I have read all the accessible articles that I could find published in the last 15 years on the subject of the diet in typhoid fever. During that period

a number of observers in all parts of the world, Russia, Australia, England, America, have reported results with an enlarged dietary.

A forceful paper in advocacy of liberal diet in typhoid, based on 31 cases, has been presented by A. G. Barrs¹ and has attracted considerable attention. In 1900 R. W. Marsden,² of Manchester, reported the results of treatment of 200 consecutive typhoid cases according to the methods of Dr. Barrs. He does not mention his mortality, but there was no case of perforation, only six of hemorrhage, relapses were no more numerous than the average, and in no instance were any of the complications clearly chargeable to the diet.

Bushuyev,³ of Russia, in 1895-'96 out of 154 hospital patients, treated 80 on a diet consisting chiefly of bread and meat, while a colleague who adhered to the orthodox system treated the other 74 chiefly on milk. The comparative average results were:

RECOVERED.

	Mixed diet.	Milk diet.
Number of patients.....	72	65
Average day of illness on admission.....	7.5	5.8
Duration of fever after admission, days.....	18.9	22.3
Duration of stay in hospital, days.....	42	49.2
Day on which recovery was complete.....	49.5	55
Incapable of duty on dismissal:		
Number.....	6	10
Percent.....	8.3	15.4

DIED.

	Mixed diet.	Milk diet.
Number.....	8	9
Percent.....	10	12.1
Average day of illness on admission.....	8.5	5.8
Average day of death.....	28.6	26.7

During 1897, out of 318 patients on the solid diet, Bushuyev lost 26, or 8.2%, the average typhoid mortality of the hospital for the 10 years previous being 12.4%.

In the United States, the leading advocate of generous feeding in typhoid fever, in the boldness of his methods, the vigor of his arguments, and the extent of his experience, is F. C. Shattuck,⁴ of Boston. During 1886 to 1893, he treated 233 patients on exclusive milk diet, with a mortality of 10%; from 1893 to 1902, with 246 patients liberally fed, he had a mortality of 8.45%. Hemorrhage, perforation and relapses were not increased in frequency.

In a study of the statistics of typhoid fever at the Massachusetts General Hospital, to 1899, presented by R. H. Fitz,⁵ further comparisons may be made between the patients of Shattuck, which are included in the statistics, and those treated by his colleagues on the usual restricted diet, as follows:

	Mixed diet. Percent.	Milk diet. Percent.
Mortality.....	11.3	14.6
Hemorrhage.....	9	10.6
Relapses.....	10.2	13.1

G. W. Moorehouse,⁶ of Cleveland, reports results of liberal feeding in 150 patients, with 13 deaths. Morris Manges⁷ expresses concurrence in Shattuck's views, and H. A. Hare⁸ has very recently come out in favor of more generous feeding, including soft diet. Numerous others, in this and other countries, have presented similar views and results.

My personal experience with more or less liberal feeding in typhoid fever, about 23 cases with one death, while too limited alone to carry much weight, has given me some idea of the method, has dispelled hesitancy in its use, and has yielded the same highly satisfactory and gratifying results noted by the writers on the subject.

From the reports presenting definite figures, I am able to collect in all 1,000 cases of typhoid fever, in which the patients were treated on the enlarged diet plan, with 77 deaths, a mortality of 7.7%.

Among all the reports that I have found, not one observer who has given the liberal diet a candid and sincere trial condemns it. All agree that the evil results generally feared were not produced. Tympanites, diarrhea, hemorrhage, perforation, and relapse did not seem to be increased in frequency, if indeed they were not decreased. The general average mortality of 7.7% which I have found certainly does not support the prevailing notions as to the dangers of mixed feeding. The liberal diet to be justified, however, must have not only the mere negative quality of safety, but must present positive advantages and superiority of efficiency and results over the present system. Those who have given generous feeding in typhoid fever a trial are quite unanimous and emphatic in the expression of their convictions that the method is far superior in its results to the present restricted diet. The special advantages that have been observed or may be expected are the following:

The comfort and contentment of the patients are far greater under generous feeding than under the customary diet. The writers are unanimous in their emphatic and gratified expressions on this point. The patients suffer much less from hunger, and, especially, the distressing hunger ordinarily present in the early convalescent period, while not entirely abolished, is greatly diminished, and the temptation to indulge surreptitiously in forbidden food is much lessened.

With a large diet list to choose from, the special likings of the patient can be met and greater variety introduced into the feeding. In case of indigestion and intolerance of food, with a large list to select from, there is a greater chance of being able to find some food that is satisfactorily borne by the stomach, while the physician who uses only milk and soup is at a loss what to do when these disagree.

The adequate diet should, so far as is possible in this disease, eliminate the effects of starvation; and it is probable that it is not even yet entirely known what symptoms are due to insufficient nutrition and what to the disease proper. For instance, there is some ground for believing that the subnormal temperature characteristic of the beginning of the apyretic period is a starvation symptom, due to the fact that at that time the organism having regained the power of anabolism greedily stores up food material in its tissues and if the food supply is inadequate does not liberate enough food energy to maintain body temperature. While exact comparative observations are yet needed to settle this point, it is probable that in the well-fed typhoid patient the post-febrile depression of temperature will be found less in range and duration than in the ill-fed patient, an indication of a better nutritive condition.

The patient's strength, nutrition, and general condition seem to be better maintained on the liberal diet. On theoretic grounds no lowering of the fever is to be expected with a large diet; but if there is any increase in the patient's powers of reacting against the disease, a shortening of the period of pyrexia might be expected. So far as can be judged from general impressions, in the absence as yet of sufficient exact comparative statistics, it is probable that liberal feeding may be shown to be capable of slightly shortening the course of the fever. There is general and positive agreement among the writers that the duration of convalescence is materially shortened in the well-fed patients. This is to be expected, since the less the patient is allowed to lose the less he has to regain; and the customary delay of seven to ten days after the fever subsides, before the resumption of feeding is done away with. Writers on the subject make little mention of the effect of free diet on the nervous complications and profound toxemic conditions sometimes occurring in typhoid cases. In cases presenting these

complications it is often difficult to administer food even in small quantities, and it is probable that these bad conditions are made much worse by the aggravated in-nutrition thereby enforced. It is these cases in which it is practically impossible to feed at all that swell the mortality rates in typhoid fever.

The better maintenance of strength and nutrition through ample feeding should be manifested in the long run by a lowering of the deathrate, since in cases in which the issue is delicately balanced the bettered nutritive condition may turn the scale in favor of recovery. The statistics of Shattuck and Bushuyev, so far as they go, show a difference in mortality of from 1.5% to 4% in favor of the liberal diet. If generous feeding can effect a lowering of anywhere near 2% in the general mortality of typhoid fever, the aggregate results attainable would be of the highest order.

REFERENCES.

- ¹ British Medical Journal, January 16, 1897, 125.
- ² The Lancet, January 13, 1900, 90.
- ³ Vratich, 1898, xix, 786, 898.
- ⁴ Journal of the American Medical Association, 1897, xxix, 51; Boston Medical and Surgical Journal, 1903, cxlviii, 151.
- ⁵ Boston Medical and Surgical Journal, 1899, cxli, 509.
- ⁶ Boston Medical and Surgical Journal, 1900, cxliii, 494.
- ⁷ Medical Record, 1900, lvii, 1.
- ⁸ Therapeutic Gazette, 1904, xxviii, 577.

REMARKS ON THE CAUSATION AND DIAGNOSIS OF HEPATIC CIRRHOSIS.¹

BY

JAMES K. CROOK, M.D.,
of New York City.

It seems to me that no part of the study of cirrhosis of the liver is more important than that devoted to the recognition of the disease, and especially its identification during the early stages before the establishment of the intractable later morbid changes. In weighing the evidence for or against the existence of cirrhosis in any given case during the hypertrophic or preatrophic period we are necessarily confronted with a consideration of facts entering into the etiology of this condition. At what period of life does hepatic cirrhosis occur most frequently? In what sex? And what habits, conditions of life or antecedent morbid states tend to produce an irritative hyperplasia of the interstitial structure of the liver? A recent study of statistics in this city confirms certain facts which are already known. An analysis which I made² of 4,737 deaths from cirrhosis of the liver, reported to the New York Health Board during a period of 11 years, from 1889 to 1899 inclusive, shows the following facts relating to age.

DEATHS FROM HEPATIC CIRRHOSIS.

	Cases
Under 1 year.....	9
Total under 5 years.....	11
5 to 10 years.....	11
10 to 15 ".....	9
15 to 25 ".....	553
25 to 35 ".....	1,061
35 to 45 ".....	1,196
45 to 55 ".....	959
55 to 65 ".....	560
65 to 75 ".....	146
75 to 85 ".....	14

It will thus be seen that we are not, as a rule, to expect the development of hepatic cirrhosis at the two extremes of life, although cases do occasionally occur at those periods, but rather in adult middle life. It is found that 3,216 of these deaths, or about 68%, were of persons from 25 to 55 years. The list shows 2,980 males (62.28%), and 1,757 females (37.77%). H. Lange found at Kiel, in autopsies on bodies of persons over 15 years, dead from all causes, 43 cases of hepatic cirrhosis, 2.34% in 1,835 males, and 13 cases, or 1%, in 1,296 women. In an analysis of 4,168 cases with reference to nationality, it was ascertained that 1,112, or only 26%, were in natives

of the United States, while 3,056, or more than 73%, were in persons of foreign birth.

Among the exciting or determining causes of hepatic cirrhosis, the imbibition of alcoholic stimulants, especially strong spirits, gin, whisky, brandy, etc., has long been assigned the first place. Among 27 patients under my own observation, all save 3 had been more or less addicted to the use of ardent spirits. Of 37 patients treated in the wards of Roosevelt Hospital during two recent years, 29 were alcoholics. An alcoholic history was determined by Lange at Kiel in half the cases. It must not be inferred, however, that the malt beverages too largely consumed of late years are altogether innocuous. The statistics of the New York Health Board indicate that cirrhosis of the liver is almost as common among our beer-drinking German fellow citizens as among those from Ireland, who are credited with a penchant for more potent stuff. Lancereaux maintains that the *vin ordinaire* of France is a common cause of hepatic cirrhosis in that country. Of 210 cases, he found that 68 could be traced to no other cause than excess in this wine.

At any rate, it is generally agreed by clinical observers everywhere that the habitual use or abuse of some form of alcoholic stimulant is responsible for the vast majority of the victims of chronic interstitial hepatitis. So experienced an observer as Murchison, claims never to have seen a case in other than persons with alcoholic histories. The question, then, as to whether or not our patient in any given case has been addicted to the use of alcohol is of prime importance in arriving at a probable diagnosis. Since Virchow's classic demonstration of the relation between syphilis and hepatic sclerosis, the former disease has been credited with an important influence in the production of the latter. The difficulty of obtaining positive information from patients as to the past occurrence of syphilis is well known. It is usually only at the autopsy that syphilitic cirrhosis is positively determined. Probably in not a few instances this disease is more or less associated with alcoholic excess in the production of liver trouble. Malaria is credited with an etiologic influence in cirrhosis by most writers on this subject in the current textbooks and encyclopedias. There is a great tendency noticeable among later writers to quote from those a little earlier without citing any new evidence, one way or the other. It seems to be generally agreed, however, that in certain tropic or subtropic districts where malaria is endemic, and frequently more or less chronic, the connection is close and intimate, not a few of the old malarial cases finally eventuating in hepatic cirrhosis. This connection, however, has not been observed in other countries. Osler states that with an extensive experience with malaria for 9 or 10 years in the Johns Hopkins Hospital, not a single case of hepatic cirrhosis was seen.

It is not necessary in this place to advert at length to various other infectious diseases, notably typhoid fever, as causative factors in the production of cirrhosis of the liver. Suffice it to say that the researches of Frerichs, Liebermeister, Cornil and Ranvier, and Hanot and others, show that the liver is profoundly involved in the morbid changes of typhoid. It is undoubtedly true that we can occasionally trace the starting point of a cirrhosis, in which all other causative influence is absent, to an attack of typhoid fever. Among other infectious diseases which may stand in a causative relation to cirrhosis may be mentioned smallpox, measles, cholera, yellow fever, and scarlatina. Overeating, and especially indulgence in highly-spiced food, may lay the foundation for hepatic cirrhosis. This is especially true in persons who lead an indoor or sedentary life.

It is believed that certain mineral poisons, such as antimony, arsenic, and notably lead and phosphorus have the power to set up an irritative hyperplasia of the connective tissue of the liver, eventuating in true cirrhosis. It is hardly necessary in this connection to

¹ Contributed to the Discussion on Cirrhosis of the Liver, before the Medical Association of Greater New York, November 14, 1904.

² Medical News, February 8, 1902.

consider the forms of cirrhosis due to antecedent or associated morbid conditions, viz., those secondary to acute yellow atrophy, malignant growths, diabetes, ptomain poisoning, peritonitis, etc. One factor believed to be responsible for a certain form of cirrhosis may, however be referred to, viz., traumatism. It is well known that external injuries, *e. g.*, those produced by falls, blows, the impact of spent bullets or other projectiles producing contusions or other injuries in the hepatic region may give rise to perihepatitis or inflammation of Glisson's capsule. Many of these cases of perihepatitis no doubt run their course and terminate in recovery in a short time or result in suppurative hepatitis or abscess formation. Many able observers however, notably Professor Bartholow and Professor Loomis in this country; Poulin, of France; and Roller, Frerichs, and Quincke, of Germany, believe that such injuries may be the starting point of an adhesive or fibrous perihepatitis which, following the course of Glisson's capsule into the interstitial structure of the organ, may lead to a condition analogous in all respects to a true atrophic cirrhosis due to alcoholism or other cause. I have recently been interested in a medicolegal case in which a man, aged about 50, previously healthy, and of nonalcoholic history, was injured by a collision with a delivery wagon, sustaining, among other injuries, a contusion over the liver, accompanied by severe, long-continued pain. He gradually recovered from the immediate effects of the injuries, but failed to regain his accustomed health and vigor. Within nine or ten months symptoms of liver trouble set in, abdominal dropsy ensued, the superficial veins of the abdomen became enlarged and prominent, and after several tapplings the patient died with the ordinary symptoms of hepatic cirrhosis a little more than two years from the receipt of the injury. No other satisfactory cause of hepatic cirrhosis being offered by the defense, the court admitted the connection between the injury and the liver trouble and rendered a verdict accordingly.

The initial manifestations of cirrhosis are likely to be about as follows: The patient, an adult male, we will say, probably of alcoholic habits more or less prolonged, begins to suffer from attacks of gastric and intestinal irritation. Belching of gas, acid eructations, a sensation of fulness after meals, constipation alternating with diarrhea, and other symptoms of digestive disturbance are frequent. The occurrence of uneasy sensations or heaviness, and especially of occasional feelings of dull pain in the right hypochondrium, are now of great significance. The patient may otherwise feel quite well and his appearance be very good. If now a careful examination of the liver be made, the organ will be found somewhat enlarged. The anterior and lower margin is thickened and rounded and protrudes an inch or more below the free border of the ribs. Any enlargement whatever of the spleen is of prime importance. There may be some prominence of the superficial abdominal veins and the liver may be a little tender on pressure. If at this time the medical adviser recognizes the probable nature of the trouble and can persuade the patient to submit himself to good advice and regulate his habits, the portal stasis causing the enlargement of the liver may be overcome, the organ resume its natural shape and size, and good health be restored. Unfortunately, however, patients do not usually seek medical advice in this stage, or if so, they are very averse to relinquishing the habits which have been responsible for the trouble. Unless relief is soon afforded, the general condition begins to deteriorate and progressive emaciation is established. The skin becomes dry and roughened, the color tends toward an earthy pallor and purplish spots may appear upon the cheeks and nostrils. About this time the abdomen begins to enlarge and the appearance of stoutness about the body with the thin arms and legs is very striking. In most cases the distended veins on the surface of the abdomen have now become very distinct. The presence of abdominal

dropsy interferes with the physical examination of the liver and spleen, but if the patient be tapped and then carefully examined it will be found that the liver is beginning to atrophy, unless the case be one of hypertrophic or biliary cirrhosis, which is not often seen in America. The organ can no longer be felt below the free border of the ribs but in very thin persons by making the abdominal walls as lax as possible and pressing firmly with the fingers upward and backward, its lower margin, thin and hard, can often be outlined beneath the ribs and usually half an inch or more above the lower border of the ribs. The nodulated condition of the organ which is frequently seen at autopsies, giving rise to the name of hob-nailed liver, can seldom be recognized during life. According to Quincke the spleen is enlarged in half the cases, while Bamberger states that at nine-tenths of the autopsies in cirrhosis, increase in the size of this organ is found. At any rate, in a large number of cases of hepatic cirrhosis, the spleen is easily demonstrable by palpation soon after paracentesis. In some instances the increase in size is very extensive, its anterior and lower margins reaching as far as the umbilicus. If any further doubt now exists as to the diagnosis of cirrhosis of the liver, an examination of the ascitic fluid is helpful. Should it have a low specific gravity, 1,014 or less, an amber color, and contain but few cellular elements, it is almost certainly the ascitic fluid of hepatic cirrhosis.

BENIGN STRICTURES OF THE ESOPHAGUS: REPORT OF CASES.¹

BY

C. D. SPIVAK, M.D.,
of Denver, Colo.

Professor of Clinical Medicine, Denver, and Gross College of Medicine.

Constriction of the esophagus is not a disease *per se*, but a symptom of or a sequel to some other disease. Benign stricture of the esophagus may be divided into (1) congenital and (2) acquired.

Acquired stricture may be divided into:

1. Organic, *i. e.*, such as are due to changes in the tissues of the organs, comprising cicatricial formations, as (a) after ingestion of corrosive substances; (b) after the healing of an esophageal ulcer; and (c) lues.

2. Mechanical, due to occlusion, as (a) presence of foreign bodies; (b) polypi; and (c) thrush.

Due to compression from without, as (a) tumors; (b) malignant growth in the spinal column; (c) enlarged lymphatic glands; (d) aneurysm of the aorta; (e) periesophageal abscess; and (f) diverticulum of esophagus filled with food.

3. Spasmodic.

Outside of cancer, which comprises about 90% of all affections of the esophagus, the majority of all cases of benign stricture are due to cicatricial obliteration of more or less of the caliber of the esophagus, the result of losses of substance following scalds, produced by caustic substances swallowed generally by accident, but sometimes by design.

Symptoms.—Immediately after the ingestion of corrosive substances, a burning pain is felt beneath the sternum, there is expectoration of bloody mucus, swallowing is impossible, and thirst is intense. After the lapse of a few days, the swallowing of liquids becomes possible without much discomfort. Gradually a period ensues when both liquid and solid food are swallowed with impunity. This period may last from two to six months, when again an impediment to the swallowing of a large and firm bolus is noticed. These attacks of dysphagia occur at intervals of a few days, and soon after a large and firm bolus "will not down." Even smaller masses of solid food require an effort for swal-

¹ Paper read, and case of corrosive stricture exhibited, before the Medical Society of City and County of Denver, November 29, 1904.

lowing, and sometimes the patient finds it necessary to manipulate the side of the neck or to make some turning movement of the head. These efforts are sometimes attended with spasm, pain, regurgitation and dyspnea. As the disease progresses, solid food cannot be swallowed at all, and in extreme cases, even fluids cannot penetrate the contracted esophagus. The threefold change in the symptoms, especially referring to deglutition, namely: (1) A short period at the beginning when swallowing is impossible—the period of esophagitis—followed by (2) a period lasting several months, when deglutition is not impeded, and (3) a period when the difficulty of swallowing gradually redevelops—the period of stenosis—depend upon the pathologic changes which the injured tissues undergo.

Pathology.—The destructive change produced in the tissues by the contact of the corrosive substance is in the nature of a necrotic inflammation. In mild cases, *i. e.*, when the corrosive substance is well diluted, the superficial epithelium becomes necrosed and is desquamated in grayish shreds resembling croupous membrane. Alkalies may cause the membrane to swell and to form a soap-like mass. In severe cases the corrosive agent may convert the entire mucosa into a dirty gray or black eschar; the vessels are injected, the submucosa contains numerous ecchymoses, and there is a line of demarcation separating the dead from the inflamed tissue of the submucosa. Active suppuration occurs and the necrotic mucosa is desquamated. The entire length of the esophagus is inflamed and swollen. While this condition lasts it is obvious that deglutition is out of the question. After the necrotic tissue has been thrown off, the wound commences to heal and the swelling of the mucous membrane subsides. This period corresponds to the time when swallowing becomes possible. After a certain length of time the cicatricial tissue covering the extent of the healed wound begins to contract, the lumen of the esophagus becomes narrowed, stenosis of the esophagus is the inevitable result, and difficult deglutition recommences.

There is another complication that follows in the wake of corrosive esophagitis, and that is dilation of the esophagus above the constricted portion. This pathologic change is due to the fact that the food lodges above the constricted portion and remains there for some time until it is regurgitated. In time the esophagus becomes more tolerant and rejects the foreign body at gradually increasing intervals. The muscular coats lose their contractility under the constant irritation and become flabby and dilated.

Diagnosis.—During the inflammatory period the following points will establish the diagnosis of corrosive esophagitis beyond doubt: The history of ingestion of a corrosive poison, or the evidence of poison adduced from the odor of the breath and the discoloration of the mucous membrane of the mouth, edema of the glottis, pain, inability to swallow, and the expectoration of bloody mucus. During the third period—cicatization—the diagnosis is more difficult, especially at the beginning. It may be mistaken for spasmodic or malignant stricture of the esophagus. The absence of a history of poisoning, the presence of some nervous stigma elsewhere, and the ability to pass a sound, would point to spasmodic stricture. Malignant stenosis occurs in adults past middle age, and cachexia rapidly develops.

Treatment.—During the inflammatory period, rest, alkalies in acid poisoning, and vice versa, ice to the sternum, stimulants. Gradual dilation should be employed early. After the inflammatory period is over and the patient is able to swallow food without inconvenience, the sound should be passed. Conic semisolid elastic esophageal bougies should be used. Metallic or whalebone sounds with olive tips should be avoided; they are dangerous and less efficient. One should begin with the size that will pass the stricture, and gradually increase the caliber. The bougie should be left in the esophagus

for several minutes. At first the sound should be passed every day, and later every other or third day. When dilation is complete, a bougie should still be passed at intervals of one month so as to insure the patency of the tube and thus prevent the occurrence of a relapse. In some cases it is advisable to use Symmond's method, inserting a tube through the stricture and leaving it in place until it becomes loose, then inserting a tube of a larger caliber, and so on, the patient being fed through the retained tube. In a certain percentage of cases the stricture is so dense that ordinary dilation cannot be performed and surgical interference is the only way of securing relief. The following methods are employed: Dilation of the esophagus from below through the fistulous opening in the stomach; Abbe's saw; gastrostomy.

CASE I.—*Corrosive Stricture.* The patient, a child of 2, on July 25 drank by accident dilute lye. Large quantities of oil and dilute vinegar were administered. During the first few days the child suffered intense pain, expectorated blood and was unable to take any nourishment. Gradually the symptoms subsided and the child was able to swallow food. Toward the end of September inability to swallow food was noticed at intervals of one or two days, and later no solid food could pass at all. When I first saw the patient, October 26, it was unable to take food, either solid or liquid, for eight days. The child presented a pitiable sight; it constantly cried for food, was very weak, and highly emaciated. On introducing into the esophagus a urethral bougie of the smallest caliber (about an eighth-inch in diameter) I met resistance at $7\frac{1}{2}$ inches from the incisor teeth. After some gentle manipulation, I was able to push the sound through. I have used dilation daily for 14 days and every other day since. After the second dilation the child was able to swallow liquids and the improvement in its general condition was remarkably rapid. At present I am able to introduce a bougie of about a fifth-inch caliber, and the child can swallow pulverized crackers in milk.

CASE II.—*Spasmodic Stricture.* P. A. L., a physician, was referred to me by Dr. Gildea, of Colorado Springs. He came to Colorado for lung trouble, and is in good physical condition; has a good appetite, bowels regular, sleeps well. In February, 1903, he noticed some difficulty in swallowing, associated with pain in the neighborhood of the fourth costal cartilage, to the right of the median line. The dysphagia would come and remain for a week and then disappear for a week or longer. The quality or quantity of food had no influence on the dysphagia. Patient is of a highly nervous temperament. Bougies of various sizes were passed without causing pain or meeting any resistance. My assuring the patient that there was no organic trouble in the esophagus, supplemented by bromids, effected a cure.

CASE III.—*Spasmodic Stricture.* Mrs. T., aged 22, is in the second month of her first pregnancy. She has noticed a difficulty in swallowing during the last two weeks. At times she would be able to finish her meal after waiting a few minutes, on other occasions she had to interrupt her meal. She has never experienced any difficulty during her morning meal. Dysphagia occurred while eating solid and liquid food. The difficulty disappeared as suddenly as it came. Sometimes it would last for several hours. The patient feared the approach of meal time. On introducing a bougie it was caught and held fast like in a vice at a distance of about 14 inches from the incisor teeth. After waiting for a few minutes the sound was released and I was able to push it downward without difficulty. I assured the patient that there was nothing serious the matter with her, and that she should not fear to take her meals regularly. I did not use the sound again, but my presence at three successive meals acted as an impalpable esophageal sound, and she had no more difficulty.

CASE IV.—*Congenital Stenosis.* Father and son have had to be careful from childhood in their eating. They did not allow themselves to swallow an ordinary morsel of food. They did not eat, they nibbled. They drank large quantities of water with their meals. A sound of a very small caliber only could pass the esophagus. Both are of spare build, very active and have tolerably good health.

The Participation of the Eye in General Amyloid Degeneration.—Localized amyloid masses are found only in places rich in cartilaginous or elastic substance, the chondroitin sulfuric acid of which is closely related to amyloid material. Examples of such locations are the respiratory passages, the eyelids, and the urinary bladder. In general amyloid degeneration these places are usually unaffected, other factors than those mentioned determining the position. M. B. Schmidt has examined the eyes of seven persons who died of general amyloid degeneration, with particular reference to the cornea, the material of which is closely related to cartilage. The results obtained by him are as follows: The examination was negative in all the cases so far as the cornea was concerned; but in four instances amyloid degeneration was present in the walls of the ciliary vessels. The degeneration was not of a marked degree in two of the cases, and in no instance was the arteria centralis retinae affected.

THE GYNECOLOGIST AND THE GENERAL SURGEON : THEIR RESPECTIVE FIELDS.*

BY

BROOKS H. WELLS, M.D.,
of New York.

Professor of Gynecology at the New York Polyclinic and Gynecologic Surgeon to the New York Polyclinic Hospital; Visiting Gynecologist to St. Vincent's Hospital, New York; Consulting Abdominal Surgeon to the Brattleboro Memorial Hospital, Brattleboro, Vermont; Fellow of The American Gynecological Society, the New York Academy of Medicine, the New York Obstetrical Society, the Society of the Alumni of the City Hospital.

It has been said gynecology as a specialty is dead; that it has outlived its usefulness and has become but a part of general medicine and surgery.

This statement is sedulously iterated by some gynecologists who should know better, by many general surgeons and by numbers of physicians whose only claim to expertness in surgery is the desire to operate, or the fact that they have taken a six-weeks' course on the benches of some postgraduate institution. Armed with a confidence begotten of this extended experience and impressed by the ease and sureness of the blackboard diagrams they have been shown, they unhesitatingly attack a hysterectomy or complicated pelvic suppuration, and are sure when the patient dies that it is only because the operative conditions were of before unheard-of complexity. The same operators too often find urgent cause for the removal or mutilation of organs that should not have been touched and make a reputation for major surgery from minor ailments.

This picture is not overdrawn, but is sketched from incidents in my own recent experience. Thus, a general surgeon of some note, and holding hospital positions, ingenuously said to me: "I have taken up gynecology this winter," and when questioned as to results, freely admitted that in the preceding month he had done three hysterectomies for fibroids and that all three patients had died from hemorrhage, "but," as he said, "they were terrible cases that no one could have saved." Those were three unnecessary deaths.

A physician after a postgraduate operative course of six weeks diagnosed appendicitis and operated. Finding instead a pelvic trouble, he closed the abdomen and a few days later, presumably after reading up the subject, reopened the abdomen and removed an ovarian cyst the size of an orange. The patient died a half hour later.

Another, a general surgeon of some experience (and this specific instance might be multiplied, so common is it) cured, overlooking the very important fact of a recent adnexal inflammation, and his patient, a few weeks later, with a belly full of pus, was only saved after the loss of all her internal generative organs, and is now a neurasthenic wreck, a forlorn derelict stranded on the shoals of incompetency.

Instances like these, with many others of lesser import, all of which can be repeated in the experience of many of us make me feel that there is reason and necessity for the continued existence of the specialty of the gynecologic surgeon, for only by long training and extensive clinical experience can the necessary skill in diagnosis, accuracy in judgment, and finish in technic be acquired, through which similar errors may be avoided. Without these special qualifications accurate diagnoses cannot be made, the number of unnecessary operations is increased, the conditions after operation are more often not satisfactory, and the operative mortality is always unnecessarily high.

Gynecology has so advanced the plastic surgery of the pelvic organs of women and has so led the way in the development and technic of the surgery of the abdomen that the physician or the surgeon, seeing and reading of these successes, impressed with their apparent

ease and desiring to retain and enlarge his own clientele, endeavors to make them a part of his own work, forgetting that, his ideal of the gynecologist as a surgeon is and should be subordinated to the broader view of the gynecologist as a physician. By this I mean that gynecology is not by any means all mechanical and cannot with advantage be handed over bodily to general surgery. Gynecology must necessarily include the whole study of woman as influenced by her sex characteristics. This includes her evolution, physical and social; her degeneracy as regards pauperism, prostitution, and crime; her education, her economic relations, her physiology as modified by her special organs, her fitness for marriage and maternity, her condition during and after parturition, and the changes incident to the cessation of her sex functions.

The field of medicine is too broad and wide and its ideas and changes spring up too rapidly for any one mind to garner them all, hence its division into smaller areas for special study and the acquirement of special skill. Gynecology has been in the past a very important division of the field, one that has lessened much suffering of women and has yielded rich treasures of knowledge to its workers; so rich, in fact, that those in neighboring fields have endeavored to obscure or trample down its boundary lines and overrun its territory.

If we admit, as I think we must, that there is room and necessity for the special study of gynecology; and, further, that it is a broad and important portion of medicine, not by any means all surgical, and necessitating a highly trained judgment, extensive clinical experience and skill in its details of etiology, diagnosis, prognosis, and treatment, then we must also admit that one whose life work has been devoted to its study must be more competent to solve its problems than one who regards it only as an incident in his practice of general medicine and surgery.

If we assert the existence of gynecology as a field of medicine, we must also define the boundaries of that field, and here, as is often the case with national lines, we find disputed areas of territory.

Beginning with the external genitals, which are surely gynecologic, we have to include of necessity the contiguous structures of the rectum and the urinary organs of women. The vagina, uterus, tubes, and ovaries in all their conditions are clearly gynecologic, but he who is competent to deal with their diseases must of necessity be competent to deal with any abnormality found in the peritoneal cavity, as any of its structures may be involved as a complication of ovarian or tubal diseases. The necessary possession of this skill and its frequent employment in purely gynecologic measures tempt and almost force the gynecologist to undertake the surgical treatment of other intraabdominal conditions, and here he arouses the fears of the general surgeon.

That abdominal surgery is legitimately a part of gynecology, the specialty that has done most in developing it and in which it is most important, seems logical and proper and is so recognized by as representative a body as the American Gynecological Society and by the majority of real gynecologic workers.

Gynecology, while theoretically limited to the pelvis, must practically include the surgery of the abdomen in women. This work can be best done by those who have had the best and most thorough training in its intricacies. That means by the trained abdominal or gynecologic surgeon.

What I would most earnestly protest against, and here I am sure I speak for the general surgeon as well as for the gynecologist, is the recent and increasing tendency for the amateur, or, as Bovée has recently defined it, the mushroom gynecologist or surgeon, and physicians in general with little or none of the necessary surgical experience, skill in diagnosis or appreciation of danger, undertaking with a blind con-

* Part of a discussion before the Medical Association of the Greater City of New York, February 15, 1905.

fidence the most complicated and serious abdominal or pelvic operations.

For the credit of surgery, the lessened mortality, the lessened postoperative morbidity, the greater percentage of cures, these patients should be treated by those who, by long training and experience, may be best fitted for this special work.

SPECIAL ARTICLES

THE MOST EMINENT AMERICAN PHYSICIAN OF EUROPEAN BIRTH.¹

BY

A. JACOBI, M.D.,
of New York.

No part of the history of the world, or of a country, or of a community is often, if ever, included in the life of one man. To enable a great man to exert his powerful influence it takes a long previous evolution, social necessities, and labors of decades or centuries. It required philosophic historians like Buckle, or Lamprecht, to appreciate that; before them the story of the world was that of kings and wars; the soul of mankind was seldom written up such as it exhibits itself in the growing culture of society or mankind.

Science owes a great deal to individual endeavors; but even the greatest giants are the outgrowths of previous events. Even Virchow required Bichat, Schwann and Sibleyden, Morgagni, Malpighi, Broussais, and Rokitsansky to revolutionize the spirit of medicine. That is why no biography of a revolutionist or a reformer or a scientist should ever be written except in the closest connection with the history of his time. Unless that be so, he cannot be understood, nor is the story of his life anything but a collection of reminiscences or anecdotes, interesting, maybe, but not instructive, improving or encouraging.

As long as we live we learn from one another, but this interdependence is not thorough nor more than fragmentary. Only when we are in the position of studying all of a man's life and doings, is his life a complete lesson. Good biographies revealing the whole picture of a life are therefore full of teaching. Such a life I mean to present to you tonight.

The German revolution of 1848 swept to this country hundreds of thousands of emigrants compelled to leave their homes which had become incompatible with safety or satisfaction. Among them were mechanics, agriculturists, and professional men, not a few physicians. The vast majority joined the ranks of the American profession and shared their labors and scanty emoluments. Very few in proportion acquired fame or position. Some of the successful ones had more than they deserved; very few names are remembered. Like the single trees in a forest they lived and died unseen and unnoticed. But even the giants of the mountains, as soon as their lives ebbed away, disappeared from the memory of man. We are not a people that prides itself for its appreciation of dead benefactors; we are not grateful, neither as a people nor as a profession. When Alonzo Clark was buried, after having disappeared from active life a few brief years, the thousands of medical men in New York City, many of whom had apparently or really loved and admired him, were represented at his funeral by exactly 29 men, 20 of whom had white hair.

Ernst Krackowizer died September 23, 1875, exactly 30 years ago. Nobody exercised a mightier influence for good in New York and beyond. Probably there are, however, many here who never heard his name. When he died there was a great commotion. Medical and lay societies, scientific and political associations passed proper resolutions; 3,000 people crowded into Steinway Hall to listen to the eulogies pronounced by able speakers, and his life and deserts were the subject of an address delivered before the New York Academy of Medicine. It was printed nowhere, except in a pamphlet limited in its circulation to the dead man's family and near personal friends, not even in its "Transactions." It did not take long for the waves to close

over his memory, and there is nobody more worthy of being remembered for the good he did as a medical man and a citizen. I emphasize the latter; many will remember that the first title of honor we are proud to connect with the name of Benjamin Rush is that he was a signer of the Declaration of Independence.

Ernst Krackowizer was born December 3, 1821, in a small town in upper Austria. After finishing his college course he began the study of medicine in 1840. The next five years he spent in Vienna, Pavia, and again in Vienna, where he graduated in 1845. He was then selected by Schuh, at that time one of the greatest surgeons of Europe, to participate in a special course on operations, which lasted two years. He removed to a small town to practise his profession, but was within a few months recalled by Schuh to fill the place of his first clinical assistant, and to travel with him over the northern part of Europe. At that time he was the first person on whom the anesthetic influence of chloroform was tried in Vienna. In that connection, I, a very young student in a distant part of the country, heard his name mentioned.

The year 1848 drew near. The thunder storm which raged over Europe reached Vienna first of all the great capitals of Europe, after Paris had fired the first revolutionary cannon. No one here, unless he has made a special study of the history of that time, can imagine the fire of enthusiasm lit up in the young hearts of the nation. If there be any here who remember the trembling excitement, the daring, the longing, the surprise, the courage, the wild enthusiasm, the holy fire of that far-off day, when every brick in our northern cities was covered with flags, when there was no trading, and cheating, and note-shaving in New York City, but a sacred rage in the hearts of the people, and the consciousness of great needs and the approach of great deeds—I speak of the day after the fall of Fort Sumter was known to have occurred—if you remember that time, when the crusade for the restoration of the Union was preached on all corners and from all roofs—you have an idea of the spirit which animated and emboldened the youth of Germany and Austria. The best of the nation were no longer in the lecture rooms or the shops, but on the barricades or the battlefields. The greater the previous rottenness or corruption, the more powerful the reaction in favor of political freedom and liberal institutions. The longer the sleep, the more rapid and vigorous the waking up. The young men of some of the universities, unhappily too few, with their culture and enthusiasm, were, deservedly or not, the special and universal hope and pride of the masses. Whenever they meant to be so, they were the leaders of the political movements. Thus it occurred that, in the days of September and October, 1848, the students of Vienna, with a few older friends, most of them also connected with the university, were the masters, and leaders, and advisers of a vast empire. For, at that time, as Paris has always been the spiritual center of France, the soul of all Austria was in the great hall of the University of Vienna.

Is it necessary to say on which side in that contest Ernst Krackowizer was to be found? That he participated in the revolution?

No; he did not participate, he led. The example of the medical classes, the superior savant, the dexterous operator, became the prototype and a leader of the revolutionists. They were beaten, however, in Vienna, like ourselves in the North.

From the battlefield he returned to the clinic. Then commenced the lynching called martial law. The Austrian youth not fallen on the field of honor were hunted down by the Croats, who had saved what is called the throne. The blood of Blum, Messenhauser, and Jelinek had been shed, and still Dr. Krackowizer held out in the "Allgemeine Krankenhaus." But come they did, finally, and then, at last, he looked out for safety. He escaped from Vienna, took refuge in the mountain home of his future father-in-law, fled from there over unknown parts into the Bavarian territory, thence to Frankfurt, thence to Tübingen. In Tübingen he found friends. There he had been with his teacher and friend, Schuh, and had formed the acquaintance of Professor Victor von Bruns, who made Dr. Krackowizer his clinical assistant; the university granted him the right to deliver lectures. The government, out of fear of Austria, objected, but the university insisted upon its right to

¹ Read in the first meeting of the new Historical Section of the College of Physicians of Philadelphia, April 24, 1905.

make its own appointments, in spite of the government. Thus he remained nine months, worked and taught, and formed acquaintances and friendships with the eminent men of all scientific circles, and of poets, such as Uhland and Schwab. But the days of the revolution were numbered. More and more increased the power of reactionary Austria, and the government of the small kingdom, Würtemberg, was no longer able to resist Austria's demand for the extradition of Krackowizer. Timely warning came, and he fled north. In the lecture rooms of the University of Kiel his voice was heard next. But the Schleswig-Holsteinian war, nominally a people's war, actually a war of Prussia and Austria against the last remnants of the revolutionary people, drew near its end. The Austrians approached, and Krackowizer, who had some time previously declined to accept the appointment of medical director of the insane asylum in Zurich, Switzerland, fled again. It was in Kiel and Rendsburg, where I was stationed a short time in the summer of 1850, that I heard of him again. But he had escaped to America in May, 1850.

The history of the Vienna School of Medicine is well known to you. Rokitansky believed in nothing but autopsies; Skoda was more sober and thorough, but believed in nothing and craved nothing but diagnoses. The more of his patients would die, the more pleased was Rokitansky. From that time dates the therapeutic nihilism of the Vienna school, which has done so much to drive patients into the camps of quackery.

The physiologic action of medicines was not known at all; whatever we know of them at present, by experimentation and close observation, is of more recent date. Thus Skoda saw, or appreciated, no effects. What he learned, or believed he had learned, he proclaimed with loud voice. Thus he is the original founder of that nihilism in therapeutics, which, especially in the hands of Dietl, and still more of Hammernjk, has contributed more than anything else—against right and reason—to carry the name of the Vienna school of medicine all over the world. This nihilistic tendency, however, was soon contested, and finally overcome. The medical world was soon aware that the principal claims of the Vienna school were not those based upon denying and breaking down, but upon what they built; and the names of Rokitansky, Skoda, Kolletschka, Helm, Hebra and Schuh, the original thinkers of that time, will live forever in the annals of medicine. Their time was one of revolution in both the scientific and the political world, and it was just that time in which Ernst Krackowizer studied and worked and taught in Vienna. In immediate contact with all the illustrious men around him, he participated in and criticised their results. Beside, his travels brought him into close relations with men and ideas of distant countries. Before he traveled, as early as 1841, Roser and Wunderlich, who, to the day of his death, was a warm admirer of Krackowizer, had founded their *Journal of Physiological Medicine*, on the principle that pathology was to be considered as nothing but the physiology of the sick. They were followed, in 1842, by Henle and Pfeuffer's *Journal for Rational Medicine*, and, 1844, the *Prague Quarterly for Practical Medicine*. While these journals flourished, the old magazines gave way before the new era, and no one was more anxious and fitted to grasp the results of universal observations and discoveries than Krackowizer. He soon knew that the Vienna school was but the offspring of the French school founded by Broussais, only more sober, established on better observed facts, and more consistently led by principles. He was soon aware and remained so during his life, that no single school of medicine, no single doctrine in medicine can find the stone of the philosophers. There is no such thing as a "school" in exact sciences, such as physics, mathematics, or astronomy. The more scientific medicine has become, the more have the claims of systems and schools exhibited their weakness. He recognized no exclusive claim of "solidar" or "humoral" pathology, no exclusive rights on the part of physiology or chemistry, or a therapeutic system, or of the new discoveries in the pathology of the blood, or nerves, or cells; nor did he see a universal boon in the increase of diagnostic perfection, or in the results of experimental therapeutics alone; he knew through his whole career that man cannot be subsumed under the definitions of a school; human sufferings cannot be measured and explained by always the same methods, or relieved by

the same means; nor did he ever stoop to the golden calf of nihilism, and condemn the use of medicinal agents. Medicine was to him entitled to be both an exact science and a social and humane institution.

While he studied and recognized man as a link of all creation, he revered medical science as comprehensively connected with all scientific facts, no matter where found and whence collected. Thus, while he was eminently a humane and a practical man, in order to be so he was erudite, in the full meaning of the word. It was this erudition of his which proved one of the principal charms in his medical career. He was conversant with medical science in almost all its branches. Thus every word of his, when he participated in a discussion, was fraught with solid contents. In his views he was universal. He was just as removed from looking on medicine as a business as on a tissue of conjectures or possibilities, or a merely sentimental vocation. He was as well acquainted with the history of medicine as with the anatomic and physiologic points of a diagnosis, for the embryology of medical science was of as much importance to him as that of the human being. He thought just as little of men who did not care for the fathers of medicine as he would have thought of an American who did not know the fathers of his country. For George Washington and Jefferson are of no vaster importance, politically, in the history of the world, than Harvey or Bell in that of medicine.

Dr. Krackowizer arrived in New York on June 28, 1850. He settled in Williamsburg, where he was married in 1851, and engaged in a rapidly-increasing practice, until he removed to New York in the autumn of 1857. Here he resided a long time in 49 Amity street, the last 12 years in 16 West Twelfth street. His new office in 138 West Thirty-fourth street, he arranged completely, without ever being able to move into it. The medical men of Brooklyn had soon learned the caliber of the man, and selected him for one of the surgical places in the Brooklyn City Hospital. There he served until his increasing engagements in New York prevented him from attending to his duties as only he knew how to serve. Then he resigned, and never have the Brooklyn surgeons parted with a colleague more unwillingly than at that time. He, however, was none of those who stick to a place or cling to an honor without repaying for it with more than a full equivalent of work.

On February 1, 1852, he joined Drs. Roth and Herczka, in the publication of the *New York Medical Monthly* (New Yorker medicinische Monatsschrift), which was discontinued after a year, and forms a handsome volume of 388 pages. It was published in the German language, and was meant to circulate among the German physicians of this country and Europe. The cover of each number explains part of the insufficient pecuniary success, which may have been one of the causes of its being discontinued. It has an announcement as follows: "Advertisements of booksellers, apothecaries, dentists, instrument makers, bandagists, and importers of instruments and bandages, and of everything connected with medicine, and agreeing with the dignity of our journal will be admitted."

This is a condition which I have not seen printed since. The journal contained original papers, histories of important cases, clinical observations, extracts, reviews, and criticisms, most of them of a superior order. Dr. Krackowizer's principal contributions were (p. 21) "History of a Tumor Vasculosus on the Occiput of a Child"; "Improvement of the Exarticulation in the Ankle-joint, with Resection of the Malleoli, According to Syme" (p. 58); "Staphylorrhaphy" (p. 120); "Detmold's Treatment of Pes Valgus" (p. 142); "The Modern Views of Syphilis" (p. 257); "Contributions to the Diagnosis of Hernia" (p. 343). Among the clinical reports are those of patients treated in the clinics of Drs. Parker, Van Buren, Detmold, and others. The spirit of the journal may best be judged by the contents of a letter addressed to the German profession of Europe, in the first number. It warns against the tendency, at that time prevailing in Europe, of underrating the position and merits of the American profession. While admitting the fact of our inferior opportunities and advantages, and the further fact that most of our colleges were private, and not always first-class institutions, it is urged that the very competition of the colleges has a tendency to improve their status. The letter closes as follows: "I have no doubt we shall soon

have State universities, which will have nothing like European compulsion, but will be free institutions for the most advanced instruction. In this, again, the natural self-development of the American spirit exhibits itself. It begins at the base, and culminates above. The political powers in Europe were interested in having ignorant masses and a few learned men; for that reason the universities were older than elementary schools. These latter had great pains in getting started. The universities organized elementary and higher schools on their own system and perverse principles. But in America, people thought first of initiating a general popular instruction; they cared not so much for learned individuals as for a cultured people."

What has been quoted explains most of Krackowizer's position in our midst. His appreciation of our institutions and maxims was eminently that of a philosopher who sees clearly and judges wisely. He felt that the distance of the two hemispheres had to be abolished by mutual understanding and esteem, and thus the journal he aided in starting and editing was published in the German language. Only such a reason could be found valid enough for that course. It is true he was eminently a German, his education and memories were German; no country but Germany could have, at that time, produced the thorough savant, the enthusiastic reformer, the manly spokesman of truth and right.

From the time he landed here to his death he was an American, and the language of the country that which he considered the proper mode of communication with the people and the profession, and well and concisely and tersely he knew how to use it. And no man has used it to better advantage, not only to communicate his knowledge and thought, but also to connect the apparently incongruous elements of which the profession is composed in a city which is a conglomerate of emigrants in the first, second, or third generation, and which, in many respects, is as much European as it is American. No man was ever more impressed with this fact, and with the other fact also, that the American, particularly the New York profession, although mostly speaking the English language only, is eminently cosmopolitan. No man more than he appreciated so keenly the readiness with which foreigners, particularly Germans, were received by the whole and the individuals of the profession.

Thus he was both a German and an American, more of a German thinker than he might have become in Germany, inasmuch as the mental food he enjoyed here was of a different character; more of an American than many Americans, because American empiricism and practical ingenuity was in him rendered more humane and sacred by his German mode of reasoning and reducing to principles. In this mixture of the two great qualities of the two nations he saw the glory of American future. Philosopher as he was, he saw the two nationalities happily blended into one, their mode of feeling and thinking modified, and fortified in the interest of human progress. Nor was he, with his statesmanlike views applied to small things and great alike, shaken in his friendly and optimistic hopes for the development of both the profession and politics of America.

Such was the man who moved to New York in 1857, 48 years ago. Since that time he was prominently before the profession. He belonged to many societies, was an officeholder in many—president in the Pathological. The Medical Society of the County of New York, the Academy of Medicine, the Pathological Society, the Medical Library and Journal Association, the New York Physicians' Mutual Aid Association, the New York Society for the Relief of Widows and Orphans of Medical Men, the New York Public Health Association, the American Medical Association, counted him on their lists of members until his death. For none did he work more than for the Pathological Society and the Academy of Medicine.

As a contributor to the former, as a debater and committee chairman in the latter he was punctual, sagacious, and effective. He was long missed after he had gone.

Still more time and labor was spent on public institutions. He was one of the surgeons of the German Dispensary, later of the German Hospital; of the Mount Sinai Hospital, the New York Hospital, and in 1874 and 1875 in Bellevue. Here he re-

signed on account of what he considered and publicly proclaimed as the faithlessness of the board of governors, who after placing the reorganization of the hospital into the hands of the medical board, interfered with its working, and broke their promises. Dr. Krackowizer never broke his to anybody, and would not permit anybody, least those in power, to act wantonly and mendaciously. He was the ideal "knight without fear and without reproach." He tried hard to keep up the sense of honor in the medical profession. Maybe that 30 years ago the running after places, and after the rich, the subservience to the whims of trustees, the obsequious bowing to well-clad insolence, had not reached the accomplishments of a modern genuine art, but there were officeseekers and sycophants at all times.

What became of the name of Ernst Krackowizer in the annals of Bellevue? What of his deserved immortality? The young person entrusted with writing the history of Bellevue some 20 years ago, never mentioned Ernst Krackowizer's name. That is one of the ways history is not written.

The German Dispensary was opened in 1858 in Canal street. It was afterward in Third street and in St. Mark's Place, and is at the present time in Second avenue. It will be transferred up-town within a year. It proved a successful institution from the start, both for the suffering public and the attending physicians and surgeons. The leading spirit of the institution and the scientific reunions was Dr. Krackowizer. Both his superior character and intellect placed him not in the first ranks, but at the head of all those on whom he, in his modesty, looked as his equals.

As he was in public, thus in private relations. He had time for everything, for everybody. His advice was sought in medical, in surgical cases, in pathologic questions, by the rich, by the poor. The latter he would rather serve first, if he made a difference at all, for his brain and heart were democratic to the core. The sick adored him, his colleagues admired, followed, and all of us, foreign or native, leaned on him.

He published very little. The "novum prematur in annum" lasted too long with him; an immense amount of thinking and learning was buried in his quiet grave. His instinctive modesty, and a positive horror of a great part of our daily medical food, beside incessant overwork, were the principal reasons of his refusing to write.

Of the cases presented to the Pathological Society, I mention a very few.

A case of complete occlusion of the upper end of the ileum was shown April, 1862 (*Medical Record*, June 7, 1862). The child lived from March 16 to April 21—five weeks. It passed urine rather normally; was fed on milk and fennel tea, the other twin baby being nursed. It retained food, vomited every fourth day only, but grew restless two days after vomiting. There was no peritonitis; the small intestines were dilated so as to fill the abdominal cavity. The intestines below were narrow and short. The glands belonging to this portion were but little developed. Between the dilated upper portion of the intestinal tract and the lower contracted part was a short filament of connective tissue.

Necrosis of head of femur, with the following remark: "A good deal of harm can be done by operating too early, and an equal amount by postponement. The proper time to choose for such a proceeding is when the sequestrum is merely imbedded in the soft granulations, which sprout out of the involucrum." Pathological Society, September 25, 1861 (*Medical Record*, October 12, 1861).

Before the surgical section of the Academy of Medicine—meeting of April 25, 1862 (*Medical Record*, June 28, 1862)—Dr. Krackowizer made extensive remarks, part of which follow, briefly: "Tracheotomy has been performed 250 times in New York and Brooklyn, oftener than in Great Britain and Ireland, and oftener than in Germany. W. Roth has operated 48 times, being outranked in the number of his operations by only three or four Paris surgeons." Dr. Krackowizer reported 31 cases of his own and 10 in which he had assisted. He warned against giving too positive promises in regard to permanent or even temporary relief, for croup symptoms and suffocation frequently return when the disease progresses downward. Anesthesia is a great aid in the operation, and not more dangerous

than in other operations. Dr. Voss was of the same opinion. Dr. Roth used chloroform in tracheotomy the first time on June 14, 1854. Dr. Snow only had preceded him. There is no such thing as a spasm as a complication of the croup dyspnea, for this latter symptom is not improved by anesthesia. In cases in which anesthesia is established by carbonic acid poisoning, no anesthetic is required. These cases are very rare. When no anesthetic is used, there is more struggling and more dyspnea.

In the discussion in the Medical Society of the County of New York, April 3, 1871, upon abscesses of the processus vermiformis, Dr. Krackowizer related the case of a young man who had repeated abscesses until a seed of a pear or apple was discharged; also the case of a boy who had a cecovesical fistula, and discharged *Ascaris lumbricoides* through the urethra; finally, that of an idiotic boy of seven, who had always been on milk diet. Once in his life he was given some strawberries; some time after he died of perforation of the vermiform process. Two concretions were found, each of which contained a strawberry seed. In connection with this subject, he then made the following statement, which I repeat in full, because I think it of very great importance, and positively correct:

A point concerning the etiology of the affection has often occurred to me. Seeking the first of the series of pathologic changes that led finally to the fatal result, we frequently find in the postmortem examination of these cases not only the recent exudations which had walled up the matter until finally it broke through them into the peritoneal cavity; not only the ulceration and perforation of the appendix, but besides these, adhesions apparently much older, binding down the appendix to the surrounding parts. My impression is that these first adhesions of the appendix, by their traction, render patulous its opening into the cecum and thus expose it to intrusion of seeds or other foreign bodies, about which form the fecal concretions which lead to ulceration. This point seems to me worthy of further investigation to ascertain whether or not it is customary to find such adhesions of older date than the ulcerative process.

I heard him say in his terse way: "The perityphlitis you are called to see is not the first one. There were attacks before."

This may suffice. But I should not do justice to the man if I did not emphasize the fact that he was more than a medical man only. Whatever is called manliness that he had; he was at the same time manly and humane. His life was spent in learning and doing the right. Man was to him not only an interesting subject in the sick bed, the anatomic theater, or on the operating table, but in individual and political and social life. Never did he cease to take an active interest in social questions and in politics. In him, politics assumed again the purity which even we know how to appreciate and admire in the fathers of this country of ours. He did not drift into politics; he was a born politician, for he lived, soul and heart, with the people, its development, growth, efforts, its happiness and unhappiness. Nourished upon the classics, he was a republican of old. No oppression or injustice found grace before his eyes. Thus he was a freesoiler, thus he was an abolitionist; no matter whether the chains to be broken were those of color, or religion, or sex. Whatever were his convictions, he translated them into deeds. Force and action were with him identical. He supported Fremont, supported Lincoln, supported energetically the war for the Union. But never was he one sided, or his eyes blinded by passion. When the waves of political fury and rancor dashed as far as into the New York Academy of Medicine, he was one of only two, both of them foreign born, who strenuously resisted the expulsion, for alleged rebel sympathies, of a Southern-born member, whose name soon became a household word in two hemispheres. And when the war terminated he was one of the far-seeing politicians of the better class, who, while severely reprimanding the offensive course of Andrew Johnson, were in favor of dealing with the conquered South on an unmilitary basis. He was one of those who, during the first administration of Grant, hoped for the speedy disorganization of the old political parties, either of them having outlived the conditions of their existence, and for new frames in which the political development of the country could find fair play. Thus, as he had supported Grant against rebellion, he supported liberalism against Grant. He was one of the first

who cut loose from the Republican party, to become what is nowadays called the independent voter, occasionally still a Mugwump. He felt assured that the American people would not always be guided and gagged much longer by party ties, holding that the party is only the means of executing the desires and wants of the community, and not an aim, an entity in itself. Thus, he was a supporter of Greeley in a presidential election rather than of Grant, and an independent voter, as he was an independent thinker and man to the very last.

On the field of politics, as on others, places and honors sought him. In the majority of campaigns, he was at the head of large organizations; in the Committee of Seventy, and the Council of Political Reform, he was an esteemed member. To whatever he directed his attention, the attention of the public was directed to him. Whenever his services were required, he gave them, no matter whether in rank or file. Let me quote here what Plutarch says of one of the most beautiful specimens of Hellenic spirit and valor—Aristides: "Admirable was the equanimity of the man in all changes of his public relations. He never prided himself on account of honors, he remained quiet and self-possessed on provocations and insults. He always deemed himself under obligations to his country, and declared to owe it the same zeal, and to work for it without either pecuniary advantage or honor, or appreciation."

He was great as a physician, but his principal greatness he has obtained as a man in whom great powers were happily blended in harmony. Much had been given to him, much was demanded of him, and he gave it all.

When he died, and after his death, I often wondered which six men in the profession could or would fill his place. H. B. Sands was as good a surgeon, W. H. Draper was as eloquent, as classic, as erudite; Alonzo Clark as elegant and as full of knowledge such as Anglo-Saxons had furnished to the medical profession; Austin Flint was as painstaking and industrious, but who was there with as wide a horizon, with absolute impartiality, who to equal his eagerness, to give his time and means, and strength, to the service of the profession, the community and mankind, his harmony of brain and heart, and his wonderful unselfishness. What is there of him at present? Almost nobody to remember as much as his very name. And still, there was nobody in the New York profession whose influence during his lifetime was as great as his, and who lived for a few years at least in the memory of some as a friend and a prototype. The influence he exerted, whether acknowledged or forgotten, must still live; for nothing that ever left the inorganic world to become active life, is ever lost, least of all, a great man "whose soul is marching on."

A training-school for cooks at Fort Riley, Kan., has been recommended by the Commissary General of the army and the details of the plan of instruction are being worked out by the general staff. It will probably be conducted on the same lines as the newly-established training-school for bakers and both schools will be under the charge of Captain M. S. Murray of the subsistence department. There will be about 18 pupils, upon completion of the course they will be sent out to impart their knowledge to others. The efficiency of the entire military establishment bears a close and vital relation to the satisfaction of the men with their food. The preparation of the subsistence of soldiers is regarded as of importance by the authorities and there will be material and permanent advantages of the system of training.

Large Appropriation for Sanitation in Cuba.—The Cuban House of Representatives in session at Havana, passed the Senate bill, appropriating \$1,500,000 to assist the municipalities in the work of sanitation. Twelve moderates (Government party) voted against the bill because of the statement that President Palma would veto it on the ground that the Platt amendment requires the Government itself to perform the work. The Liberals held that the latter course would provide jobs for a host of Government supporters. It is reported that Secretary Hay's note, presented April 28 and dated March 10, urges in strong terms the observance of Cuba's obligation to put the cities in a sanitary condition, and that Cuba willingly and promptly fulfil her contracts with Americans, especially the covenants contained in the Platt amendment, afterward incorporated in the permanent treaty. The note cites the contract entered into by the city of Havana, July 10, 1902, for sewerage and paving at an expense of \$13,000,000, and says the efforts of the city to fulfil this agreement have been rendered abortive by the inaction of the Cuban government.

MISCELLANY

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,
of New York.

The eleventh regular meeting of the Society for Experimental Biology and Medicine was held in the Zoological Laboratory of Columbia University, on Wednesday evening, April 19. The president, Edmund B. Wilson, was in the chair.

MEMBERS PRESENT.—Adler, Auer, Calkins, Emerson, Gies, Hatcher, Jackson, Lee, Levene, Levin, Lusk, Meltzer, Morgan, Murlin, Richards, Salant, Sherman, Torrey, Wallace, Wilson, Wolf, Yatsu.

MEMBERS ELECTED.—Harlow Brooks, W. B. Cannon, A. J. Carlson, R. G. Harrison, A. P. Mathews, G. H. Parker, A. E. Taylor.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.¹

"The relation between normal and abnormal development of the frog's egg." T. H. MORGAN.

The method of development of the frog's egg may be changed by a number of external agents. If the eggs are revolved at the rate of 180 revolutions per minute; if they are put into salt solutions of definite strengths; if they are subjected to a low or to a high temperature; if they are deprived of sufficient oxygen, or surrounded by carbon dioxide in solution; if they are placed on wet filter paper instead of developing under water—in any of these ways abnormal embryos result.

An examination of the effects of these external agents brings out two points of especial interest. First, that the effects are not gradual, *i. e.*, corresponding in degree to the increasing strength of the agent employed, but that no effects appear up to a certain point and then suddenly the agent begins to act. Increasing the strength of the agent above this point may for a small range increase the effect, but this occurs within extraordinarily narrow limits compared with the lower range of nonaction. The most plausible explanation of this mode of behavior in most of the cases is as follows: The agents act by coagulating certain parts of the egg, thereby preventing their further development. Other parts of the eggs that are made up of different colloids or of different concentrations of colloids remain unaffected, and proceed to carry out their development as far as the presence of the injured region allows.

The second point was the one that the author spoke of especially. Despite the great diversity in the form of the abnormal embryos, most of them may be reduced to modifications of the same type. For example, in many cases the dark cells of the upper hemisphere do not grow down over the lower hemisphere to produce there the embryo, but, remaining at the top of the egg, partially constrict off from the yolk cells at, or even above, the equator of the egg. Out of these dark cells the abnormal embryo develops usually in the form of a ring. Sometimes one side only of the ring develops and a half embryo appears; sometimes only the anterior end of the ring develops and an anterior embryo appears (often more or less "open"), etc.

The author called especial attention to the fact that the abnormal embryo develops in the material of the upper hemisphere; while the normal embryo develops over the lower hemisphere. Two interpretations of this difference seem possible. Either the material is totipotent and an embryo may develop anywhere in the egg, appearing in the less injured regions; or the material for normal and abnormal development is the same and becomes carried downward, during the early stage of normal development, from the upper into the lower hemisphere.

The author tested these alternatives in two ways. In the first place he removed with a needle the two anterior, or the

two posterior, or even all four of the upper blastomeres at the eight cell stage. The results showed that when the two upper anterior blastomeres are removed, the head end of the embryo is defective; when the two upper posterior blastomeres are removed, the posterior end sometimes shows defects. When all four of the upper blastomeres are removed, no embryo develops, although the blastopore rim may appear near the equator of the egg, the gastrulation process may begin, and the differentiation of the germ layers take place to a certain extent.

The author concluded from these results that some at least of the material that goes to form the embryo, lies at first high up in the upper hemisphere of the egg. In the light of this conclusion, it became necessary to examine once more the early development, especially the pregastrula stages; for despite the fact that the frog has been a classic object of study with embryologists for over a hundred years, no one has suspected that the embryo-forming material lies in the upper hemisphere and is transported to the lower hemisphere *before* the lips of the blastopore have appeared.

Briefly, the author's examination showed that throughout the early period of segmentation the material of the upper hemisphere gets pushed far out to the sides of the egg. This is brought about largely by the development of the enormous segmentation cavity. During the later cleavage period, the yolk cells of the lower hemisphere push upward into the segmentation cavity, almost obliterating it. This upward movement of the cells in the interior is compensated for by the moving downward below the equator of the outer layers of the egg. In this way the embryo-forming material is carried into the lower hemisphere. Along its edge the lips of the blastopore develop. The dorsal, lateral and ventral lips roll over the yolk (or more accurately, the yolk draws in beneath their advancing lips), and the dorsal organs of the embryo (the embryo in a narrower sense), appear over the lower, or yolk hemisphere of the egg.

"Rejuvenescence in protozoa." GARY N. CALKINS.

The process of conjugation in protozoa involves either temporary or permanent union of two individuals. During this union there is a fusion of nuclear material from both organisms resulting in the formation of new cleavage nuclei in each exconjugant. The process is directly comparable with fertilization of an egg by a spermatozoon, and the biologic significance of the phenomena involved is probably identical in all living things.

Since 1876 it has been generally assumed that one effect of conjugation is rejuvenescence or renewal of vitality in both of the exconjugants. This assumption has never been submitted to experimental proof. In his *Paramoecium* work, begun in 1901, the author almost had the proof, but allowed the opportunity for obtaining it to slip through his fingers without realizing its importance at the time. The author's object in bringing this up at the present time is to announce that on the last day of February (1905) he started a new series of experiments with *Paramoecium*, consisting of three different lines at present in about the fortieth generation after conjugation, mainly for the purpose of completing his earlier work.

Another point of general biologic importance will also be investigated. In his original experiments the author found strong evidence that the old view that both exconjugants are rejuvenated is erroneous. In 20 pairs which were cultivated after separating from conjugation, at least one individual of each pair invariably died before many days, thus indicating an incipient fertilization like that in metazoa. This phenomenon will be given careful study in the experiments now under way.

"Temperature and muscle fatigue." FREDERIC S. LEE.

It has been pointed out previously by the author and others that the contraction process of the muscles of cold-blooded animals in the course of fatigue becomes greatly slowed, while those of warm-blooded animals show no such phenomenon. Lohmann has recently claimed that a cold-blooded muscle on being heated to a mammalian temperature shows a course of fatigue similar to that of mammalian muscle, and on the other hand, that a warm-blooded muscle on being cooled, fatigues like the muscles of cold-blooded animals at a similar temperature. From these supposed effects he concludes that in the matter of fatigue

¹ The authors of the reports have written the abstracts. The secretary has made a few abbreviations.

there is no real physiologic difference between the two groups of muscle.

The author has investigated the question by very careful methods in a considerable variety of animals, and has not been able to confirm Lohmann's conclusions. The muscles of the frog and the turtle show their characteristic method of fatigue whatever the temperature. The muscles of warm-blooded animals on being cooled and then fatigued, show either no slowing of the contraction process or only a slight slowing. The latter seems to be most pronounced in the rodents, namely, the rabbit, the mouse, and the rat.

"On intraureteral pressure and its relation to the peristaltic movements of the ureter:" with demonstrations. DANIEL R. LUCAS. (By invitation.)

By means of a cannula placed in the ureter and retained without ligatures, and which did not materially interfere with the peristalsis of the ureter, the intraureteral pressure and its relation to the peristaltic movements of the ureter were ascertained.

In nine experiments on animals anesthetized with morphin and atropin, the pressure in the ureter arose only to a minute degree, the average being a negative pressure, more pronounced under the influence of diuretics. In five, in which chloroform was used, the pressure was always positive; the irritability and contractility of the ureter were noticeably diminished. In six, under ether, the ureter was noted to be irritable and contractile three hours after the anesthesia was commenced; the pressure was low. In four, in which ether followed the administration of chloroform, ether showed a stimulating effect on the peristalsis, running the pressure rapidly down. In three, in which morphin and atropin, chloroform, and ether were successively tried during the same experiment, the specific effect of each as above noted was again observed. In an animal in which anesthesia was produced by decerebration, irritability and contractility of the ureter muscle were noted; the pressure was low, tending to negative on stimulating the ureter distal to the cannula. In one animal, anesthetized with cocain by the lumbar puncture method, the same results as with morphin were obtained. In two artificially constructed systems, which were demonstrated, phenomena analogous to those observed in the animals were produced and the causes indicated.

The experiments, which also were demonstrated in part, seem to justify the following deductions:

1. A suction normally follows the peristaltic wave of the ureter; at the same time a force is exerted on the fluid in front of the wave.

2. When the ureter is normally acting, the pressure in the pelvis of the kidney remains constantly negative, this condition obtaining through the anatomic arrangement of the pelvis, which prevents it from collapsing under negative pressure.

3. Under the influence of chloroform, or conditions which retard muscular tone and activity, the pressure in the ureter becomes greater than that prevailing in the bladder.

4. It seems obvious, then, that the ureter functions as an active agent in the formation of urine. Sollmann has shown in his perfusion experiments on excised kidneys that the formation of urine is largely, though of course, by no means wholly a filtration process.

5. Ether anesthesia does not cause a cessation of the peristaltic movements of the ureter, but because of its suppressing action on the urinary secretion the curves were not recorded.

6. The ureter remains rhythmically contractile when excised and placed in warm physiologic salt solution, or for some time after the death of the animal when left in situ. Therefore contractility is not dependent on pressure.

7. An increased flow of urine calls forth a more efficient peristalsis, and therefore does not result in an increased pressure.

8. The force of the peristaltic wave was seen to raise a column of water of considerable height.

9. When sufficient force is exerted by the intrinsic pressure to overcome the peristaltic contractions the urine is forced back into the uriniferous tubules and accurate communication is attained with the vascular supply of the kidney. Consequently, the blood-pressure conditions can be accurately trans-

mitted to a recording instrument. The question then arises, why use an oncometer to obtain records of blood-pressure conditions in the kidney?

10. May not the diuretic effect, which is noted after administration of such drugs as mercury, for example, be attributed, in part at least, to the increased peristalsis of the ureter, causing, as it does, an increased negative pressure and therefore an increased filtration?

"Further observations upon the phosphorized fats in extracts of the kidney:" EDWARD K. DUNHAM. (Presented by PHÆBUS A. LEVENE.)

Last winter, at a meeting of this society, the author reported observations showing that extracts from dried kidneys, obtained with the Rosenfeld alcohol-chloroform method, contained from a third to two-thirds of their weights of lecithins. Rubow,¹ of Copenhagen, reports similar results of more extended studies, printed in Danish some months earlier.

During the last few months the author has learned that it is not necessary to boil with absolute alcohol and extract with chloroform in order to obtain the large quantities of extract yielded by the Rosenfeld method. Repeated extraction of the fresh, undried organ, with 85% alcohol at 45° C., will accomplish practically the same result. When making these extracts, it was found that upon cooling, the alcoholic solutions yielded a precipitate from which a substance resembling the protagon of Liebreich could be obtained. It is to this substance that the author directs attention in this report. The yield is from about 0.14% to 0.20% of the fresh organ, or from about 0.6% to 1.0% of the dried kidney.

In order to obtain sufficient material for analysis, the author employed the method used by Cramer² in preparing protagon from the brain. The method employed was, in brief, as follows: The minced kidney, freed from obvious fat, was treated with 5% sodium sulfate solution at 85° C. to 90° C., twice, the filtrates discarded and the coagulum extracted, first with 95% alcohol, and then repeatedly with 85% alcohol, at the boiling points, and the extracts filtered from the coagulum on a hot-water funnel. The filtrates were cooled to from 0° C. to -5° C., the precipitate was filtered out and purified by boiling with absolute alcohol, diluting with water to make 85% alcohol, chilling, filtering, treating the precipitate repeatedly with cold ether to remove cholesterol, dissolving in hot chloroform, reprecipitating by chilling, filtering and expressing all possible traces of chloroform. The resulting product is a white, somewhat crystalline substance, freely soluble in warm 85% alcohol or chloroform, but reprecipitating upon cooling. It contains fatty acids, phosphorus, methyl, sulfur, and, upon cleavage with dilute sulfuric or hydrochloric acid, yields a reducing substance from which an osazone may be prepared.

For purposes of comparison, a similar substance was prepared from beef brains, with the same method. Analyses of these products, two from different lots of beef kidneys and one from beef brains, were kindly made for the author by Dr. Phæbus A. Levene, with the following percentage results:

	From beef kidney.		From beef brain.	Cramer's figures for protagon from beef brain.
	(1)	(2)		
C.	65.61	65.55	65.78	66.25-66.42
H.	11.00	11.09	10.66	10.82-11.07
N.	3.17-3.15	3.24-3.26	2.61	2.29
P.	2.06	2.19	0.97	1.04
S.	0.82	.....	1.33	0.71

The substance from the kidney contains distinctly more nitrogen and phosphorus than that from the brain, and that obtained by the author from the brain contained considerably more sulfur than that prepared from the same source by Cramer. The cleavage products, however, show that all of these substances belong in the same group. The nature of the glucosid which may be obtained from these substances can only be determined by using larger quantities than have as yet been obtained, and the author hopes to report results in this direction in the near future.

¹ Archiv für Experimentelle Pathologie und Pharmacologie, Vol. III, p. 173.

² Journal of Physiology, Vol. xxxi.

"Comparative physiologic action of salts of neodymium, praeceodymium, and lanthanum." B. J. DRYFUSS and C. G. L. WOLF.

The experiments were undertaken to investigate the comparative physiologic action of three elements, which are of equal valency and of approximately the same molecular weight, and whose chemic properties are closely related. The experiments were carried out *in vitro* and on unicellular organisms, bacteria and infusoria, frogs, pigeons, rats, and guineapigs. The solutions used were the chlorids, isotonic with 0.6% sodium chlorid. In one case the propionate was used without any marked difference in the result being observed.

The chlorids coagulate egg and serum albumin, but neither the purified albumoses from Witte's peptone nor peptone are thus affected.

Dilute solutions delay the growth of bacteria and eventually kill. The solutions are not very toxic to spores. Opalina, paramoecia, and vorticellae are killed quickly, equivalent solutions of the chlorids acting in the following order of strength: Neodymium, praeceodymium, and lanthanum.

In frogs voluntary and involuntary muscle are quickly put out of action. This is particularly the case with perfused muscle. The solutions act in the same order as with unicellular organisms. Intravenous injection causes almost instant death, due to multiple embolism.

Attempted chronic poisoning was unsatisfactory. The solutions were introduced both subcutaneously and intraperitoneally. Some of the animals died with ill-defined symptoms. Others remained well, except for areas of induration at the seat of injection. Experiments with oral administration and on elimination will be conducted.

As all the solutions, owing to hydrolysis, are acid in reaction, the authors are inclined to attribute a large share of the acute effects to the acid present. The salts range themselves in their toxicity according to their molecular weights.

"The influence of bile upon blood-pressure." S. J. MELTZER and WILLIAM SALANT.

There have not been very many studies regarding the influence of bile upon blood-pressure, and among these the statements are conflicting. Thus, Traube, who was the first to study it upon the kymograph, states that the intravenous injection of bile salts causes a considerable fall of the blood-pressure, while Edmunds states, in a recent report from Halliburton's laboratory, that the effect is an insignificant one.

Nearly all of the investigators of this question within the last fifty years have employed bile salts in their experiments. The results of the authors' experiments were derived from intravenous injections of filtered ox bile into rabbits. Of the several reasons for employing bile and not its salts, one should be mentioned: It is the belief of the authors that for biologic phenomena we have as yet no right to assume that the sum of the known parts is equal to the whole.

In these experiments all degrees of effects have been observed, from an insignificant one to a considerable and even a fatal fall of blood-pressure. But these different degrees could be produced at will. Beside the quantity and the concentration of the bile, it was found that the rate at which it is introduced into the circulation is the most effective factor in the result. A quantity of bile of a given concentration, which, when injected slowly, would cause only an insignificant depression, brought about a tremendous fall of the blood-pressure when injected rapidly. By injecting rapidly normal salt solution the fact has been established that neither the mechanical influence of the rapid injection nor the temperature of the injected fluid can have anything to do with the pronounced effect which is invariably produced by the rapid injection of bile. Although the speed of injection was known to be a factor in the results produced by injections of other substances, it was never taken into consideration in the studies of the effects of bile. Thus, there are also conflicting statements regarding the immediate fatal effect of intravenous injections of bile. These contradictions find their satisfactory explanation in variations in the rate of injection employed in different experiments. Thus, a quantity of bile which, when injected slowly would produce hardly any symptom, causes death within two minutes if injected rapidly.

As to the cause of the fall in pressure, or of the fatal out-

come, it is generally assumed that it is due to the effect of the bile upon the heart, although opinions differ as to whether it is the heart muscle or the heart ganglions which present the point of attack. As to the manner of the injury, Traube, Leyden and other investigators are of the opinion that it is caused by malnutrition of the heart, due to the hemolytic effect of the bile. This is *a priori* improbable, since the fall of blood-pressure sets in immediately at the beginning of the injection and the return to normal begins as soon as the injection is stopped. The authors have, however, disproved this theory by direct experiment. On quickly injecting bile, the blood-pressure fell rapidly and the animal died in less than two minutes. The blood which was obtained immediately from the right ventricle did not show a trace of hemolysis.

Autopsies of rabbits killed rapidly in the above-mentioned manner showed in most cases nothing but dilated flabby hearts. The failure of the heart can be caused either by the bile affecting anatomically the heart muscle or the ganglions, or by a functional process, by inhibiting the heart's action. It is known that bile produces structural changes in muscles and nerve fibers and nerve cells. But it is hardly conceivable that the structural changes could be induced so rapidly and it is still less conceivable that structural restitution would occur with such rapidity as has been observed to take place in the return of the blood-pressure. It is therefore more probable that the bile exerts an inhibitory effect upon the heart.

In this connection the following experiments are of interest: 1. The inhibitory effects of a stimulation of the peripheral end of the vagus not only did not diminish during an effective injection of bile, but in a few instances were distinctly improved. 2. The inhibitory effect of the vagus was manifestly unimpaired shortly before the death of the animal, when the blood-pressure was not more than a few millimeters of mercury and the heart-beats were scarcely perceptible.

"A report of feeding and injection experiments on dogs after the establishment of the Eck fistula." P. B. HAWK. (Presented by Alfred N. Richards.)

The fistulous opening between the portal vein and the inferior vena cava was made in six dogs by Dr. J. E. Sweet. Observations were made as to the behavior of the animals when fed on a diet of proteid food. One typical experiment may be summarized as follows: During 11 days on a mixed diet there were no abnormal symptoms. On the four succeeding days beef meal and milk were fed, with the result that on the fourth day pronounced ataxia, loss of sight and hearing, complete anesthesia, and catalepsy were observed, recovery occurring on the next day. After fasting for 24 hours the animal was placed on a diet of fresh lean beef. In five days a recurrence of the above symptoms was noted. The death of the animal occurred on the fifty-ninth day of the experiment, after the dog had undergone a loss of 42% of his weight. Autopsy showed a fistulous opening 2 cm. in length and no collateral circulation. In other cases the symptoms described occurred only after the addition of Liebig's extract to the meat diet.

The administration to normal dogs of sodium carbamate, either by mouth or by intravenous injection, gave rise to none of the symptoms observed by Pawlow and Nencki.

"On chemie fertilization." JACQUES LOEB. (Presented by William J. Gies.)

1. In two previous publications the author mentioned the fact that by applying two different methods of treatment to the unfertilized egg of the sea urchin, this egg could be caused to develop in a way which resembled in all its essential features the development of the eggs fertilized with sperm. These two methods consisted, first, in putting the eggs for about two hours in hypertonic sea water (the method used in the early experiments) and, second, in exposing the eggs for from one to two minutes to sea water, to which a certain amount of acetic acid or formic acid had been added. When the old method alone was used the eggs did not form a membrane, nor did the larvae rise to the surface. When the acid treatment alone was used, the eggs formed a membrane and after about six hours divided into from two to six cells, but then died. When the eggs were exposed to the acid for only a short time, *e. g.*, for three-fourths of a minute, not all the eggs formed a membrane when put back into normal sea water; and in this case only

those divided into two or four cells and subsequently died within 20 hours, which had formed a membrane, while those eggs which had not been exposed long enough to the acid to form a membrane neither segmented nor died. If both methods of treatment were combined, however, those eggs which had formed a membrane developed at about the same rate as the eggs fertilized with sperm. A certain percentage of these eggs rose to the surface of the water in the usual way, while the eggs which had not formed a membrane either did not develop at all, or developed in the somewhat abnormal and slow way characteristic of the treatment by hypertonic sea water alone.

The reader will notice that the eggs were submitted first for about two hours to the hypertonic sea water and then exposed to the acid. When the order was reversed, and the eggs were exposed to the acid first and afterward to the hypertonic sea water for about two hours, most of them died without developing. This seemed rather strange, in view of the fact that in the case of sperm fertilization, the membrane formation is the first act in the series of events, while in the above-mentioned experiments it was the last. It occurred to the author that by shortening the time of exposure of the egg to the hypertonic sea water, he might also accomplish the last postulate of a complete imitation of the process of fertilization by physicochemical means, namely, to get the order of events identical in both cases. This idea proved correct. It was found that when the unfertilized eggs were exposed for about one to two minutes to 50 cc. of sea water, to which about 3 cc. or 4 cc. $n/10$ acetic acid were added, the majority of the eggs formed the membrane characteristic of the entrance of the spermatozoon. If these eggs were afterward exposed for from 30 to 40 minutes to 100 cc. of sea water, to which 14 cc. or 15 cc. of a $2\frac{1}{2} n$ solution of NaCl were added, those of the eggs which had formed membranes developed into swimming larvae that rose to the surface. The author has raised these larvae and they develop into perfect plutei as fast as the larvae of eggs fertilized with sperm.

It is very remarkable that when the order is reversed and the eggs are put first into the hypertonic sea water for about 40 minutes, and then into the acidulated sea water for about one or two minutes, not a single larva is formed, and the eggs behave on the whole as if they had been exposed to the acid alone. If it is desired to put the eggs into the hypertonic sea water first and then expose them to the acid, it is necessary to expose them to the hypertonic sea water at least an hour and a half in order to obtain larvae. On the other hand, if the eggs are treated with acid first and then exposed to the hypertonic sea water for from an hour and a half to two hours, most of the eggs die in the early stages of development.

It may also be mentioned in this connection that if eggs are fertilized with sperm first and then exposed to the hypertonic sea water of the above-mentioned concentration for about two hours, many more eggs will die without reaching the larval stage than when the order is reversed. It is therefore obvious that the process of membrane formation caused by the spermatozoon modifies the sensitiveness of the egg to the hypertonic sea water in the same sense as the process of membrane formation caused by the acetic acid. If eggs are fertilized with sperm and then exposed to the hypertonic sea water for from about 30 to 40 minutes, their development becomes almost identical with that of the unfertilized eggs treated first with acid and then exposed to the hypertonic sea water for the same period of time. The majority of these eggs segment and develop in a normal way.

2. The question arises as to how far the division of labor between the two agencies used in these experiments goes. Does the treatment with acid cause only the formation of the membrane, or does it also set the internal mechanism of nuclear and cell division into motion? And what is the role of the treatment with hypertonic sea water? From the author's earlier experiments he had expected that the latter was required to cause the internal changes necessary for karyokinesis. The direct observation, however, of the eggs treated in the above-mentioned way with acetic acid, shows that the acid treatment causes the formation not only of the membrane, but also, in due time, of the karyokinetic spindle; while the eggs exposed for only 30 or 40 minutes to the hypertonic sea water do not show any

karyokinetic changes or, in fact, changes of any kind. It is a striking fact that the spindle formation which can be observed in the living egg of *Strongylocentrotus* seems to be identical in the cases of the fertilized egg and the unfertilized egg treated with acetic acid in the above-mentioned manner. The role which the subsequent treatment with the hypertonic sea water for from 30 to 40 minutes seems to play, is, in the first place, the acceleration of the process of segmentation. When the eggs are treated first with acid and then for about 30 or 40 minutes with hypertonic sea water, they begin to segment at a temperature of about $19^{\circ} C.$, in from an hour to an hour and ten minutes after they have been removed from the hypertonic sea water. After this they go on segmenting at the rate and usually in the manner characteristic of the fertilized egg. The eggs treated with the acetic acid alone, after having formed a membrane, do not begin to segment for about five or six hours (if they segment at all) and they do not develop beyond the four or eight-cell stage, dying as a rule within 20 hours. The treatment with hypertonic sea water, therefore, first accelerates the mechanism of cell division originated by the acid treatment, and second, indirectly through or in addition to this acceleration, increases the vitality or prolongs the life of the egg.

It is not yet possible to say how the acid brings about its effects. Several years ago the author ventured the suggestion that the process of membrane formation was due to coagulation. The author's recent experiments, however, contradict such an assertion, inasmuch as the membrane formation never occurs while the eggs are in the acidulated sea water of the above-mentioned concentration, but only after they are taken out and put back into normal sea water. If the process of membrane formation were due to coagulation by acid, it should occur while the eggs are in the acidulated sea water. The author is inclined to believe that the acid acts chemically or catalytically upon some process in the egg, and that this action calls forth the membrane formation as well as, subsequently, the karyokinetic process.

The author also considers it possible (but far from proved) that the membrane formation by the spermatozoon and possibly the subsequent process of karyokinesis are due to the transitory action of an acid carried by the spermatozoon into the egg or produced transitorily by the spermatozoon in the egg; and that, in addition, the spermatozoon carries a second agency or substance into the egg, which supplies some of the conditions produced in the above experiments by the brief treatment with hypertonic sea water.

Legalizing Osteopathy.—The annual failure of the bill to place the osteopaths of this State on an equal footing with regular physicians was to have been expected. That osteopathic massage is of great benefit in certain cases admits of no doubt; that remarkable cures have been made through its use is also indisputable. But so has many a sick person been restored to health by the aid of mental healing, and few persons would, we believe, give into the hands of "healers" the right to treat cases of smallpox or diphtheria. It rests with the osteopaths to demonstrate that they are to be trusted with full powers in similar cases. At present it is undeniable that public sentiment is against them, not merely because of the scores of frauds who palm themselves off as simon-pure osteopaths, but because they have not yet sufficiently demonstrated their ability to deal with fevers and contagious diseases. To cite cases of the failure of regular practitioners is not sufficient to prove the case of the new school, for a similar demonstration could be made by vitapaths, Christian scientists, or any other society of curers. None the less, that the regular practitioners have something to learn from both osteopaths and mental healers is undeniable. Secure in their knowledge that the surgeon and bacteriologist can never be displaced, physicians are all too conservative and too prone to pass by new ideas without proper investigation.—[*New York Evening Post*.]

Ten Men Smoke 25,000 Cigarets.—An inquiry made by students of the Ohio State University as to how many cigarettes the ordinary smoker will consume in a year has developed the fact that the 10 students, none of them regarded as fiends, smoke 25,000 in the college year of 84 months.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 29, 1905. [Vol. XLIV, No. 17.]

1. Some Interesting Autopsy Findings in Epileptics. B. ONUF.
2. Cerebrospinal Fever: Epidemic Cerebrospinal Meningitis. J. C. WILSON.
3. The Action of the Intracellular Poison of the Colon Bacillus. VICTOR C. VAUGHAN, JR.
4. The Diagnosis of Syphiloma of Kidneys. R. R. CAMPBELL.
5. The Pathogenesis and Treatment of Gout. E. SCHMOLL.
6. The Intercommunicability of Human and Bovine Tuberculosis. SILVIO VON RUCK.
7. The Treatment of Gonorrheal Arthritis by Hyperemia. JOHANNES H. M. A. VON TILING.
8. Smokeless Powders: The Nature and Effects of the Deleterious Gases Given Off in Their Explosion. MAJOR CHARLES F. KIEFFER.
9. Local Anesthesia by Injections of Sterile Water. FRANK W. STEVENS.

1.—Autopsy Findings in Epilepsy.—B. Onuf reports the results of careful autopsies on 16 epileptics at the New York State Institution for Epileptics. In 12 cases there were valvular changes of the heart, most frequently of the mitral valve (80%), less so of the aortic, and still less frequently of the tricuspid valves. These he considers generally as secondary results of the special strain due to the major epileptic attacks. Capillary changes, tortuosity, and aneurysmal dilations were observed in several cases, and were attributed to the same causes. In eight of the cases where the lungs were examined there was acute pneumonia as a contributory cause of death. The cerebral changes were very striking. In ten cases there was a marked thickening of the pia, chiefly over the frontoparietal lobe. In other cases there were vascular lesions; circumscribed atrophy of one frontal lobe, subdural hemorrhage (one case), internal hydrocephalus (one case), cerebellar cyst (one case), and shrinkage of convolutions of vermis and adjoining cortex (three cases). The most striking changes were noted in the thalamic region. Onuf suggests that there was probably an optic atrophy in some of these cases, and hence the importance of fundal examination in epileptics. The importance of good clinical histories in these cases is also emphasized.

2.—Cerebrospinal Fever.—J. C. Wilson reviews the history, causes, symptoms, treatment, etc., of epidemic cerebrospinal meningitis. It is now admitted that if the nose, ears, or lungs are affected, it may readily be conveyed from one person to another. Few diseases vary more in their severity and mortality, or are followed by more complications. The diagnosis may be difficult, but if meningitis be present, it is not usually embarrassing during an epidemic. In doubtful cases, lumbar puncture should be resorted to, and the presence of the meningococcus in the cerebrospinal fluid ascertained. The differential diagnosis between this form and tuberculous meningitis may, in some cases, be far from easy without this. In the mildest cases no treatment is required; in the malignant ones none is effective. Quiet, nutritious diet, cold applications to the head and spine, laxative doses of calomel in the beginning of the attack, and opium are recommended, the last-named drug being regarded as indispensable.

3.—Reaction of Colon Bacillus Toxin.—V. C. Vaughan, Jr., concludes: 1. The colon bacillus produces a powerful poison when grown on artificial mediums. 2. It is intracellular in character and contained in both the living and the dead bacterial cells. 3. It can be separated from the other constituents of the cell only by chemically breaking up the latter. 4. The peritonitis occurring after intraperitoneal inoculation with the colon bacillus is due to the presence of the poison in a combined and not in a free state. 5. This intracellular poison causes a marked fall in body temperature. 6. The poison of the colon bacillus apparently causes death by paralysis of respiration. 7. The intracellular poison is an essential group of the bacillus, and can be built up synthetically on proteid-free mediums. 8. It is the poison causing death in animals inoculated with cultures of the living colon bacillus.

4.—Syphiloma of the Kidney.—R. R. Campbell says gumma of the kidney is to be considered as a possibility when dealing with "surgical kidneys." In case the gummas are of large size, palpation may reveal a tumor which must be differ-

entiated from a malignant growth. In individuals who have had syphilis, ill-treated or untreated, syphiloma of the kidneys must always be thought of in differentiating obscure kidney disease. One kidney only is usually involved, a fact which must not be forgotten, and we should eliminate in the diagnosis all symptoms that may be caused by coexisting nephritis. The gumma-involved portion of the kidney is inactive; therefore typical urine findings are wanting. If, however, there are single or periodic discharges indicating the rupture or breaking down of a gumma or a tumor presumably syphilitic is found, nephrectomy should not be performed until the possibility of syphilis has been excluded.

5.—Gout.—E. Schmoll says that in gout the uric acid is produced not only by oxidation of purin bases, but by synthesis: this synthesized uric acid therefore has not at its disposal the thymic acid necessary for its solution in the blood. The dose of thymic acid is about $\frac{1}{2}$ gr. three or four times a day, and is given after meals to avoid gastric disturbance. Larger doses, 3 gr. or 4 gr. in 24 hours, may cause local inflammatory reaction. He does not claim to cure gout in this way, but simply to neutralize the primary metabolic disturbance revealing itself by the synthetic formation of uric acid.

Boston Medical and Surgical Journal.

April 27, 1905. [Vol. CLII, No. 17.]

1. Stricture of the Rectum: A Plastic Operation for the Relief of Certain Varieties. HOWARD A. LOTHROP.
2. Chronic Gonorrheal Prostatitis. CHARLES GREENE CUMSTON.
3. The Employment of the Blind for Massage. NATHANIEL BOWDITCH POTTER.
4. Chronic Bronchitis in the Adult as Influenced by a Change of Climate. EDWARD O. OTIS.
5. Evolution and Tuberculosis. JOHN B. HUBER.

1.—Stricture of the Rectum.—H. A. Lothrop states that the larger proportion of strictures are at the junction of the rectum and anal canal and describes a rectoplasty for this lesion. In the case reported he dilated the sphincter ani, made a curved incision 3 in. long across the perineum, concave anteriorly with the extremities near the ducts of Bartholini. The vaginal wall was dissected for 3 in. so as to expose the anterior wall of the rectum. A steel bougie-a-boule was passed through the stricture with the tip just above, and pressing the rectal wall into the wound. This tip was cut down upon, an incision $1\frac{1}{2}$ in. long being made for exploration of the rectum above the stricture. The bougie was bent into a hook for traction and the vertical incision was continued downward through the stricture for another inch. Working through this, a second vertical incision about 2 in. long was made in the posterior rectal wall, through the stricture. The wall was freed so that the upper and lower extremities of the incision could be easily approximated and the incision closed horizontally. The anterior incision was similarly closed, the Tait method being used for the perineal wound. On completion of the operation, the rectum readily admitted three fingers. A plug was inserted and removed on the fourth day. The bowels were kept quiet for a week. About every two months a rectal dilator has been passed. Three fingers now enter the site of stricture with some difficulty. During the last six months there has been no appreciable contraction. [H.M.]

2.—Chronic Gonorrheal Prostatitis.—C. G. Cumston has found the prostate involved in 80% of gleet cases. Strong injections in acute gonorrhea and strictures are often responsible for chronic prostatitis. Diagnosis can be made by rectal examination and by the discharge. The writer describes the technic of collecting the latter, and the general treatment of the disease. Massage by the rectum is of the highest importance, following the excretory canals from the periphery to the center. The secretion is thus milked out, the muscular elements contract, venous stasis is diminished, and exudates are absorbed. The operator wears a rubber cot smeared with glycerin over the index finger, the palmar aspect toward the prostate. The patient kneels on a table or leans over the back of a chair. Massage may continue three minutes to five minutes. The accompanying urethral inflammation should be treated with silver solutions, not stronger than 1 to 50. Of the writer's 32 patients, 27 have been cured. [H.M.]

3.—Employment of the Blind for Massage.—N. B. Potter records their successful employment in Japan and Europe, speaks of their astonishing capacity for guessing the sensibility of patients, and the excellent effect which the work has on the blind themselves. He emphasizes the importance of a most careful selection of the persons who are to be taught. He believes they should be employed largely in stationary places, such as hospitals, bath resorts, gymnasiums, etc. [H.M.]

5.—Evolution and Tuberculosis.—J. B. Huber, in criticizing the contention that it would be better if weaklings were left to die off, states that a comprehensive evolution must include all the humanities, and that many a useful man has been unhealthily born. Weakly parents not infrequently beget strong children. The children of tuberculous parents often seem to have better chances against the disease than others. There are few deaths from tuberculosis before adolescence. If the child is well nurtured, he is likely to overcome the tendencies to disease with which he began life. [H.M.]

Medical Record.

April 29, 1905. [Vol. 67, No. 17.]

1. Multiple Myeloma (Kahler's Disease): A Contribution to Its Symptomatology and Its Morbid Anatomy. JOSEPH COLLINS.
2. Let the Lungs Alone in Pulmonary Tuberculosis. WOODS HUTCHINSON.
3. Aerophagia and Flatulence. C. D. SPIVAK.
4. The Conduct of the Perineal Stage in Normal Labor. B. A. FEDDE.
5. A Case of Premature Separation of a Normally Situated Placenta. J. WIRT ROBINSON.

1.—Multiple Myeloma.—J. Collins describes this case, which is the tenth to be reported in this country, while not more than 35 cases in all have been recorded at the present time. The patient was a man of 56, whose illness lasted about three years in all. The most conspicuous symptoms were severe pains in the back and limbs, hyperesthesia of the legs and loss of bladder control. At the autopsy most of the organs were found to be the seat of a chronic connective-tissue growth, and in the bones were small, round tumor masses. The author says that the following features are worthy of emphasis: In the first place, there was no deformity or alteration in the contour of the bones to be made out during life. Despite the fact that the substance of the bone was so largely replaced by new-growth, and the existence of rarefying osteitis to a high degree, there were no indications that there had ever been fractures or dislocations. In the second place, at no time was the peculiar peptone, supposed to be pathognomonic of the disease found in the urine, and whereas other cases have been reported in which albumose was not found in the urine this would seem to be the first case which was for a long time under observation in which repeated examination of the urine, extending over several months, during which time the disease was fully developed, failed to find albumose. Detailed pathologic reports and drawings are appended.

2.—Let the Lungs Alone in Pulmonary Tuberculosis.—W. Hutchinson says that we have learned by bitter experience that we must practically ignore the bacillus in our treatment of the tuberculous, and that we are coming to the same point of view in regard to lungs. Among the reasons for letting the lungs alone in treatment is the fact that very few remedial measures at our command have any specific action whatever on the lungs, and it is being more and more clearly recognized that pulmonary tuberculosis is not, properly speaking, a disease of the lungs, but is merely a local (pulmonary) expression of a disease which involves the entire system. We have no tonics or alteratives which will improve the nutrition of the lungs, and even the expectorant drugs have been proved to be lacking in the virtues formerly ascribed to them. Sprays, etc., are ineffectual in reaching the bronchi, and in most cases the so-called pulmonary gymnastics and exercises serve simply to drive the infectious material deeper into the hitherto uninvaded areas of the lungs. Hutchinson has already shown that the chest of the tuberculous is round instead of flat, and that exercises intended to develop the chest as such do harm instead of good. Bodily exercise of any kind is now believed to be distinctly injurious, and absolute rest is indicated in any case in which the afternoon temperature rises above 100°. Researches

by Robin and Binet made over four years ago on the actual gaseous interchange in the tuberculous have shown that the tuberculous patient consumes a much greater amount of oxygen and gives off more carbon dioxide in proportion to his body-weight than the normal individual. In short, it would appear highly probable that the tuberculous patient is to be regarded in the light of one who is pouring nearly half the heat of the fuel which is burned in his body furnace up the chimney in the form of smoke. The food which he takes, instead of being assimilated and decomposed by anaerobic processes in the body cells, is burned in the blood and in the lungs. Any means, therefore, which will tend, so to speak, to clog the throat of his chimney and prevent this fatal escape of heat and energy, whether by drugs like creasote, iodoform, codliver oil, and arsenic, or by pouring in an enormous quantity of food rich in heat value, will tend to restore the balance of gaseous interchange and enable him to return to the normal.

3.—Aerophagia and Flatulence.—Spivak gives an extended account of the etiology, symptomatology, etc., of this habit, which is analogous to the vice of horses known as cribbing, or wind sucking. Two varieties are to be distinguished, voluntary and involuntary, the latter occurring as a rule during attacks of hysteria. From a study of the literature and of his own patients, the author arrives at the following conclusions: 1. Swallowing of air in small quantities is a normal phenomenon. 2. Abnormal swallowing of air may be voluntary (hysteria), and involuntary (dyspepsia, idiopathic). 3. Air may enter the stomach by swallowing, aspiration, or gulping. 4. Cases of aerophagia are not as rare as the earlier writers used to think. 5. Aerophagia, although at the beginning it makes "much ado about nothing," and is, as a rule, a sequel to some other affection, yet when let alone may, in its turn, produce grave symptoms and undermine the health. 6. Aerophagia, tympanites, nervous eructation, pneumatosis and merycism have an etiologic relationship. 7. The best treatment in voluntary aerophagia is to impress the patient with the fact that he can stop it if he will.

4.—The Conduct of the Perineal Stage in Normal Labor.—B. A. Fedde describes as follows a method of supporting the perineum which he says was introduced by Asa B. Davis. It consists in arresting the progress of the head by direct pressure when the biparietal diameter has passed the ischiopubic rami and before it has reached the rima pudendi; then by gentle manipulations with the other hand, thumb and fingers on the opposite sides of the vulva, slipping the labia first over the parietal eminences, then backward over the forehead and face without allowing the head to extend until it is fully delivered. By pressure back of the anus with the hypothenar eminence the head meanwhile is maintained in flexion close under the pubis. In practice one receives the impression that tension actually diminishes with the progress of delivery. The author administers chloroform to the point of cessation of the pains just before delivery, and the patient is turned on the side until the vulva has been slipped over the parietal eminences and the face. Chloroform is then withdrawn, and the delivery completed in the dorsal position.

New York Medical Journal.

April 22, 1905. [Vol. LXXXI, No. 16.]

1. The Value of the Radiograph in Diagnosis. SINCLAIR TOUSEY.
2. Hematoma of the Vulva and Vagina. I. L. HILL.
3. The Symptomatology and Diagnosis of Atypical Forms of Pneumonia. J. C. WILSON.
4. Nasal Obstruction as a Cause of Disorders of Nutrition. PERCY FRIDENBERG.
5. Malnutrition in Young Children. THERON WENDELL KILMER.
6. Inflammation of the Glands of Bartholin. (Continued.) CHARLES C. MILLER.
7. A Method of Measuring the Röntgen Rays. MILTON FRANKLIN.
8. A Review of the Treatment of Inflammatory Conditions of the Throat by Irrigation and a Description of a New Irrigator Tip. EDWARD L. KELLOGG.

Medical News.

April 29, 1905. [Vol. 86, No. 17.]

1. A Protest against Radiologic Misinformation. HENRY G. PIFFARD.
2. Intramuscular Injections of Insoluble Preparations of Mercury in Syphilis. HERMANN G. KLOTZ.
3. A Case of Syphilitic Pseudoparalysis. JACOB SOBEL.

4. Two Cases of Gastrostomy with Examination of Stomach Walls by Means of the Cystoscope. R. E. PICK.
5. The Continuous Current in Relation to Inflammatory Exudates. MARGARET A. CLEAVES.
6. Rheumatism and the Eye Muscles. FRANCIS VALK.

2.—Intramuscular Injections of Insoluble Preparations of Mercury in Syphilis.—H. G. Klotz states that this is a common treatment in Europe, the metallic mercury in oil, neutral salicylate, and calomel having been found the best. Inunctions are objectionable on account of uncleanness, exposure, and tendency to salivation. The writer has made 2,500 injections on 204 patients. The usual dose was 10 cg. (1½ gr.) at intervals of a week for ten weeks, followed by an intermission of several months, four to six series being given up to about the end of the second year. Iodids or tonics in the intervals prepare the patient for a renewal. Unusual and precocious malignant cases are the best field for a critical test of the treatment. In tertiary lesions some of the patients have been given iodine with the mercury, but the writer is discarding iodine more and more, the lesions reappearing when iodine is used, while they are permanently cured by the mercury injections. If the injection is properly made, there is no pain at the time, nor flush about the puncture, nor inflammation of the skin. If the deposit is near a nerve or vessel, pain may extend along the extremity for several hours. The lower portion of the nates must be avoided in those having a sitting occupation. Only four abscesses and four embolisms have occurred in 2,500 cases, and there have been no kidney complications. [H.M.]

4.—The Continuous Current in Inflammatory Exudates.—M. A. Cleaves gives the rationale of the action of the current. The less fully organization has taken place the quicker and better the result. Absorption and restoration of function can be obtained painlessly and promptly when other measures are of no avail. Currents causing sudden muscular contractions may set loose vegetations or thrombi. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Value of Blood Cultures during Life.—

Recent experiments have shown that, in the majority of infectious diseases, the pathogenic agent does not remain localized in the anatomic lesions, and that it becomes generalized by passing into the blood. A well-made blood culture, taken aseptically, will show the nature of the infection, and is consequently a new and important aid in diagnosis. One cannot resort to this method of investigation too often, not merely in those instances where the diagnosis is delicate, but also in those cases where the prognosis is subordinated to the virulence of the bacterium present. This procedure of investigation, which is easily done and does not require any special apparatus, should take its place among other methods which are in daily use, such as exploratory puncture of the pleura, lumbar puncture, and cytologic and hematologic examinations. In order to collect the blood there is only one means which is of any use, and that is by taking it directly from the vein. A syringe with the capacity of 10 cc., and a steel needle sterilized thoroughly, should be used for extracting it. A ligature is placed at the middle of the arm in order to make the veins of the anterior aspect of the elbow to swell out; the skin is then thoroughly cleansed with soap, ether, and alcohol, and the needle is rapidly thrust into the vein and the blood slowly aspirated. If the veins of the elbow cannot be seen, one in the region of the wrist should be selected. The syringe is filled several times, and its contents emptied into one or several flagons of broth. If the quantity of blood obtained is sufficient, the ligature around the arm is removed, after which the needle is withdrawn, and an occlusive dressing applied. The flagons should contain 500 cc. of broth or of sterilized peptonized water, having the following formula: Peptone 20 gm., sodium chlorid 5 gm., and water 1,000

gm. From 5 cc. to 10 cc. of blood is dropped into the flagons, and it is better, if possible, to inoculate several. In the case of certain organisms, for example, the gonococcus or meningococcus, it is preferable to use special culture mediums, as, for example, agar mixed with blood and placed in Petri's plates, or one may use either broth or agar mixed with the fluid of ascites.

The results of this method have thrown much light on certain points of general pathology. Thus in typhoid fever Eberth's bacillus is almost constantly found in the circulation during the entire febrile period, and this discovery of the bacillus at the commencement allows one of making a diagnosis, when Widal's test is retarded or remains negative during the first few days. Beside the specific bacillus, one may also detect the colon bacillus, the pneumococcus, streptococcus, etc., which are the agents of secondary infections. Some of these do not change the clinical picture, while others are the source of more or less serious complications. Certain infections are due to the colon bacillus and during the last few years they have been described under the name of paratyphoid or paracolibacillosis. Under these circumstances the serum may agglutinate Eberth's bacillus, while the culture of the blood will demonstrate the colon bacillus and not the specific organism of typhoid. These infections oftentimes closely simulate typhoid fever and when the serodiagnosis is positive one is apt to accept it as indicating a typhoid infection, but in reality this is a mistake. A culture of the blood alone can demonstrate the real nature of the pathogenic agent, which will prove to be the colon bacillus which grows in peptonized water. The pneumococcus is infrequently found in the blood, and then only in the more serious forms of pneumonia. In those cases when a culture of the blood may be procured it is not at all infrequent to see metastatic pneumococcal complications appear. In puerperal fever and surgical septicemia with fatal outcome the streptococcus can generally be found in the blood and in the serious forms its presence renders the prognosis extremely unfavorable.

Blood culture is a most precious diagnostic procedure during the progress of malignant endocarditis and medical pyosepticemia in general, and in fact is the only means by which one may recognize the nature of the pathogenic agent. Although a typhoid condition may not be present in slowly progressive streptococcal septicemia, it appears to be the rule in latent staphylococcal septicemia. These pyosepticemias are always characterized by a pronounced nervous depression, and under these circumstances *Staphylococcus aureus* is usually the pathogenic factor. In influenza, according to the researches of Lemierre,¹ there is no specific infection, properly speaking, and the disease includes a certain number of infectious states which are due to different bacteria, among which Pfeiffer's coccobacillus is prominent. To sum up, it may be said that all pathogenic bacteria may be found at a given time in the general circulation. One in particular, the bacillus of typhoid, produces a disease which is always similar in its most important points, and may be considered the type of septicemias. There is no typhoid fever, unless the presence of its specific bacillus can be demonstrated in the blood, and perhaps the paratyphoid infection may also be considered as a septicemia. The other bacteria are agents of localized infections, and the reactions they produce are due to the toxins that they secrete. All these organisms may, at a given time, enter the general circulation, and their passage into it can be considered as a real bacterial discharge. A culture will be positive, and later on become negative; when it is positive, there is, according to Lemierre, a bacteriemia. If repeated inoculations are always positive, it means that the pathogenic agent is

¹ Thesis, Paris, 1904.

present in large numbers in the blood, growing there and perhaps reproducing itself, in which case one is dealing with a true bacterial septicemia. When the organisms carried by the blood give rise to metastatic abscesses, pyemia has become established. All degrees may be observed between these different stages of infection, and it is only by blood culture that the condition of affairs may be known. By cultures of the blood the organism can be isolated, while repeated examinations and the clinical evolution of the disease will demonstrate the ulterior part to be played by the pathogenic agent.

REVIEW OF LITERATURE

Chronic Diphtheria.—Professor A. D. Pawlowski¹ reports several cases of "chronic diphtheria." Modern bacteriology has shown us that many genuine diphtheric affections run a course entirely unlike the typical diphtheria of the throat. Such atypical forms are chronic croup, chronic atrophy of the laryngeal mucous membrane without membrane formation, chronic fibrinous rhinitis without fever, atrophic rhinitis, diphtheric ozena, diphtheria of the conjunctiva, and others. In all such cases the diphtheria bacilli are present for weeks and even months, and their virulence remains undiminished. Some forms begin with the picture of acute diphtheria, but instead of ending in speedy recovery, they pass into a chronic stage, lasting, with occasional exacerbations for weeks and months. During this time no membrane is present, neither is there fever or general disturbance of a marked degree. In the families of these patients, secondary cases of typical diphtheria occur and furnish additional evidence of the nature of the original disease. It is thus evident that the bacillus of Klebs-Löffler may cause a whole series of affections, just as other pathogenic bacteria do. The individual clinical picture will depend on two factors, the virulence of the bacilli on the one hand and the resistance of the patient's organism on the other. Variations in these factors will produce an infinite variety of manifestations which are all etiologically entitled to the name diphtheria. Atypical forms have been called "diphtheroids," but in the future all varieties due to the Klebs-Löffler should be classified under "diphtheromycosis," analogously to the designation of all purulent affections due to staphylococci as "staphylococcosis." Blood-examinations in patients suffering from chronic diphtheria have shown the presence of antitoxin in large quantities, as might have been expected a priori. These facts should impress upon us the importance of bearing in mind that diphtheria is often lurking in throats, noses, and wounds, where it assumes a great variety of forms, all of which, however, are assigned to one group by the positive result of a bacteriologic examination. [L.J.]

Starch Digestion in Young Infants.—C. E. Corlette² finds 2.03% of starch in barley water and 2.25% in rice water made according to the usual formulas. There is not adequate evidence that "infants cannot digest starch." Those who use starch may diminish the milk with its useful salts to such an extent as to produce scurvy and rickets and also lessen the fuel value of the food and cause nitrogen starvation. Old authorities agree that the secretion of the infant's parotid is actively amylolytic. Animal experimentation shows that the secretion of the pancreas becomes from day to day more adapted to the requirements of the food. The adaptation is slow, and sudden change to a different regime can produce serious illness. The absence of amylolytic ferment in the pancreatic juice in early life is due to the lack of adequate chemic stimulus. The augmenting action of the bile and intestinal juice also depends on the nature of the food. A certain amount of dextrin is probably taken up in normal digestion without reaching the stage of maltose and some maltose is absorbed before it has been inverted to dextrose. Further conversion is believed to occur within the intestinal cell. Whether infants ought or ought not to be given starch is a purely clinical question. [H.M.]

Chronic Phenacetin Poisoning.—M. Hirschfeld³ reports

the case of a woman of 23, who was covered with a series of hemorrhagic spots varying in size from pinheads to dollar pieces; their centers were very painful; some of them ulcerated. No other cause could be discovered, except the fact that the patient because of headaches took large doses of phenacetin. After the drug was stopped the condition disappeared spontaneously, to return as soon as more phenacetin was taken. [E.L.]

Diagnostic and Prognostic Value of the Leukopenia of Cachexial Fever and Kala-azar.—L. Rogers¹ retains the name of "cachexial fever" for the endemic form of the disease so common in Bengal and Madras. Blood-examinations in this disease always show a marked decrease in the leukocytes in uncomplicated cases; when they number below 2,000, it is almost diagnostic of the disease, although this may occur rarely in true malarial cachexia. The white corpuscles are reduced to a greater degree than the red, the ratio falling below 1 to 100 in uncomplicated cases; this rarely occurs in malaria. The most marked degrees of reduction, especially of the polynuclears, is of bad prognostic import, and vice versa. The administration of red bone marrow tabloids increases the leukocytes; this increase may be maintained for months during the continuance of the intermittent fever, being finally followed by cessation of the fever and recovery. High remittent fever is accompanied by progressive deterioration of the blood and general condition; but it may be often, to a large extent, reduced to the less injurious intermittent form by continued large doses of quinin, combined with red marrow. The best results yet reported have been obtained by those who carry out vigorous quinin treatment. [B.K.]

Agglutinating Power of Immune Rabbit Serums upon the Dysentery Bacillus Group.—P. G. Heinemann² states that 29 of the 33 organisms examined gave positive results with one or more of the serums. Of these, 29 agglutinated with a single serum, 12 with two kinds of serums, and 6 with three kinds. Two organisms agglutinated with the four different serums employed, namely, the Shiga, Kruse, Flexner, and Y serums. [H.M.]

Pulmonary Osteoarthropathy Limited to the Terminal Phalanges.—D. J. M. Miller³ reports a case of this condition occurring in a child of 8. There was marked kyphosis, and the sternum was pushed forward. There was a marked rosary, distended abdomen, and emaciated arms and legs. A year later the fingers and toes were markedly clubbed, the nails curved like a parrot's beak, elevated, of a rosy, red hue, and brittle. Radiographs of the hands and feet showed distinct periostitis of the terminal phalanges, especially of the former. On them could be seen definite osteophytic growths, placing the case in the category of true osteoarthropathies, with the lesions limited to the terminal phalanges. A partial autopsy was obtained, the fingers not being examined. There was marked interstitial pneumonia and purulent bronchitis, lesions sufficient to account for the changes observed during life. [A.G.E.]

Indications for the Dechloridation Treatment.—A. Javal⁴ says the indications for the dechloridation treatment have rapidly multiplied since this dietetic method has been employed in certain stages of Bright's disease. It is now used in reducing cardiac edema, checking certain types of ascitic effusion, in moderating hyperchlorhydria, and even in some cases of exudative dermatitis. This treatment covers only chlorid retention, and does not pretend to meet all the accidents of diseases—nephritis for instance. Chlorid retention shows great variation in different patients, or at different times in the same individual, being governed by the degree of impermeability of the kidney for NaCl. The duration and severity of treatment depends on these variations, and the physician will not be able to make the daily balance of chlorides, as this is a laboratory process. Daily weighing of the patient, if certain conditions are fulfilled, is a sufficient means of following the effects of the diet prescribed, as variations in weight are practically parallel to variations in chloridation of the body. Examples in illustration of this point are cited. [A.G.E.]

¹ British Medical Journal, April 1, 1905.

² Journal of Infectious Diseases, January 12, 1905.

³ Archives of Pediatrics, March, 1905.

⁴ International Clinics, Vol. iv, Fourteenth Series, 1905.

¹ Russki Vrach, January 29, 1905.

² Australasian Medical Gazette, January 20, 1905.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, 66, No. 2.

GENERAL SURGERY

A. B. CRAIG

MARTIN B. TINKER

C. A. ORR

REVIEW OF LITERATURE

A New Method of Performing Appendicectomy.—C. W. Strabell¹ adds another to the many methods of removing the appendix. He says the requirements of the ideal operation are: To ligate nothing; to suture nothing; to remove nothing but actually diseased tissue; to eliminate entirely the possibility of postoperative hemorrhage; to conduct a bloodless operation in a fuller sense than is usually accomplished. His solution of the problem answers all these requirements. He splits the serous covering of the appendix the entire length of the side opposite the mesentery and separates it, severs the organ 1 cm. from the cecum, dilates the stump with forceps, inserts a small metal ring, preferably aluminum, through the canal of the stump into the cecum, where it rests just at the base of the stump. The cut edges of the appendix stump are then inverted through the lumen of the ring into the cecum. The ring is then compressed with heavy forceps and the operation is complete. No reinforcing stitches are necessary, as the ring holds the tissues. The cut edges of the peritoneal coat of the appendix also take care of themselves. The ring falls off and passes from the intestine in about a week; it is so small it need not be watched for. [A.G.E.]

Pericolicitis Sinistra.—Under this title H. D. Rolleston² calls attention to a group of cases, examples of which are not especially rare. The disease is analogous in its manifestations to perityphlitis on the right side of the abdomen. There may be three different conditions present: (1) Local peritonitis of slight intensity around the descending colon or sigmoid flexure; (2) a local abscess, which may rupture and set up (3) general peritonitis. In the first form the clinical features are often spoken of as fecal impaction, and have been described as sigmoiditis or perisigmoiditis. The symptoms are constipation, pain in the left iliac fossa, some fever, vomiting; on examination deep tenderness, muscular resistance, and the presence of a tumor. The condition is relieved by removing the fecal impaction. The morbid changes produced may pass into the second condition of localized abscess. This may be either intra or extraperitoneal, and may extend widely along the side of the colon. The clinical features may be difficult to interpret correctly, especially when no definite swelling can be felt. Rupture of this abscess into the general peritoneal cavity may occur and give rise to a fatal perforative peritonitis. [B.K.]

Plastic Arthritis and Osseous Ankylosis of Tuberculous Origin.—A. Poncet and R. Leriche³ give the name of "ankylosing tuberculous rheumatism" to this condition, because many of the cases are looked upon as rheumatism, there being no outspoken evidence of the tuberculous nature of the process. A more careful examination of the patient, and especially the application of the more exact tests for tuberculosis, would show the true character of the lesion. A list of 14 cases is reported, the affection being monoarticular or polyarticular. It occurs usually in young subjects, but the aged may be involved; in the latter, the spine is most often attacked. From acute rheumatism, it is differentiated by the lack of most of the particular signs common to that disease, if the cases are carefully studied. The absence of gonorrhea, syphilis and diphtheria excludes those types of arthritis. The particular point about the condition is the knowledge that tuberculosis may for a long time give rise to no other symptoms, and hence be a possibility. Treatment is that of tuberculosis in general, with local measures to prevent ankylosis. After this occurs, motion may be secured under anesthesia, or resection be performed. [A.G.E.]

Modern Surgery of the Prostate.—W. M. Banks⁴ maintains that perineal section with deep incision into the floor of the prostatic urethra and the prolonged wearing of a very large glass tube will cure a large number of prostatic cases. In dividing strictures from the outside the prostate need not be

divided at all. The sooner the drain tube is out and the sooner big bougies are used, the better. [H.M.]

Nephrectomy in Renal Tuberculosis.—Rafin¹ contributes his experience with 20 nephrectomies for renal tuberculosis. There were no peculiarities of age, sex, or side involved. Several patients showed other tuberculous localizations, articular, pulmonary, pleuritic, etc. Until recently it was supposed that renal tuberculosis had origin in the bladder, this theory probably resting on the fact that the first symptoms are vesicular in nature. Frequent micturition is an almost constant symptom, and is usually accompanied by pain. Pus and blood in the urine are the other important symptoms. It is highly important in such cases to make a cystoscopic examination, and if possible, to perform ureteral catheterization or endovesical separation of the urine. These latter examinations may have to be made under ether, if the vesicular involvement is pronounced. The symptoms referable to the kidney itself are vague, and examination of the organ gives little information; it should, however, never be omitted. Rectal or vaginal examination of the trigone will frequently elicit marked tenderness at the point where the ureter from the diseased kidney joins the bladder. In the female it may be possible to palpate a diseased ureter, which will aid greatly in making the diagnosis. Cystoscopic examination will usually reveal an abnormal condition of the mucous membrane around the ureteral orifice on the diseased side. An exact diagnosis can be made only by ureteral catheterization or endovesical separation of the urine. The author always operates by the lumbar route, and claims that the operation itself is simple and practically without danger. He had a mortality of 15%, from circumstances beyond his control. All the other patients showed marked benefit from the operation; the condition of the urine improved rapidly, unless there was marked vesical involvement, and the general condition of the patient was greatly benefited. [B.K.]

External Cervical Esophagotomy.—Balancesco and Cohn² conclude a long article which has run through several numbers, on the above procedure as treatment of foreign bodies in the esophagus. They give brief notes of all cases reported from 1738 to 1903, 326 in number. Among these were 69 deaths, a mortality of 21%. The greatest mortality was in the young, and also before the era of antiseptic surgery. Elaborate tables showing various phases of the subject are furnished. One shows the great importance of the time of intervention; the mortality increases with the delay. The cause of death in the majority of the fatal cases was the direct consequence of the lesions in the esophagus and neighboring organs by the prolonged stay in the former of the foreign body. Among these were gangrene in 4 cases, and perforation of the esophagus in 11 cases. [A.G.E.]

Syphilis of the Biliary Passages Accompanied by Fever.—Riedel³ details a number of cases which show that syphilis of the gallbladder and ducts may simulate various conditions, especially gallstone. It may cause pain of a colicky character, and even jaundice. In several cases pericholecystitis was found at the operation which may have been the cause of pain. [T.S.G.]

Physiology and Treatment of Surgical Shock and Collapse.—In the Hunterian lectures G. P. L. Mummery⁴ says that surgical shock is a condition produced by exhaustion of the vasomotor centers and the resulting great fall in blood-pressure. Collapse is a similar condition caused by lowering of the blood-pressure from hemorrhage or paralysis of the vasomotor centers. Surgical shock most frequently results from operations upon the abdomen, the most important factors in its causation being injury to, or exposure of, the peritoneum, the length of the operation, injury to organs with a rich nerve supply, evisceration, and extensive, prolonged manipulations. In operations upon other parts the most important factors in the causation of shock are injury to large or important nerve trunks, or to parts with a rich nerve supply, also the size of the wound, the time of exposure of the tissues, and hemorrhage. Other general factors are the anesthetic used, the time occupied

¹ American Journal of Surgery, April, 1905.² The Lancet, April 1, 1905.³ Revue de Chirurgie, January, 1905.⁴ Liverpool Medico-Chirurgical Journal, January, 1905.¹ Lyon Médical, March 19 and 26, 1905.² Revue de Chirurgie, February 10, 1905.³ Mittheilungen aus den Grenzgebiete, Vol. xiv, No 1.⁴ The Lancet, March 18 and 25, and April 1, 1905.

in performing the operation, and the condition of the patient prior to operation, especially as regards the condition of his nerve centers. In the treatment of shock, all stimulants, and especially strychnin, are to be avoided, as they tend to increase the severity of the condition and retard recovery. If the operation is an abdominal one, the peritoneal cavity should be filled before closing, with physiologic salt solution, to which adrenalin may be added in the proportion of 1 to 40,000. In any operation a firm, tight abdominal binder should be applied at the end of the operation, and in bad cases the limbs should be bandaged from the extremities toward the trunk. The foot of the bed should be raised at least 12 inches, external heat applied, and a nutrient enema given. Ergot should be given hypodermically, and repeated if improvement in the pulse tension follows its use. The administration of morphin before and after operation is useful in the prevention of shock, and has not been tried as much as it deserves. If the blood-pressure remains low in spite of all these measures, and the condition of shock still persists, a solution of adrenalin in physiologic salt solution in the proportion of 1 to 20,000, should be given intravenously at the rate of 3 cm. to 5 cm. per minute. This should be continued until the blood-pressure remains at a safe level. In collapse following severe hemorrhage, intravenous infusion of salt solution should be performed as soon as possible, in addition to the above measures. The use of adrenalin intravenously will prove of immense value in all forms of sudden collapse, such as chloroform poisoning, drowning, and similar emergencies. [B.K.]

Anesthetic Pneumonia.—W. Murrell¹ notes that this condition occurs most frequently after ether, occasionally after chloroform. In the majority of cases it is not a true pneumonia, but is a catarrhal bronchorrhea followed by edema of the lungs. Ether pneumonia may be due to the anesthetic itself, to exposure, to cold, or to a contaminated mouthpiece. It is more common after "anesthetic ether" than "ether purus" and in hospital work than in private practice as there is more exposure to draughts after operation. The mouth, throat, and nose should be rendered aseptic before the anesthetic is given and the mouthpiece should be sterilized. In cases of hypersecretion, atropin should be given, and the patient inverted to allow the fluid to run out of the mouth. [H.M.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

The etiology of fetal deformities has never been satisfactorily explained, though it is a matter upon which the general practitioner can throw a flood of light by properly reporting the cases occurring in his practice. In such an anomaly as absence of both arms or legs, this much is certain, the cause, whatever it was, must have been a powerful one to bring about such a profound alteration of development, or the ovum must have been very abnormal, unstable, and easily altered by a minor cause which would have been harmless to a normal, stable, ovum. In the case of chickens we can produce almost every variety of anomaly by experimental traumatism in the early stages, but at this period the human ovum is so small and so well protected that we can well dismiss traumatic causes. Amniotic bands, no doubt, do cause amputations, but the cases susceptible of such an explanation are not at all numerous. The influence of nervous shocks acting through the mother, though once implicitly believed and still taught in the textbooks, is now, for want of proof, being gradually abandoned by the profession. If it were a prominent cause it would indicate that the father would have but little influence. Poisons, such as alcohol, the metals, or the toxins of infections like tuberculosis, have been shown to be remarkably frequent in the parents, yet the extremely large number of pregnancies having similar histories, but in which bad results have not been discovered in the fetus, would

seem to indicate that when deformities do result from such causes there must have been special susceptibility or an unstable ovum. The very symmetry of so many anomalies indicates an origin in the nervous system or in the ovum as a whole; indeed a few cases are known in which a limb has failed to develop and there was a defect in the corresponding cerebral convolution of the motor area.

The primary cause of fetal anomalies must be in the ovum itself and we must seek further into the family history of both parents. As a general rule it is found that one or both parents present evidence of decided abnormality of the nervous system, though they are generally reported as strong and healthy. They may not be neurotic by any means, yet a search will nearly always reveal the actual presence of diseases or abnormalities originating in the nervous system and indicating an unstable organism whose germ cells naturally partake of the instability—an inexact term, by the way, which we are compelled to use in our present ignorance of the chemic constitution of the substances of cell protoplasm. The wonder is not that such an ovum is injured, but that so many escape intrauterine damage, or even reach maturity. Data establishing this fact are usually omitted from the reported cases, and it is to be hoped that in the future there will be more attention given to this kind of evidence, instead of simply reporting that both parents are apparently strong and healthy. It is known before hand that they are strong enough and healthy enough to start the pregnancy. Even should some probable causes of the deformities be found, it is desirable to know if the parents or their respective families present evidence of such physical or nervous instability as to cast doubt upon their ability to produce stable ova. In this matter there is a great gap in medical literature which must be filled. No one except the general practitioner can furnish these data which are destined to be so valuable in explaining these unhappy accidents.

REVIEW OF LITERATURE

Immediate Repair of Lacerations of the Perineum.

—A. L. Smith¹ believes that this helps to prevent septic absorption and the rise of temperature on the second or third day attributed to the milk. On account of repair being so difficult in a poor house with poor light and poor assistants he places a number of stitches previous to the birth. Just before the head comes down the patient is anesthetized and the perineum sterilized. A large curved needle is held in the right hand, with the thumb of the left hand in the anus, and the left forefinger in the vagina; the needle is entered at the base of the lesser lip and passed under the vagina and about 2½ inches above the fourchette, coming out at a corresponding point on the other side. Silkwormgut is threaded into it and the needle withdrawn. The ends are held by a hemostat. A second stitch is passed an inch lower, taking in the perineal muscles. We can generally tell by the rigidity whether a tear will be bad or not. In the former case we put in a third stitch which would take in the sphincter ani. After delivery the stitches are tied from above downward with accurate coaptation of the parts. If there is no tear they are simply drawn out. [H.M.]

Torsion of the Uterus, due to Ventrofixation.—H. H. Powell and F. E. Bunts² report this case, a previous instance of which they do not find in the literature. As the uterus began to contract during the manipulations of suturing it after cesarean section, it rotated on its cervical axis, thus bringing the surface supposed to be anterior, and in which the incision had been made on the posterior part of the organ. This explained the result of attempted vaginal examination before operation, when, although the cervix was softened, the finger seemed to plow through uterine tissue to reach the presenting part. To prevent postoperative adhesions to the line of suture, the omen-

¹ Medical Press and Circular, January 4, 1905.

² Medical Press and Circular, January 18, 1905.

² Cleveland Medical Journal, April 1905.

tum was carefully spread between the intestines and the posterior surface of the uterus. Recovery was uneventful. [A.G.E.]

The Fate of Deported Embolic Placenta Cells.—Schmorl¹ states that if one is to judge from his observations whether the deported embolic placenta cells of a normal organ will give rise to ectopic chorionepithelioma, great caution is necessary before answering. He takes the ground that in all probability the deported emboli, when lodged, do not proliferate unless there is present some disease or degeneration of the placenta from which the emboli arose, because in only three cases of the 150 sets of lungs from pregnant and women who had been in that state did he find evidences of proliferation in the emboli, and these emboli were derived from organs that were abnormal. Then, too, he found in three cases of hydatidiform moles of various stages of development proliferative changes in the deported cells, especially in the lungs. He, however, reports a case of hydatidiform mole in which such changes were not found. Therefore he states that it is difficult to say whether there must not be a disposition of the economy to permit of such growth, since in one of three cases there was present a marked anemia, and in the other two infection. [J.F.]

One Hundred and Forty-four Forceps Deliveries.—Of K. Heil's² 144 forceps deliveries, 120 were in primiparas and 24 in multiparas. Chloroform was used as an anesthetic in 25 primiparas and 7 multiparas; no anesthetic in 95 primiparas and 17 multiparas. The multiparas had borne 76 times before, and of these births 53 passed off spontaneously, 12 were forceps deliveries, etc. Of the primiparas, 61.6% were between 20 and 30; 38.4% between 30 and 40. In 8 of the patients, the author found himself forced to rupture the membranes, and in 33 the membranes ruptured too early. The 8 included 5 primiparas (exhaustion, eclampsia, and hydramnios). In 9 primiparas, the forceps had to be applied before the cervix was fully dilated; in 6 patients the cervix had to be incised (eclampsia, fever, face presentation and exhaustion). Axis traction forceps were used three times—exhaustion, eclampsia, and asphyxia of the child; in the first instance the child was born dead, in the others it was saved. In 9 cases forceps were employed because of danger to mother and child; in 31, because of danger to the mother; in 29, because of danger to the child, and in 75, because of protracted labor. Marked sciatic pain and cramps in the legs are considered as being due to pressure against the sacral nerves, and thus as indications for forceps. If the birth of the child is delayed, either through weakness of the contractions or deficient action on the part of the abdominal muscles, Heil considers forceps indicated to prevent dangers to mother and child, and to save the mother the fruitless labor. Three of his patients died; eclampsia was the cause in 2, preexisting fever and sepsis in 1; 11 of the patients had febrile temperatures during the puerperium; 83 of the patients received perineal injuries; 9 of the children were born dead; in 7 this was blamed on the forceps; 15 others were more or less injured. [E.L.]

Obstetric Views that Need Reviewing.—W. Stephenson³ defines the difference between retraction and contraction of the uterine muscle. When the connective tissue of the os relaxes at the end of pregnancy the retractility of the muscle starts the process of dilation. The force is feeble but continuous and is aided by the weight of the uterine contents pressing on the cervical tissue. Contractions hasten the process, but are not essential. From the standpoint of labor, the uterus is no longer divided into body and cervix, but into upper and lower segments. As expansion progresses downward, the close felted tissue layer of the cervix comes through the mobility of the muscular lamellas to line the lower uterine segment. Retraction has no influence, however, on the portio vaginalis, which yields only to contraction. During extension of the ovum the lower uterine segment expands probably beyond the limit of retractility, while the superficies of the upper segment contracts. The upper segment is the retraction zone, the lower the zone of dilation. The plane of differentia-

tion is the line of firm attachment to the peritoneum. When the uterus is empty, where retraction ends is marked by a firm rim—the retraction border. The ring of Bandl does not necessarily coincide with this. The former marks the site of the fetal neck, there being at this point an irregular thickening in the wall. [H.M.]

Comparison of Abdominal and Vaginal Routes for Removal of Uterine Fibroids.—H. T. Byford¹ makes the choice depend largely on three things: The relative danger to the patient, the possibility of completing the operation in a satisfactory manner, and the surgical training of the operator. Among the advantages of the abdominal route are rapidity and ease of operating, and the possibility of having the field in view. It is to be employed for all large fibroids, for small ones that cannot be pulled down toward the vulva, and for those complicated by adhesions of the adnexa high in the pelvis. A chief advantage is the possibility for conservative surgery. The disadvantages are danger of shock and intestinal trauma, infection of the peritoneum, and the objections of patients to an abdominal incision. The advantages of the vaginal method are the opposites of the previous disadvantages, and may be summed up by saying that in properly selected cases there is less danger to life. Among the disadvantages of the latter are the difficulty in securing a disinfected field and the liability of encountering unsuspected difficulties. Perhaps the requirement of special skill should be classed against this, as it is difficult to believe that the general surgeon can acquire as much skill in this operation as does the gynecologist whose study is taken up with pelvic surgery. Other things being equal, the general surgeon would prefer the abdominal, the gynecologist the pelvic route. [A.G.E.]

Prophylaxis of Puerperal Fever.—Credé² maintains that just as the vagina is sterilized before the labor so, too, the same organ should be kept clean after the labor. In order to accomplish such results he introduces a collargol suppository into the vagina and into the cervical canal and the lower portion of the vagina he packs loosely with gauze. The collargol dissolves slowly, penetrates the crevices and between the folds of the vaginal mucous membrane. This mode of treatment will not avoid all infection because of the virulence of some bacteria, but it will destroy many organisms without injuring the cells. If he encounters local or general infections he uses douches of collargol 1 or 2 to 5,000 and places in the genital tract the collargol suppositories during the intervals. In general septic infections he gives intravenous injections of collargol, 8 cm. or 10 cm. of a 2% solution. [J.F.]

Pure Septicemia.—O. Kneise³ reports the case of a woman of 32, who, passing through her seventh confinement, developed symptoms of sepsis on the fourth day. On the eighth day a culture was taken from the apparently normal lochia; some of the fluid stained with methylene-blue was found to contain many streptococci; the culture showed them to be the only organisms present. Marmorek's antistreptococcic serum was repeatedly injected in doses of 20 cc., but without checking the condition in the least. Cultures of venous blood showed streptococci in pure culture. Death occurred on the thirteenth day. The macroscopic examination was negative, with the exception of a softened and slightly enlarged liver and spleen; no septic foci were discovered anywhere. Stained sections of the various organs revealed cocci in the veins and capillaries of all of them, in the glomeruli and the uriniferous tubules in the heart cavity, the heart muscle and the endocardium; also in the placental attachment, the uterine muscle, etc. A case of this kind, which he speaks of as one of pure septicemia, must be sharply differentiated from pyemia, which transpires differently and much slower. In the pure variety of septicemia the streptococci develop so quickly as not to permit of any reaction on the part of the organism and therefore no chills occur; the large numbers of bacteria distributed throughout the circulatory stream act as foreign bodies, and death is due partly to this and to the toxemia. In pyemia we have venous thrombosis, and local inflammation or suppuration of the thrombus,

¹ Zentralblatt für Gynäkologie, 1905, No. 5.

² Münchener medizinische Wochenschrift, 1905, lli, Nos. 3 and 4, 116 and 169.

³ Scottish Medical and Surgical Journal, February, 1905.

¹ Chicago Medical Recorder, March, 1905.

² Zentralblatt für Gynäkologie, 1905, No. 6.

³ Archiv für Gynäkologie, 1904, lxxvii, 330.

with a resulting bacteremia. This produces the metastatic abscesses characteristic of pyemia. Based upon considerable study of the condition, he considers the following classification suitable for the disease: 1. *Putrid intoxications*, or diseases produced by the absorption of the metabolic products of the saprophytes. 2. *Septic Infection*.—Bacteria have in contradistinction to saprophytes the property to augment in the organism. In septic infection the activity of the bacteria may remain (1) local or (2) the disease may become general. The latter may be (a) by way of the circulatory stream (pure septicemia, pyemia, thrombophlebitis); (b) by way of the lymphatics (lymphangitis, peritonitis). For puerperal diseases he suggests the following scheme from this: (1) Puerperal putrid intoxications; (2) puerperal wound infections. The latter divided into (A) local processes, such as infection of wounds of the perineum, vagina, cervix, endometrium; (B) general diseases (a) spread through the circulatory stream (pure septicemia, pyemia, thrombophlebitis); (b) by way of the lymphatics (metritis desiccans, parametritis, perimetritis, peritonitis). [E.L.]

A Case of "Tetania Gravidarum."—Schmidlechner¹ tells us that this condition is extremely rare, and that only 22 cases have been reported in literature. Many cases of atypic eclampsia, tetanus, or hysteria are mistaken for the malady. It is a disease of the nervous system, manifested by bilateral tonic spasms, occurring symmetrically. It begins with a sense of general depression, pain, and weakness in the arms, hands, and feet muscles, which are tender; the patient is conscious. The preliminary symptoms may last for a day or two, and then the spasms occur. The muscles of mastication, the muscles of the pharynx and the larynx may be involved. The duration of the attacks varies, they may continue for a few minutes only, but Hoffmann has reported a case in which the paroxysm lasted for 10 days. The most valuable symptom is the so-called "Trousseau's phenomenon." He found that if one of the nerves or vessels running in the sulcus bicipitalis was pressed upon the characteristic spasms can be produced. Erb found that the irritability of the motor nerves was increased, especially with the galvanic current, while Chvostek found an increased mechanical irritability of the nerves. According to Nothnagel and Eulenburg, tetania must be looked upon as a disease in which there is a pathologic increase in the sensibility and irritability of the spinal cord. Many lesions of the cord have been described, but as yet the pathologic anatomy is still obscure. Tetania of the uterus, Schmidlechner says, can be separated from the other forms not only with regard to its onset in general, but also with regard to its prognosis and treatment. In this form two etiologic factors play an important part; one is based upon a neuropathic hypothesis, while the other, a more positive factor, is based upon the effects produced by pregnancy. In the uterus, he is of the opinion that the disposition is latent, but is developed by the irritability induced by pregnancy, just as epilepsy, chorea, hysteria, or other neurasthenic conditions may develop during pregnancy, and then disappear after labor. [J.F.]

Puerperal Septicemia and Antistreptococcic Serum.—N. Raw² found the following organisms in 61 cases: *Streptococcus pyogenes*, 27; *Staphylococcus aureus*, 6; mixed infections, 13; *B. coli communis*, 11; diphtheria, 1; no growth of organisms, 3. He has never been able to isolate pneumococci or gonococci. There is no disease in which it is so important to begin treatment early. Search must be made for tears absorbing septic matter. The best antiseptic lotion is chinisol. Great caution must be used in curetage. The drugs indicated are quinin, whisky, and tincture of the chlorid of iron. When streptococci are found in the uterine discharges, the writer finds the effect of antistreptococcic serum marvelous. He injects 20 cc. under the skin of the abdomen twice daily. If the temperature is not affected after six doses it is useless to continue. It is highly important that the serum should be fresh and obtained from a good firm to insure that it contains no living streptococci. [H.M.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Indications for, and Methods of Using Digitalis.—H. Eichhorst¹ says that weakness of the cardiac muscle from any cause, whether disease of any of the cardiac valves (he draws no distinction between mitral and aortic disease), of the myocardium itself, chronic diseases of the respiratory organs, atrophic kidneys, acute infectious diseases, general bodily debility, poisons as coffee, tea, tobacco, and alcohol, emotional irritations, and depressions, is the chief indication for the employment of digitalis. He cites a series of cases, showing its value in connection with these conditions, emphasizes that for years he has found it the most valuable agent to remove permanent cardiac muscular weakness. His results where the cardiac nerves were the basis of the affection were not nearly so good, and he doubts its efficacy in cardiac nervous disturbances. The contraindication mentioned in cases where the muscle is too much degenerated, he considers more theoretic than practical, as it is impossible to tell the exact anatomic state of the muscle at the sickbed. He disapproves of the use of digitalis in fibrinous pneumonia and uremia, except in so far as it may improve the cardiac muscle and increase the excretion of urine; it certainly is not a specific in these conditions. He prefers powdered digitalis to all other preparations, giving an adult 0.1 gm. (1½ gr.) with 1 gm. (15 gr.) of diuretin and some sugar, three times daily. Less than that he considers useless, and more is liable to upset the stomach; he continues it usually for 10 days, but does not disapprove of its chronic use (in small doses) in coronary disease, alcohol, or tobacco heart. The cumulative action he considers in large part due to the patient's imagination, although he has seen anorexia, nausea, and vomiting occur occasionally. Its results are usually observed after about 24 hours, and if 48 hours elapse without improvement, it is doubtful whether digitalis will benefit the patient. He has seen cases where digitalis would not produce any beneficial results the first and even the second time it was tried, and when the third time, the improvement was immediate. He explains this by saying that the heart at first was unduly stretched and the drug could exert no action on it. In such instances he considers stimulants indicated; he associates stimulants also when there is cyanosis and dyspnea. In acute infections, he adds hypodermics of caffeine preparations. In many of the patients, before prescribing digitalis, he orders rest in bed and milk diet, and has found this sufficient frequently; after three days he adds the digitalis. He suspends the digitalis at once, if the pulse-rate falls below 60, or if a bigeminal action develops, which is especially common in mitral disease. The delirium noted occasionally when digitalis is given in edematous states, he considers due to an autointoxication, the result of too rapid absorption of the liquid. [E.L.]

Eumydrin in the Night Sweats of Pulmonary Tuberculosis.—Siegfried Jonas² experienced him to conclude that methylatropin nitrate (eumydrin) is, in 1 mg. to 2 mg., and finally 3 mg. doses, effective against the colliquative sweats of pulmonary tuberculosis. The action is not permanent, however, and if given during sweating, it is not effective. Poisoning symptoms of a serious character were never observed. In very rare cases, after long use of the drug, especially if large doses were given, the patient complained of dryness of the throat, which disappeared shortly after the drug's removal. Palpitation of the heart was never complained of, and at no time was any excitation of the brain observed even in 3 mg. doses. He recommends eumydrin as an excellent drug, without unpleasant after-effects in these cases. [J.H.W.R.]

The Active Substance in Exodin.—W. Ebstein's³ experiments have shown that rufgallic acid hexamethylether has no laxative properties at all; that diacetylrufigallic acid, tetramethylether has slight laxative properties; that acetylrufigallic acid, pentamethylether has active laxative properties, but

¹ Zentralblatt für Gynäkologie, 1905, No. 4.

² Liverpool Medico-Chirurgical Journal, January, 1905.

¹ Deutsche medizinische Wochenschrift, 1905, xxxi, 49, No. 2.

² Wiener klinische Wochenschrift, 1905, No. 4, p. 85.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, 55, No. 2.

in addition frequently gives the patient colicky pains, and lastly that a combination of the two last products is a very happy one, as it not only acts very kindly as a laxative, but also prevents any griping. This combination is the substance manufactured under the name of exodin. [E.L.] [This is a most satisfactory laxative for palliative use in cases of chronic constipation until massage and electricity have established normal peristalsis without drugs. It gives soft stools without straining. The dose is from 0.5 gm. to 1.5 gm. once or twice daily. S.S.C.]

Obesity.—According to O. T. Osborne,¹ obesity can almost invariably be reduced by thyroid treatment, but unfortunately the diminution of fat is accompanied by increased nitrogenous loss. In some cases this increased nitrogen metabolism is of advantage; in other cases it tends to weaken the patient. Most cases of overweight, especially in the very young and in patients over 40, can be reduced by larger or smaller daily doses of thyroid extract, provided there are no ill-effects from the treatment. Personally, he believes his treatment to be efficient, but to carry with it considerable risk of more or less persistent and troublesome debility. The initial dose should be 20 cg. (3 gr.) two or three times a day, and this dose should gradually be increased to perhaps as much as 60 cg. (10 gr.) three times a day, in order to get the best results. The patient may not begin to lose weight for the first two weeks; then, however, the loss progresses more or less rapidly, from 2 lbs. to 5 lbs. a week, or even more, and he will continue to lose weight for some weeks after the treatment has ceased. The unpleasant symptoms caused by such large doses may be nausea, loss of appetite, frequent attacks of palpitation, weakening perspiration, at times coldness of the hands and feet, general muscular relaxation and debility, with possibly attacks of syncope. Osborne has seen a convulsive attack, epileptoid in character, occur after the use of large doses of thyroid for obesity. During prolonged thyroid treatment the loss of weight may be very irregular, some weeks showing no loss at all and other weeks bringing the loss up to the average. It is not necessary, in order to insure success, that the diet be modified, although such a course cannot fail to be beneficial. Whether the improvement will be permanent or not, cannot be foretold. The majority of patients, especially those in which the obesity is hereditary, put on weight again after the treatment has been stopped, unless habits of overeating and inactivity have been corrected. Thyroid extract is often successfully used in reducing juvenile obesity. In conclusion, the author repeats that the treatment is attended with considerable risk, and is to be used only when other methods are unavailable or unavailing, and then with the greatest care and caution.

The Role of Lecithin in the Biologic Activity of Radium and Röntgen Rays.—To further study the action of hypodermic injections of radioactive lecithin, R. Werner² performed a series of new experiments. He had found that lecithin acted upon by the rays of radium and injected hypodermically could be used as a substitute for the röntgen rays. Lecithin made active by being exposed to röntgen rays was found just as powerful as that exposed to radium. Warming the lecithin had less power, and keeping it in a light room had no power at all. While physiologic salt solution did not produce any activity, he found that the emulsion in it was much finer than in watery solution and the particles could be better acted upon when it was used for dissolving. Acids and alkalies were tried, but their action could not well be judged, as their caustic properties could not entirely be removed. The various component parts of lecithin when injected into animals did not produce the same action as lecithin itself; he concludes, therefore, that it is not one of the components of lecithin which is the active substance, but rather the sum total of the components. Decomposition robs a radioactive lecithin of its activity. By means of animal experiments he proved that the rays can be substituted by injections of radioactive lecithin. Large doses killed the rabbits, but multiple small doses were well reacted against. The whole process seems to depend upon photochemic changes taking place in the lecithin, which makes it easier of destruction by autolytic ferments; the same change

takes place in the lecithin of the body cells when acted upon by radium or röntgen rays, and this entails the destruction of the cells. [E.L.]

Adrenalin in the Treatment of Hydrocele.—J. Rupfle¹ has cured two patients of hydrocele by injecting into the sac after its evacuation 2 cm. of an adrenalin solution, 1 to 500. The injection is followed by considerable burning pain, which the author hopes to prevent in the future by a local anesthetic; slight inflammatory reaction is noted for a few days, also a slight effusion; both disappear shortly. One of the patients had been injected with alcohol, iodine, and carbolic acid without success. [E.L.]

Diet in Rheumatism.—N. S. Davis² teaches that in all cases of rheumatism, alcoholic beverages should be forbidden. Tea, coffee, cocoa, and chocolate should also be excluded. When the heart is weak, clear coffee, without sugar and cream, may be given as a stimulant, but it should be used only in such cases. Albuminous foods must be used abstemiously, both during convalescence and during the chronic stage of the disease. It may be necessary to prescribe them to a limited extent, especially when patients are anemic, as is frequently the case after an attack of acute articular rheumatism. The albuminous foods best adapted to the use of patients suffering from rheumatism are eggs, fish, oysters, sweetbreads, and the white meat of pigeon and chicken. Such patients may also be permitted to take a variety of the simpler green vegetables; for instance, peas, string beans, spinach, boiled celery, asparagus, lettuce, and a mealy baked potato or mashed potato. Very starchy vegetables, and those that are most likely to ferment in the gastrointestinal canal, should not be eaten. Of fruits, oranges can be eaten without harm. Certain patients can take baked apples. The very acid fruits, such as strawberries, gooseberries, currants and cherries, must be avoided. Preserves of all kinds are too sweet to be permitted to those who suffer from acute or subacute rheumatism, though small quantities can occasionally be taken as a relish by those whose joints are chronically stiffened by former attacks of rheumatism. If used too freely, however, they are liable to derange digestion and to make the patient susceptible to relapse. During the acute stage of the disease, food should be given every two or three hours. When convalescence is established, it may be given at gradually lengthening intervals and in somewhat larger amounts at a time. It is desirable in all cases to prescribe the copious use of water to promote as perfect elimination by the kidneys as possible.

FORMULAS, ORIGINAL AND SELECTED.

Gouty Neuritis.³—

Colchicum	0.2 gm. (3 gr.)
Quinin sulfate	} of each . . . 1.2 gm. (18 gr.)
Extract of colocynth	
Make 20 pills.	

S.—One three times a day. [E.L.]

Mignon⁴ employs the following ointment for the treatment of bleeding piles and for a tendency to epistaxis:

Adrenalin	0.3 gm. (1½ gr.)
Oil of vaselin	3.0 gm. (45 gr.)
White vaselin	12.2 gm. (3 dr.)
Essence of geranium	30 drops
Lanolin	15.0 gm. (3¼ dr.)

This ointment may be employed wherever there is a tendency to bleeding. It is less rapid in its action than the solution, but more persistent. In some cases it may be necessary to employ a tampon saturated with adrenalin and oil of vaselin. [E.L.]

Treatment of Infantile Diarrhea.—Marfan⁵ recommends the following in the treatment of diarrhea in infants:

Calumba root	1 gm. (15 gr.)
Boiling water	100 gm. (3¼ oz.)

Strain and add:

Bismuth subnitrate	4 gm. (1 dr.)
Syrup of orange flowers	20 gm. (5 dr.)

One teaspoonful before each feeding. [L.F.A.]

¹ Münchener medicinische Wochenschrift, 1904, II, 2139.

² Cohen's System Physiologic Therapeutics, Vol. VI.

³ Bulletin Général de Thérapeutique, 1904, cxlviii, p. 482.

⁴ Bulletin Général de Thérapeutique, 1904, cxlviii, p. 639.

⁵ Bulletin Général de Thérapeutique, Vol. cxlviii, No. 13, 1904, p. 512.

¹ System Physiologic Therapeutics, Vol. XI. Blakiston, 1905.

² Deutsche medicinische Wochenschrift, 1905, xxxi, 61, No. 2.

American Medicine ⁷⁵⁷

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPELMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 19.

MAY 13, 1905.

\$5.00 YEARLY.

National Uniformity of Medical College Curricula.—The Association of American Medical Colleges, at the fifteenth annual meeting, held in Chicago, April 10, in addition to, or in connection with a new constitution, discussed some very weighty problems. One of these was the preliminary education of medical students—what is best for them and how much shall be demanded. Of still greater importance was the adoption of the report of the committee on uniformity of medical curriculums, Dr. George M. Kober, chairman. This report, published in full in *American Medicine* for April 22, has in it much to commend, and also presents points regarding which there may exist honest difference of opinion. Broad uniformity in educational methods is certainly to be desired, and probably in no line is there greater need for it than in our present methods of teaching medicine. State examining boards, a necessary evil at the present time, are forcing upward the standard of medical colleges and thus aiding in unification. The association of colleges aims further to advance such movement, an object worthy of the greatest respect. The proposed standard 4,000-hour course is in many ways an admirable apportionment of the allotted time among the 27 branches therein contained. But while the aim and work of the association and of its committee on curriculum is in general to be commended, a regrettable feature is that the schedule does not represent the unanimous opinion of the medical colleges in the United States, as not all are members of the association. It is true that medical examining boards may force all colleges ostensibly to comply with this standard by demanding it as a requirement for licensure. Notwithstanding, institutions not desiring literally to follow such a course, readily may juggle their teaching and thus appear to comply with the rule. Hence the necessity for every college to be in the association and pledged to abide by its decisions, if inclusive uniformity is to be attained.

Uniformity of medical regulating boards, as suggested by the foregoing, is an essential preliminary to uniform medical teaching, and the consequent attainment of a higher educational standard in medicine. The association of colleges aforementioned, the National Confederation of State Medical Examining and Licensing Boards, and the American Confederation of Recipro-

ating, Examining, and Licensing Boards, each submit a sample curriculum. As we write, comes word that the newly-appointed council on medical education of the American Medical Association has done the same. In addition, individual State boards and colleges which are affiliated with none of these organizations are endeavoring to "elevate" the profession and incidentally themselves—apparently in most instances with as much success as appertained to the historic personage who sought to lift himself over the fence by pulling on his boot straps. Obviously only one of the proposed curriculums, however good they all may be, can be adopted if uniformity is attained. Which shall it be, and who shall decide? Furthermore, to make possible a uniform curriculum, there must be a uniform standard for all State examining boards, with consequent State reciprocity, and the throttling of a goodly number of the 160 or more medical colleges in this country, those colleges which, because of lack of facilities, or of teaching talent, could not properly prepare men to practise medicine if they had a curriculum of twice 4,000 hours. Who will do this necessary house-cleaning? It is much easier to call attention to things that are desirable than to devise means whereby they may be accomplished, but we trust it is not entirely futile thus to point out the magnitude of the question at issue and the inefficiency of divided efforts in its settlement.

Centralization of Governing Power is Demanded.—Out of this multiplicity of associations should be evolved a single authoritative body with power to standardize and equalize State examining boards and medical colleges, the latter in a way possibly slightly different than is now proposed. Let the colleges themselves be inspected and rated as are firms in the business world. As this method of reaching the colleges becomes more and more thorough, the less need will there be for State licensing boards, until finally their disbanding may be possible, a consummation devoutly to be desired. Then would be impossible the humiliating spectacle of a board announcing to candidates for license that certain of the questions submitted were unanswerable and that failure to pass, if dependent thereon, would not be enforced. Again, smothering of exceptional teaching talent by limiting each professor to a rigid number of hours could be avoided by such a

regulating board. If, for instance, an orthopedist can teach other parts of surgery, technically out of his branch, better than other surgeons of the institution, let him do this if the faculty so desire. Whether this central board should take the form of a department of the government in charge of a medical cabinet officer or should be a representative body chosen by the profession is a question for earnest deliberation. The American Medical Association could handle this matter, and in many respects is the proper body so to do. However that may be, we have at present no scheme to cast upon the already troubled waters. The various organizations now attempting to solve the problem contain men of the highest acumen and probity and are fully competent to evolve a satisfactory solution. But they must get together.

A combination of jail and hospital for drunkards is planned by New York City, and seems to be a most commendable measure. A city magistrate or Supreme Court Justice at present has no place to which he may send habitual drunkards, and the fact tends to perpetuate this class of criminals and encourages another class almost equally bad—the proprietors of quack “institutes” and institutions, in which secret nostrums and humbuggery neither reform the drunkard nor help the community to deal with the problem. Commitment in the New York hospital jail may be for a term less than a year on complaint of a father, mother, sister or brother, or of a child against its parent. The hospital is to be in charge of three physicians appointed by the Mayor, at \$6,000 and \$5,000 a year. The building and its site will be paid for from excise money. Every large city may well imitate New York in dealing with this perplexing and burdensome evil.

Physicians in Aid of the Cause of Temperance.

—There is no influence so great as the professional one in temperance reform if the lay organizations, such as the Woman's Christian Temperance Union, etc., would but go about this work sanely and intellectually, and in a sensible way solicit our aid. Sir Frederick Treves, standing as he does at the head of English surgeons, has stirred British domestic waters by his emphatic, almost violent pronouncement against the use of alcohol in however moderate a degree. It may be argued that he is not a general medical practitioner, and speaks only as a surgeon, who knows that it is easier to operate successfully upon moderate drinkers than upon drunkards, but his association with the king and his great authority with the general public nevertheless will make his pronouncement more potent in decreasing the use of alcohol than many acts of Parliament, yet notwithstanding his counterblast, the House of Commons recently spent a night in throwing out Scotland's request for local control of the liquor traffic. The English brewer voted down the Presbyterian conscience. In our country the violent and suicidal opposition to true reform in the unreasoning hatred of the canteen, local option, and scientific schoolbooks on physiology and hygiene is one of the greatest obstacles to genuine temperance, and the aid of medicine, which every physician is more than willing to give.

A medical reserve corps for the army has been suggested in a bill submitted to Congress by the Surgeon-General. It is the first definite remedy so far proposed for the system which collapsed in the Spanish war, and it is the result of the persistent refusal of Congress to provide sufficient trained medical officers. When the army was enlarged in 1901, this congressional attitude went to the extreme of actually reducing the proportion of surgeons, but as a makeshift, the War Department was authorized to hire civilian physicians under contract, though this system, by reason of its inefficiency, had been repeatedly condemned and once abandoned. The military surgeon is a specialist in branches with which the rest of the profession does not concern itself, and efficiency requires years of study and practice, as in any other art. The treatment of the sick is a small part of his duties. He who is treating 50% of a regiment as too sick to fight may be doing good work, but he is not as valuable as he who is comparatively idle as a practitioner because he has so prevented sickness that 95% of the regiment is always ready for battle. The physician hastily called from civil life is not conversant with these duties, and by the time he becomes more or less efficient he returns to civil life, as there is no prospect for advancement. The nation loses his services just at the time they are becoming valuable, and the expenses of sending him back and forth from his home make the system more costly still.

Organization is Impossible without Ranks.—

When all men were absolutely equal there were the conditions of savagery, but with the cooperation of civilization, there had to be authority of some over others to weld the whole into one mass. We consider ourselves democratic, but we worship rank because it is our mental inheritance from ancestors who survived because they were rank worshipers. Rank is then a necessary natural law in every civil or military company. The grades now existing in armies are practically the same as in Roman times, and are based upon the same psychologic law. Without ranks railroads cannot be managed, as the employes, being human, cannot obey those without power to punish or dismiss. This fundamental law is not generally understood by professional soldiers, whose work is the most dependent upon it, and there are many who still believe that the military surgeon can do his duties in defiance of it, and that the management of a hospital is possible without the authority to enforce orders. The real objection, then to the system of civilian physicians in an army is the fact that soldiers, who are human beings, as well as soldiers, will not obey those who have no authority to order. Since Congress will not increase the medical department to its proper size, the only thing to do is to give military authority to the contract surgeon—that is, give him a temporary commission, and this is what the proposed reserve corps provides. For time of war it also creates a reserve force of civilian practitioners who have shown military ability.

Objections to the medical reserve corps have been raised by a former volunteer surgeon, and the matter was discussed at the last meeting of the Association

of Military Surgeons. Divesting the objections of their intemperate and unwise statements, they appear to consist mostly of a dread that this body of civilian physicians would be under the control of the Surgeon-General—the very state of affairs it seemed desirable to create. It is not at all unlikely that political favoritism entered too largely into the late volunteer appointments. We, of course, are scarcely competent to decide whether or not the proposed corps is the best substitute for the more desirable completely constituted medical department. It is safe to presume that it would not have been proposed did it not embody the best suggestions from many sources. Some of the details of the bill met with objections from the general staff, but Secretary Taft did not hesitate to say that the arguments of the Surgeon-General were more weighty. If the Secretary of War can approve the bill in opposition to these officers of experience, the medical profession can afford to have equal confidence in the judgment of the Surgeon-General. It is surely desirable to have a body of civilian physicians to piece out the corps of regimental surgeons of the National Guard. The proposed corps is an experiment, and will undergo an evolution as defects are discovered, but it appears to be a step in the right direction, and the profession will not be wrong in exerting its influence for the passage of the bill.

Undue sickness in armies reflects upon the whole medical profession, even though the physicians are not responsible for it. Thinking people have learned to look to the civilian doctor to prevent epidemics. They give him power to act and hold him responsible, and they demand the same system in armies. It is evident that this modern evolution has not yet percolated into the military systems of Europe and America. Experienced officers dread any reduction of their powers as tending to lessen the control of their men. The military sanitarian is popularly held responsible for blunders, though he is limited to recommendations and these must be suggested with more tact than the average man possesses; if they are not looked upon as insubordinate criticisms. Thus sanitation in armies is in the hands of those who are ignorant of its needs and too busy with other things to learn. It seems that this is a fundamental defect which should be corrected at once. As military reforms are almost invariably the result of outside pressure from the people, it is the part of wisdom for the medical profession in the protection of its own reputation to force some change in the direction of rendering sanitary advice of vital importance, neglect of which is to be considered a serious offense.

Politicians are notoriously weak-kneed when it comes to a matter upon which they fear criticism, though every one of them knows that no one is more popular than he who has aggressive ideas and backbone enough to defy the demagog. Hence, it is practically impossible to induce congressmen to enlarge the medical department to its proper size, as it savors of the alleged dangers of increase of the standing army, and though the present system is expensive and inefficient, it is continued year after year. If a few could be punished for

neglecting a plain duty to the soldier, the others might be afraid to obstruct progress any longer. We have waited seven years for Congress to act, and we will wait seventy times seven unless it is enlightened, and none can do this better than the profession as a body. The general staff is charged by law with the study of new conditions and the suggestion of reforms, and though sanitation looms up large in modern warfare, the staff has not touched the matter. But one military sanitarian is a member of this body, and it would seem wise to have three or four of extended experience, who are still in the vigorous, aggressive decades of life. They surely could suggest remedies to the President if Congress continues neglectful of its duty.

Another Chance to Divide the Spoils.—A recent news note in lay and medical journals stated that several prominent men in New York and Philadelphia had withdrawn their endorsement of the Oppenheimer treatment of alcoholism. This institute, with headquarters in New York, and local branches in many other cities, though making certain extravagant claims, seemed no worse than many other establishments of like pretensions, and the reasons for said withdrawal of support were not apparent; since that time, through the kindness of a correspondent, there have come into our hands documents which throw much light upon the question. This institute, which in its literature heralds such cures as removal of craving for liquor in 24 hours, and in two days the clearing up of urine containing 58% (?) albumin, due to alcoholic nephritis, is circularizing the medical profession of the country with the object of securing in each town a representative who, by various means of advertising, shall secure patients and of the regular fee for the "cure," send \$50 to the home office of the institute and retain \$100. A free clinic and "St. Luke's Guild," by a pretense of charity, is mentioned as one of the staple advertisements of the treatment. The testimony of such charity patients in public meetings, best arranged by a "business associate," attracts public attention to the cures brought about by the method. It is high time the directors and advisory directors of the institute, made up, according to the published list, of men prominent in business, the ministry, and the government service, investigate the methods of this cure-quick concern, and decide if they can afford longer to give it their endorsement. It is significant that in the long list there appears the name of but one physician other than the one who gives the institute its name. Members of the medical profession who receive the aforementioned circulars will refuse or accept according as they are true physicians or mere money-seekers.

State Care for the Feeble Minded.—Progress in the care, treatment and education of the feeble-minded is illustrated by the work of the twenty-eighth annual session of the Association of the Medical Officers of American Institutions for Idiotic and Feeble-minded persons, held at Fairbault, Minn., last June. Great interest and advances were shown in the educative and economic results of occupation and manual work. There are now about 32 private schools for training this class of defec-

tives in the United States. The following is a list of the public institutions at present existing in the United States, together with the date of their establishment:

State.	Location.	Superintendent.	Yr. Org.	Pop. 1904.
California—Eldridge.....		Dr. W. J. G. Dawson	1885	.....
Connecticut—Lakeville.....		Geo. H. Knight	1832	203
Illinois—Lincoln.....		Dr. Chas. B. Taylor	1865	1,051
Indiana—Ft. Wayne.....		A. E. Carroll (Acting)	1879	906
Iowa—Greenwood.....		Dr. Geo. Mogridge.....	1876	975
Kansas—Winfield.....		Dr. C. S. Newlon.....	1881	288
Kentucky—Frankfort.....		Dr. D. J. W. Hill.....	1860	158
Massachusetts—Waltham.....		Dr. W. E. Fernald.....	1848	688
Minnesota—Fairbault.....		Dr. W. A. Polglase.....	1894	443
Michigan—Lapeer.....		Dr. A. C. Rogers.....	1879	887
Missouri—Marshall.....		Dr. L. M. Thompson.....	1900	174
Maryland—Owings Mills.....		Dr. F. W. Keating.....	1883	(1901) 85
New Hampshire—Laconia.....		Dr. C. S. Little.....	1901	.....
Nebraska—Beatrice.....		Dr. A. Johnson.....	1887	304
North Dakota—Grafton.....		Dr. L. B. Baldwin.....	1904	50
New Jersey—Vineland.....		Edw'd. R. Johnstone	1888	279
(Boys and Girls)				
New Jersey—Vineland.....		Dr. Mary Dunlap.....	1886	126
(Girls and Women)				
New Jersey—Skillman.....		Dr. H. M. Weeks.....	1897	62
(Epileptics)				
New York—Syracuse.....		Dr. J. C. Carson.....	1851	546
New York—Newark.....		C. W. Winspear.....	1885	465
(Women)				
New York—Rome.....		Dr. J. H. Fitzgerald.....	1893	550
(Custodial)				
New York—Randall's Island.....		Mrs. M. C. Dunphey.....	1870	475
Ohio—Columbus.....		Dr. G. A. Doren.....	1857	1,122
South Dakota—Redfield.....		Dr. J. K. Kunewsky.....	1900	200
Texas—Abilene.....		Dr. John Preston.....	1900	250
Pennsylvania (East)—Elwyn.....		Dr. M. W. Bart.....	1853	1,000
Pennsylvania (West)—Venango.....		Dr. M. Murdock.....	1896	908
Wisconsin—Chippewa Falls.....		Dr. A. W. Wilmarth.....	1896	609
Washington—Vancouver.....		James Watson.....	1892	80

Accidents in the United States.—According to the eminent statistician, Frederick L. Hoffman, the fatal accident rate in the United States as a whole is between 80 and 85 per 100,000 of population. About 25 are also injured for every one killed, so that there are 1,664,000 persons killed or injured each year. In this calculation minor accidents are not included. In Europe 9 out of 10 families of the workingclass require charitable aid after injuries by accident. As to the railway accidents in our country according to the Interstate Commerce commission the numbers are as follows:

Year	Employees		Passengers.		Other Persons.		Total.	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
1897	1,698	27,667	222	2,795	4,522	6,269	6,437	36,731
1898	1,958	31,781	221	2,945	4,680	6,176	6,859	30,882
1899	2,210	34,923	239	3,442	4,674	6,255	7,123	44,620
1900	2,550	39,643	249	4,128	5,066	6,549	7,865	50,320
1901	2,675	41,142	282	4,988	5,498	7,209	8,455	53,339
1902	2,969	50,524	345	6,883	5,274	7,455	8,588	64,662

If we add to these items the number of homicides that occurs annually in the United States we get an appalling conception of our national spirit of recklessness as to the value of human life. There is, of course, a decided danger in national insurance or corporate compulsory recompense, pensions, etc., but it can hardly be as great as this disregard of life and the evils which threaten us in the future if the carelessness goes on unchecked. It must surely be possible to learn how to differentiate the self-mutilators and shirks from those injured when due foresight has been exercised. This discrimination being secured responsibility should be fixed and the drain of the national vitality stopped.

Instruction in Hygiene and Temperance in Great Britain.—We have received from the advisory board of the department of Scientific Temperance In-

struction in Boston, notice of the adoption by a committee of the British medical profession of a course of study in hygiene and temperance, based upon, and to a large extent identical with that of the course recommended for this country. This recognition of an American educational movement is, of course, very gratifying, particularly to those most actively interested in its promotion, but also to the people of our country as a whole. The English committee is said to represent more than 15,000 members of the medical profession of that country, and their suggestion will undoubtedly carry great weight in the selection of a course in hygiene for the elementary schools of the kingdom. The need of a systematic course in this subject has for some time been felt, and British journals and health officers have of late thoroughly agitated the matter. The inability of many teachers correctly to teach hygiene and physiology has been recognized as one of the practical questions to be solved. Dr. Heron¹ recently suggested that physicians be employed for this purpose, visiting the schools at stated intervals. This post he would offer first to the medical adviser of the school, then to the local health officer, and failing these, to a competent physician, one in active practice or a consultant. This plan entails some difficulties, but withal has much to commend. Whatever disposition is made of the problem, British physicians and educators should look sharply to the textbooks adopted. They may be warned by the experience of certain of our States in which well-meaning but over-zealous temperance workers have interfered with books until both physiology and temperance are made a travesty.

Another Method of Generating Formaldehyd Gas.—We recently made mention of a simple, though expensive method of vaporizing formalin for disinfecting purposes. The subject is of sufficient importance to warrant the presentation of another method lately announced by H. V. Walker² of the Brooklyn Health Department. Heat for vaporization is obtained from slaking lime; this part of the technic has been employed for some time, but formerly it also included the use of sulfuric acid. Walker objects to the acid, because upon standing it converts formaldehyd into the solid form, and hence has discarded mixtures containing it in favor of mixtures containing aluminum sulfate. To make this mixture, 9 kilos to 11 kilos (20 lb. to 25 lb.) of commercial aluminum sulfate is dissolved in 19 liters (5 gal.) of hot water and to this is added 57 liters (15 gal.) of formalin. For disinfecting purposes, 240 cc. (8 oz.) of this mixture and 0.5 kilo (1 lb.) of lime are used for each 1,000 cubic feet of space. The lime should slake readily with cold water and be used in the form of small lumps or coarse powder. In municipal practice this method is said to give excellent results, more than 90% of successful fumigations, tested by *B. pyocyaneus*, being obtained.

Niels Finzen Memorial Fund.—The committee authorized to receive subscriptions in America desires to announce that the collections will be closed in this country by June 1, next. Those desirous of contributing to a fitting memorial to the distinguished Norwegian scientist, may send their contributions to James Nevins Hyde, 100 State street, Chicago, Ill.

¹ Public Health, January, 1905.

² Journal of the American Chemical Society, March, 1905.

BOOK REVIEWS

Electricity in Everyday Life.—In three volumes, by EDWIN J. HOUSTON, Ph.D. P. F. Collier & Son, New York, 1905.

Professor Houston not only has a thorough knowledge of his subject both theoretically and practically, but he has the rare gift of being able to separate the essential from the incidental, and to express himself so clearly that those without technical knowledge can, nevertheless, understand technical subjects. These volumes, therefore, form an exceedingly valuable and popular exposition of the everyday uses of electricity, together with considerable scientific matter appropriately placed in connection with the subjects for whose explanation it is required. There is a good deal of interesting historic narration, showing the development of principles and their application, and one will not only find the work useful for reference in relation to the details of construction and operation of telephone and telegraph systems, electric machinery, therapeutic apparatus, and the like, but may also read it consecutively, not only with instruction, but with pleasure. He is sure to find something of interest at whatever page he may open any of the volumes.

Medical Epitome Series: Medical Diagnosis.—By AUSTIN W. HOLLIS, M.D. Series edited by VICTOR COX PEDERSEN, A.M., M.D. Lea Brothers & Co., Philadelphia and New York.

This work is intended to serve the needs of students and to answer as a convenient guide for the physician. It gives a clear, accurate, compendious covering of the essentials of its subject, presented with a due sense of the relative importance of its various branches. Diseases and abnormal conditions are taken up in regular sequence and physical and clinical signs and symptoms are clearly pointed out with full explanations of their significance. In addition to physical methods, the author gives directions for laboratory investigations, blood tests, and bacteriologic and chemic examinations.

Nursing in Eye, Ear, Nose and Throat Diseases.—By A. EDWARD DAVIS, A.M., M.D., and BEAMAN DOUGLASS, M.D. F. A. Davis Company, Philadelphia, 1905.

While this little book has been written primarily for the use of nurses, students and general practitioners will, we believe, find it of great assistance. It is not a treatise, but is meant simply as a guide for the intelligent care and nursing of the various diseases of the eye, ear, nose and throat, and to instruct the nurse as to her exact duties during and following operations upon these organs.

Progressive Medicine.—Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Volume vii, No. 1, March, 1905. Philadelphia and New York: Lea Brothers & Co.

The initial number for 1905 contains 290 pages, and is one of the neatest appearing numbers we have seen. Five subjects are considered. Of these, Surgery of the Head, Neck, and Thorax, by C. H. Frazier, and Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza, by Robert B. Preble, occupy about three-fourths of the volume. Both are very full reviews of the respective subjects with added critical notes that are of value. Dr. Frazier tabulates 71 cases of suture of the heart up to the present time, with 40 deaths and 31 recoveries. Diseases of Children are reviewed by Floyd M. Crandall; Laryngology and Rhinology by Charles P. Grayson; and Otolaryngology by Robert L. Randolph. The entire number is exceptionally valuable.

Saunders' Question-Compend Series: Essentials of the Practice of Medicine.—By WILLIAM R. WILLIAMS, A.M., M.D. W. B. Saunders & Co., Philadelphia and London, 1905.

In this new volume the student is provided with a book of great practical value. Special stress is laid on the more common aspects of the various diseases, emphasizing and contrasting points in similar conditions, so as to render differential diagnosis as easy as possible. Symptomatology and treatment have also been considered. For students preparing for examination it will be a most welcome and trusty aid.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Report on the Origin and Spread of Typhoid Fever in the United States Military Camps during the Spanish War of 1898.—By WALTER REED, Major and Surgeon, U. S. Army; VICTOR C. VAUGHAN, Major and Division Surgeon, U. S. Volunteers, and EDWARD O. SHAKESPEARE, Major and Brigade Surgeon, U. S. Volunteers. Vols. I and II. Prepared in accordance with act of Congress under the direction of Surgeon-General Robert M. O'Reilly, U. S. Army. Government Printing Office, 1901.

Transactions of the Medical Society of North Carolina.—Fifty-first annual meeting held at Raleigh, N. C., May 24, 25, 26, 1904. Raleigh, Presses of Edwards and Broughton, 1905.

Nineteenth Report of the State Board of Health and Vital Statistics of Minnesota, 1901-1902.—Pioneer Press Company, 1902.

Eye, Ear, Nose, and Throat Nursing.—By A. EDWARD DAVIS, A.M., M.D., Professor of Diseases of the Eye in the New York Post-graduate Medical School and Hospital, and BEAMAN DOUGLASS, M.D., Professor of Diseases of the Nose and Throat in the New York Post-graduate Medical School and Hospital. With 32 illustrations. Extra cloth. Price, \$1.25 net. F. A. Davis Company, Philadelphia.

American Alkalimetry, Vol. IV: A Digest of Clinic Teachings, 1902 and 1903.—Editors, W. C. ABBOTT and W. F. WAUGH, Chicago.

AMERICAN NEWS AND NOTES

GENERAL.

Cost of Health on Isthmus.—The Isthmian Canal Commission has approved the estimates submitted by Colonel Gorgas, of the Army Medical Corps, chief officer on the Isthmus, allotting \$656,444 for the fiscal year beginning July 1, 1905, for the expenses of the Health Department, which is a net increase of \$150,140 over the allotments for the preceding year. The increase is based on the proposition that the forces of the commission will be largely augmented by July 1.

American Gastroenterological Association.—At the eighth annual meeting held in New York City, on April 24 and 25, 1905, the following officers were elected for the ensuing year: President, H. W. Bettmann, of Cincinnati; first vice-president, S. W. Lambert, of New York City; second vice-president, John P. Sawyer, of Cleveland; secretary and treasurer, Charles D. Aaron, of Detroit; councillors, William G. Morgan, of Washington; A. L. Benedict, of Buffalo, and J. Kaufmann, of New York.

American Röntgen Ray Society.—The sixth annual meeting will be held at Johns Hopkins University, Baltimore, September 28, 29, and 30. Arrangements have been made for an excellent program and a large attendance is expected. The papers of the meeting for the first day will deal with röntgen-ray diagnosis, and those of the second and third days will be therapeutic. There will also be an evening exhibit of lantern slides, which promises to be extremely interesting. The Belvedere Hotel has been selected as headquarters.

Citizenship with Army Medical Appointments.—The Surgeon-General of the army has asked whether a physician who is a citizen of Porto Rico is eligible for appointment as an assistant surgeon with the rank of first lieutenant in the medical department. The Judge Advocate-General has rendered the opinion that the qualifications prescribed in the circular to candidates for appointment to the medical department is a self-imposed restriction, differing in some respects from an executive regulation, and that it may be waived in a case in which, in the discretion of the Secretary of War, such waiver will be to the public interest.—[Army and Navy Register.]

Health Conditions on the Isthmus.—The March health report of Colonel W. C. Gorgas, chief sanitary officer of the isthmian canal zone, shows a steady improvement in conditions there. There were about 9,000 employees of the commission at the end of the month. The sick in hospitals numbered 153 and the total deaths for the month were only 11. This is equal to a rate of 14 per thousand, a rate which Colonel Gorgas says would be considered favorable anywhere. In the 30 days ended with March there had been 4 cases of yellow fever throughout the whole isthmus, of which 1 was in Panama. In the previous 30 days there had been 12 cases. Each house in Panama City has been fumigated, a great many of them several times.

Personal.—Cyrenus G. Darling has been made clinical professor of surgery in the University of Michigan by the board of regents.—At the request of Miss Mary E. Garrett, the benefactress of the medical department of Johns Hopkins University, Drs. W. H. Welch, W. S. Halstead, and H. A. Kelly will meet Dr. William Osler in London in June, to sit for a group portrait to be painted by John S. Sargent.—William Osler has been elected an honorary fellow of the Royal College of Physicians of Ireland.—A portrait of Dr. Arthur E. Cushman, painted by Percy Ives, of Detroit, will be presented to the University of Michigan by the senior medical class of that institution.

Cuba Sanitary Bill Vetoed.—President Palma has vetoed the bill appropriating \$1,500,000 to assist in the sanitary work of all the municipalities. The principal grounds of the veto are the fact that the general government in the Platt amendment undertakes itself to carry out all sanitation.

Miscellaneous.—A Spanish-American Journal: The *Revista Medica Hispano Americana* is an interesting new medical journal, under the editorship of E. J. Gardiner, Chicago, Ill. Among its promised contributors we note the names of many of the leaders of the American medical profession, such as E. Fletcher Ingals, Llewellys F. Barker, Harold N. Moyer, Nicholas Senn, and others. The journal is in Spanish, and is circulated chiefly among the Spanish speaking countries, Spain, Porto Rico, southern republics, and the Philippines. In addition to original matter, editorials, and abstracts, articles in leading American medical journals will be translated in full. Extracts from foreign literature, etc., will be included in its pages. The aim of the editor seems to be to broaden the influence of American medical literature in these countries.

Yellow Fever in the Canal Zone.—Three cases of yellow fever have been reported from the canal zone, and the news coming so soon after the recent favorable report of Governor Davis, has made a disagreeable impression for the reason that the new patients are of a class of employees regarded as intelligent and competent to observe all the rules of hygiene and follow closely the well-established method of protection against the fever. Recent reports from the Isthmus, however, show that conditions are abnormally bad, owing to almost a water famine and to bad weather. It is believed by the officials here that the conditions will improve steadily and that the American colony is now going through its worst experience. Within a few weeks the new water-supply system, bringing in pure mountain water into Panama, will be in operation, and when the city is paved with vitrified brick and sewered it will be the cleanest city in the tropics, with no danger of contagion.

EASTERN STATES.

Victim of Anthrax.—John H. Tagney, a morocco worker, died at Lynn Hospital last week of anthrax, contracted while handling imported skins at a leather factory.

Hospital for East Boston.—The legislative act for the establishment of a relief hospital in East Boston, has been passed in concurrence by the Common Council. The vote was 66 to 1.

NEW YORK AND VICINITY.

The number of deaths from spinal meningitis instead of continuing to decrease in New York City, showed an increase. Last week there were 110 deaths from this disease, against 87 the week before that. In the week before that there were 104 deaths, and in the week before that 117. The deathrate as a whole last week showed a decrease, however, from that of a year ago. It was 20.10, against 23.32 last year.

The Pace that Kills.—It appears that something else than meningitis menaces the lives of New Yorkers. In the city of New York proper, or the borough of Manhattan, the fierceness of living—being fired through miles of subway or over elevated roads and up and down high buildings in lightning elevators—qualifies the citizen for sudden death. Thus in 1904 no less than 3,000 men fell dead. This is an increase of 500 over any preceding year, and that the peril is growing is shown by the record of 1,700 such sudden deaths in the first three months of this year. There may be some compensating advantages in the quiet life, after all.

One Jersey City Mosquitoless.—State Entomologist Smith declares that with the exception of a little patch, the Newark, N. J., meadows will be entirely free from the mosquito larvae during the coming summer. The ditching done by the Board of Health has eradicated all the mosquito breeding places on the meadows with the exception of what is known as the Ebbling tract, where the meadows are so hopelessly rotten away down as to make the ditching cure ineffective. The tide submerges the marsh and leaves countless stagnant pools that breed mosquitos by the millions. The Elizabeth city authorities are actively at work on schemes for the ditching of the Elizabeth meadows, and before the summer begins will have started an effective crusade against the plague spots.

To Improve Milk Supply.—Milk dealers in New York and Brooklyn have formed an organization called the Association for Improvement of the Milk Supply in New York. Ernest J. Lederle, ex-health commissioner, has been retained as consulting sanitarian, adviser, and analyst. The association will cooperate with the Department of Health. The new movement has for its aim the scientific improvement of milk and its products. The work done includes periodic examination of milk that comes from the various stations and creameries, and of milk from the farms supplying each station. When these examinations disclose opportunity for improvement in the milk, further inspections are made at the creamery, especially to determine whether the sanitary conditions are as they should be. Any farmer who supplies milk below the creamery standard is

notified of the fact and is told how to improve the product of his farm with regard both to the richness and the cleanliness of the milk.

Farewell Dinner to Dr. Osler.—About 500 physicians from the Eastern States and Canada dined at the Waldorf-Astoria Hotel, in New York City, on May 2, to do honor to Dr. Osler before his departure for England. The toastmaster was James Tyson, of Philadelphia, and the list of speakers and of the toasts to which they responded was: Osler in Montreal, "Student and Teacher," F. J. Shepherd, of Montreal; Osler in Philadelphia, "Teacher and Clinician," J. C. Wilson, of Philadelphia; Osler in Baltimore, "Teacher and Consultant," W. H. Welch, of Baltimore; Osler, "The Author and Physician," A. Jacobi, of New York City; presentation of Cicero's "De Senectute," by S. Weir Mitchell, of Philadelphia. In presenting a beautifully bound copy of James Long's translation of "De Senectute," in the edition printed by Benjamin Franklin at Philadelphia, in 1744, Mitchell said: "What humorist selected the gift I don't know, nor do I know what sarcastic genius singled me out to present it. But I suppose my own fitness depended on the fact that I am the youngest man here tonight, and thus best suited to bring the homage of youth to our venerable friend." Osler replied fittingly, and expounded again his three ideals or rules of conduct; to do the day's work well and not to think of tomorrow, to follow the golden rule, and to cultivate a certain measure of equanimity.—[*New York Medical Record*.]

PHILADELPHIA, PENNSYLVANIA, ETC.

Osteopaths Lose in Pennsylvania.—Governor Pennypacker has vetoed the bill designed to put osteopaths on the level with the other schools of medicine. His main objection was on the ground that there is nothing in the bill to indicate what constitutes the science of osteopathy.

Big Increase in Typhoid Fever.—Of the 289 new cases of typhoid fever reported to the Philadelphia health authorities last week, 174 cases are in the northeast section of the city, supplied with water direct from the Delaware river. From the Twenty-first and Twenty-second wards, which receive a filtered water-supply, there are only four cases.

The emergency fund for epidemics has become a fact by Governor Pennypacker signing the bill appropriating \$50,000 to be used in the suppression of epidemics and the prevention of disease. This money is appropriated to the State Board of Health, but as the new Department of Health takes over the board's duties it will expend the money.

Must Support Rich Insane.—It is estimated that over \$100,000 a year will be saved by Philadelphia under the recent decision that the Quarter Sessions Court has the power to commit for contempt any person not complying with the order to pay \$1.75 for the support of a relative in a State insane hospital. Even a larger sum can be collected from persons well to do, who have paid nothing for relatives kept as paupers in the insane hospitals in some cases for a period of many years. The decision was based on a rule against Henry M. Tait, to show cause why an attachment should not issue for his failure to obey an order made by the court to pay \$1.75 per week for the support of his wife.

Registration of Births and Deaths.—Governor Pennypacker has approved the bill to provide for the immediate registration of all births and deaths in the State. This is a companion bill to that establishing a State Department of Health, which provides that the State shall be apportioned into ten districts, each in charge of a physician at \$2,500 a year, who shall report the births, deaths, etc., to the Bureau of Vital Statistics, a part of the new department. It creates a State Registrar of Vital Statistics at a salary of \$2,500, and provides for clerks and assistants. Each city, borough and township is to constitute a primary registration district, and local registrars are provided for. Rules for the government of local registrars and a form of certificate for births and deaths is given, the registrar to receive 25 cents for a death certificate and 50 cents for a birth.

SOUTHERN STATES.

Sewage Plan Approved by Physicians of Baltimore.—As the outcome of a conference, a strong appeal has been sent out by a committee of medical men, asking the profession to assist in effecting the passage of the sewage loan on May 2. The paper is signed by Drs. Isaac E. Knison, John S. Fulton, William H. Welch, William Osler, Hugh H. Young and many others.

The Maryland Association for the Prevention and Relief of Tuberculosis has begun an active canvass for members. The association will endeavor to give every resident of Maryland an opportunity to join and help in the fight to wipe out tuberculosis. It is the desire of the leaders in this movement that the membership shall grow to such magnitude throughout the State that its requests of the Legislature will carry the weight of popular demand, and that its campaign of education may receive wide publicity.

WESTERN STATES.

To Suppress Fraud.—The Postmaster-General has advised the issuance of a fraud order against the Physicians' Protective Association of Kansas City, Mo., and United States Protective Association of Coffeyville, Kan., for conducting a fraudulent business. The concerns are under the same management, and advertised as "sure collectors" of accounts due physicians.

The medical law of North Dakota has been amended so as to require for a certificate to practise in the State four years of medical study of not less than eight months each and an examination. The Board of Examiners may, for a fee of \$20, grant certificates without examination to applicants holding certificates granted by other State Boards upon examination—where standard is not lower than that of North Dakota.

Workings of the Indiana Cigaret Law.—Judge Alford, of the Indianapolis Criminal Court, indicated his interpretation of the new cigaret law when he instructed the grand jury to return indictments in cases where evidence showed that cigarettes or cigaret paper were found in possession of any person, consumer, or dealer. Judge Whallon, of the police court, has held that the possession by the consumer could not be construed as a violation.

To Prevent the Spread of Tuberculosis in Missouri.—An ordinance has been passed by the Municipal Assembly, of St. Louis, whereby medical practitioners are required to notify the Health Commissioner of cases of tuberculosis, the same as all contagious diseases. Houses, however, will not be placarded, but the Health Department will supervise the control of tuberculous patients, and in extreme cases will have the power to isolate them.

Smallpox in Chicago.—There were 93 smallpox patients in the isolation hospital last week, the largest number that has been there since its establishment. It is also the largest number of smallpox victims which the city has had on its hands in one day since the epidemic of 1895, but no alarm is felt by the health authorities, as many of the patients are recovering and several are nearly ready to be discharged. Fourteen of the patients are babies. The strike of the express wagon drivers prevented the vaccination of more than 100 persons by inspectors of the city Health Department. The department had ordered 2,000 vaccine virus points from Milwaukee, but the express company was unable to move the order from the station.

Hospital Force on Strike.—The Sherman Hospital, at Elgin, Ill., the only hospital in the State which is managed and operated entirely by women, is threatened with resignation from every physician now upon the medical staff. Recently an osteopath named Murray was given the privilege to bring patients to the hospital. The regular practitioners look upon this act as an affront to the entire medical fraternity. At a meeting of the local medical association several of the hospital staff announced that if Murray is not removed they will resign. Murray later offered to resign, this being submitted to the members of the board of managers at an unofficial session. The club women who are interested in the hospital assert that they look upon the action of the regular physicians as unwarranted and discourteous, and several of them have declared positively that Murray's resignation must not be accepted. It is possible the club women supporting the hospital will inaugurate a lockout upon all physicians who have been concerned in the boycott, defying the doctors either to resign from the staff or to boycott the institution.

FOREIGN NEWS AND NOTES

GENERAL.

Bequests to Charities.—By the will of the late Sir Edwin Dolman Scott, of Great Barr, Staffordshire, the sum of \$25,000 is left to the following hospitals: The General Hospital, Birmingham; the County Infirmary, Stafford; and the Queen's Hospital, Birmingham. After the payment of certain other legacies, a third of the residue is left to the Free Cancer Hospital, Brompton Road; this institution is likely to receive \$25,000 also.

The first ophthalmic hospital in Paris was opened without ceremony last week. The institute has been founded by Baron Adolph de Rothschild, and has been fitted with every modern appliance. Two hundred patients were admitted the first day. The building is a handsome stone and brick edifice, constructed partly with old stones brought from Normandy and is designed generally to imitate the old Norman chateaux. It will rank as one of the architectural beauties of the city.

Notification of Cerebrospinal Meningitis.—Berlin exchanges are publishing a notice from the president of police urging physicians to notify the authorities of every case which in any way suggests the possibility of its being epidemic cere-

brosplinal meningitis. It is feared the disease will be imported into Berlin from Silesia, where it is epidemic. Physicians are urged to cooperate with the authorities, although the official regulations call for notification of only pronounced cases of the disease.

Emigration from Naples to the United States.—The period of maximum emigration from southern Italy to the United States is now at hand. During the month of March, 29 steamships left Naples for New York and Boston, and 31,581 emigrants were inspected preliminary to granting the bill of health. As a result of the inspection the rejection of 407 aliens was recommended; 29 sailings were registered for April and it is expected that large numbers of southern Italians will continue to emigrate until late in June.

"League of Pitiful Deliverance."—A society having for its title the name "League of Pitiful Deliverance" exists in Siberia. The object of the society is the killing of the aged and infirm relatives of the members of the order to put them out of pain. The death of such persons is decreed by a secret tribunal. The existence of the society was revealed by a woman, a sufferer from rheumatism, who objected to the death sentence and informed the police, thereby causing the arrest and trial of three brothers for conspiracy to murder.

The Antiduelling League of Europe is endeavoring to strike at the causes of duels, and urges the government to support a bill providing for the punishment of unfaithful husbands and wives with imprisonment of from 6 months to 24 months, punishing persons who untruthfully assert that a woman has been unfaithful to her husband, punishing with imprisonment instead of by a fine alone a man who insults another or who libels him, and treating killing in a duel as murder, and all who participate in a duel as criminals under the ordinary code.

Sick in Russian Armies.—In view of the exaggerated reports of sickness in the Russian armies published abroad, the following figures are furnished from headquarters of the number of sick in the entire region from Baikal east to Vladivostok: In hospital: Wounded, 769 officers and 14,904 soldiers; sick, 1,157 officers and 13,918 soldiers. In sanitary trains: Wounded, 35 officers and 774 soldiers; sick, 45 officers and 772 soldiers. In hospitals for convalescents: Wounded, 216; sick, 332. Last week 65 sick patients died and 42 were discharged. Convalescents: Wounded, 437; sick, 500. Among the sick are the following cases: Contagious dysentery, 39; typhus, 218; grip, 204; fever, 92; anthrax, 39; scurvy, 71; smallpox, 30; cataplexy, 16; diarrhea, 449; unspecified, 129.

The Red Cross Campaign against Malaria.—The anti-malarial campaign was conducted by the Italian Red Cross Society in the Roman Campagna for five months in the year 1904. During this period prophylactic treatment was administered to 12,061 individuals, 181 kilograms of quinin in tabloid form being consumed. Among the persons treated there were 800 cases of malarial fever, giving a proportion of about 67 per mille. Considering the fact that among the fever stricken, 660 persons, already febrile from infection contracted in June or early in July, entered the seven zones where the work is being done from other sections, and that others did not follow out the treatment with regularity, an estimate is made that only 140 persons contracted malarial infection, notwithstanding thorough prophylactic treatment with quinin. In all seven zones there were, during the five months, 448 cases of disease not of a malarial nature, gastrointestinal catarrh predominating, as in previous seasons.

Anthrax an Accident under Workmen's Compensation Act.—Considerable legal dispute has arisen as to whether the term "accident" used in the Workmen's Compensation Act England covers certain matters which ordinarily would not be classed as accidents. The tendency of recent decisions has been to class infection with anthrax and similar dangerous conditions arising out of workmen's employment, as "accidents." In deciding against an employer's appeal, the Lord Chancellor observed that the result of an injury was not affected by the fact that it was called a disease, cases of erysipelas or tetanus following slight accidental injuries, perhaps not noticed at the time and not necessarily followed by these results, were cited as parallel instances. The question is of legal rather than medical importance, but for the fact that medical men are the most important witnesses, and it is well for them to record their treatment of such patients, remembering that legal inquiry will follow, in which their treatment will probably come under discussion.

The Increase of Insanity.—The report of the Royal Commission on the care and control of the feeble minded is likely to produce radical changes in England's treatment of the insane. Expert evidence throws considerable doubt upon the general assumption that insanity is on the increase. The number of certified cases certainly is greatly increasing, but many authorities attribute this fact to the greater care and greater public confidence in the administration of the lunatic asylums, which formerly was the cause of many scandals. The evidence also shows overwhelmingly that in the great majority of cases

insanity, or a tendency thereto, is inherited and transmissible. The transmission of tuberculosis now is held to be disproved, and the doctrine that a cancerous tendency is inheritable is also increasingly doubted, but of the hereditary nature of insanity there is absolutely no doubt. Consequently the commission is expected strongly to recommend Parliament to interfere to the utmost limit of its power with the reproduction of the insane and feeble minded.—[Correspondence, *New York Evening Post*.]

Meningitis in Germany.—The epidemic, lately, has assumed a more serious form in Silesia. Sporadic cases are now reported daily from nearly all parts of Germany, but the physicians do not fear a general epidemic. In Berlin, the population is greatly alarmed. Several deaths from meningitis have occurred there within a week, and the sanitary and police officials are publishing comprehensive instructions for the public, showing the measures to be taken to prevent its spread. An intimate connection between influenza and meningitis is surmised by some German investigators as the cause of the disease. Scientists appear not to be fully satisfied that *Bacillus meningococcus* is the sole cause of the disease, since the same bacillus is present in pneumonia. The so-called Pfeiffer bacillus, which causes influenza, has been discovered in a number of cases of meningitis. F. Ruhemann, in the *Berliner klinische Wochenschrift*, connects the spread of cerebrospinal meningitis in Central Europe with the uncommonly short periods of sunshine which have been recorded over this region from October to the present time.

Mohammedan Pilgrimage.—During the Mohammedan pilgrimage of 1904-5, a total number of 67,083 pilgrims landed in the Hedjaz. Of these, 39,509 came from the north and 27,574 from the south. The envoy of the sanitary board of Alexandria at Hedjaz reports March 7, 1905, that during the month of December, 1904, and January and February, 1905, a total number of 1,331 deaths occurred among the pilgrims and the population of Mecca. The causes of death included dysentery, 124; enteric fever, 25; smallpox, 28; measles, 26; puerperal fever, 13; leprosy, 1; and pulmonary tuberculosis, 92. The report says: "The general sanitary condition at Mecca has to the present time been satisfactory, and is still so at Djeddah, although the measures taken leave much to be desired. The favorable weather has in particular hindered the propagation of dysentery. The crowding of pilgrims at Mecca caused an outbreak of dysentery during the last five days of February in an epidemic form, in which the mortality reached the number of 40 a day. Exposure to the sun and at night to the chilling air was the predisposing cause, accentuated by the formal refusal to allow the pilgrims to depart. Nevertheless, the state of public health has improved this week, due to the departure of the pilgrims from Mecca and also the departure of those embarked from Djeddah for Tor. Smallpox has been present at Mecca among the neighboring Bedouins for more than five months. It was combated with energy and has diminished greatly; nevertheless, smallpox patients are met in the different stages of the disease wandering about the streets regardless of their condition. A lookout is kept for such cases by the sanitary officers at Djeddah and Mecca." By decision of the sanitary board of Constantinople, dated March 22, 1905, arrivals from Suez are now subjected at Turkish ports to medical inspection only. The quarantine regulations, however, imposed on vessels carrying pilgrims are still in force.

OBITUARIES.

Charles Henry Hertzog, aged 34, April 18, from scarlet fever, at his home in Pittsburg, Pa. He was a graduate of the Western Pennsylvania Medical College, Pittsburg, Pa., in 1896. He was a member of the Medical Society of the State of Pennsylvania; South Side Medical Society, Pittsburg; Allegheny County Medical Society; American Medical Association; one of the incorporators of and a member of the surgical staff of St. Joseph's Hospital.

Gideon A. Weed, aged 72, April 22, at his home in Berkeley, Cal. He was a graduate of Rush Medical College in 1870; one of the organizers of the Washington State Medical Association; organizer and first president of the King County Medical Society; and for ten years a regent of the University of Washington.

Isaac Newton Grad, aged 94, April 24, from uremia, at his home in Greenville, Ohio. He was a graduate of the Medical College of Ohio, Cincinnati, in 1834; organizer and for many years president of the first medical society in Drake county, Ohio; for sixteen years one of the trustees of the Dayton State Hospital.

Franklin H. Allen, aged 49, April 23, from diabetes, at his home in Haverhill, Mass. He was a graduate of the Medical School of Maine at Bowdoin College, Brunswick, in 1877; member of the Massachusetts Medical Society, American Medical Association, and Essex North District Medical Society.

Alexander Tallaferro Nelson, aged 32, of Staunton, Va., was accidentally shot and killed April 19, at Covington, Va. He was a graduate of the medical department of the Columbian University, Washington, D. C., and a member of the Medical Society of Virginia.

Leonidas S. Buchard, aged 50, April 23, from typhoid fever, at his home in Oakland, Cal. He was a graduate of the University of California, medical department, San Francisco, in 1882; member of the American Medical Association.

William Henry Johnson, aged 54, of Fergus, Ont., April 18, at the home of his brother in Eramosa, Ont. He was a graduate of Toronto University, medical faculty, in 1873. He was surgeon lieutenant-colonel in the Ontario Volunteers.

William T. Miracle, of Richland, Ore., April 14, at McPherson's Hot Springs, on Snake River, Ore. He was a graduate of the University of the State of Oregon, medical department, Portland, in 1896; member of the American Medical Association.

Albert A. Davis, May 6, at his home in New York City. He was a graduate of the College of Physicians and Surgeons, New York, in 1864; member of the County Medical Society, and attending physician at St. Luke's Hospital.

William Hammond, aged 80, May 4, at his home in San Francisco, Cal. He was a graduate of the University of Maryland School of Medicine, Baltimore, in 1847. He was one of the surgeons at the famous Terry-Broderick duel.

Elias B. Carey, aged 72, May 4, at his home in Philadelphia. He served as surgeon in the Civil war. He had not practised medicine for a number of years, being engaged in the mercantile business.

William B. Beach, aged 54, April 19, from cerebral hemorrhage at his home in Long Branch, N. J. He was a graduate of the University of Maryland School of Medicine, Baltimore, in 1875.

George C. Raynor, aged 79, April 23, at his home in Joliet, Ill. He was a graduate of the New York University, New York City, in 1852, president of the Will County (Ill.) Medical Society.

Joseph Sill, aged 83, April 23, at his home in Kalamazoo, Mich. He was a graduate of the New York University, New York City, in 1847.

A. L. Wilson, March 17, at his home in Tulare, Cal. He was a graduate of the Missouri Medical College, St. Louis, Mo., in 1884.

Frank P. Harris, May 2, at his home in Wilmington, Del. He was a graduate of Jefferson Medical College in 1892.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 6, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington.....	Apr. 22-29.....	.....	1
Florida:	Jacksonville.....	Apr. 23-30.....	5	
Illinois:	Chicago.....	Apr. 22-29.....	21	
	Danville.....	Apr. 22-29.....	3	
Louisiana:	New Orleans.....	Apr. 22-29.....	16	1
	Five cases imported			
Missouri:	St. Joseph.....	Apr. 22-29.....	3	
	St. Louis.....	Apr. 22-29.....	21	1
Nebraska:	South Omaha.....	Apr. 23-30.....	1	
New York:	New York.....	Apr. 22-29.....	1	
Ohio:	Cincinnati.....	Apr. 21-28.....	4	
	Toledo.....	Apr. 16-22.....	1	
Pennsylvania:	Altoona.....	Apr. 22-29.....	3	
	Infection imported			
	Lebanon.....	Apr. 22-29.....	3	
	Steelton.....	Apr. 22-29.....	1	
	York.....	Apr. 22-29.....	13	
South Carolina:	Charleston.....	Apr. 22-29.....	4	
Tennessee:	Memphis.....	Apr. 22-29.....	9	
Wisconsin:	Lacrosse.....	Apr. 15-22.....	2	
	Milwaukee.....	Apr. 15-29.....	6	

SMALLPOX—FOREIGN.			Cases	Deaths
Canada:	Hamilton.....	Apr. 20-27.....	2	
Chile:	Antofagasta.....	Jan. 24-31.....	1	1
France:	Marseilles.....	Mar. 1-31.....	1	
	Paris.....	Apr. 8-15.....	29	1
	St. Etienne.....	Mar. 17-31.....	1	
Great Britain:	Hull.....	Apr. 1-8.....	3	
	Southampton.....	Apr. 8-15.....	4	2
	South Shields.....	Apr. 8-15.....	6	
India:	Bombay.....	Mar. 28-Apr. 4.....	118	
	Calcutta.....	Mar. 25-Apr. 1.....	11	
	Karachi.....	Mar. 26-Apr. 2.....	8	
	Madras.....	Mar. 25-31.....	7	
Italy:	Catania.....	Mar. 30-Apr. 6.....	3	
	Palermo.....	Mar. 25-Apr. 15.....	46	4
Russia:	Moscow.....	Mar. 25-Apr. 8.....	9	3
	Odessa.....	Mar. 8-15.....	8	1
Spain:	Cadiz.....	Mar. 1-31.....	2	
Straits Settlements:	Singapore.....	Mar. 11-18.....	2	
Turkey:	Constantinople.....	Apr. 8-16.....	6	

YELLOW FEVER.

Mexico:	Coatzacoalcas.....	Apr. 8-15.....	1	1
---------	--------------------	----------------	---	---

CHOLERA.

India:	Calcutta.....	Mar. 25-Apr. 1.....	71	
--------	---------------	---------------------	----	--

PLAGUE.

Africa:	Cape Colony.....	Mar. 18-25.....	8	1
Arabia:	Aden.....	Mar. 31-Apr. 7....	11	10
Chile:	Antofagasta.....	Mar. 1-28.....	1	
	Arica.....	Mar. 27.....	3	
	Pisagua.....	To Mar. 21.....		133
	Valparaiso.....	Mar. 31.....	1	
India:	Bombay.....	Mar. 28-Apr. 4....		681
	Calcutta.....	Mar. 25-Apr. 1....		719
	Karachi.....	Mar. 26-Apr. 2....	168	155
Peru:	Chiclayo.....	Mar. 26-Apr. 2....		7
	Eten.....	Mar. 26-Apr. 2....	1	
	Lambayeque.....	Mar. 26-Apr. 2....	1	
	Chepen.....	Mar. 26-Apr. 2....	3	3
	San Pablo.....	Mar. 26-Apr. 2....		1
	Mollendo.....	Mar. 26-Apr. 2....	16	3
	Lima.....	Mar. 26-Apr. 2....	1	2

Changes in the Medical Corps of the U. S. Army for the week ended May 6, 1905:

- NUDD, BENJAMIN F., sergeant first class, having reported at depot of recruits and casuals, Angel Island, Cal., from furlough granted him in the Philippines Division, is relieved from further duty at that station and will report to the commanding officer, Army General Hospital, Presidio of San Francisco, Cal., for temporary duty, who will send him to Manila on the next transport sailing from this port.
- WILSON, Captain JAMES S., assistant surgeon, is relieved from the operation of orders directing him to proceed to Fort Howard for duty in connection with the joint army and navy exercises.
- BORDEN, Major WILLIAM C., surgeon, is detailed to represent the medical department of the army at the meeting of the Interstate National Guard Association, to be held at St. Paul, Minn., June 19.
- RAYMOND, Major HENRY I., surgeon, leave granted April 18, is extended two months.
- HUTSON, T. OGIER, contract surgeon, will proceed from Beaufort, S. C., to Fort Oglethorpe, Ga., and report to the commanding officer, Third Squadron, Seventh Cavalry, for duty, to accompany that squadron to the Philippine Islands, and upon arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty.
- MCCALL, J. H., contract surgeon, is granted leave for twelve days.

Changes in the Medical Corps of the U. S. Navy for the week ended May 6, 1905:

- DUNN, H. A., assistant surgeon, ordered to the Terror, May 1—April 28.
- HUNTINGTON, E. O., surgeon, detached from the Naval and Marine Recruiting Stations, Chicago, Ill., and ordered to the Albatross—April 29.
- THOMPSON, J. C., passed assistant surgeon, detached from the Albatross and ordered home to wait orders—April 28.
- MOORE, J. M., passed assistant surgeon, ordered to duty at the Naval and Marine Recruiting Stations, Chicago, Ill.—April 29.
- WHEELER, E. N., surgeon, ordered to the Cleveland, sailing from New York, N. Y., about May 10—May 2.
- HOLCOMB, H. C., passed assistant surgeon, detached from the Cleveland and ordered to the Naval Station, Culebra, W. I.—May 2.
- ARGERY, G. L., passed assistant surgeon, detached from the Naval Station, Culebra, W. I., and ordered home to wait orders—May 2.
- HAMMER, A., pharmacist, detached from the Navy Yard, New York, N. Y., and ordered to the Army General Hospital Fort Bayard, N. M., for treatment—May 3.
- BRISTER, J. N., passed assistant surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Atlanta—May 4.

Changes in the Public Health and Marine-Hospital Service for the week ended May 3, 1905:

- VAUGHAN, G. T., assistant surgeon-general, relieved from duty in charge of the Bureau Division of Sanitary Reports and Statistics, and assigned to duty in charge of the Bureau Division of Marine Hospitals and Relief—May 1, 1905.
- EAGER, J. M., assistant surgeon-general, assigned to duty in charge of the Bureau Division of Sanitary Reports and Statistics—May 1, 1905.
- CARMICHAEL, D. A., surgeon, granted leave of absence for fourteen days from May 12—April 27, 1905.
- WOODWARD, R. M., surgeon, to proceed to Providence, R. I., for special temporary duty—May 3, 1905.
- ROBINSON, D. E., passed assistant surgeon, detached from the Marine Hospital, Port Townsend, Wash., and directed to report to medical officer in command, Port Townsend Quarantine, for temporary duty—May 2, 1905.
- CURRIE, D. H., passed assistant surgeon, to report to medical officer in command, Marine Hospital, San Francisco, Cal., for temporary duty—April 28, 1905.
- BURKHALTER, J. T., assistant surgeon, bureau telegram of April 24, 1905, granting him leave of absence for three days from April 27, 1905, amended to read two days—April 28, 1905.
- ADAMS, F. B., acting assistant surgeon, granted leave of absence for ten days from April 29—May 2, 1905.
- ROSELLO, M. M., acting assistant surgeon, granted leave of absence for twenty-three days from May 15—April 28, 1905.
- SAFFORD, M. V., acting assistant surgeon, granted leave of absence for two days from April 30, 1905, under paragraph 210 of the regulations.
- GAHN, HENRY, pharmacist, to proceed to Washington, D. C., for special temporary duty—April 28, 1905.
- WOODS, C. H., pharmacist, granted leave of absence for thirty days from May 15, 1905—April 27, 1905.
- GIBSON, F. L., pharmacist, granted leave of absence for twelve days from May 6—April 28, 1905.

SOCIETY REPORTS

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Session, Held at Nashville, Tenn., April 11, 12, and 13, 1905.

[Specially reported for *American Medicine*.]

[Continued from page 681.]

Medical Ethics.—T. J. HAPPEL (Trenton) said it was regrettable that most graduates left medical colleges with a vague sort of idea that there used to be in the dim past a set of rules governing the relations of medical men to one another, to their patients, and to the public at large, but that since nothing had ever been said to them by their professors upon this subject, those rules had long since passed into innocuous desuetude. In many instances they soon became imbued with the idea set forth by a certain lecturer of the importance of "getting there," and that they laid down for their own guidance "get there" in any way one could, provided he did not violate the eleventh commandment. They followed their own golden rule as written and interpreted in these days of greed for gain—do unto the other fellow as you would expect him to do unto you, if he could, and do it first.

President's Address: Origin and Treatment of Malignant Growths.—PAUL F. EVE (Nashville) mentioned two varieties, one of the epithelial type of cells, known as carcinoma; the other of the endothelial variety, or connective-tissue cells, known as sarcoma. Both of these in many respects presented clinical features very much alike. He referred to the theory that cancer is due to parasitic origin, but said he was very much more favorably impressed by the other theory, which bases the origin of cancers upon cell proliferation. Assuming that this disease was due to cell proliferation, if one could in any way check or change these cells, he had the promise of an ultimate success and recovery. About two years ago he operated upon a woman for scirrhus mamma, with involvement of the neighboring glands. A very complete operation was made and every vestige of the disease removed, so far as could be discovered. Her recovery seemed complete in every respect, and he flattered himself that there would be no recurrence. Four months after the operation she returned with a reappearance in the scar tissue. A second operation was performed, consisting of curing the diseased structures. The patient was subjected to treatment with the röntgen ray for four weeks. At first improvement was noticed, but at the end of the third week the wound looked very unhealthy, and at the end of another week the patient returned to him, appealing, as all those unfortunate patients do, for some means to save her life. The appearance of the ulceration was foul and fungous and every indication pointed to general infection and a speedy death. He began to treat this wound with balsam of Peru after first irrigating with bichlorid of mercury 1 to 3,000. After the first few days the unpleasant odor ceased and he was surprised to notice a decided change and granulations of a healthy nature springing up in the wound. This treatment continued for five weeks, with an occasional touching up of the granulations with the solid stick of silver nitrate. At the end of this time the wound was entirely healed and the patient looked the picture of health. He had the pleasure of seeing this patient a short time ago. There was not the slightest evidence of any recurrence and the woman was in excellent health. Since this case he had had quite a number of other cases, which had been treated in a similar manner. Improvement had been marked in every instance and the ulcerations from the foul and fungous condition had assumed healthy granulations, healing occurring slowly but effectually. He cited two more cases.

Food Adulteration in Tennessee.—MR. LUCIUS BROWN, chemist (Nashville), said that milk was peculiarly liable to sophistication on account of its perishable nature and the readiness with which it could be adulterated. This took the form of watering, thereby reducing the quality, and the addition of preservatives to conceal or prevent decay. There was no form of food adulteration which was meaner than this. Milk was the standard food of young children, and was largely used for invalids, and the addition to it of such materials, which had a directly injurious effect on the digestion, and usually only took down the danger signal without removing the danger, should be relentlessly and severely punished. An examination of pure food legislation showed that 22 States had a regularly organized food inspection department. It was significant that Kentucky had just increased its appropriation for this purpose from \$7,500 to \$10,500. For the proper enforcement of pure food laws a qualified analytic chemist was an absolute necessity. Not less necessary was a wise and active pure food commissioner. There need be, on the part of the retailer, no fear of a hardship being worked on him by a proper enforcement of food legislation. He was always given an opportunity to put himself right, if he desired to do so, under any food laws. But in order to reassure him, most States allow the retailer to be exempt from conviction if he produced a written guarantee from the wholesaler or his agent resident within the State.

Early Diagnosis and Early Treatment of Otitis Media.—N. C. STEELE (Chattanooga) said that careful observers knew there was a large number of adults who were perman-

ently deaf in one or both ears. Of every 1,000 seriously deaf ears, perhaps in 999 the disease was otitis media, and every aurist knew that chronic otitis media was generally incurable. He pointed out the general management and treatment of these cases, and closed by saying that the physician who looked carefully and intelligently after the patient's general health, as well as the local treatment, would have the greatest success in otitis media, just as he would in other local diseases.

Tuberculosis Cutis.—J. M. KING (Nashville) discussed the differentiation of lupus from rosacea, eczema, and blastomycosis, which he said was rarely necessary. Radiotherapy, Finsen light and violet rays were at present considered the most acceptable method of treatment, and should always be used if the patient was in reach of it. The röntgen rays and Finsen light were both satisfactory, but the ideal treatment was the combined use of röntgen rays and Finsen light.

Gastrointestinal Diseases of Children in Summer.—ZEB. L. SHIPLEY (Cookeville) divided the acute diarrheas of infancy on the basis of their etiology into two main classes, namely, those due to nervous origin, and those due to infection. Simple diarrhea was of nervous origin, manifested by an increased peristalsis. This increased peristalsis might be caused by various conditions acting through the central nervous system or by the mechanical action of undigested food. Among the most important factors acting through the central nervous system were sudden changes in temperature, prolonged exposure to heat or cold, fright and fatigue. Food might fail of digestion from being unsuitable, or from the digestive organs being functionally weak. In either case the food became a foreign body. In this form of diarrhea the intestinal mucous membrane showed no pathologic lesion unless it be a slight hyperemia. The stools were increased in number and fluidity, and usually contained particles of undigested food. The chief factor in the treatment of this form of diarrhea was the removal of the cause. If the alimentary canal contained undigested food, this could best be eliminated by giving fractional doses of calomel and sodium bicarbonate, often repeated, until one or two grains had been given, or castor-oil given in teaspoonful doses acted admirably. The cause having been removed, the diarrhea usually ceased. But should it continue, the treatment should be directed to the control of the excessive peristalsis. The author next devoted considerable attention to infective diarrhea, and said in the prophylactic treatment of it, the infant should have the best possible hygienic surroundings, be given plenty of fresh air and bathed frequently. Care should be taken not to overfeed the infant, as less food was needed in warm weather than in cool, and owing to the depression produced by the heat, the child was less liable to digest its food. The infant should be kept as quiet as possible. It should be lightly clothed and frequently bathed.

How Shall We Feed and Treat the Baby?—HERMAN HAWKINS (Jackson) laid down three cardinal rules: (1) A food should be given the baby which could be assimilated and given at regular intervals. (2) One should obtain the best possible hygiene of person and surroundings. (3) As little medicine as possible should be given. Each rule was discussed at considerable length, and several cases were reported.

Amyloid Degeneration.—C. P. McNABB (Knoxville) defined this disease and then discussed its etiology, pathologic anatomy, symptoms, diagnosis, differential diagnosis and treatment. Treatment consisted of removal of the cause. If syphilis or chronic malarial cachexia was present, the patient should receive proper medication. If there was a chronic suppuration, the surgeon should be called early and pus evacuated. The physician should be very watchful in cases of hip-joint disease, old pyosalpinx, and ileorectal abscesses.

The More Serious Complications of the Grip.—E. A. COBLEIGH (Chattanooga) said that one of the primal results of influenza which was impressed upon him early was not simply the usual debility which accompanied most of the cases, and seemed out of all reasonable proportion to the appreciable conditions presented, but its indefinite persistence and extreme degree in quite a good many cases. These patients, wholly without regard to age or previous vigor, were too feeble for any movement or exercise beyond the minimum of vitality required to stay alive. This one element of debility—passive existence alone—was profound, and the sole cause for uneasiness. Instead of recovering within ten weeks or a fortnight, most of these sufferers lingered for weeks, sometimes even for months, and not a few dwindled on for a year or two, to die of sheer exhaustion at last. Cases were cited in point. The next condition, often occurring by itself, was marked by extreme nervousness. A third condition, not very frequent, but seen often enough to impress the clinician, was marked by mental involvement, occasionally amounting to prolonged delirium, to stupor, little short of coma, to hallucinations during or even after convalescence from the real attack; and rarely to mania or continuing insanity.

The Clinical Significance of Ascites.—RAYMOND WALLACE (Chattanooga) reported two instructive cases. One case illustrated unusual difficulty of making an accurate diagnosis. The unusually pronounced alcoholic history in this case with excessive peripheral arteriosclerosis, taken with the gastric symptoms and the presence of ascites, naturally led to a diagnosis of atrophic cirrhosis; and the absolute absence of any cirrhotic changes in the liver was a point of interest. The disappearance of the miliary carcinosis of the peritoneum after

scrubbing and exposure to the air presented a phase analogous to the operative cure of miliary tubercle of the peritoneum.

Acute Septic Osteitis.—JERE A. CROOK (Jackson) stated that his experience in the treatment of this disease comprised only a few cases, and the greater number of them did not come under his treatment until they had become chronic. He presented a specimen of a tubular sequestrum that he removed from the femur of a boy of 10. This was a case of chronic osteomyelitis that had been discharging freely for several months. Upon cutting down upon the femur a large cloaca was found, and a freely movable sequestrum. The opening was enlarged with a chisel, the sequestrum removed, and almost the entire cavity of the shaft was cureted. It was irrigated and packed with gauze and allowed to granulate from the bottom. Another case was one that he saw in connection with a severe case of chronic osteomyelitis of the femur in a boy of 12. The disease had existed for a year, and the necrosis had progressed so far that the shaft of the bone was entirely consumed for about two inches. The ends of the remaining bone in this case were rounded with bone forceps, all loose pieces removed, the two freshened ends put in apposition, drainage inserted, and the limb encased in splints. The result was unusually good. The bone united, the wound healed entirely, and the patient had a useful leg with only about three inches of shortening. Here amputation seemed indicated, but conservative treatment saved the limb. He had only amputated twice for osteomyelitis, and then after making every effort to save the limb. Amputation should be the dernier resort, only to be done when necessary to save life. Other similar cases were reported.

Prophylaxis of Tuberculosis.—At the evening session of the second day, this subject was discussed largely for the benefit of the laity, and speeches were made by John A. Witherpoon, Rev. Collins Denny, Captain A. J. Harris, and Mr. G. H. Baskette, representing the lay press.

Gallstones in the Common Duct.—W. D. HAGGARD (Nashville) said that gallstones in the common duct had been found once in every 5 cases operated by Robson, and once in every 7 cases of the Mayos. It was estimated that 67% occurred in the duodenal end, 15% in the hepatic end, and 18% in the middle of the choledochus. They varied in size usually from a split pea to a nutmeg, although exceptional instances of much larger stones had been recorded. They were usually solitary, although more than one was frequently found. Freeman of Denver, removed 37. They usually caused death in from 6 to 12 months from cholemia, if the obstruction was complete and unrelieved. He had seen death ensue in 6 weeks from cholemia and infection. Stones were about as liable to ulcerate into adjacent viscera as to pass into the intestines. The ball-valve stone of Fenger, with its alternate stoppage and escape of bile, with varying jaundice, gray then brown stools, was described. The pain, rigor, followed by rapid rise of fever, sweating, sudden drop in temperature to normal, the appearance of jaundice lasting a few days, and tenderness on pressure under the ribs, were described as a characteristic sequence in common duct stones, which might be repeated every few days or weeks. Suppurative cholangitis, acute and chronic pancreatitis were detailed as complications. The absence of jaundice in 35% of Kehr's cases was dwelt upon, and the occurrence of primary cancer of the gallbladder or ducts in 5% of Mayos' cases, was mentioned. Absence of enlargement of the gallbladder, with stone in the common duct, was explained in consonance with Courvoisier's law, and enlargement of the gallbladder from other obstructions of the duct was instanced among many other differential points between calculous and noncalculous obstruction. Operation was not urged in acute obstruction by stone, but recommended in all cases that had been in existence for several weeks or longer, unless there were ecchymotic spots from long-standing cholemia. A quiescent interval between ague-like attacks and in the absence of jaundice, was recommended for operation, if such an interval could be attained. Cholecystectomy was advocated if one was absolutely certain of the patency of the common duct, if the gallbladder was: (1) Contracted, suppurating, thick-walled and useless; (2) in gangrene; (3) neoplasms; (4) fistula into other viscera and (5) in obstruction to the cystic duct. Robson's mortality in cholecystectomy was 5% in the last 21 cases; 6.5% in 137 of Kehr's cases; 7% in 137 of the Mayos' cases, with an additional 4% who survived the operation, but died some weeks after. The Mayos did 30 consecutive cases without a death.

Circumcision.—E. A. TIMMONS (Columbia) discussed its technic, method of anesthesia, after-treatment, and reported several cases.

Appendicitis.—JOHN A. GAINES (Nashville) cited several anomalous cases of this disease.

Etiology and Pathology of Appendicitis.—WALTER LENEHAN (Nashville) based his paper on the examination of 12 cases which were reported in detail, after which the author discussed the etiology, predisposing causes, and immediate causes. He had found the following organisms in his cases: *Bacillus coli communis*, *Streptococcus pyogenes aureus*, *Staphylococcus pyogenes aureus*, *B. influenzae*, *B. typhosus*, Klebs-Löffler bacillus, *B. tuberculosis* and *Diplococcus pneumoniae*. Some nonpathogenic organisms, notably the gas bacillus and a few yeast fungi, were also found, but were invariably associated with one or more of the pathogenic organisms. The organism most frequently found was the colon bacillus. The author drew the conclusion that any microorganisms capable

of producing inflammatory changes in any other part of the body might also produce the same changes in the appendix.

Laryngeal Diphtheria.—O. H. WILSON (Nashville) stated that the objects of his paper on this subject, were: 1. To emphasize the importance of early mechanical relief when mechanical obstruction threatened life, and one should not delay until depression was marked. He should remember that rapidity of progress was the characteristic feature of laryngeal diphtheria. One did not know what would happen before his next visit. 2. That while in no other operation did skill show to better advantage, intubation was not a difficult procedure, but could be learned easily by practice. An early operation, though possibly awkward, was better than waiting to give a moribund patient to an imported consultant. Moral: Don't wait; intubate.

Tabes Dorsalis.—G. P. EDWARDS (Nashville) said that the disease predominated in males 10 to 1. A neuropathic heredity was an important predisposing factor. The disease might appear in childhood from hereditary syphilis, but in the acquired form it occurred between the ages of 25 and 50, the greater proportion occurring about the age of 40. The symptomatology of tabes embraced almost every function in the body, the clinical features of which could not be enumerated within the scope of a short paper; but the author mentioned the chief symptoms, and the more important clinical features. The treatment should be directed, first, to the removal of any syphilitic processes present or suspected; to the improvement of the general health, to stimulate the function of the cells impaired but not lost, to encourage restoration of coordination in the muscular system, and correct any incidental disorders which might retard or complicate the desired result. Any stage or condition of tabes might be improved or benefited by properly directed treatment. The development of the degenerative changes could be arrested completely in nearly every preataxic case, and that much of the lost function could be restored. He believed that these results might also be obtained in a large majority of the ataxic cases, and that this majority was reduced somewhat in proportion to the duration and intensity of the ataxia and the abuse of the specific remedies employed.

Alcoholic Insanity.—I. A. MCSWAIN (Paris) offered the following suggestions on this subject: 1. The children of drunken and debauched parents ought for obvious reasons to be taken away from them and placed in decent homes, or removed to industrial institutions provided by the State. This would check their hereditary tendencies to drunkenness, and therefore reduce the number being raised up to become a burden to the State in the way of paupers, criminals and lunatics. 2. Young people, who early in life contract the pernicious habit of drinking, should also be removed from the temptation of their environments, and placed in institutions in which they should be taught some useful employment and restrained from vicious habits. 3. The drinking man, as soon as he began his spree, before he was crazed by it, should be taken in custody, not as a mere nuisance, but as a dangerous man or one likely to become so, because of insanity in the incipient stage. 4. The confirmed drunkard, the chronic alcoholic subject, should on no account be allowed to exercise his personal liberty in the pursuit of delusions which result from prolonged excesses.

The following papers were also read: "Some Recently Collected Statistics on the Increasing Frequency of Abortion, Some Causes for the Same," by J. L. Andrews, of Memphis; "Keratosis Follicularis," by G. P. Edwards, of Nashville; "Bone Surgery," by R. A. Barr, of Nashville; "The Physician as an Advertising Medium," by F. J. Runyon, of Clarksville.

THE AMERICAN THERAPEUTIC SOCIETY.

Sixth Annual Meeting Held at Philadelphia, Pa., May 4, 5 and 6, 1905.

[Specially reported for *American Medicine*.]

Officers Elected.—President, Carl Beck, of New York; first vice-president, J. N. Hall, of Denver; second vice-president, John V. Shoemaker, of Philadelphia; secretary, Noble P. Barnes; treasurer, John S. McLain; recorder, William M. Sprigg; curator, George C. Ober.

The Therapeutic Art: The President's Address.—OLIVER T. OSBORNE (New Haven) during the course of the paper, said therapeutics was a much-neglected science, and one that deserves especial study and discussion in the medical schools. All scientific physiology, etiology and pathology of the world are of no value without the final application of therapeutics. Therapeutics, he said, arrests the etiology which produces the disease, helps physiology, which is disturbed by the disease, and removes the pathology which is produced by the disease. Today the educated physician rarely speaks of curing the disease; he prefers the term "manage," and leaves the term "cure" to quacks and nostrum venders. The management includes diet, hygiene, climate, water, electricity, if indicated, and the necessary drugs. He ventures the opinion that the graduate in medicine, even after a hospital training, is less prepared in the bedside management than in any other branch of medicine; for that reason each medical school should have a special chair of therapeutics, held by a clinical man—a specialist in internal medicine.

Effects of Intravenous Injections of Ergot on Mammalian Circulation.—TORALD SOLLMANN and E. D. BROWN (Cleveland, O.) say the principal results of their investigations show that the rise of blood-pressure produced by ergot in dogs is insignificant or too short for any practical purpose and that its effects are cardiac rather than vasomotor. The drug, in their opinion, is not useful to modify the general circulation. The fact that it acts upon vascular areas and alters the distribution of the blood in individual organs might explain the efficiency which is claimed for the drug in certain obscure diseases. The injections made into the muscles of the dogs gave unsatisfactory results.

The Proper Sphere of Bromids in Epileptics.—FREDERICK PETERSON (New York City) declares that more epileptic patients are injured than are cured by the use of bromids; he is firmly convinced that outdoor exercise and a regulated diet are of much greater value. He maintains that 10% of the patients sent to an epileptic farm are cured. If the bromids must be given they should be combined with antipyrin or a similar drug. E. D. FISHER (New York City), who read the paper in the absence of Peterson, opened the discussion, and stated that he was not inclined to discourage outdoor exercise and good hygiene, yet in his opinion the bromids cannot be dispensed with.

The Management of Chronic Parenchymatous and Chronic Interstitial Nephritis.—S. SOLIS COHEN (Philadelphia) in dealing with this subject first outlined the types of nephritis, the causes, laying great stress upon the "strenuous life" of the American as a causative factor, and the complications of the disease. He then spoke of the diet, placing milk at the head, and eggs next, the latter are given after the patient is able to take other food. He finds it necessary to give meat in the chronic interstitial type, which foodstuff must be avoided in the parenchymatous nephritis. To increase the urea output he prefers two drugs, aconite and strontium. Aconite is better than nitroglycerin, and strontium is better than aconite. In the chronic interstitial nephritis he finds gradual improvement by long-continued administration of the chlorid of sodium and gold in doses of $\frac{1}{2}$ gr.

Medical Treatment of Serous Effusions.—THOMAS L. COLEY (Philadelphia) called attention to the osmotic disturbance and to the opinion of Loeb and others that this is of greater importance than the mechanical factors of blood-pressure. He then pointed out the significance of the study of the sodium chlorid excretion and retention to the relation of the edemas as having a direct bearing on the dietetic treatment. The value of sialagogues in selected cases was referred to, and the dangers of diaphoresis in skin edemas was alluded to; this process removes the watery portions of the edema, leaving the solid material in a more concentrated form, with consequently more toxic properties. The limitation and applicability of diuretics was discussed, especially calomel, caffeine, theobromin and digitalis.

The Treatment of Chronic Nasal Catarrh with Sulfur.—LOUIS KOLOPINSKI (Washington, D. C.) said that in chronic nasal catarrh the putrid discharges soon cease after the application of the substance. The drug is also of value in tuberculous condition of the nasal and pharyngeal cavities, he maintains that tuberculosis of the cervical lymph-nodes may be aborted if the sulfur is applied to the primary foci early. The powdered sulfur is insufflated while the patient is seated and the nostrils are dilated with a speculum.

The Value of Physiologic Salt Solution in Circulatory Failure.—H. C. WOOD, JR. (Philadelphia) said that by the introduction of quantities of salt solution, varying from 750 cc. to four times the amount of blood in a normal animal, he was unable to influence the arterial pressure a particle, but if the animal is suffering with some condition in which the amount of its blood is diminished, he finds that the introduction raises the pressure. He is quite convinced from his experiments that no matter how much fluid is introduced, the vessels will not retain more than the amount to complete its normal quota, any fluid in excess of this amount escapes into the tissues. Subcutaneous edemas were never demonstrated during life, but at autopsy he found edema of the mesentery, peritoneal, and thoracic cavities.

Clinical Experiences with Certain Drugs in Heart Disease.—THOMAS E. SATTERTHWAIT (New York City) first spoke of the value of adrenalin chlorid and stated that it is the most powerful heart stimulant we possess; it increases the blood-pressure immediately, and he has found a single dose to relieve palpitation. For heart failure he gives nitroglycerin, but if the drug produces throbbing in the temporal arteries there is danger of apoplexy, especially if arteriosclerosis exists. He spoke favorably of the use of iodine, especially in arteriosclerosis due to syphilis, and he announced that this drug may be employed in acute simple endocarditis and even in the acute malignant form. The edema, dyspnea and pain incident to heart disease in the aged are relieved by the administration of $\frac{1}{10}$ gr. of arsenic. He declares that strychnin should never be administered for a period longer than two weeks. In his opinion, strophanthus accomplishes better results than digitalis; it is not accumulative, although the drug is not as reliable as digitalis. He is convinced that moderate doses of digitalis may produce death, but if this drug be combined with the nitrites the danger is eliminated.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

CONTRACT PRACTICE.

BY

M. P. SCHUSTER, M.D.,
of El Paso, Tex.

To the Editor of *American Medicine*:—In your issue of February 25, 1905, you stigmatize the El Paso County Medical Society as unethical, because of its refusal to pass amendments directed against contract practice at less than average rates, and against commission giving.

Permit me, as a member of the society, and one who voted against the amendments, to submit the following remarks as to the formal side as well as the merits of the question: The El Paso County Medical Society was organized in conformity with the general plan drawn up for the formation of county societies and has been recognized by and is affiliated with the Texas State Medical Association, and through the latter, with the American Medical Association; hence it must be ethical, as its constitution and by-laws now stand, without any amendment, and the accepting or rejecting of any kind of amendments cannot possibly be a criterion of the society's "ethicality" (*sit venia verba*). Or, if those amendments are the test of ethicality, their stipulations ought to be incorporated into the principles of ethics of the American Medical Association and made compulsory for every organization affiliated with the national body, and not be left optional to the discretion of the small units.

As to the merits of the case; it was conclusively shown in the discussion that owing to peculiar local circumstances (Mexican peon labor, etc.) the proceeds from most of the contract practice equal, and, in one instance at least were greater than, the fees that could otherwise be gotten from the beneficiaries of several contracts. Besides, the biggest contract work, that of railroads, is exempt under the ruling of these amendments—note the omission of the words, "corporation and firm" in the first paragraph of the amendments. Moreover, they would have perpetuated the evil so far as the present holders of such contracts are concerned, and would have injured only, or kept out of the society the struggling beginner, who more than the older practitioner needs the moral support of a medical society; they would have favored the fat and oppressed the lean. Your informant who feels he is lowering himself by belonging to this society as it now stands, is content however that every member should hold his present contract to the end of his natural life. I call this a pseudoethical sham. If these contracts constitute unethical practice, his amendment should demand that every member relinquish any and all contracts not based on average fees within a definite time, say half a year, and I would be the first to vote for it.

As to the section on commission giving, the Principles of Ethics (Art. vi, Sec. 4) fully cover the subject and reiterating the identical thing in the form of an amendment would have been meaningless tautology. Besides, no case of this contemptible practice has come to the notice of the society in the six years of its existence.

In conclusion permit me to state that the passing of these amendments would not have affected my affairs in any way, and therefore I am not talking *pro domo*.

CUBAN SANITATION AND LIFE INSURANCE.

BY

S. T. ARMSTRONG, M.D.,
of New York.

To the Editor of *American Medicine*:—Referring to the editorial comment in *American Medicine* of April 22, 1905, in relation to "Cuban Sanitation and Life Insurance," I would substantiate the position of your anonymous correspondent referred to; no life insurance company that I know of attaches the least importance to the reports on Cuban sanitation that have been published in the *New York Herald*. Such reports

have nothing to do with the tropic rates charged by companies, which are based on somewhat more exact data than those contained in the article mentioned.

The writer of the editorial is in error in his statement that tropic rates are charged in certain parts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. I know of none of the better class of the old line companies in the United States that makes any such invidious distinction. There is no evidence to show its necessity.

The writer is again in error in the statement that tropic and semitropic rates expressly consider yellow fever. Such rates expressly consider the effect on longevity and expectation of life of residence between 33° north and 30° south latitude. Your writer has overlooked the fact that yellow fever is a disease of the Western Hemisphere only. In the Eastern Hemisphere it is unknown, yet tropic rates are charged in that territory to cover the increased mortality due to locality.

It would seem to me that it is a very stupid and unscientific method for any company to charge a rate for any unacclimated person residing in Cuba of \$30 extra for the first year, \$20 for the second, and \$10 for the third. It is fair to assume that medical directors of life insurance companies have some acquaintance with medical science. Such a scheme of loading would be most unscientific, because those of us who have resided in the tropics know perfectly well that one, two, three years, or even longer residence in the tropics does not confer immunity to tropic diseases. On the contrary, there is a slight but persistent lessening of resistance of the individual who goes to the tropics from a northern climate and his susceptibility to disease is increased. This fact is practically recognized by the English corporations that have employees in the tropics, such employees being granted a year's leave of absence with pay every fifth year, and in some localities even more frequently.

The writer is in error in his statement that in Cuba, as well as in subtropic United States, yellow fever has been the chief determining factor of extra premiums. The sanitary statistics of Havana indicate that the deathrate of the white males at the ages at which insurance would be likely to be effected is considerably greater than that of any American city whose statistics can be relied on. Mr. Frederick L. Hoffman, the statistician of the Prudential Insurance Company of America, invited attention to this fact in an interesting study that he made of the vital statistics of Cuba, and showed that for the same years the mortality of white males in Havana was 22.1 per 1,000 of population and in Washington it was 12.1 per 1,000. In those two years there were but 27 deaths from yellow fever.

I am prompted to go into this correspondence because several times before I have noted in your editorial comment reference to life insurance questions which were as full of error as is this one, which assumes that a semitropic rate applies only to the Western Hemisphere and to yellow fever as a mortality factor. The statement that tropic and semitropic rates expressly consider yellow fever is an error.

Large Hospital Deficit.—A patient treated every 20 minutes every day and every night in the entire year is the astonishing record of the receiving ward of the Pennsylvania Hospital at Philadelphia. Altogether, 44,138 patients were treated in the last year. The ambulance was in service 1,565 times. The hospital did more work in the last year than in all the preceding years of its history, and as a result got more deeply into debt. The deficit was \$40,000, and the managers, at their annual meeting, urged the necessity of obtaining more contributors. A bed may be endowed in the department for the sick and injured for \$5,000, and in the department for the insane for \$10,000.

Department of Medical Research at Jefferson Medical College.—It is proposed to establish a department for research work at Jefferson Medical College, under the supervision of W. M. Late Coplin, professor of pathology. Special advanced work in the laboratories, clinics, and wards of the hospital will be done by selected students during the summer vacation. For the present year the students selected for this work will number six or eight, and they will be known as special research students. The appointment of men will be based on college and laboratory standing, availability and preliminary training, and it is hoped that with the completion of the new hospital the privilege of this work will be extended to an increased number of students.

ORIGINAL ARTICLES

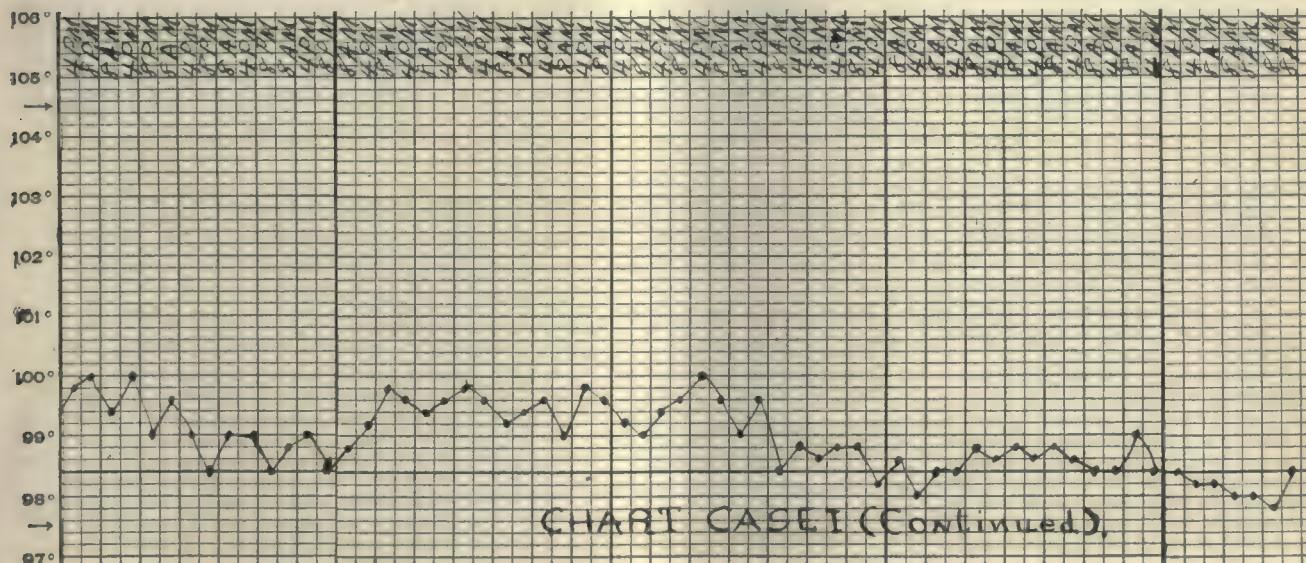
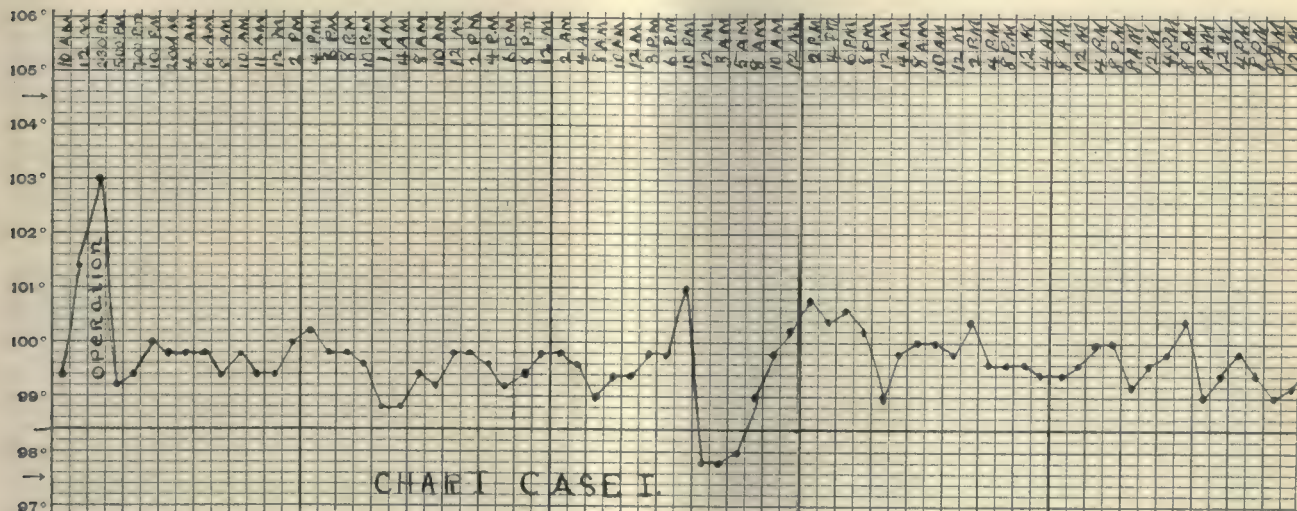
SURGICAL INTERVENTION IN CASES OF GENERAL PERITONITIS FROM TYPHOID FEVER AND ACUTE GONOCOCCUS INFECTION.¹

BY

JOSEPH PRICE, M.D.,
of Philadelphia.

In many discussions over the treatment of peritonitis, due to traumatism, in the special county and national societies, the struggles of the pioneers were earnest and severe. In the American Medical Association meetings, held in Cincinnati and Newport, the battle was fierce. In no other region or special surgical procedure has the battle been so generally fierce and continuous and the

lowers have added much to what he simply asked them to try. We save patients dying of visceral fractures, incisions, stab wounds, shot wounds, and all varieties of pathologic perforations. Our literature is becoming very scientific and precise. The pioneers had nothing to read. Now the papers are classical and exhaustive. Some very valuable books have recently appeared upon the pathology and diagnosis of abdominal disease. Especially to be noted is Douglas' book for the general practitioner. It is accurate, scholarly and clinically instructive throughout. A few of the early surgical obstructionists and doubting Thomases are now the most aggressive and persistent advocates of early surgical intervention in abdominal traumatism and pathology. There is no excuse at present for delay or procrastination. Our present precise knowledge of pathology and diagnosis, with splendid guiding literature, enables every



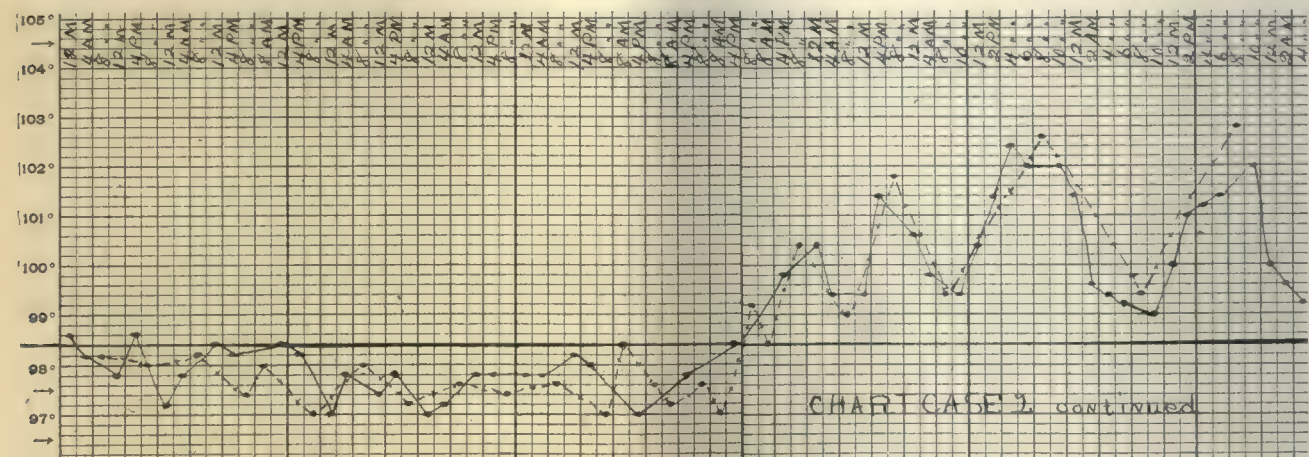
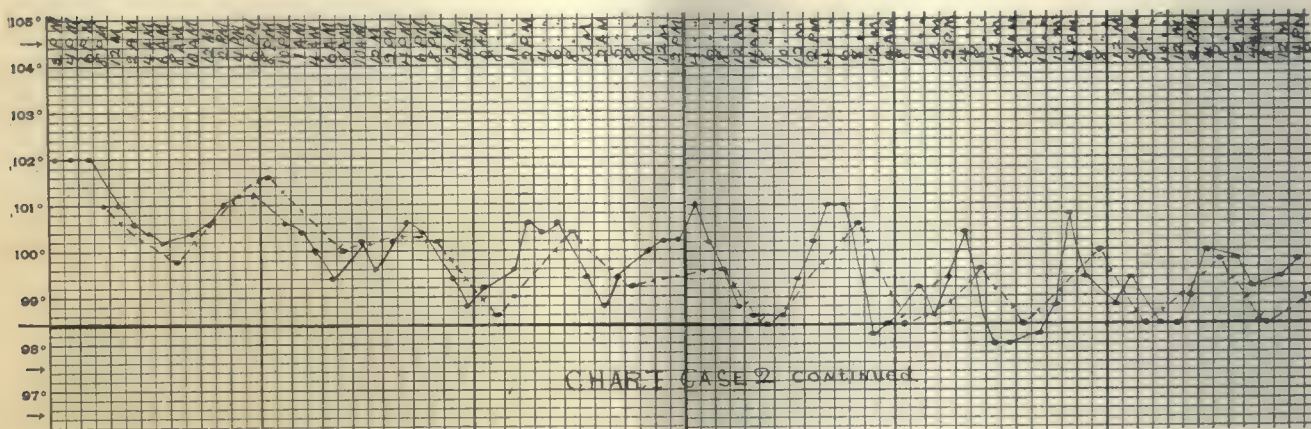
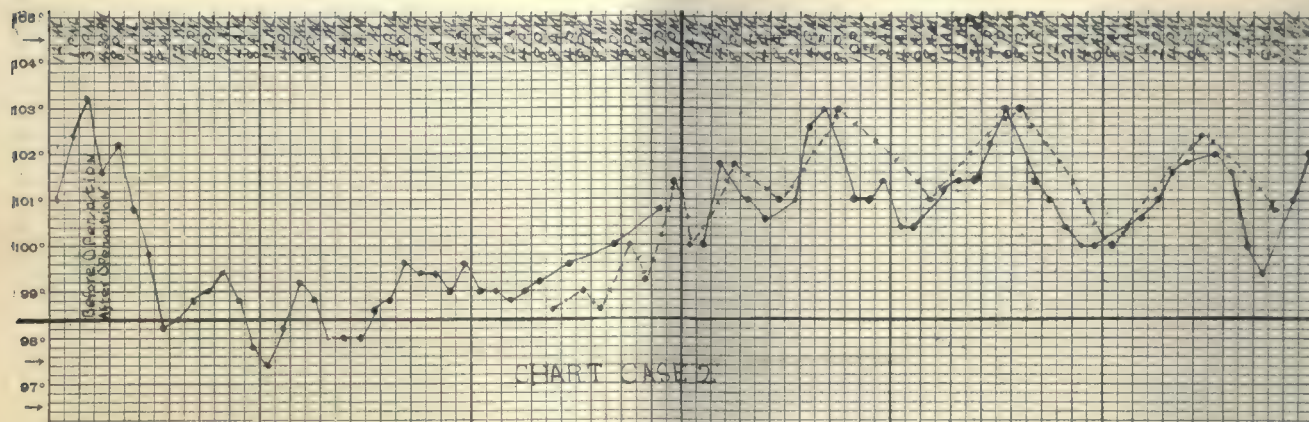
opposition so personal and galling to the young surgeon with good motives and magnificent courage. The obstructionists among the teachers and the professed intelligent profession were unjust, and slow in accepting the overwhelming evidence of the operating table and clinical facts never to be altered by theory or speculation. Baker Brown says it is peritonitis that beats us. Tait says now we beat peritonitis. His pupils and fol-

practitioner who keeps up with his profession to recognize early the dangerous nature of the accident or lesion in his patient. The workers seem satisfied with their knowledge of pelvic disease, the clinical course of tubal and ovarian suppurations, of appendicitis, of gallbladder disease, and commendably turn their attentions to typhoid perforations, to gastric and duodenal ulcers, to renal and pancreatic pathology. Some of these maladies are no longer considered rare, and now receive the attention they merit; McMurtrie, Weir, Murphy,

¹Read before the Philadelphia County Medical Society, February 22, 1905.

Mayo, Deaver, Morris, and Douglas have all been early and late contributors, theoretically and practically. The contributions by Finney, Cushing, McCrae, and Mitchell on the surgical features of typhoid fever and perforating typhoid ulcers are the most valuable, and worthy of careful study. The advisability of surgical intervention for suppurative or infectious varieties of peritonitis and perforating ulcers was suggested by a few authors and

peritoneal cavity and its contents were so dirty and disorganized that in many instances the operator failed to recognize more than general adhesions and filth, doing an imperfect toilet and drainage. The recoveries were sufficient to encourage him to do the work earlier, and if possible to do it better; to study the extent of the trouble, seek lesions, find them, cleanse and repair them, drain, and be rewarded by a higher



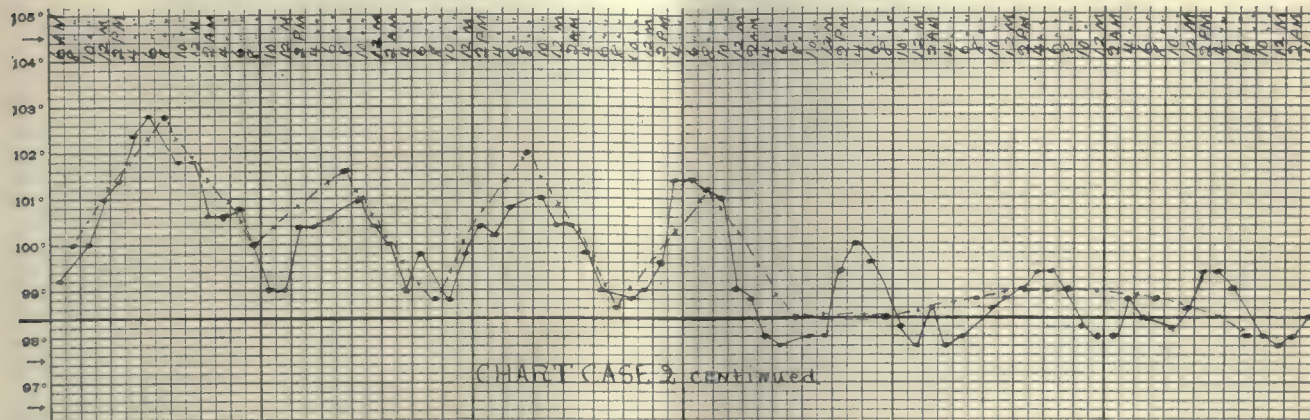
teachers throughout the seventeenth, eighteenth, and nineteenth centuries, but nothing of a positive nature was done until about 1878. We then began to operate for purulent peritonitis following criminal abortions, traumatism, appendicitis, and all sorts of perforations, and only a small percentage of the cases actually operated upon are recorded. In a good number of cases the

percentage of recoveries; and now we realize the vital importance of an early and accurate differential diagnosis, and then the great importance of speedy and complete repair. The prolonged apprenticeships of industrious and studious residents in good hospitals are giving us a new and stronger class of surgeons. Again, no one annoys them or places anything in their way.

They have a gold ladle in their fingers, and magnificent hospitals with every possible appointment at their command for perfect early work. Again, they have the cooperation of specialists in diagnosis, their clinical colleagues; if they do not do good work, it is because all common sense has been educated out of them, a process of retrograde displacement.

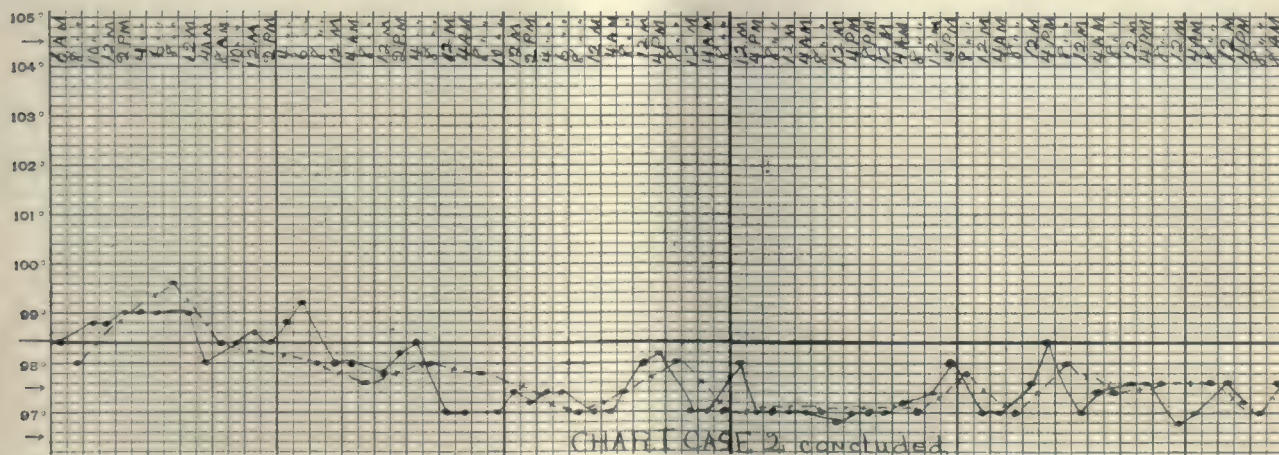
Embolism of large and small mesenteric vessels has not received the attention it deserves. Thrombophlebitis, cellular infiltration following any variety of peritonitis or infection should be anticipated surgically. I have

Typhoid and other perforations are always followed by peritonitis, local or general. The possibility of its remaining local or circumscribed by adhesions should not be considered if the diagnosis of perforation has been made. Characteristic symptoms of perforation are now well known. Death from peritonitis without any discoverable postmortem lesion of the bowel is due to leakage from softened mesenteric glands, abscess of liver and perforating ulcers of the gallbladder. Lesions favoring general septic peritonitis and general septic conditions are easily arrested by early toilets and free drainage.



dealt with a large number of perforations in about all the viscera in the peritoneal cavity, typhoid perforations, tuberculous perforations and suppurations, gallbladder, gastric, and duodenal perforations, and I am satisfied, from long personal experience, that about all these sufferers should be saved. It is the soiling of viscera and the extensive infection and prolonged sepsis that kill. The surgery is commonly short and simple if done early. Fatal peritonitis without complete or absolute perforation does not occur. Walled-off theories are dangerous and unreliable; the feeble pathologic walls rarely hold for any length of time, while pathologic fluids or

The characteristic symptoms of typhoid perforation are sharp, sudden abdominal pains, mild or severe collapse, nausea and vomiting in a good percentage of the cases, falling temperature, early followed by a rise in the temperature. The foregoing symptoms, occurring in typhoid running a uniform course, are rarely overlooked by the doctor or nurse. Perforation and hemorrhage are the two accidents in such a case that are commonly anticipated. In more than 75% of the cases recorded, general septic peritonitis has been found with escaping bowel contents, gas and feces, foul pus, and free exudate in considerable quantity. The perforations are



products are increasing in quantity and in pressure. I have sometimes felt after an earnest discussion that I would have rather been at home quietly at work, but a few weeks or a month later learned through a variety of sources that the discussion did great good; for instance, the discussion at Atlantic City on appendicitis lowered the mortality of that disease in about every hospital in the country. In one very large and prominent hospital it reduced it 14%. Prior to the discussion the mortality was 14%—in the last 140 cases there has not been a death.

quickly and easily found near the ileocecal valve; rarely multiple or ragged. Whether of large or small caliber, fine pure silk is the safest material; you can safely reduce the lumen of the bowel to half. I am satisfied the interrupted suture gives the best result and less risk of strangulation.

If the margins of the ulcer are ragged they should be trimmed. A resection is an unjustifiable and a dangerous procedure; simply anchor the ragged ulcer and disorganized bowel with catgut sutures on the opening between drains, forming an artificial anus or fecal fistula,

which is a much safer procedure and is commonly followed by spontaneous closure. If this result does not follow, the fistula can be easily remedied after convalescence.

Early in the history of the surgical management of infectious or suppurative forms of peritonitis, freeing of adhesions, free irrigation or a general wash toilet followed by local or multiple drains, was the common practice. Later, some good surgeons simply incised and placed one or more drains in free spaces, others freed adhesions and dried the exposed dirty surfaces with gauze; or did a dry and drainage operation and placed drains. The followers of the dry method now claim good results.

The irrigation or wash toilet, so long practised, has unquestionably given the best results. It should be a thorough cleansing with sterilized water—the entire surface, both the visceral and parietal peritoneum. It is my impression that irrigation with hot normal salt solution is harmful by irritation. Cureting or wiping dirty points with gauze is followed by good results.

About every prominent operator is now saving patients dying from some suppurative or septic form of peritonitis by either wet or dry toilet, a small or a large drain, or an open treatment. A few years ago some of the same operators stated that just such conditions could not be treated successfully and now some of them, saved by drains, think their patients should recover more promptly without them. I am satisfied most operators recognize the fact that it is difficult to cleanse satisfactorily a dirty peritoneal cavity, and after making an earnest effort to do so, we place multiple drains or commonly practise the open method that has given us the best results. The gauze pack, so commonly and recklessly used, is a dangerous procedure favoring too many acute and chronic obstructions by pressure. Unless the operator understands how to place gauze drains or cofferdams in and about filthy surfaces, he had better fill the peritoneal cavity with hot salt solution and close. Dr. J. M. T. Finney, in his excellent paper on "Surgical Treatment of Typhoid Ulcer," in discussing the relative merits of irrigation and drainage says: "The facts stated that in 17 of the 23 cases that terminated in recovery, irritation of the peritoneal cavity was employed, speaks strongly for the efficacy of this measure. In but eight cases of the entire number was wiping used, two of which terminated in recovery."

I make a plea for early diagnosis, early surgery and for a practice of more thorough and sterilizing toilets to arrest peritonitis and sepsis. If you succeed in arresting infection or sepsis by toilets, by drainage, or by the use of sterilized salt or other solutions you will succeed in the saving of about all these sufferers. It is lamentable that we get but few timely opportunities. While I save the few, I see as many or more dying without an effort to save them; some die while the instruments are in the sterilizer.

CASE I.—Mrs. F. S. was admitted to the hospital January 11, 1905, suffering with great pain in the abdomen.

She was operated upon by Dr. J. Price, both tubes and ovaries being removed and the wound left open.

For several days after operation she was in a critical condition, vomiting and retching and suffering with a severe peritonitis.

The packing was removed, which relieved her somewhat, and her condition afterward improved gradually to recovery.

CASE II.—G. E. C. was born in Phillipsburg, Pa., October 19, 1882. He had the ordinary diseases of childhood—scarlet fever, mumps, etc.

On September 3, 1902, he was admitted to the Municipal Hospital of Pittsburgh with smallpox. During his siege of smallpox he contracted pneumonia. He recovered, and was discharged on October 17, 1902.

In September, 1903, he was admitted to the West Penn Hospital of Pittsburgh with enteric fever.

During his course of typhoid, he received the ice-pack 19 times and cold sponging.

He recovered, and was discharged October 19, 1903.

He was admitted to Charity Hospital, Norristown, December 29, 1904, with perforation of the bowel.

He had been feeling unwell for four or five days prior to the night of December 28, but had not been confined to bed.

During the night of December 28 he was awakened with severe pain in the abdomen. (He was at this time at the Windsor Hotel in Norristown.)

He was brought to the hospital during the forenoon of December 29, 1904. Was operated upon the same day about 3 p.m. by Dr. J. Price. His temperature was 103.1° at the time of operation. After the operation it dropped to 98.1°, and then for six or seven days he had a temperature ranging between 97° and 99°. After this his temperature took on a typhoid form, reaching 103°. He had a typical course of fever and on January 21, 1905, his temperature became normal. It remained normal or below until January 30, when a reinfection took place. He had another typical course of fever with a maximum temperature of 102.4°.

On February 12, 1905, his temperature again became normal, and until today (February 21, 1905) has remained normal or below.

He is today resting in a chair and feeling excellent. For his bowels nothing was used but castor-oil until the last week, when light magnesia and cascara were given.

During the fever he received sodium salicylate and dilute HCl and pepsin compound, alternating every two hours. His diet was milk and broth, with milk punch three times daily.

DIPHTHERIA ANTITOXIN IN CEREBROSPINAL MENINGITIS.¹

BY

ARTHUR J. WOLFF, M.D.,

of Hartford, Conn.

Bacteriologist of the Board of Health, Hartford, Conn.

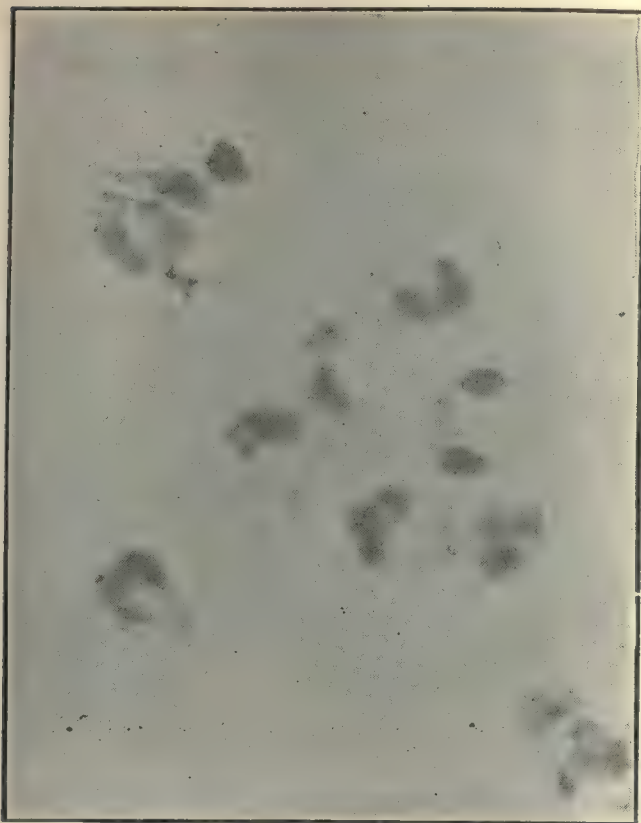
It is indeed difficult to touch upon all the important points that arise during the course of an investigation extending over more than a year's time, and if my efforts are not attended with the success desired, I know you will bear lightly with me.

The gross and microscopic pathology of epidemic meningitis are so well known that it would be superfluous for me to call attention thereto, were I not desirous of laying stress upon the general rule, that when the gross lesions of the disease have made extensive onslaughts upon the most important and vital centers of the animal body, common sense teaches us that we are as powerless to cure successfully such a condition, as one would be to change the direction of the earth's rotation. Therefore, all considerations having for their aim the diminution of mortality in epidemic cerebrospinal meningitis must be directed in the early stages of the disease, if they are to be at all effective.

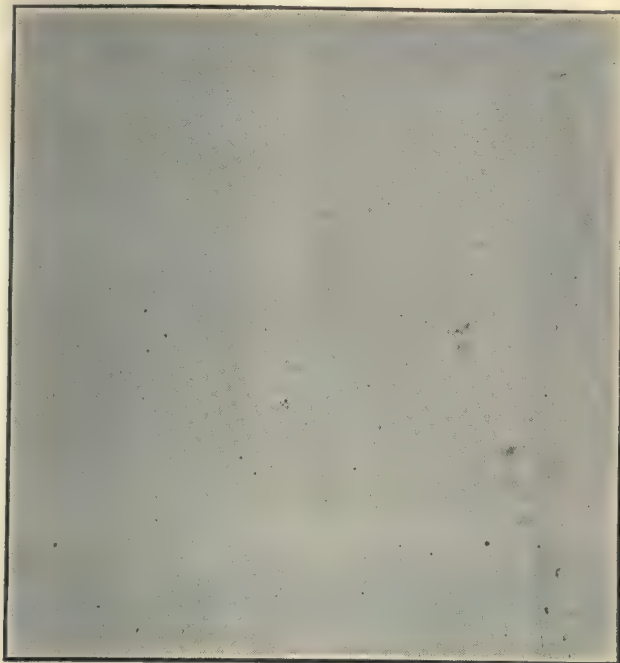
Early in the course of the epidemic which visited our city last year, we carried on, in our laboratory, the same lines of research into the biology of *Diplococcus intracellularis* that had been followed by Weichselbaum, and before him Klebs, Eberth, and others, reviewing carefully the investigations of Marchiafava and Celli, Flexner and Barker, Councilman, Mallory and Wright, Albrecht, Ghon, and others.

Whether peculiar to the organism discovered in the lumbar punctures during our epidemic or not, we early observed that the generally claimed specific character of its behavior to Gram's stain was not borne out by the facts. For, under certain conditions unknown, the characteristic organism found in the lumbar puncture fluid was not always decolorized by Gram, and we also found that cultures made from such fluid might be decolorized by Gram when the original fluids were not; in other words, according to our experience, the positive or negative reaction to Gram's stain is not absolute for the diagnosis of the meningococcus, and this agrees with statements made by Jaeger, Pfaundler, and others. It would follow, then, from these observations, that the differential diagnosis of diplococci found in nasal or throat cultures when based upon the Gram reaction is as inaccurate as the attempt to differentiate by the same reaction the diplococci found in lumbar punctures taken from actual cases of meningitis.

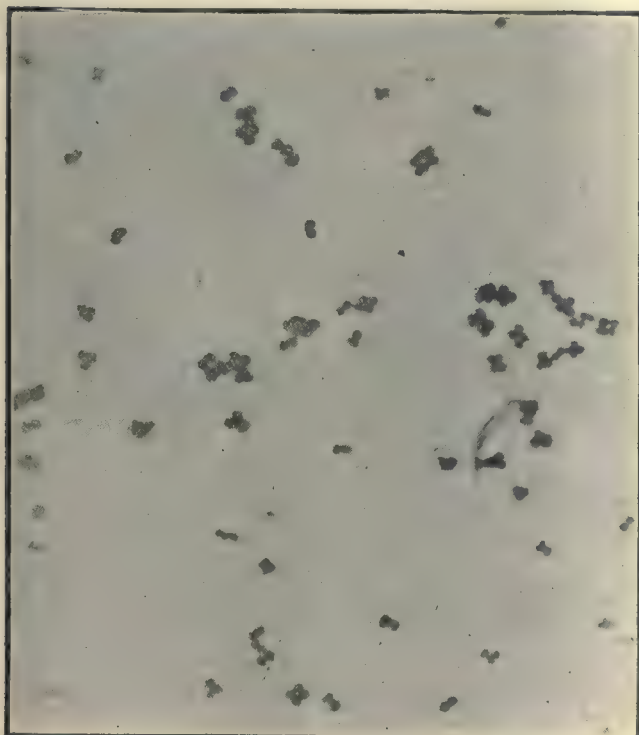
¹ Read before the Medical Association of the Greater City of New York, April 10, 1905.



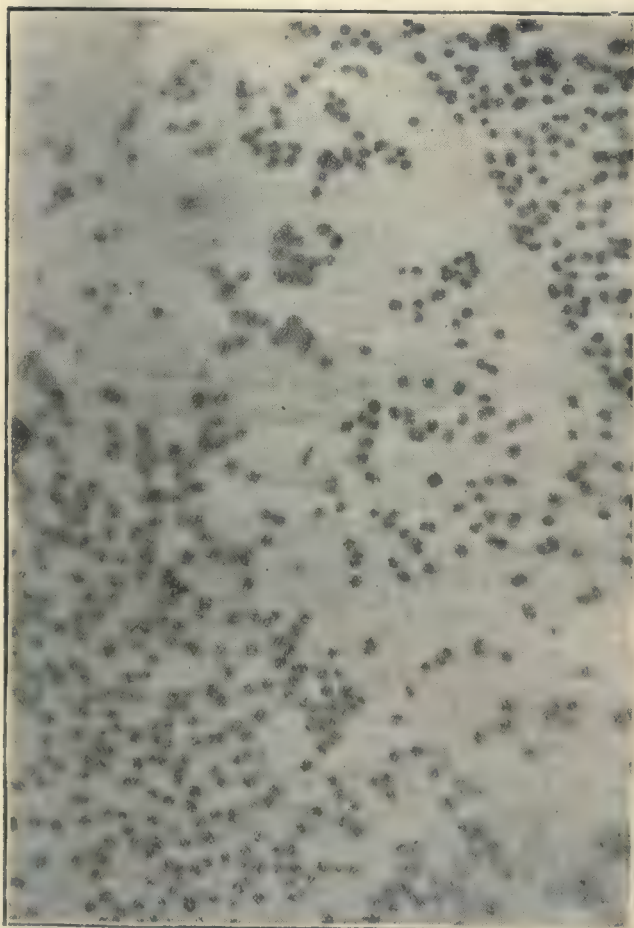
No. 1.—Leukocytes in lumbar puncture, showing the small form of organism.



No. 3.—Small form of meningococcus in slightly acid medium.



No. 2.—Tetrad form of meningococcus from No. 1, in diabetic urine medium.



No. 4.—Typic forms of meningococcus in pure culture from blood of white rat, inoculated with No. 3.

In studying the morphology of the meningococcus independently we found, as originally determined by Jaeger, several forms of the organism not only in the same growth, but these could be developed by varying the character of the culture medium. Under certain conditions one can observe a staphylococcus type, a streptococcus, a tetrad, and a monococcus type from the original lumbar puncture, which contained the ordinary coffee-bean form of the diplococcus. From all these morphologic varieties, the original diplococcus form could be reclaimed by changes in the reaction of the medium, changes in the medium itself, and last, but not least in importance, by inoculating the organism under the dura of the white rat, in which event, in a few of our cases, we were enabled to recover the diplococcus in pure culture from the blood of the left ventricle.

We found the reaction of the medium in which the organism was growing affected the peculiarities mentioned in no small degree; for example, it grew best in slightly acid or neutral mediums; the smallest forms, soon to be described, were found in the slightly acid medium; the largest forms were observed when the medium in which they were growing reacted about 1½% alkaline. If the medium were acid, many monococci were observed, while an alkaline reaction gave more of the staphylococcus form of growth described by Jaeger. The neutral and alkaline mediums contained many of the tetrad forms of the organism. These are but a few of the results of our experiments in this direction; but, in general, the size of the organism, the richness of its growth, the grouping of the diplococcus, the rapidity of its increase, etc., seem to be dependent in no small degree upon the reaction of the medium into which it was sowed.

And here, it might be well to mark a characteristic of the fluid taken from the lumbar punctures in this disease. As is well known, the normal cerebrospinal fluid is slightly alkaline in reaction. In the fluid abstracted from the spinal canal during the course of cerebrospinal meningitis, the reaction gradually increases from the alkaline to intensely acid. It seems to me that the severity of the symptoms have some relation to the increasing acid reaction of the fluid, for some of our fatal cases were accompanied by this hitherto undescribed phenomenon. We had occasion, a week or so ago, to demonstrate this change in reaction in a severe case in Roosevelt Hospital, under the care of Dr. Huber, and I must leave to the clinicians the task of interpreting its meaning.

As to the optimum culture medium for the meningococcus, we have found in our laboratory that diabetic urine containing 2% peptone, fills all the demands. In this we have been enabled to revive weak growths from other mediums, and to continue good cultures of the organism from the original lumbar punctures from generation to generation, to the present time, although more than a year has elapsed. The growths that we now have are as rich as the first ones.

During the course of these investigations, we have observed a characteristic of *Diplococcus intracellularis* which may, perhaps, account for the variability in its virulence. Some of the cultures produced from lumbar punctures in typical cases, as well as the lumbar punctures themselves, were found to contain organisms varying as to size *inter se*. Some were so small as to lie upon the border line of visibility with the twelfth immersion objective, while cultures from the same in diabetic urine would develop typical forms, either in tetrad or diplococci grouping. These very minute forms in all probability have escaped the notice of many observers and may account for the reported failures to find the organism in lumbar punctures when the symptoms of the disease were typical. This is because the monococcus variety in the field is so minute and atypical that it requires the forcing of the magnification with a proper apochromat and a very high power eye-piece. They

stain intensely, however, and with proper illumination, one can easily distinguish them.

From this minute form of the organism to the usual coffee-bean form, every grade of size may be observed. When cultures were made in diabetic urine, the minute forms of the organism disappeared, and the largest forms, usually in tetrad or diplococcus grouping were found.

It was from organisms of this character, which we found in the ventricular blood of the white rat, after the animal had received subdural inoculations of the diplococcus, that we recovered typical forms of the organism in pure culture which I will show you shortly. One of the lumbar punctures contained free, and within the leukocytes, very numerous cocci, consisting of this small organism, which we were enabled to grow in the manner hitherto described, and to produce the usual diplococcus.

Sometimes inoculations of the coffee-bean shaped diplococci would give a pure growth of the small form of the organism, and as I have said before, the reaction of the medium seemed to have some influence upon this. Should it be found that the smaller organisms were the more virulent ones, many things relating to the peculiarities of the disease, as well as the mystery surrounding the foudroyant form might be cleared up.

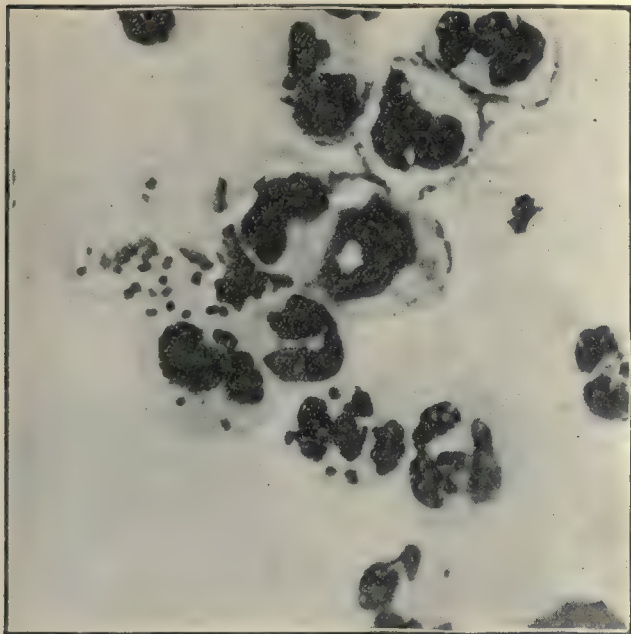
Might this characteristic also explain the discrepancy between our observations and those of others, who have failed to recover the organism from the blood of the animals experimented upon? To those who are working with the organism I must suggest that the blood of those suffering with the disease be carefully examined for this small form of the organism, which ought to be developed into the typical variety by methods of cultivation before described.

Shortly before the epidemic of meningitis broke out, that is to say, in about March, 1904, the cultures which were sent in to the laboratory for our daily examinations, began to change in the general characteristic of the bacterial flora observed. This was striking to me, as I had been examining such cultures daily since 1894, when our Health Board laboratory was established. Diphtheria, which had been very prevalent, had almost disappeared from the city, and cultures of Klebs-Löffler bacilli were moderately rare. In place of the ordinary forms of bacteria, heretofore observed in these cultures, we began to discover almost pure growths of a diplococcus which up to that time had been rarely seen. This peculiar change in the bacterial findings of the cultures had continued for some time prior to the outbreak of our epidemic, and I very shortly noticed that cultures containing Klebs-Löffler bacilli, either were completely devoid of the diplococcus mentioned, or the latter was found very sparsely disseminated in the culture. What significance the rarity of diphtheria had in relation to the epidemic of meningitis in our town, whether the two diseases are antagonistic to each other, I know not, but this led to an investigation as to the possibility of an antagonism between the two organisms. The diplococcus found in the cultures, as well as the diplococcus found in the noses of those suffering from meningitis, were carefully compared as to their biologic characteristics.

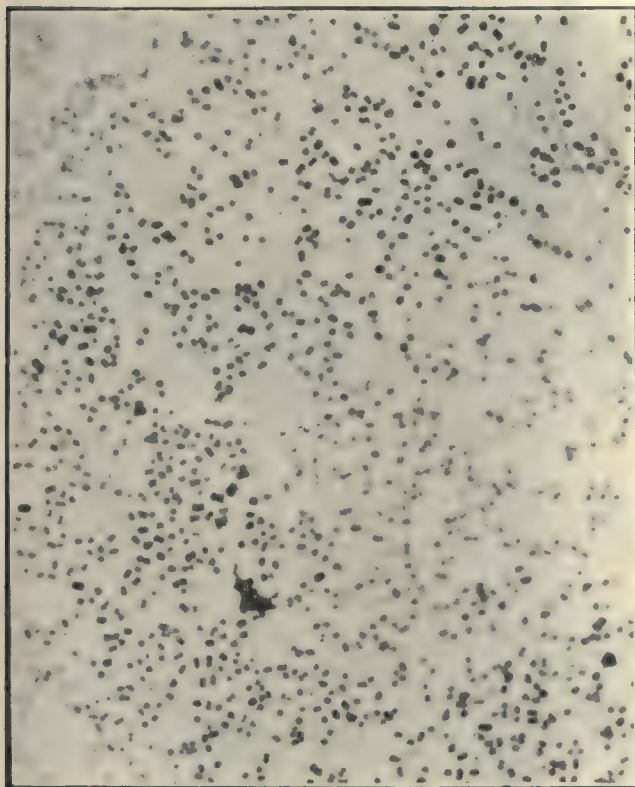
The diplococci found in the cultures from the nose in meningitis patients were found to respond in no wise unlike the diplococci found in the lumbar punctures, including even their varying reaction to the Gram, upon which so much stress has heretofore been placed. Some of these nose cultures were decolorized by Gram, while some of the nose cultures from typical cases of meningitis were not so decolorized. I believe, notwithstanding opinions heretofore advanced to the contrary, that the diplococci found in these cultures, the diplococci found in our ordinary routine work, and *Diplococcus intracellularis meningitidis*, are one and the same organism.

It might be interesting to the otologists present to note a culture sent in by one of the physicians, which culture was made from the discharge from the ear of an

infant suffering with suppurative otitis media. From this culture a typic growth of meningococcus was sep-



No. 1.—Typic forms of *Diplococcus intracellularis meningitidis* in lumbar-puncture fluid.

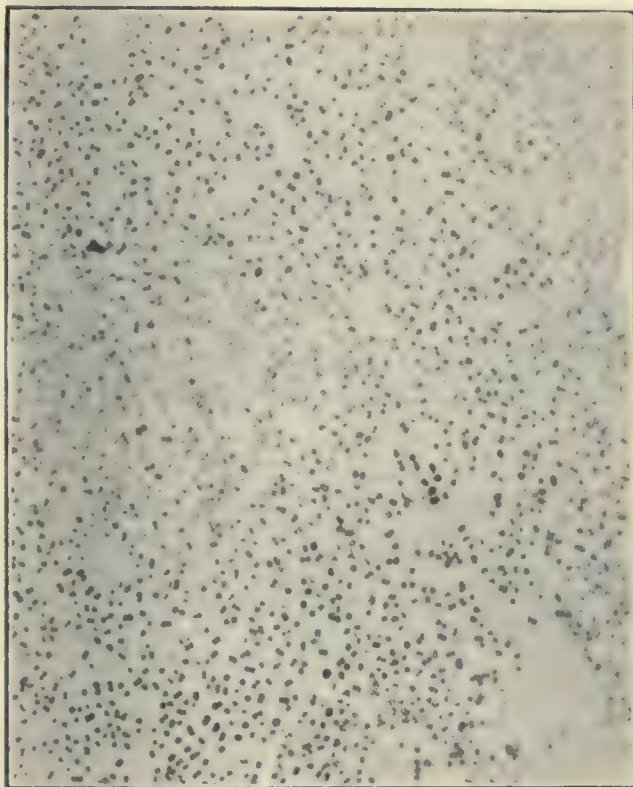


No. 2.—Pure culture of meningococcus obtained from blood of goat inoculated with No. 3 into spinal canal.

arated. When the report was returned the doctor informed us that the mother of the infant was suffering from meningitis in the same house and at the same time.

It would take us too far beyond the scope of this paper to detail, *in extenso*, all the experiments made during our investigation, but it may not be out of place to state that none of the animals which we inoculated with varying strengths of meningococcus cultures, actually died as a result of these. When the organism was introduced into the rat and goat, a general septicemia was sometimes produced, and we were enabled, in a few cases, to reclaim the meningococcus from the blood, from the meninges of the brain and cord, and in the white rat, from the lung. The monkeys and guineapigs upon which we experimented, were all immune to the effects of the organism. The monkeys and goats received inoculations of large quantities of pure cultures into the spinal canal, and in the case of the monkeys, the fluid was pushed up through the cribriform plate of the ethmoid into the base, without notable result.

As to the experiments leading to the determination of the existence of an antagonism between the Klebs-



No. 3.—Pure culture of meningococcus from 1.5% alkaline bouillon.

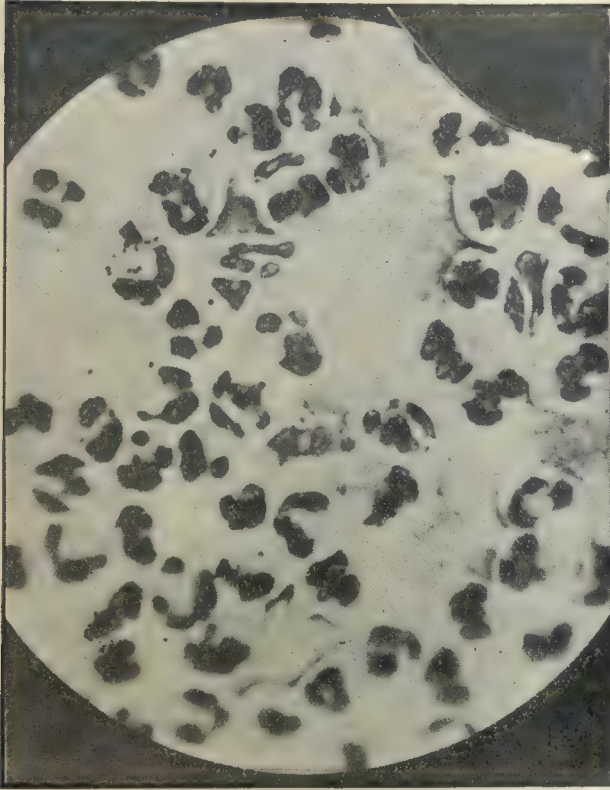
Löffler bacillus and *Diplococcus intracellularis meningitidis* I will give but a few of the results we obtained. In brief, cultures made in bouillon of loops from agar growths of meningococci from lumbar punctures and loops from blood-serum growths of pure cultures of Klebs-Löffler bacilli, mixed, showed in some cases very rich growths of Klebs-Löffler bacilli and very few meningococci, or vice versa, entirely dependent upon which organism was sown in the greater amount.

When equal amounts of 24-hour cultures of Klebs-Löffler bacilli and meningococci, growing in bouillon, were mixed, an examination 24 hours after showed rich growths of meningococci and very few Klebs-Löffler bacilli, the latter being precipitated, curled up, and agglutinated.

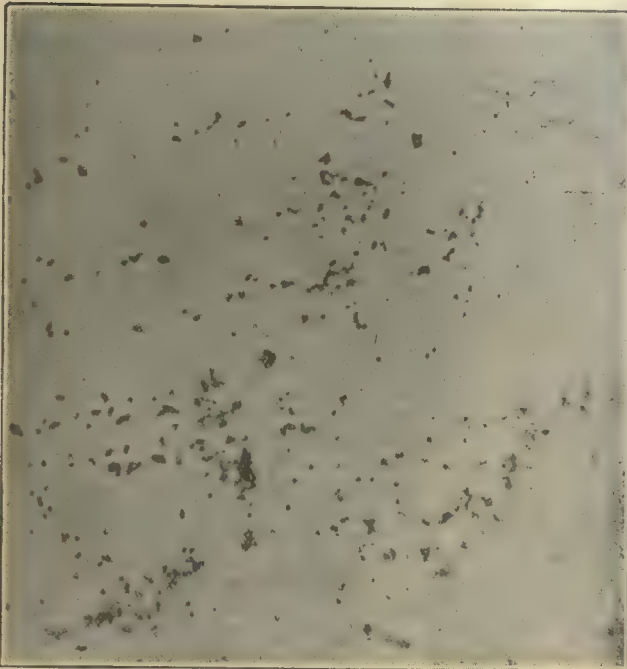
Loops obtained from an agar culture of a lumbar puncture sown in a quantity of diphtheria antitoxin of 500 units strength, examined after 48 hours, and also after nine days, showed the serum perfectly clear and

devoid of organisms, while the precipitate contained a very few meningococci.

A 24-hour bouillon culture of the meningococcus when



Diplococcus intracellularis meningitidis in lumbar puncture.



Diplococcus intracellularis meningitidis showing small forms growing in slightly acid bouillon.

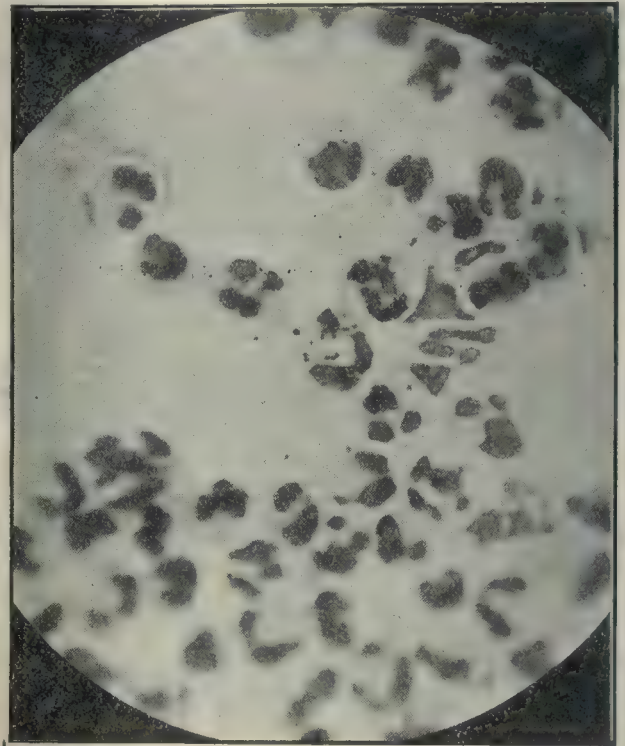
mixed with 3 cc. of diphtheria antitoxin of 1,000 units strength, gave a precipitate in 24 hours, the liquid above being perfectly clear and devoid of organisms in 48.

Smears of the cocci in the precipitate took the stain with the greatest difficulty.

I feel, therefore, that there is an antagonism between the Klebs-Löffler bacillus and the meningococcus, that the Klebs-Löffler bacillus is precipitated and agglutinated by the meningococcus when rich cultures of both are mixed; that the diphtheria antitoxin in proper proportion inhibits the growth of the meningococcus.

These are a few of the reasons which led me to feel that diphtheria antitoxin might have some important place in the treatment of epidemic cerebrospinal meningitis. Experience in the laboratory demonstrates that diphtheria toxin is more effective in precipitating and killing the meningococcus, but, of course, such a therapeutic measure is out of the question in the present state of our science.

My impression is, from what I have stated, that the only effective way to apply this treatment is to use the



Diplococcus intracellularis meningitidis in lumbar puncture.

antitoxin as early as possible in the disease, and in very large doses.

Of the success obtained in the treatment of meningitis with diphtheria antitoxin I can say but little, many of the gentlemen present having had far greater experience than myself in its use, but the enthusiastic opinions which came to me from physicians who did use it, led me to feel that we had suggested a valuable means for combating one of the most fatal epidemic diseases which can visit a community, and certainly the experiments of Jaeger, Lepierre, and latterly some of the Italian workers with the toxin of *Diplococcus intracellularis meningitidis* have resulted in but little encouragement that serum therapy, as ordinarily understood, will give us any effective means of treatment.

As to the antagonism between the Klebs-Löffler bacillus, its toxin or its antitoxin, to the meningococcus, I would say that this is entirely within bacteriologic law. Examples of such antagonism may be mentioned almost without number. For example, it is well known that *Staphylococcus pyogenes aureus*, the typhoid bacillus,

the bacillus of Friedländer, etc., are all antagonistic to the anthrax bacillus; witness also the remarkable experiments on the value of the streptococcus of erysipelas in the cure and protection of rabbits suffering from anthrax, and the experimental work of Watson Cheyne in the same direction; also the work of Schwimmer, who studied with care the antagonism of the streptococcus of erysipelas to the organisms of different infectious diseases; also the work of Kemper on the antagonism between the vibrio of cholera and *B. coli communis*, to which we might add the work of Gromakowsky on the role of diplococci in antagonism to pyogenic staphylococci and streptococci; and then allow me to call attention to the work of Garre, Lode, Moser, and Von Pirquet in this same line.

This, gentlemen, is a limited exposé of the facts that led me to suggest the use of the antidiphtheric serum for the treatment of epidemic cerebrospinal meningitis, and if my suggestions should result in only a small diminution of the frightful mortality from a disease for which no remedy has hitherto been found, if I have succeeded in opening the door through which men of greater intelligence and broader experience than I possess will follow with something of value to the medical world and to the public, my object will have been fully accomplished.

Before closing I desire to acknowledge my sincere gratitude to Dr. Allen H. Williams, of Hartford, for the assistance he has rendered in these investigations and to whom a fair share of credit is due for any results of value consequent therefrom.

GALLSTONE OBSTRUCTION OF THE BOWEL; REPORT OF A CASE; REMOVAL OF ONE STONE FROM THE BOWEL AND A SECOND FROM THE GALLBLADDER: RECOVERY.*

BY

ALFRED C. WOOD, M.D.,
of Philadelphia.

Assistant Professor of Surgery, University of Pennsylvania; Surgeon to the Philadelphia and St. Timothy's Hospitals.

Occlusion of the bowel by gallstones is one of the rare forms of intestinal obstruction. Of 295 cases of the latter, collected by Fitz, the condition was due to gallstones in 23 (1 in 13). In Leichtenstern's collection of 1,152 obstructions, there were 41 (1 in 28); while Barnard's figures are 8 in 360 cases of obstruction (1 in 45), or a total of 72 examples of gallstone ileus in 1,807 cases of obstruction (1 in 25). Barnard's figures are from the records of the London Hospital and cover a period of eight years (1894 to 1902 inclusive).

A better idea of the relative infrequency of this form of obstruction is given by Robson, who states that but four cases occurred in the combined experience of several of the larger hospitals of England in one year. During this period 80,000 in-patients and several hundred thousand out-patients were treated. But a single case occurred at the Manchester Royal Infirmary during a period of 13 years (1883-1896), in which time 50,000 in-patients had received treatment. At the Leeds General Infirmary but one case had been met in the last 10 years, according to Moynihan, although, he says, more gallstones are probably operated upon at this institution than at any other British Hospital.

Sex.—Gallstone obstruction occurs in women much more frequently than in men, the ratio given by writers is from 3 to 1 to 5 to 1. The proportion in the appended collection is 10 to 1.

Age.—The majority of the cases occur between the ages of 50 and 70, the extremes found in the reports being 18 and 94. It is worthy of note that one-half of the

cases included in this report occurred in the sixth decade.

Method of Reaching the Alimentary Tract.—Gallstones reach the alimentary tract in one of three ways: (1) Through the common bile duct; (2) by adhesion of the gallbladder or bile ducts to the duodenum, followed by ulceration and the formation of a fistula through which the stones pass; (3) through an opening into the transverse colon formed in the same manner. The duodenal route is taken much more frequently than that into the colon. According to Naunyn, of 30 fatal cases, perforation into the duodenum occurred in 28, and into the colon in 2.

The calculus removed from the patient here described took the duodenal route.

Fate of the Stone after Reaching the Bowel.—As a general rule, concretions that escape through the common duct will pass along the alimentary canal and will be voided in the stools without giving rise to any symptoms. In rare instances, however, a fatal obstruction seems to have been caused by a small stone. An example of this kind is reported by Israel, in which the calculus measured but 2 cm. in diameter. In another case, a stone weighing 55 grains induced fatal obstruction. This specimen is in the museum of Guy's Hospital. In such cases it is assumed that the foreign body causes a spasm of the circular muscular fibers of the intestine, resulting in a "dynamic obstruction."

The stones that reach the alimentary tract through a fistula into the colon are also passed, as a rule, without causing any symptoms; the large caliber of this portion of the intestine usually offering no obstacle to the transit of the foreign body. It must be remembered, of course, that a stone remaining for some time in the bowel may become greatly enlarged by the deposit of salts and earthy matter. In such a case the concretion may attain a sufficient size to be arrested in the sigmoid flexure.

If the stone does not pass, it usually causes, sooner or later, symptoms of obstruction. There are certain points where calculi are prone to lodge. Of 32 cases examined by Leichtenstern, 10 were found in the duodenum and jejunum, 5 in the middle of the ileum, and 17 in the lower part of the ileum. Courvoisier gives the relative frequency of the different points of obstruction as follows: Duodenum and jejunum, 21.4%; ileum, 65.4%; ileocecal valve, 10%; sigmoid, 2.4%.

In Gibbon's 40 cases, but 1 stone was found below the ileocecal valve, 1 was impacted in the valve, 21 were in the ileum, 1 was at the junction of the jejunum and ileum, and 2 were in the jejunum.

In Lobstein's collection of 35 cases, the stone was found in the colon in two, and in the rectum once. Rehn has reported a case in which the stone was found in the transverse colon; Körte, one in which it was in the sigmoid flexure. Of Schüller's 150 cases, the large intestine was found to contain the stone 12 times; 6 of these cases terminated fatally. Naunyn saw a patient in whom the stone obstructed the rectum immediately above the sphincter ani. Rall reports an ischiorectal abscess produced by a gallstone that had perforated through the lower part of the rectum. The greater number of obstructions have occurred in that part of the small intestine above the ileocecal valve. Below this point obstructions are very rare.

Mechanism of Gallstone Ileus.—Gallstones cause obstruction in at least five ways: (1) By occlusion of the lumen of the bowel by the concretion; (2) by a volvulus resulting from the violence of the colic caused by the stone; (3) by adhesions on the outside of the intestine following local peritonitis, or stricture due to ulceration within the lumen; (4) by local peritonitis of the gallbladder region causing paralysis of the intestine; (5) by "dynamic obstruction."

Czerny is of the opinion that obstructions are produced by the weight of the stone pulling a loop of small intestine into the pelvis, where the latter becomes

* Read before the College of Physicians of Philadelphia, March 1, 1905.

twisted. König says that as the stone advances, it pushes folds of the mucous membrane before it, and in this way produces a sort of artificial invagination. Körte thinks the fecal masses above the stone, which cannot pass on, as usual, ferment and produce a contraction of the intestinal lumen. Rehn believes that the stone produces an inflammation of the intestinal mucosa. None of these hypotheses can be proved to be at the base of all the cases. Czerny's theory relates chiefly to stones in the ileum. Inflammatory changes of the intestinal wall favor obstruction. Reflex contraction contributes toward this result. Even after the removal of the stone the intestinal lumen may remain narrow for some time, showing how marked a reflex contraction may be. In some cases, after the removal of the stones, intestinal paralysis occurs. The size of the stone is not always an important factor. Small stones have caused a fatal obstruction, and large ones have been passed without difficulty.

Symptoms.—A gallstone having entered the bowel may give rise to symptoms in a few hours, or only after having been retained for some weeks, or even months. There is a great variation in the amount of trouble experienced in different cases. Occasionally a stone may remain for a long period in the alimentary canal without giving rise to any definite signs of its presence. In illustration of the occasional tolerance of the bowel to foreign bodies, cases are reported in which a gallstone was retained 3 years (Leichtenstern), 10 years (Eve), and 15 years (Smith). In this connection an interesting observation is recorded by M. K. Elmer.¹ A man of 59 swallowed a plate carrying three front teeth. He suffered from various forms of distress for three and a half years, when all symptoms disappeared. Finally, the plate was passed by the anus two weeks less than four years from the time it had been swallowed.

The symptoms of occlusion of the bowel by a gallstone may not differ greatly from those caused by other forms of obstruction. Frequently, however, a careful examination of the history and symptoms will reveal one or more of the characteristic features of the former condition. The patient may describe attacks of local peritonitis, indicating the passage of the stone into the bowel. The symptoms suggesting this event are: Acute abdominal pain and tenderness in the hepatic region, with or without jaundice; elevation of temperature, vomiting, constipation, and meteorism.

Constipation varies; it may be sudden and absolute in acute cases, while in the chronic varieties the bowels usually act, although perhaps imperfectly and irregularly. Flatus is usually passed. In the very chronic forms the movements may not be greatly interfered with, or diarrhea and constipation alternate. In the reported cases the duration of the obstruction was from 1 to 28 days, the average in those patients who recovered being 7 days, and in the fatal cases from 5 to 10 days. In the more acute and violent cases the stone will be found to have been arrested high up, probably in the duodenum or jejunum.

The pain is colicky and paroxysmal in character. Although there may be some constant distress, the patient does not complain much, except during the exacerbations, which are due to exaggerated peristalsis of the intestine in its effort to force the foreign body onward. While the pain during these periods is usually severe, it is not as acute as in the cases of strangulation of the bowel.

Vomiting usually occurs early and is persistent. This symptom depends somewhat upon the position of the calculus. The higher in the alimentary tract the obstruction, the earlier and more severe the vomiting.

There is, as a rule, but little distention of the abdomen in these cases; this is due to the fact that gas, and even fluids, are able to pass around the calculus in most cases. Marked tenderness is wanting unless there is local peritonitis.

Sometimes a stone may become lodged and cause all of these symptoms, then pass on, and complete relief follow; or, if arrested later, the symptoms are repeated. This may happen several times in a given case and is a very characteristic feature of the condition under consideration.

Diagnosis.—The distinction of the different forms of intestinal obstruction is usually a difficult matter. The cases due to gallstones are not an exception to this rule. A history of previous attacks of biliary colic or jaundice, or both, would be very suggestive, but is wanting in a majority of the cases. Gibson reports a definite history pointing to gallstones in 18 of the 40 cases; this is a much larger proportion than given in many reports.

The most important features of gallstone obstruction are: 1. Constipation, frequently not absolute, flatus and small fecal movements being passed in many cases. 2. Vomiting, usually early, persistent, and sometimes fecal. 3. Abdominal pain, moderate in severity (unless peritonitis be associated), and paroxysmal in character. 4. Tenderness of the abdomen is slight (in the absence of peritonitis). 5. Distention is moderate or entirely absent. 6. Peristalsis is exaggerated. 7. The leukocytes are not increased, unless inflammation has been set up around the stone. 8. The pulse and temperature are but little affected until late in the case, when shock becomes a prominent feature. 9. Remission of the important symptoms is not uncommon.

The *prognosis* without operation is decidedly unfavorable. The estimate of Treves is probably a conservative one. He says: "In 35% of the cases of gallstone obstruction with definite symptoms, the stone or stones are later passed spontaneously, while in 65% death results, or in a few cases the patient is relieved by operation."

Treatment.—This must be either by purges and enemata or operation. Writers are divided between these two courses. Until recently the mortality was about the same for both the nonoperative and operative treatment, hence, the nearly equal division of professional opinion.

The operative results have improved considerably in recent years, and should be even more successful in the future. The most important factors are an early diagnosis and prompt operation. Although the symptoms in a case of gallstone obstruction may appear mild, it is unsafe to permit the condition to persist many days. As it does not seem probable that medical treatment will be any more successful in the future than it has been in the past, we must look to surgical intervention as the only means by which the former high deathrate may be reduced.

I would therefore urge an operation as soon as a diagnosis of organic intestinal obstruction could be established. Fecal impaction and other conditions amenable to medical measures must be excluded.

Results of Operation.—Dufourt² published the reports of 9 cases of gallstone obstruction with operation, of which all but one terminated fatally.

Eve³ reports a personal case, and adds 18 to those collected by Dufourt. Of these 27 patients, 10 recovered and 17 died (mortality 63%). In the 18 cases collected by Eve, 9 patients recovered and 9 died.

Gibson⁴ collected reports of 1,000 operations for acute intestinal obstruction and gangrenous hernia. In 40 of these the obstruction was due to gallstones. There were 21 deaths after operation (mortality 57%).

Honigman⁵ collected 34 cases, of which 18 resulted in recovery (mortality 47%).

Körte⁶ lost but 2 of 7 patients (mortality 29%). Of the 22 cases appended to this paper, 12 ended in recovery and 10 were fatal (mortality 45%).

CASE I.—(AUTHOR'S CASE.)—Mary D., aged 58, married, was admitted to the University Hospital, February 26, 1904, on account of abdominal pain, vomiting, and constipation. Following are the records taken at that time:

The family history is negative. The patient is the mother of nine children. She seems to have been unusually healthy,

and says she has never been sick. She has always worked hard, being especially employed in laundry work.

Eight months ago the patient complained for two weeks of what she calls pleurisy; the chief trouble being pain referred to the chest. It is impossible to obtain from her any clear idea of the condition at the time of this illness, as she seems to have made light of the matter.

Until three months ago the patient was habitually constipated; at this time she began to have attacks of watery diarrhea, lasting three or four days, and accompanied by severe griping pains. These periods of diarrhea alternated with periods of constipation of about the same duration.

Twelve days before admission to the hospital diarrhea set in, lasting a week. During the past five days there has been no movement of the bowels; the patient has complained of nausea and intermittent attacks of colicky pain in the abdomen, and during the past four days vomiting has been frequent. She has taken salts several times, all of which was rejected; enemas were uniformly ineffectual. She had never examined the stools, therefore information as to their character could not be obtained.

Upon examination the following conditions were noted: The patient looks much older than the age she gives. The facial expression is indicative of distress. There is frequent vomiting of a greenish fluid. At intervals of a few minutes she has a cramp-like pain, which seems generalized over the abdomen. The abdomen is slightly and uniformly distended, there is no rigidity, no mass is palpable, there is no pain on pressure except during the attacks of colic, at which time the nausea is increased. Percussion gives a resonant note everywhere. Peristalsis is exaggerated during the colicky pains, and normal at other times.

The temperature is normal, pulse 90; there is some roughness of the first sound of the heart at the apex and at the aortic cartilage.

Urine: Deep amber, cloudy; specific gravity, 1.020; flocculent sediment; albumin and indican present; sugar absent. The microscope shows amorphous urates, leukocytes, and hyaline casts.

White blood-corpuscles, 6,720 per cc.

High compound enemas administered at the hospital were without effect.

Diagnosis: Intestinal obstruction.

Operation, February 27, 1904: An incision was made in the linea alba, midway between the umbilicus and the symphysis pubis. Slightly distended loops of ileum were at once exposed. A very brief examination disclosed a hard body within the intestine, completely filling its lumen. Above this body the bowel was somewhat distended, while below it was quite collapsed. The object was in the ileum, about six inches from the ileocecal valve. The loop of the intestine containing the foreign body was delivered through the incision, the peritoneal cavity protected by gauze pads, an incision was made in the bowel, opposite the mesenteric attachment, and a gallstone removed. The intestinal wound was closed by Lembert sutures of silk.

As the stone was faceted, it was evident that others had existed. In order to ascertain if there were any remaining in the gallbladder or ducts, a hand was introduced into the abdomen and passed along the anterior abdominal wall toward the gallbladder region, where another stone was felt. As this could not be removed through the original wound, the latter was closed by sutures, and a second incision was made at the usual site for reaching the gallbladder. The border of the liver was exposed. The gallbladder could not be detected, but in the center of a considerable mass of adhesions, which united the pylorus, liver, gallbladder, and ducts, the stone could be palpated. The adhesions were so strong that it was impossible to separate them except by cutting, and although this was done with the greatest care, and with the edge of the knife always directed toward the liver, the pylorus was opened about three-fourths of an inch in removing the calculus. It could not be determined definitely whether this was done at the time, or was the result of the efforts of the stone to escape. It was certain, however, that the stone was in the process of being extruded into the bowel. The rent in the pylorus was closed by silk sutures, not without great difficulty, however, owing to the friable condition of the tissues and the fact that the area involved was immovably bound to the liver and adjacent structures. The cavity from which the stone was removed was drained by a Mikulicz wick, and the wound closed by sutures of silkwormgut.

At the conclusion of the operation the temperature was 97.4°, pulse 128, respirations 42.

The pulse and respiration gradually improved, the highest temperature record was 101°, peristalsis was never interrupted, and the abdomen was always flaccid. Although the final result was satisfactory, the convalescence was marked by a number of complications. The secretion of urine was very scanty after operation; none was passed spontaneously, and but 13½ oz. were obtained by catheter during the first 24 hours. Active treatment was directed toward maintaining the function of the kidneys. For this purpose diuretics and diaphoretics were given internally, and salt solution subcutaneously. Dry cups were applied over the kidneys. The function was gradually restored, and on March 16, for the first time, the urine was free from albumin. During the first few days all of the urine was

drawn with the catheter, but later was passed involuntarily. The patient became delirious on the day following the operation and continued in this condition for three weeks.

The upper wound was dressed on the second day. On the following day the gauze drain was removed, after which there was a free discharge of bile. There was a marked local inflammation of the wound, and by the fourth day there was a superficial necrosis of its edges. The conditions rapidly improved, however, the discharge of bile gradually diminished, and the wound was healed firmly by April 2, five weeks after the operation. The lower wound healed by primary intention.

On the morning of March 9, eleven days after the operation, the patient was found to have left hemiplegia. It had come on in the night without any premonitory symptoms. Dr. Potts, who kindly examined the patient at my request, thought the paralysis was due to thrombosis, and gave a favorable prognosis. The subsequent course of the case proved the correctness of this opinion, as the patient rapidly regained the use of the left side, and was able to leave her bed on April 4, and to go to her home four days later.

The larger stone which filled the lumen of the ileum weighed, in the dry condition, 175 grains (11.6 gm.) and measured 3½ in. (9.3 cm.) in the larger circumference, by 3¼ in. (8 cm.) in the smaller circumference. The other stone was somewhat smaller, weighing 140 grains (9 gm.). An examination of these stones showed that both ends of both stones had been, at some time, in contact with another calculus, so that there must have been originally at least four.

It may be assumed that the illness which was called pleurisy, eight months before the obstructive symptoms, marked the date when the fistula was forming between the bile tract and the duodenum. Whether the stone which gave rise to the obstruction escaped into the bowel at this time, is uncertain. At least two stones are unaccounted for, and it is possible that one or both of these may have given rise to the symptoms at the time mentioned, and having gained access to the bowel, passed without further difficulty. The regularly alternating attacks of diarrhea and constipation, accompanied with griping pains, were due, without doubt, to the presence of the stone that finally caused the obstruction, and which, therefore, must have been at least three months in its passage from the duodenum to the lower part of the ileum.

In addition to the foregoing case, I have collected from the literature since the publication of Dr. Gibson's paper in 1900; 21 cases of obstruction of the bowels, due to gallstones, that have been subjected to operation. The patients that have had a more or less alarming illness, followed by the passage of the stone per rectum, and recovery, as well as those in which the gallstone was found at postmortem examination, have been excluded. It is not to be presumed that the collection embraces all of the cases that have occurred since the date mentioned, or even all of those reported during this time, although an extended search of the literature has been made. An analysis of these 22 cases shows that there were 20 women and 2 men. The youngest patient was aged 31, and the oldest 73. The men were aged 42 and 43 respectively. The average age of the women was 59.85. Three cases occurred in the third decade, 3 in the fifth, 11 in the sixth, and 3 in the seventh. The situation of the stone was as follows: Duodenum, 1; duodenojejunal junction, 1; jejunum, 2; small intestine (probably ileum), 1; ileum, 11 (probably 15); ileocecal valve, 1; colon, 1; not stated (probably ileum), 3. In one case, the stone was in a mass of adhesions in the gallbladder region and caused obstruction by setting up a local peritonitis. The mortality was 45%.

Brief abstracts of the cases follow:

CASE II.—(BARNARD).⁷ Woman, aged 37, never had jaundice, biliary colic, or symptoms of intestinal obstruction. Very good health until nine months before this attack. At that time she had aching pains in the right side of the abdomen, preventing her from lying on that side. The pain was so severe at times as to make her feel sick.

January 9, 1901, sudden severe griping pain on the right side below the ribs; January 10, took purgative; January 11, several passages, but pain not relieved. From this time on constipation was absolute, although there was tenesmus. January 12, vomiting, profuse, incessant, fecal.

Abdomen flaccid; no distention or tenderness; pulse 100. Per vaginam a mass could be felt in Douglas' pouch, thought to be fecal. Three enemas were given without effect. At operation a gallstone was found in the ileum, five feet from the ileocecal valve. The stone was 2½ in. long, 1½ in. in diameter, and 3½ in. in circumference; weight, 294 gr. The patient recovered.

CASE III.—(IBID.) Woman, aged 63. Clear history of previous biliary trouble. Obscure pains in the right hypochondrium.

drium for years; never jaundiced. June 10, 1901, took a purgative pill, which acted well. June 11, violent pains in right hypochondrium, with profuse and continuous bilious vomiting. June 12, better, but colicky pains continue around the umbilicus. Enema effectual. June 13, still retching and vomiting. June 14, patient better; enema slightly effectual. June 15, much worse; vomiting fecal. No distention and very little tenderness; no tumor to be felt. June 16, operation. Stone found in ileum, five feet from valve. Death occurred 24 hours after operation.

CASE IV.—(IBID.) Very fat woman, aged 68. Abdominal pain and jaundice occurred two months before admission to the hospital. Five days before the latter date severe abdominal pain and vomiting set in. Constipation for two days. Pulse 103, very feeble, temperature subnormal. Abdomen soft; no distention or tenderness; no tumor. Enema slightly effectual. Operation with eucaïn anesthesia. Gallstone found in upper part of small intestine. Death 48 hours after operation.

CASE V.—(IBID.) Woman, aged 73. Sudden attack of paroxysmal pain about the umbilicus of four days' duration; constant vomiting for three days; complete constipation five days; a little distention of abdomen. Operation: Gallstone found in ileum one foot from valve. Death in four hours.

CASE VI.—(IBID.) Man, aged 42. Eighteen years before, severe attack of epigastric pain, tenderness, and vomiting. For the next seven or eight years was never without pain; severe attacks occurred about once a week during this time. Was treated for dyspepsia. Four days before admission to the hospital he had severe and continuous abdominal pain; constipation absolute. Under an anesthetic a hard lump could be felt in the right iliac fossa. At operation a gallstone was found at the ileocecal valve. The patient recovered.

CASE VII.—(IBID.) Woman, aged 63. Clear history of attacks of jaundice and biliary colic. Four days before admission to the hospital she had sudden acute pain in the right hypochondrium just below the ribs, and vomiting. Continuous vomiting and absolute constipation for three days. Pulse rapid and small; abdomen tender and distended. At operation a gallstone was found in the ileum several feet from the valve. The patient recovered.

CASE VIII.—(IBID.) Woman, aged 50. Was never jaundiced. Twelve months before she had an attack of severe spasmodic abdominal pain and vomiting. Six or seven similar attacks followed, each of about two days' duration. The present attack began ten days before admission to the hospital. Constipation absolute. Abdomen greatly distended. At operation stone was found in the ileum. Death occurred at the end of 48 hours.

CASE IX.—(BRIDGES.)⁸ Woman, aged 68; indefinite abdominal pain for two or three days. The most marked feature was extreme tenderness of the abdomen. There was no history of colic or jaundice, but flatulence was pronounced after meals. Weight had been lost rapidly during the preceding weeks. The attack was ushered in by vomiting and severe pain in the left lumbar and umbilical regions. There was no distention; pulse 82; temperature subnormal. The conditions grew rapidly worse and an operation was decided upon. A gallstone seven-eighths of an inch in its largest diameter was found high up in the jejunum. Death occurred 12 hours later.

CASE X.—(CANTLIE.)⁹ Man, aged about 43, was seized with severe abdominal pain and vomiting. This was followed by free action of the bowels. There was no history of colic or jaundice. Four days later, symptoms of intestinal obstruction being present, a consultation was held, during which there was a slight action of the bowels. Operation was therefore deferred, but later was fixed for the following day. An hour previous to the time set for operation there was again a slight action of the bowels, and the operation was deferred a second time. Two days later an operation was performed. A conglomeration of small stones was found in the ileum. The mass was $3\frac{1}{2}$ in. long and $1\frac{1}{2}$ in. in diameter. Death occurred 12 hours after operation.

CASE XI.—(FENWICK.)¹⁰ Woman, aged 65, had fecal vomiting for three days, with complete obstruction. Twelve years before there had been a severe attack of colic, followed by jaundice. An operation was performed and a gallstone removed from the bowel (ileum?) weighing 252 grains. The patient recovered.

CASE XII.—(KAREWSKI.)¹¹ A woman, aged 73, who had never had symptoms referable to the organs of digestion, was suddenly attacked with what seemed to be perityphlitic abscess. There was pain over the stomach, vomiting, and meteorism. The vomiting became fecal on the second day, the pains having spread over the entire abdomen. No evacuation of feces or flatus occurred after the beginning of the attack. On the fourth day a stool was passed. The vomiting lasted a few days longer. From that time on there was continuous pain in the right side, and fever. A mass was seen in the right iliac fossa, slightly above the position of the appendix. This was fluctuating, painful, and the size of a child's head. An operation was performed, and an abscess containing gas was evacuated, and a gallstone 7 cm. long and 3 cm. thick was found. A closer scrutiny of the patient's life revealed the fact that 50 years previously she had frequently suffered with gastric cramps; but she had never been jaundiced. Recovery took place with a fistula of the colon.

CASE XIII.—(IBID.) A woman, aged 37, who had often had

gastric pain with vomiting, the latter sometimes consisting of pure blood, had symptoms of a chronic intestinal stenosis, apparently situated to the left of the umbilicus, where a resisting mass could be felt as a broad band extending toward the stomach. She complained of not being able to pass flatus. Even the most violent purgatives and enemas produced no stool. She had been vomiting for days and the vomitus was becoming fecal. She had never had fever or jaundice. The physician made a diagnosis of perforated gastric ulcer with chronic peritonitis. Close questioning developed the statement that in earlier years the patient had been jaundiced during the gastric cramps, and, as the resisting mass was deep in the pyloric region, a diagnosis of old cholelithiasis with chronic adhesive peritonitis and occasional obstruction of the intestines by gallstones was made. Operation revealed a small, shrunken gallbladder, free from stones; but to the left of it, in the midst of peritoneal adhesions, and filled with inspissated pus, was an abscess cavity containing two gallstones, each the size of a hazel-nut. After eight weeks the patient was discharged cured.

CASE XIV.—(IBID.) Woman, aged 60, had for 22 years complained of pain in the left side, beneath the costal margin. The patient was believed to be hysteric, as other symptoms belonging to this condition were present. She had never had jaundice, colic, or pain in the right side. She had often vomited. The present condition began suddenly one night, with profuse vomiting. There was gradually increasing pain in both left and right sides, which terminated in a typical colicky attack. Fecal vomiting occurred the next day. She had had a number of movements, and had passed flatus during that day. Inasmuch as the upper part of the abdomen was distended, and a sausage-shaped mass was found above the umbilicus, a diagnosis of intussusception was made. Lavage and a high enema checked the symptoms for a while. Neither stool nor flatus was passed after midnight, 22 hours after the onset of the condition. A stone 7 cm. long and 3 cm. in diameter was removed from the small intestines. The patient recovered, although the fecal vomiting lasted 36 hours longer.

CASE XV.—(PILCHER.)¹² Woman, aged 60. Pain about the umbilicus, and vomiting for two days, increasing in severity. No previous history of jaundice or colic. At operation a stone was found in the duodenojejunal junction. The patient made a good recovery.

CASE XVI.—(RATH.)¹³ Woman, aged 67, was seized with abdominal pain and vomiting. A diagnosis of intestinal obstruction was made, and operation advised, but the patient refused to submit. Three days later, the symptoms becoming more urgent, an operation was performed, and a gallstone weighing 13.821 gm. was found impacted in the bowel. Death resulted.

CASE XVII.—(IBID.) Woman, aged 71, complained of constipation, abdominal pain, and vomiting. She was admitted to St. Timothy's Hospital, where an operation was performed. An impacted gallstone was found in the ileum, about six inches from the valve. The weight of the stone was 11.917 gm. The patient recovered.

CASE XVIII.—(IBID.) Woman, aged 68; symptoms of obstruction of the bowel for two days. She was admitted to St. Timothy's Hospital, and an operation was performed. A gallstone was found impacted in the ileum. The patient died from shock six hours after operation.

CASE XIX.—(ROBERTS.)¹⁴ Fat woman, aged 65. Four months before, severe bilious attack; pain, distention, and tenderness over gallbladder, nausea, vomiting, slight jaundice, and fever. Constipated ever since. July 7, taken with violent pain while on the street; nausea and vomiting followed. After an enema a few fecal lumps and a little gas were passed. Pulse 124; temperature 98°; slight distention, no tenderness, rigidity, or mass could be felt. At operation a stone was found in the ileum; large circumference, $4\frac{1}{2}$ in.; small circumference, $3\frac{1}{2}$ in. Death in 10 hours.

CASE XX.—(SCOTT.)¹⁵ Woman, aged 67. Gouty; doubtful gallstone history; never jaundiced. January 28, 1902, the patient complained of diarrhea for a week, and colicky pain in the abdomen; vomiting occurred later. No distention, rigidity, or tenderness in the abdomen. At operation a gallstone was found in the jejunum. There was also necrosis of the bowel, requiring resection. The patient did not recover.

CASE XXI.—(TUPPER.)¹⁶ Woman, aged 31; midwife. Six years ago she had severe colicky pains in the abdomen, lasting several hours. Three years later there was a similar attack, and another a year ago. The last attack was followed by jaundice. Four months ago there was another, but less severe, attack. Vomiting, a half hour to two hours after food, set in. At operation a number of gallstones were found impacted in the first part of the duodenum. The patient recovered.

CASE XXII.—(WARDEN.)¹⁷ Woman, aged 50, was suddenly seized with symptoms of acute intestinal obstruction—vomiting, fecal in odor, slight distention; pulse 130, temperature 96°. An operation was performed, and a gallstone $2\frac{1}{2}$ in. long by $1\frac{1}{2}$ in. in diameter was removed from the bowel just above where the latter had become adherent to the scar of a former abdominal section. The patient recovered.

BIBLIOGRAPHY.

- 1 New York Medical Journal, November 19, 1904, p. 892.
- 2 Lyon Medical, 1889, p. 53.
- 3 Clinical Society Transactions, Vol. xxviii, 1895.
- 4 Annals of Surgery, 1900, Vol. xxii, p. 506.

⁵ Zeit. f. d. Grenzgeb., 1900.⁶ Deut. med. Woch., 1899.⁷ Annals of Surgery, 1902, Vol. xxxvi, p. 161.⁸ British Medical Journal, 1904, Vol. ii, p. 19.⁹ British Medical Journal, 1904, Vol. ii, p. 181.¹⁰ British Medical Journal, 1900, Vol. i, p. 256.¹¹ Deut. med. Woch., 1902, Vol. xxviii, pp. 168, 189, 214.¹² Medical News, February, 1902, p. 257.¹³ (Personal communication.)¹⁴ Louisville Monthly Journal of Medicine and Surgery, March, 1904, p. 367.¹⁵ Philadelphia Medical Journal, December 22, 1902.¹⁶ Interstate Medical Journal, November, 1903.¹⁷ British Medical Journal, 1904, Vol. ii, p. 756.

THE ALLEGED DESTRUCTION OF RED BLOOD-CORPUSCLES IN THE SPLEEN.

BY

EDWARD T. WILLIAMS, M.D.,

of Boston, Mass.

The peculiar doctrines of Professor Kölliker on the spleen are detailed at length in his work on Microscopic Anatomy. This work, which consisted solely of one volume on special histology, was published in three succeeding sections by Engelmann, of Leipzig, in the years 1850, 1852 and 1854. These three sections formed nominally the second volume of the work, but the projected first volume on general histology never appeared. The reason undoubtedly was that the author changed his plan before the work was completed, since his shorter handbook, which included both general and special histology, was published in 1852, and rendered the preparation of the contemplated first volume of the original work unnecessary. This handbook passed through six editions in Germany between the years 1852 and 1896, and was translated into English and French, while the Microscopic Anatomy never reached a second edition.

This earlier work, however, is the one which treats most fully of the spleen, and as the subject is highly important, I shall venture to translate the principal part of the author's account of the red blood-corpuscles found in the spleen pulp, in spite of its unnecessary prolixity:¹

Das in die Milzpulpe ergossene Blut—The blood effused into the spleen pulp and the changes of the blood-corpuscles contained in it certainly deserve all consideration from the standpoint of anatomy and physiology. I believe I was the first to call attention to this subject and to explain it correctly from the microscopic point of view, although Oesterlen, Remak and Hanfield Jones had previously observed certain kindred facts. Oesterlen² was the first to find in the spleens of frogs and toads, and less distinctly in those of mammals, small yellow, rose-red and black corpuscles, though he was unable to explain their significance. Afterward, Remak³ saw in the spleen pulp of the calf delicate transparent vesicles with from one to three round, reddish-yellow, homogeneous corpuscles, which approached the blood-corpuscles in color, though not so readily distended by water. Finally, Hanfield Jones⁴ detected in the spleens of different vertebrates similar yellowish corpuscles. All these facts are placed in their true light by my discovery that the blood-corpuscles in the spleen almost invariably undergo a peculiar dissolution. The case is this:

The red pulp of men and animals shows a difference in color, or rather a difference in the behavior of the red corpuscles contained in it, which, without the participation of any other elements, determine the color by their structural differences. In animals, for instance, the pulp is sometimes paler, and more of a grayish-red, sometimes of a brown, or even blackish-red color. In the latter case an abundance of altered blood-corpuscles is found (of which we shall presently speak), while in the former case, microscopic examination easily demonstrates that the red color proceeds from unaltered blood-corpuscles, which are readily driven out of the tissue of the spleen by pressure, and on the addition of water, promptly give up all their coloring matter. In other animals, the spleen has always about the same color, though generally darker, but still shows at one time only unaltered blood-corpuscles, at another many of the same affected with the most manifold alterations. These alterations are very striking and peculiar, and in all animals rest essentially on the fact: (1) That the blood globules, while they are growing simultaneously smaller and darker, and the oval ones of the lower vertebrates becoming round, are conglomerated into roundish clumps, which, in combination with a portion of blood plasma, by the development of an

external membrane and of a nucleus in the interior, are transformed into roundish blood-corpuscle-holding (blutkörperchenhaltige) cells, of from 0.005 lines to 0.015 lines in diameter, containing from 1 to 20 blood-corpuscles; and (2) that these cells, while their blood-corpuscles are continually growing smaller and changing into pigmented bodies, by taking on a golden-yellow, brownish-red or black color, all together or by a previous decomposition, are transformed into pigmented granular cells, and finally, through a gradual fading of their granules, into perfectly colorless cells. In many cases there are no cells formed round the blood-corpuscles, though they undergo the same destruction and color change as the rest.

Touching the formation of the blood-corpuscle-holding cells, it is certain that they are not formed directly round a nucleus, but by the development (Umlagerung) of an investing membrane round a small clump of coagulated blood, as the membranes around the last segmentation globules (Furchungskugeln) are formed. Whether the nuclei which, without exception, become visible afterward, are present before the formation of the cell membrane, or are produced subsequently, is not easy to decide. If the first supposition is correct, one might admit that the nuclei share in the formation of the blood clumps, something as in the segmentation of the vitellus, yet it is to be noticed, as already mentioned, that clumps of blood globules without enclosed nuclei, are sometimes seen in the spleen, and that Hasse and I have found in the brains of pigeons conglomerations of blood-corpuscles, and a transparent connective tissue without nuclei, from which I might conclude that the nuclei have nothing to do with the formation of the clumps. Still one may well believe that the nuclei, which are never lacking in the cells, precede the formation of the membrane around the clumps and effect it, which accords most fully with what we already know about the significance of the nuclei.

In conclusion, the question still arises what these changes of the blood-corpuscles mean, and whether they are to be regarded as physiologic or pathologic. On one side there seem to be very weighty reasons for considering the phenomenon as a normal one, namely, the constancy of its occurrence in so many animals, including those living in a state of nature, like fishes and amphibia; furthermore, the continuance of apparently perfect health, in spite of the enormous multitude of decomposing blood globules; third, the production of blood-corpuscle-holding cells in bloodvessels which are positively not cut off from the general circulation, as is easily demonstrable in amphibia; fourth, the want of similar constant, often-repeated transformations of the blood in other organs in the higher vertebrates; and much beside. In opposition to these facts, there are many others which present themselves under close consideration, which lead almost involuntarily to the conclusion that perhaps all the changes of the blood-corpuscles in the spleen are purely abnormal phenomena, a view to which I am drawn by my experiments on fishes. In these animals the changes of the blood-corpuscles of the spleen take place not in the interior of the bloodvessels, but in extravasations (see the foregoing); second, we find such extravasations and metamorphoses of the blood-corpuscles not only in the spleen, but also in other organs, namely, in the kidneys, quite constantly, and often in the liver and peritoneum. Add to these facts the following, that in certain animals, for example in the cat, sheep, and others, the alterations of the blood-corpuscles in the spleen are seldom met with farther, that the progress of these alterations does not always correspond to conditions of digestion, and I can hardly avoid the idea of the abnormality of the phenomenon, especially when one considers that similar, distinctly not physiologic phenomena, like the small hemorrhages in the lungs, bronchial and thyroid glands of man, the mesenteric glands of the pig, rabbit, etc., likewise take place partly as almost constant phenomena, partly in combination with perfectly similar alterations of the blood globules. Nevertheless, the numbers of the changing blood globules in the last-named cases are in no comparison with the innumerable quantities of those which are constantly going to destruction in the spleen; and, second, it is very possible that hemorrhages (Blutergüsse) occur as a physiologic phenomenon, as in the graafian follicles, the separation of the placenta, and in menstruation, and even if all animals do not show under the microscope a demonstrable alteration of the blood-corpuscles in the spleen, that does not prove that such an alteration may not be present, or that the alteration which is actually demonstrable depends on a pathologic process. So much at least is sure, that in all animals, without exception, blood stoppages (Blutstockungen) are found in the spleen; and almost sure that these stoppages are accompanied in mammals by extravasation. In these blood stagnations (Blutstagnationen) the blood-corpuscles might in some cases dissolve rapidly, in others slowly, and thus present a striking difference to the observer. Moreover, it is conceivable that these occurrences and their consequences are physiologic, since they are in fact constant in many animals and are found in wholesale proportions, and have a vast influence on life. On these grounds I might feel compelled, so long as the pathologic character of the described phenomena is not clearly proved, to hold fast for the present to

their physiologic nature, and to regard the dissolution of the blood-corpuscles in the spleen as a normal occurrence.

* * * * *

In the foregoing remarks I have endeavored to consider the hypothesis proposed by Ecker⁵ and myself, on all sides, and to prop it up (stützen) as well as I can, because I truly believe it accords most perfectly with the facts in the case; yet I am not blind to its deficiencies * * * and will frankly confess that, in the course of my investigations, I was often on the point of going over to Hewson's view, according to which the spleen acts solely as a blood maker, yet I always returned from it. The truth seems to me to lie in the middle. * * * The examination of the spleen presents no difficulties up to a certain point, * * * but to see the cells and blood-corpuscles, one must avoid the addition of water.

This long and devious tale naturally suggests certain criticisms. According to the author's hypothesis, the red corpuscles in the spleen are not a natural part of its structure, but are merely deposited there as the result of hemorrhage. In other words, every vertebrate animal, from an early period of embryonic life to the last moment of its existence, is the subject of a perpetual splenic apoplexy. The blood thus effused never produces any unnatural distention of the organ, in spite of its soft consistency; never clots, as it does in other organs; never displaces the minutest fiber of its tissue; never causes any inflammation of the surrounding parts, or affects in any way the health and well-being of the animal. This is wholly inconceivable. It is impossible. Indeed, it would appear that the theory was afterward abandoned by the author himself, since it is not reaffirmed in any of his later writings, and was never adopted by any subsequent writer.

As to the formation of the blood-corpuscle-holding cells, the author's mistake was immediately pointed out by Virchow,⁶ at that time professor of pathology at the same university of Würzburg, and has been conceded by all other observers. These cells are simply giant cells, like those first found by Robin⁷ in the bone marrow. They are large, many nucleated cells, possessing the power of ameboid motion, and frequently acting as phagocytes. The giant cells of the marrow are often found to contain red blood-corpuscles exactly like those of the spleen.

Lastly, as to the dissolution of the red corpuscles: We are nowhere told just how our author examined spleens. He must have examined some of them in water, since he particularly cautions us against its use. Nevertheless, the custom of examining almost all preparations in water was quite universal in those days, as it was when I studied medicine, between 1865 and 1868. The only hardening agent in common use was alcohol, while staining, imbedding and machine sections were quite unknown. The author says that the examination presents no difficulties, except as regards the cellular elements. Frey⁸ and Billroth (quoted by Frey), found great difficulties in regard to the cellular elements, and recommend the routine use of fixatives like potassium bichromate and iron chlorid. Harting⁹ says that corrosive sublimate is the only agent which will preserve blood-corpuscles unchanged. For my own part, when I have examined fresh spleen smears or teased preparations in water, I have invariably found dissolving red blood-corpuscles. They also appear in salt solution and artificial serum, though a little more slowly. They also appear, to some extent, in preparations fixed by heat, and stained with watery solutions of the anilin dyes. They appear in vast numbers in pathologic spleens, and in spleens which are more or less decomposed. But since I have adopted the practice of using only perfectly fresh spleens, from animals slaughtered within six hours at the farthest, and immediately fixing the specimens with sublimate salt, I find no dissolving red corpuscles at all. They are all perfectly normal in shape and color, as they are in freshly-drawn blood.

I am constrained to believe therefore that Kölliker's observations were made chiefly on putrid and pathologic spleens.

I am confirmed in this belief by the author's account of the chemic analyses of spleens as made by his colleague, Scherer, the discoverer of hypoxanthin. Scherer claimed to have discovered in the juice expressed from an ox spleen the following substances: (1) Lactic and acetic acids, and traces of formic and butyric acids; (2) uric acid; (3) hypoxanthin; (4) a large amount of soluble iron, partly, as seems likely, in the form of the lactate and acetate; (5) an iron albuminoid in great abundance; (6) a soluble colorless body, poor in nitrogen, rich in carbon, of a composition resembling that of the biliary acids; (7) coloring matter resembling that of the urine and muscles.

It will be recognized at once that these are mostly common products of decomposition, and of the destructive metabolism of animal tissues. Hence I conclude that both Scherer and Kölliker must have examined partly decomposed spleens. They do not seem to be aware of the extreme rapidity with which spleens decay. This is a fact I have ascertained for myself by personal observation. I have not seen it mentioned by any author. Yet when one considers their natural softness, and the fact that they are principally composed of blood-corpuscles, the most perishable elements in the animal body, it does not seem at all surprising.

At any rate, I am satisfied that there is no general destruction of red blood-corpuscles in healthy animal spleens; at least no more than occurs naturally in other parts of the body, though there is little doubt that all cells wear out and require continual replacement. Hence I regard the whole theory of Kölliker as a pure chimera.

Professor Kölliker was a great man. He was unquestionably the great anatomist of the nineteenth century. He certainly was not a great thinker, and I trust I do no dishonor to his memory in pointing out where I find him to have been mistaken.

BIBLIOGRAPHY.

- ¹ Kölliker: *Mikroskopische Anatomie*, Bd. II, 2 Hälfte, 1 Abtheil., S. 266 ff., Engelmann, Leipzig, 1852.
- ² Beiträge zur Physiologie des gesunden u. kranken Organismus, Jena, 1843.
- ³ Diagnostische u. pathogenetische Untersuchungen, Berlin, 1845, p. 117.
- ⁴ London Medical Gazette, January, 1847, pp. 140-142.
- ⁵ Ueber die Veränderungen welche die Blutkörperchen in der Milz erleiden, *Zeitschr. f. rat. Med.*, vi, 1847.
- ⁶ Kölliker: *Handbuch der Gewebelehre*, Engelmann, Leipzig, 1852.
- ⁷ Robin: Sur l'existence de deux espèces nouvelles d'éléments anatomiques qui se trouvent dans le canal médullaire des os, *Soc. de Biol.*, 1845.
- ⁸ Frey: *The Microscope and Microscopical Technology*. Tr. by Cutter. Wood & Co., New York, 1872.
- ⁹ Harting: *Das Mikroskop*, 3 Bde., Vieweg u. Sohn, Braunschweig, 1866.

PANCREATIC CYST: REPORT OF CASE.¹

BY

M. J. KARPELES, M.D.,
of Philadelphia.

By the term pancreatic cyst, is meant the presence in the organ of collections of fluids, due to a variety of causes. Fitz thinks that many of the reported cysts of the pancreas were circumscribed collections of fluid wholly outside of the organ. The origin of pancreatic cysts has been carefully studied by Dieckhoff, Filger and Lazarus, and as a result of their investigations these cysts may be classified as follows: 1. Retention cysts of pancreatic duct. 2. Proliferation cysts. 3. Retention cysts, due to obstruction of the minor branches of the pancreatic duct, the result of interstitial pancreatitis. The inflammation may be of traumatic origin, or may be an ascending inflammation from the intestines. 4. Cysts that develop by softening in tumors (carcinoma), by the digestion of encapsulated hemorrhage, and by the degeneration of a part of the pancreas in acute pancreatitis. 5. An inflammatory or traumatic exudate may rupture into the lesser peritoneal cavity and simulate a cyst of the pancreas. Such a false cyst

¹ Read before the North Branch of the Philadelphia County Medical Society, December 8, 1904.

has been observed in necrosis of the pancreas without gangrene.

In describing the pancreatic cyst as usually seen, Körte states that it is a spheric or half spheric projection with tense walls, the outline of which is best shown when the patient assumes the erect posture. It may be of any size; cases having been reported in which the sac contained 15 and 20 liters of fluid. The cyst possesses a limited amount of motion, whereas the pancreas is firmly fixed to the posterior walls of the abdomen. Should the cyst develop in the tail of the organ or be pedunculated, its motility will be greater. There have been recorded instances in which a pancreatic cyst suddenly disappeared (presumably due to rupture into the intestine) and then reappeared. Körte further states that a differential diagnosis between pancreatic cyst and a retroperitoneal cyst is unnecessary. It is sufficient for the purpose of operating to know that there is a cyst located posterior to the stomach and transverse colon.

Moynihan¹ believes that occlusion of the duct is the most common cause of pancreatic cyst. In a remarkable case reported by Durante, a cyst resulted from the obstruction of the duct of Wirsung by a round worm. Moynihan further states that these cysts occur most frequently between the ages of 25 and 45; they have been observed in infants of six months. Pancreatic cysts occur with about equal frequency in both sexes; of 121 patients with the disease, operated upon, Körte found that 61 were males, 56 were females, and in 5 the sex was not mentioned.

Gomand² reviews 96 cases, 16 of which were undoubtedly of traumatic origin. Lazarus has demonstrated that cysts arising in the head of the pancreas give rise to more disturbance than those in the tail; that spontaneous cure is rare, that hemorrhage, suppuration, ileus and intestinal perforation do occur; that the cyst contents are usually sterile; and 500 cc. to 600 cc. of fluid may be discharged in 24 hours. He gives the following classification of pancreatic cysts, determined by their position: (1) Gastrohepatic, those cysts lying between the liver and lesser curvature of the stomach. This variety is rare, and usually due to trauma. (2) Subphrenic, with adhesions to the diaphragm and vena cava. (3) Retroventricular, which is less frequent. (4) Gastric colic, which is the most typical, because the natural tendency of the pancreas is toward the omental bursa. This variety lies in the mesocolon. (5) The so-called prevertebral. Cysts of the tail of the pancreas are the commonest forms, and the pedicle may become of sufficient length to permit the cyst to fall into the abdomen. Some of the cysts are true tumors, for example, the cystoma glandulare proliferum. The cyst fluid may contain all three of the pancreatic ferments, the diastatic being the one most commonly found, and the tryptic the least frequent. In the larger percentage of cases the cysts are congenital. Of the other etiologic factors may be mentioned chronic indurative changes, cholelithiasis, arterial sclerosis, alcoholism, syphilis, gastroduodenal catarrh, the acute infectious diseases, and pregnancy. Very rarely the cysts may obstruct the common duct of the liver, causing jaundice and colic. The traumatic cyst may be first made evident by an omental hematoma of varying size immediately following injury, or the development may be delayed over a great length of time. One of the most dangerous complications is rupture and suppuration of the cyst.

Eagleson (Seattle, Wash.) reports the case of a female aged 34, who had been subjected to the following operations: Curetment and trachelorrhaphy, and ten days subsequently a double oophorectomy. When the patient consulted Dr. Eagleson, a diagnosis of renal calculus was made, operation performed, and a healthy kidney found; but through this incision could be palpated a tumor which proved to be of pancreatic origin. An abdominal

incision was made and drainage instituted; the wound entirely healed by the eighteenth day, the patient making an uninterrupted recovery. Pichler reports a case of traumatic pancreatic cyst, with operation and the subsequent development of diabetes. Senn's observation of a few years ago that all pancreatic cysts occur in adults only, is now proved incorrect, as in a collection of 54 cases cited by Hemmeter, 12 occurred previous to the twentieth year. Tilton states that cysts are the most frequent of the pancreatic diseases requiring surgical intervention. In a case reported by Gould the jaundice was transitory, and may have been caused by a duodenal catarrh. Nothnagel refers to the possibility of compression of a ureter by a large tumor, obstructing the flow of urine from the kidney.

Certain changes in the urine deserve mention, particularly the presence of sugar. Fever is often present, and may be due to peritonitis, hemorrhage into or suppuration of the cyst, or interference with the action of the stomach.

General emaciation is one of the most frequent symptoms. Küster reported a case in which there occurred a loss of weight of 33 pounds in three months. Of the objective symptoms the physical condition and a demonstrable tumor are especially important. When a small cyst is present, the abdomen is usually flat or retracted; as a rule though, it is more or less distended, the distention being limited to one region. Eventually the entire abdomen becomes involved, according to the seat and size of the tumor. In the largest percentage of cases, the distention takes place in the epigastrium. The left half of the epigastrium, and the left hypochondrium are more frequently the seat of the tumor than the right half of the body, because the tail and body of the pancreas are more frequently the seat of the development of the cyst than is the head.

In a chemic analysis of pancreatic cystic fluid furnished by Tiffany it was found sterile; culture attempts on agar, peptone, and gelatin were negative. The specific gravity was 1.028, reaction neutral; total quantity 980 cc. The fluid was of a chocolate color, and on standing a light-gray deposit separated from the dark, reddish-gray liquid.

Concerning the diagnosis of pancreatic cyst, Hemmeter, quoting from Hacher and Hersche, considers the following factors all-important; the origin of the tumor in the superior portion of the abdominal cavity, colicky pains in the epigastrium and left hypochondrium, various intense dyspeptic symptoms and characteristic state of stools.

In obstruction to the outflow of pancreatic juice undigested meat fibers may be found in the feces after a meat diet. Salol, when administered in large doses, should be split into its components—carbolic acid and salicin—by the pancreatic juice, and their absence in the urine is an accurate test.

Rate of Growth.—Some cysts may grow as large as a man's head within two weeks; others may exhibit very slow growth. Riedel's case required 9 years for development, Salzer's case 15 years, and Martin's 30 years before the tumor assumed large dimensions.

Capacity.—Riedel reports a case in which a cyst held 10 liters, Bozsmán 11.5 liters, and Park 14 liters.

Treatment.—This is exclusively surgical, and one of two methods may be employed, incision followed by drainage or extirpation. The choice of the site of the incision depends entirely upon the situation of the tumor. In the majority of the cases reported the incision was made in the median line, more rarely over the most prominent portion of the tumor. Cumston reports a case in which complete recovery followed drainage. Senn considered that tapping a pancreatic cyst was harmless, other observers, however, regard the escape of cystic fluid into the peritoneal cavity productive of fat necrosis or collapse. Death occurred in one instance subsequent to tapping.

¹ Diseases of Pancreas.

² Medical Record, May 14, 1904.

Van Buren (Sioux City) reports two cases of pancreatic cyst, one in which operation was done by incision and drainage, the other by excision; the former patient made a much smoother and more rapid recovery than the latter. In the first case there was an accumulation in the walls of the cyst of a peculiar sticky, grayish, ash-like deposit, while the lining membrane of the second tumor was clean and smooth. In neither case was the sallow dry skin said to be characteristic of cysts of the pancreas, present. The case which I have the privilege of reporting is as follows:

J. B., male, aged 68, married, retired manufacturer. Weight 160 pounds, height 5 feet 6 inches.

Family History.—Father and mother are dead, the former at the age of 70. He had three brothers; two are living, aged 66 and 73, respectively. The third brother died at the age of 61, from cerebral apoplexy. There is no tuberculous nor malignant disease in the family. When in normal health he was a robust man, of ruddy complexion, and very active in his movements. He was born in Yorkshire, England, which has a foggy and damp climate. At the age of 21 he came to the United States, and with the exception of a few short trips has always resided in Philadelphia. While on a visit to New Orleans, 19 years ago, he contracted malarial fever, following which, at varying intervals, he noticed crops of eruption, during the existence of which he always felt better. There is no history of any other illness. There was no evidence, subjective or objective, to believe that this eruption was due to specific disease. He was temperate in the use of alcohol and tobacco.

He first came under my care July 4, 1904, complaining of general malaise, which had existed for several weeks. Stress was laid upon an indescribable feeling in the left side, as though he had been "sprained." He had been in bed four days previous to my first visit. The family had noticed a gradual decline for several months. The principal symptoms noted were marked nausea, with occasional vomiting of a dark green, thin, watery fluid in large quantities, without perceptible odor, and in an amount out of proportion to that ingested; general pruritus, especially of the hands; dyspnea on least exertion, profound weakness, epistaxis, colicky pains, frequent attacks of diarrhea, and insomnia.

Examination.—The patient was in bed, in a recumbent posture, with the head and body slightly raised, in which position he felt the most comfortable; temperature 100° F.; the face was slightly flushed, and the expression one of discomfort and exhaustion; no arcus senilis, conjunctiva tinged; the skin slightly yellow, the discoloration not being very pronounced; there were no motor disorders; the arterial system showed some weakness, but no cardiac lesion. The digestive symptoms were the most prominent, dry lips, furred tongue, anorexia, epigastric discomfort, at times amounting to pain; this was increased on taking nourishment; nausea and vomiting, as mentioned. The diarrhea was always aggravated on taking nourishment, was very difficult to control, at times there would be six movements in an hour. The stools were thin, clay colored, had a foul odor, and were mostly of liquid consistency, with few flocculi; the stools were submitted to a careful analysis, and found free from fat.

The urine showed a low specific gravity, trace of albumin, and the presence of bile.

Physical Examination of Abdomen.—A tender area was elicited at the costal margin in the mammary line. In the course of ten days it was possible to outline in this area "a mass" the size of an egg. This gradually enlarged until it included the left half of the epigastrium, the left hypochondrium, the umbilical and left lumbar regions. It required about three weeks for this growth on the left side to become discernible. The tumor was early outlined with ink, and its growth could be watched from day to day. It was distinctly fluctuant, and varied according to the change of position of the patient. Measurements were taken to watch further the extent of the growth, but these have unfortunately been mislaid. From the time I was called in until he died, a period of four and a half weeks, there was marked loss of weight and exhaustion. The gastrointestinal symptoms proved more rebellious, the jaundice became more marked, the insomnia demanded hypnotics, and the general discomfort increased. Epistaxis on several occasions became so alarming that it was necessary to pack the nares with a strip of gauze saturated with adrenalin solution before it could be controlled.

From the very beginning I was impressed with the malignancy of the case; the patient appeared hopelessly doomed. However, he tried to be cheerful, insisting that he had only sprained his side, and looked anxiously forward to a speedy recovery.

Doctors David Riesman and Richard C. Deaver, who saw the patient with me, concurred in my diagnosis of pancreatic cyst, and agreed that surgical intervention would be futile in view of the jaundice, epistaxis and marked exhaustion.

Only a partial necropsy was permitted. A large cyst was found originating in the pancreas and occupying the area previously outlined. It contained about two liters of a grayish-colored fluid with little consistency and no blood. The cyst

wall was thin, and the inner lining smooth. As it is impossible to tell on macroscopic examination where a cyst originates, and as this specimen could not be submitted to a microscopist it is impossible to state definitely its point of origin.

The case has been cited because of the comparative rarity of pancreatic cysts, and from the standpoint of diagnosis and surgical treatment.

THE MCGRAW ELASTIC LIGATURE FOR GASTROENTEROSTOMY SECONDARY TO MURPHY BUT- TON: OPERATION WITH DESCRIPTION OF TECHNIC.

BY

R. J. CHRISTIE, JR., M.D.,
of Quincy, Ill.

Surgeon to Blessing Hospital.

The establishment of the procedure of gastroenterostomy, along with that of anastomosis of other hollow viscera, upon thoroughly tried and accepted principles, is a matter of recent history and far-reaching application. Up to the time of the studies and publications of Senn, which should not be disparaged on account of earlier theoretic discussions of identical principles by Europeans, the establishment of an artificial route between the stomach and the subjacent *prima viæ* had scarcely been contemplated. To be sure, we do not fail to recognize the prior efforts, and sometimes successes, of the heroic von Esmarch and Billroth¹ at pylorotomy, nor of Wolfier who actually did a gastroenterostomy in 1881; these, with others equally as illustrious, were the pioneers, and their work will forever stand as a monument to their fame. But we relate and contemplate with unmeasured pride the part taken by American ingenuity in the development of the measures now permanently established.

To mention the names of some of these cannot fail to awake a thrill of enthusiasm in the breasts of American doctors. Senn, Brokaw, Abbott, Abbe, Murphy, Reder, Halsted, Connell and McGraw, named somewhat in their chronologic order, not to mention a host of others, have contributed most to the history of visceral anastomosis, which is too recent to justify extensive exploitation. I believe it cannot be questioned that of all the operations of visceral anastomosis, gastroenterostomy offers relief to, by far the larger number of sufferers. It is the least difficult to perform and is applicable to such a large group of cases, that I am sure it will be employed oftener upon other viscera.

However, it is to be feared that as the operation is so easy, its aspects so dramatic, and its results in selected cases so brilliant, that conservatism may be violated, and it may for a season become a fad. It may be thought that I am going to claim an extensive experience and brilliant results in this line, but I have had only one case. However, I have followed the inspiring work of the Mayos and others with much enthusiasm, but I believe I am safe from the danger of the mania.

Gastroenterostomy is advised by the very best surgical authority, Mayo, Rogers, Noble, Moynihan, Czerny, Mikulicz, and Kocher, for the following conditions: Chronic gastric dilation, when not of too great degree; gastroparesis, when dilation is a prominent factor; chronic ulceration of the stomach; gastric ulcer with hematemesis; duodenal ulcer; cirrhosis of stomach; stenosis of pylorus from whatever cause; irregular contractures; and inoperable carcinoma wherever located; in fact, any condition resulting in chronic catarrh (a misnomer which should be abandoned) not dependent on hepatic disease, appendiceal irritation, nor on uterine derangement, and not amenable to other therapeutic measures, can be cured or greatly relieved by gastroenterostomy.

¹Surgical Technic, von Esmarch, 1881.

The mortality for gastroenterostomy should not, in selected cases, exceed that for uncomplicated appendectomy, ovariectomy, or gallstone operations. Moynihan, of London, in a series of 160 cases for gastric ulcer, had a mortality of 2%. Mayo, in a greater number of unclassified cases has a mortality slightly larger. Of all the operations described, that of posterior retrocolic gastroduodenostomy or gastrojejunostomy is preferable. A matter of the greatest importance in the technic is the selection and choice of method of suture. According to American surgeons, in point of time and facility of application, considerations of the greatest moment in the majority of cases, the Murphy button technic easily ranks first, next the McGraw process, and then the Connell method.

Now, suppose for any reason that the button operation is done, the patient will come through the operation nicely, the first few days will pass without great distress and in about 12 to 20 days the button will come along, and you can send the patient home with the assurance of progress and final complete restoration to health. However, it sometimes happens that the patient returns in about one to three months, complaining that the old symptoms are recurring; there is intolerance of food and eructations, gastrorrhea and pain. A moment's reflection and analysis will clear the mystery perfectly; the patient has recovered too rapidly. The dilated and asthenic muscular organ has begun to regain its tone and vigor, and is again assuming its natural state and function. While this is going on the little round buttonhole is contracting also, and its contraction begun as a muscular contraction ends in a permanent cicatricial one, its usefulness is at an end, and the inevitable result is a repetition of the original train of symptoms.

Mrs. L. was referred to me by Dr. McNutt, of Monroe City, Mo. The patient, after a most exhausting attendance of two years upon a paralytic husband, became a sufferer with gastric ulceration. After suffering some months with pain, fever, and anorexia, her condition became such that she could retain but small quantities of liquid food. This condition continued for some months, when emaciation became extreme and her vitality so low that life was despaired of.

She accepted the advice and recommendation of her physician, and was brought to Blessing Hospital for treatment.

Following the technic of Mayo, and assisted by Drs. McNutt, Ashton, Wells, and Williams, a gastroduodenostomy was performed, the Murphy button of large size being used.

The patient reacted promptly from the operation, vomited but little, took liquid nourishment on the third day, bowels moved on the fourth day, and she gained steadily from this time. The button was expelled on the twelfth day, abdominal sutures were removed the same day, and she returned to her home in three and a half weeks. We received frequent satisfactory reports until the fifth week, when her condition rapidly retrogressed. At the end of another week her condition was as distressing as before. She returned immediately to the hospital for a second operation.

This was done with the assistance of Drs. McNutt, Ashton, Vasen, and Montgomery. Upon exploration, the anastomotic line between the stomach and intestine was found perfect, firm union having been secured. Some adhesions were present between the adjacent peritoneal surfaces, but no extraneous adventitious constrictions. The buttonhole was patulous, but contracted to the size of a quill.

It had been previously decided that in the event of the enlarging of the opening being required, the McGraw method would be employed. Now, the McGraw technic as a primary procedure offers few difficulties, but one can readily see how trying and perplexing it would be to pass the elastic cord from a point two inches distant from the buttonhole, into the stomach, then through the hole, then back through the lumen of the gut, and out at a point opposite to the point of entrance into the stomach, where it must be brought for knotting. These difficulties had all been anticipated and considered. Should the trouble prove as insurmountable as imagined, we decided to use two, or even three ligatures, introduced in such a way as to embrace the required portions of viscera in sections and interlocked with each other as the links of a chain, as this would simplify the matter and be just as effective. It was found necessary to resort to this device. Two ligatures were required, and they were placed in position with amazing facility.

In view of this circumstance I would say that the McGraw ligature in two or more sections or links (which, so far as I am aware, was original in this case), sec-

ondary to the Murphy button for gastroenterostomy, should be performed as follows:

Open the abdomen, either to the right or left, or diagonally through the original line of incision; retract the great omentum if possible, if not, ligate around and tear through it at a point immediately above the anastomosis; with the greatest care release the peritoneal adhesions, search for the point of anastomosis by following the gut forward or backward, bring up through the abdominal opening the stomach and gut, pack away the surrounding peritoneal investitures, select for the first ligature a point on the stomach wall in the line chosen for the new opening three-quarters of an inch from the buttonhole. Now pass the medium-sized McGraw ligature through the stomach wall into its cavity, then through the buttonhole into the lumen of the gut, out through the gut and at a point opposite its entrance place in the stomach. Leave it unknotted for the present. At a point three-quarters of an inch from the entrance point of the first ligature and in the line of the intended new opening pass the second ligature, bringing it out in the same line with and an eighth of an inch nearer the buttonhole into the gut and out opposite its starting point.

This second ligature must be passed in such a way that it will link with the first in the stomach, so that when they are drawn and tied the line of traction will be from the distal extremities, thus insuring its gradual cutting toward the center and eventually freeing itself.

The ligatures being tied, the second one last, it only remains to close in the line of continuous peritoneal sutures around the whole field, replace the structures to their natural position, and close the abdomen.

GUNSHOT WOUNDS AND THEIR TREATMENT.¹

BY

JOHN R. COOK, M.D.,

of Fairmount, W. Va.

It is a hard question to decide as to what constitutes dangerous and nondangerous wounds, operative and nonoperative cases, whether to cut and search for the missile, or leave it to become encysted in the tissues. Every bullet carries with it a certain amount of infection, but in some instances the tract drains itself and the process of healing goes on, the bullet becoming encysted or working its way out by sloughing; the patient finally recovering through nature's own effort to throw off disease and repair dissolution. It is as yet not quite clear to me whether some patients have a greater immunity to infection than others; or whether a foreign body causing a wound happens at some time to be covered with a streptococcus infection; or whether the wound after having been made, is contaminated with such poison. We know that a puncture, laceration, or otherwise mutilated part, if well cleansed and cared for, is not liable to become infected. The bullet and shot wounds sometimes produce but little harm when they do not penetrate the cranial, chest, and abdominal cavities. In a wound of the leg, arm, or body, if satisfied that it is only a flesh wound, and if we cannot locate the bullet without opening up an extensive area of tissue, the röntgen ray should be used to facilitate its immediate location. However, if one is not in a position to apply this method, it is not bad surgery to wash out the tract, and await developments, for more harm may be done by opening up a larger surface for infection. I have had considerable opportunity for treating pick wounds among the miners, and my experience has been that I would hardly have time to reach a patient before the wound was saturated with some country-store liniment, or a wad of half-chewed tobacco would be applied, which was considered just as good as the former. It therefore became my invariable rule to cleanse the part thoroughly with hot mercuric chlorid solution, then elevate the part, keeping constantly on the wound flaxseed poultices mixed up with 1 to 1,000 mercuric chlorid solution. With this method the redness, heat, pain, and swelling would always subside rapidly; the whole principle being simply a proper regard for cleanliness and drainage. However, I have seen three cases of

¹ Paper read before the State Medical Association, at Fairmount, W. Va., June, 1904.

tetanus which occurred July 4 or about that time, from wounds received while playing with toy guns.

Since the publication of my last paper on "Operations on the Intestines,"¹ in which I laid special stress on drainage of gunshot wounds and other injuries of the abdominal cavity, I have had a number of interesting cases that demonstrate its paramount importance. In one case a man was shot in the abdomen with a 22-caliber bullet from a rifle. I feared to find an opening in the bowel, and the odds were entirely against me in making my futile search under most unfavorable surroundings at midnight. I was almost strangled by a fit of coughing, produced by the administration of chloroform in the presence of gas and burning lamps. I have ever since felt that my patient's life should have been saved.

My first operation of gastroenterostomy was performed on a dog two years ago. By mistake I left a sponge in the cavity and the dog died on the third day. I exhibited the specimen of the suturing to our county medical society. My next operation was on a man, who came to me three months ago, complaining of extreme pain at intervals in the region of the gallbladder. He vomited frequently and exhibited many symptoms of gallstone. An exploratory operation revealed a benign thickening and stenosis of the pylorus, the gallbladder being free from disease. Hence, my gallstone operation was converted quickly into a posterior gastroenterostomy, of Mikulicz. I instituted drainage in this case because I was sure that his chances would be better. He made a splendid recovery, and is now perfectly well.

I have now in the hospital two other gastroenterostomy cases; one of these patients was operated upon three weeks ago, the other ten days ago. Both were suffering from carcinoma of the stomach, which had almost completely closed the pyloric orifice. They were almost starved, and it was astonishing how, immediately, comfort was afforded by this operation. In the second patient the stomach was involved to such an extent that I could hardly find enough sound tissue way up in the cardiac end to make my attachment. This patient is now sitting up and is ready to go home. While we cannot hope to cure these patients, we have a positive means of affording relief and prolonging life. The extreme debility present in these cases and a possibility of infection caused me to leave in a small wick for drainage. Had I not done so, I could not have had such uniform results.

Some time ago a physician sent me by request a synopsis, giving the details of the injury of Mr. Goebel, of Kentucky:

This patient had received a gunshot wound of the chest, lived five days, and then succumbed to traumatic pneumonia and sepsis. At the autopsy it was found that a plug of his coat and other clothing was lodged in his lung, which must have been a fertile soil for, and source of very dangerous infection. The consequence was that, although the wound was kept open and the patient had the advantage of every modern means of treatment, death resulted.

It is my belief that the day is near at hand when such disastrous consequences will be largely avoided, for with the continued progress in surgery we will soon operate upon or explore injuries of the chest as readily as we do those of the abdominal cavity.

All gunshot wounds of the belly are operable if the patient has any pulse at all. If in doubt as to whether the bullet penetrated the belly wall or not, it is always better to open the abdomen. I would not risk losing my patient through being too conservative.

About six weeks ago a young colored woman was brought to the hospital; one bullet had penetrated her hand, one her arm, and one entered just below the level of the ensiform cartilage and two inches to the left, coming out on the back, close to the posterior crest of the ilium, and there was also present a contusion of the back on the right side. The patient was severely shocked. The bullet wound ranged downward, and on probing I could not say positively whether it did or did not

enter the abdominal cavity. One reason that led me to believe it did was her extreme shock. I found the belly full of blood, searched rapidly for any perforation of the viscera, mopping the blood out as I went. I found no opening in the intestines or stomach, the blood seeming to come from the region of the liver. Thrusting my hand under this organ, it slid into a large rent, which extended almost through its thickest portion. This injury had evidently been produced by a kick. Although very difficult to do, I stitched this up and stopped the hemorrhage completely, but my patient died in a half hour. The bullet had not entered the abdominal cavity at all, and of itself would not have been a fatal wound, still the operation was justifiable.

It does not matter where the bullet enters the abdominal cavity, the proper point for opening the abdomen is in the median line, because of the better opportunity afforded for the rapid execution of the work. In the case of President McKinley, who, notwithstanding the fact that he received prompt attention, and every careful means of supporting his strength, the bullet not being found, the openings in the stomach walls were closed, the abdominal incision was also closed, and the result was the usual one following gunshot wounds of the belly that are not drained. In all justice to the operator on William McKinley, it is a fact that the prominence of his patient, his treatment and technic and result, have put the surgical world to thinking, and have wrought good to many who are coming in contact constantly with like injuries. In fact, in all suturing of the stomach and intestines, and any of the abdominal viscera, we must feel safer when we are sure that if the suturing should leak, our patient has yet another chance for his life, if drainage is used.

The most interesting of my cases was that of Mrs. B., who, on January 20, 1904, was brought to the hospital at 11 p.m. One hour previously she received a 38-caliber bullet wound, the bullet entering to the left of the median line and two inches below the ensiform cartilage, lodging just beneath the skin on the back, opposite the left kidney. On opening the abdomen, I found profuse hemorrhage from the liver, the left lobe of which had been penetrated by the bullet. Two holes were in the stomach and the left kidney was injured. I sutured the liver both anteriorly and posteriorly with catgut, and closed first, the anterior opening of the stomach wall with two rows of black silk sutures. The stomach was then pulled up, but before I could find the posterior opening its entire contents emptied into the abdominal cavity. The two rows of suturing were alike applied to this opening, except that I had to use a curved needle and work through a very small and deep opening to reach it. I then mopped out everything as clean as I could, flushed the cavity with several gallons of normal salt solution, placed in several wicks of gauze, both above and below the stomach, extending down to the kidney of the left side, which was injured where it came in contact with some drainage gauze, pushed clear through to the outside on the back. In this way I got a complete through-and-through drainage. My patient, although very weak, improved nicely, had a copious discharge of bile for three weeks, after which time the wound closed entirely. She went home the thirty-fifth day after the injury. This patient was nourished entirely by rectal feeding for 10 days, after which time she began to take liquid food, and in 18 days was eating solid food. I removed the drains one at a time, beginning on the sixth day, and removing the last wick on the ninth day.

Number of Medical Students in Austria.—According to the half-yearly report of the Royal and Imperial Ministry for Education, there were at the University of Vienna 1,490 male and 37 female matriculated students of medicine for the term of 1904-05; in Innsbruck, 160 males; in Graz, which is the second German university, 300 males and 5 females; in Prague, 210 males and 7 females; in Lemberg, 98 males and 10 females; in Cracow, 126 males and 36 females; and in the Czech University, in Prague, 386 male and 15 female students, making a total of 2,770 males and 110 females. This represents a falling off of 7% when compared with the last school term.

Smallpox in Vienna.—A case of smallpox has been reported to the sanitary authorities of Vienna. Since 1870, when compulsory vaccination was introduced into the Austrian empire, the disease has been so rare that the younger generation of medical men has had no opportunity of seeing a case; only officers of the Army Medical Corps seeing a case occasionally in the southern provinces. The disease was contracted in France, and the patient died after seven days' illness. Stringent prophylactic measures were at once adopted with the result that there was no spread of the disease. During the five years from 1899 to 1904 there were not more than 92 cases in the whole empire, with 41 fatal results, and these were brought into the country from abroad. During the period from 1865 to 1870 there were 5,020 cases, with a mortality of 22%.

¹ Transactions of the West Virginia State Medical Association.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 6, 1905. [Vol. XLIV, No. 18.]

1. The Curability of Early Paresis. CHARLES L. DANA.
2. Pneumatocele of the Cranium. L. L. MCARTHUR.
3. The Protection of the Röntgen-ray Operator. CHARLES LESTER LEONARD.
4. The Significance of Tuberculous Deposits in the Tonsils. GEORGE B. WOOD.
5. The Etiology of Eyestrain from a Phylogenetic and Ontogenetic Standpoint. AUGUSTUS GROTE FOHLMAN.
6. Some Aspects of Science and Fallacy as They Relate to Medicine. F. J. RUNYON.
7. The Röntgen-ray Treatment of Malignant Growths. ENNION G. WILLIAMS.
8. The Fear of Death: Morbid Manifestations of the Instinct. J. LEONARD CORNING.
9. Rheumatism and Other Affections of the Joints. CHARLES R. GRANDY.

1.—The Curability of Early Paresis.—C. L. Dana suggests that paresis, like tabes—with which it is closely related as a parasyphilitic disorder—may be arrested in its earlier stages. By "arrested" he does not mean the wellknown remissions of the disease; in these, he says, there still remains a certain amount of paretic mental impairment, but he rather means a complete disappearance of all evidence of degenerative changes in the brain. Treatment generally consists in complete change of life, antisyphilitic medication, preferably hypodermic hydrotherapy, and attention to the general nutrition. There is no *a priori* reason why paresis in its early stages may not be sometimes cured, and he holds that the cases he reports point that way and indicate the importance of an early diagnosis and treatment of this disorder which has been heretofore considered incurable.

2.—See *American Medicine*, Vol. IX, No. 3, p. 95.

3.—Protection from Röntgen-ray Injuries.—C. L. Leonard calls attention to the serious risk that röntgen-ray operators undergo, especially if they follow the practice advised of testing the qualities of the rays on their hands with the fluorescent screen. The only practical method is to limit their radiated field by covering the Crookes tube. For this purpose he uses a pasteboard box a little wider than the diameter of the tube and covered with röntgen-ray lead foil a little heavier than the ordinary tea lead. This extends two inches below the bottom of the box, and can be adjusted so as to limit the field to any extent required. It is not necessary to cover the anode end, and the box is held on a bracket over the portion of the body to be treated; if a very small field is required, a local shield may also be employed. For the dermatitis of the operator's hands, he advises twice daily soaking in very warm water and scrubbing with Eichhoff's superfatted resorcin soap, followed by inunction of lanolin containing half an ounce of boric acid and a dram of resorcin to the ounce. For the acute erythema of röntgen-ray treatment, he employs zinc stearate powder with 10% ichthyol, which he thinks acts as a prophylactic against severe burns. This should not be confused with zinc stearate ointment, which may do harm.

4.—See *American Medicine*, Vol. VII, No. 24, p. 927.

5.—Eyestrain.—A. G. Pohlman takes up the subject of the etiology of eyestrain from a phylogenetic point of view, and assumes that the abnormalities of human vision are due to the change from the aboriginal to a domesticated condition. In this he includes, however, the changes from a horizontal position of the spinal axis to the upright position, and the more anterior and parallel position of the eyes, etc., which are shared by the higher simians with mankind. In man, however, there is a still further extension of the process, and there is developed a power of sustained convergence for near work. The divergent tendency exists in all animals, as is evident during sleep and after death. The special headache of sightseers is not due to strain on the elevator muscle, but to that on the internal rectus to overcome the greater divergence caused by looking upward. The tendency of civilized man is toward myopia, and the failure of sight in old age is a reversion toward the animal normal.

6.—Suggestion.—F. J. Runyon calls attention to the need of a proper mental attitude toward the power of suggestion, which, as he says, "runs like a thread through every method of treatment, wise or otherwise." He also notes the dangers of

self-deception in medicine and of drawing deductions from imperfect data or without due power of discrimination. While suggestion is often a power for good in the hands of the physician, it is one that may be abused and result in great and lasting harm. It is the main instrument of the pretenders; he reviews some of the noted instances of their exploitation of human credulity. The point emphasized is that the true practice of medicine is the intelligent application of common-sense principles and forces.

7.—Röntgen-ray Treatment of Cancer.—E. G. Williams states that the elements of the tissues are affected according to their vitality. Dead organic matter is unaffected, and the more active the growth the greater the effect. Next to this is the accessibility of the tissues to the rays. Hence the better results with superficial or skin cancers. That moderate deep tissues can be affected is shown by experience, and the way to reach them without producing necrosis of overlying tissues is to lengthen the distance of the tube and the time of exposure. For deep growths, radical surgical measures should be recommended, as the patient should be given the benefit of the probability rather than the possibility of good results.

8.—The Fear of Death.—J. Leonard Corning discusses the morbid exaggeration of the fear of death, which he considers due to a neuropathic basis inherited or acquired. In animals the fear of death is dependent on its imminence; in man it is sometimes a permanent obsession, but it is even then usually absent in the actual process of dying, the dulling of consciousness at that time, and other dominating physical conditions accounting for this fact. He reports a case illustrating what he considers the essential psychology of the morbid dread of death, in this case even exciting suicidal impulses—death to escape death. In treating this condition he would suggest the thought, that sleep is a sort of death, and unconsciousness, whether lasting or not, a boon. His treatment was to prevent sleep until it was sought imperatively, and was based on the theory of proving experientially that the temporary unconsciousness of sleep is the remedy for curable shortcomings and convincing the reason that the more lasting unconsciousness of death is only the supreme antidote of the irremediable breakdown of the organism, and therefore supremely benevolent in its essential nature.

Boston Medical and Surgical Journal.

May 4, 1905. [Vol. CLII, No. 18.]

1. Certain Aspects of the Differential Diagnosis between Epilepsy and Hysteria. JAMES J. PUTNAM and GEORGE A. WATERMAN.
2. Subacute Perforation of the Stomach with Report of Three Cases. F. B. LUND.
3. Senile Epilepsy. G. KIRBY COLLIER.
4. Hemorrhagic Pericarditis. F. BRYANT.

1.—Epilepsy and Hysteria.—J. J. Putnam and G. A. Waterman record a number of illustrative cases, showing the difficulty in differentiating these conditions. There is no pathognomonic sign. Hypnosis may sometimes be necessary for diagnosis, but a prolonged series of observations by a trained observer may be sufficient, and in treatment it has sometimes been possible to counteract the "dissociated" groups of mental states and restore to the patient's waking consciousness control over his acts. The report of cures of epilepsy by hypnosis is based on a mistaken diagnosis. In some cases of epilepsy, however, there are alterations of consciousness, such as we sometimes find in hysteric states. No one has studied sufficiently the subconscious memories of epileptics. The post-paroxysmal stage is probably analogous to a dream state. Failure of the bromid treatment does not justify a diagnosis of hysteria. It is characteristic of the epilepsy of childhood that attacks previously occurring in masses may remain entirely in abeyance, therefore a sudden cessation of seizures does not necessarily point to hysteria, and, in massed attacks the bromid treatment is eminently disappointing. [H.M.]

2.—Subacute Perforation of the Stomach.—F. B. Lund states that the symptoms are similar to those in acute perforation, except that they are less violent, and are not followed by collapse nor general peritonitis. The location of pain and tenderness varies with the location of the ulcer. The treatment

should be, if possible, posterior gastroenterostomy without breaking up the protective adhesions. [H.M.]

3.—Senile Epilepsy.—G. K. Collier reports five cases in which the onset occurred between the forty-sixth and sixty-fifth years. Senility has wide extremes, but as a rule it does not begin till the sixtieth or sixty-fifth year. Its symptoms appear earlier in those hereditarily disposed to it or to systemic disorders, such as tuberculosis, rheumatism, etc. Cannot epilepsy be caused by senile degenerations? Many cases can be traced to alcohol, syphilis, or traumatism, in which the same fibroid changes have occurred. The seizures are of the grand mal type. [H.M.]

4.—Hemorrhagic Pericarditis.—F. Bryant finds recorded only 12 patients which have recovered. Paracentesis has been done less than 100 times. These 12 cases prove that bacteria, other than tubercle bacillus, are capable of causing a hemorrhagic fluid. In the writer's case, the effusion appeared in an acute disease, pleuropneumonia, which was neither preceded nor followed by a single sign of tuberculosis. [H.M.]

Medical Record.

May 6, 1905. [Vol. 67, No. 18.]

1. System and Expedition in Office Practice: Office Plans and Details. ROBERT L. DICKINSON.
2. The Present Limitations of Serum Therapy in the Treatment of the Infectious Diseases. HENRY W. BERG.
3. The Present Status of Röntgen-ray Therapy. RUSSELL H. BOGGS.
4. Rectal Abscess Containing Gonococci without Any Accompanying Gonorrhea. F. R. STURGIS.
5. The Cause of Cerebrospinal Meningitis. STEPHEN J. MAHER.
6. Cactus Grandiflorus. FINLEY ELLINGWOOD.

1.—System and Expedition in Office Practice: Office Plans and Details.—R. L. Dickinson discusses numerous methods by means of which it is possible for the physician to economize time in office work and so increase his capacity for work. Expedition may be effected in several ways, such as by well-planned quarters, by completeness of outfit, by appointments and by selection among waiting patients, in history taking, and by proper assistance. All of these topics are discussed at length, especial attention being devoted to a consideration of the manner in which the available space of an ordinary city house may best be utilized for office purposes. A large number of plans are reproduced, showing what may be done under different conditions, and many practical hints in regard to methods of securing sound-proof doors and partitions, economizing space, arranging sterilizers, etc., are given. The most convenient methods of illumination and numerous details facilitating office treatment are also described, for all of which reference must be made to the original.

2.—Limitations of Serum Therapy in Infectious Diseases.—H. W. Berg reviews the principles underlying the production of antitoxic and antibacterial serums and their therapeutic application. The bacteria concerned in the production of the specific infectious disease fall into three classes: 1. Those which, like the bacilli of diphtheria and of tetanus, produce a virulent, real toxin, which is set free in the culture mediums. 2. Those bacteria which secrete but little or no free toxin, but do contain a powerful endotoxin, which is partly liberated only on the death and disorganization of the bacterial cells; good examples of this class are the pneumococcus, typhoid bacillus, the streptococci, etc. 3. Those bacteria that produce no free toxins nor have in the bacterial cells endotoxins of any power, but in which the cell plasma contains other poisons in addition to the protein poisons common to all bacterial cells. The most important member of this group is the tubercle bacillus. Against the first group, the antitoxic serums are available, but their success depends largely on the interval of time that has elapsed since the infection began, for the antitoxin can bind only such toxin as has not yet had time to enter into combination with the body cells. In tetanus, the poison becomes fixed in the central nervous system so rapidly that the serum has little chance for effect. The difficulty with the antibacterial serums is that the body's supply of alexin is very small, so that theoretically the injection of the serum should be accompanied by an additional dose of fresh normal animal serum to supply this deficiency; an impracticable procedure. The attempts to treat one disease by means of the antiserum of

another, by injecting diphtheria antitoxin in pneumonia and cerebrospinal meningitis, is repugnant to the principles of scientific serum therapy, and tends to discredit its principles.

3.—The Present Status of Röntgen-ray Therapy.—R. H. Boggs says: 1. That the wide difference of opinion as to the value of the rays is largely due to the manner in which they are applied. 2. That if the best interests of our patients are to be considered, the rays must be given a place as a therapeutic agent. 3. That injury to the operators from the rays during the past two years has been due to thoughtlessness or lack of familiarity with what is going on in the röntgen-ray world. 4. That in applying the rays it is essential to know the quality as well as the quantity of the rays absorbed, and that this must be varied to suit each individual case. 5. That unless the operator has had a wide experience in the treatment of carcinoma, he should always consult a surgeon in each case, as it is certainly by the combination of surgery and röntgen ray that the best results are to be obtained.

4.—Rectal Abscess Containing Gonococci without Accompanying Gonorrhea.—F. R. Sturgis reports the case of a man who had gonorrhea six and a half years previously, and three years later developed an abscess of the epididymis associated with a perineal abscess which apparently came on spontaneously. When seen by the author three and a half years later, he was suffering from a periproctitic abscess discharging pus in which two examinations revealed diplococci presenting all the morphologic attributes of the gonococcus.

5.—The Cause of Cerebrospinal Meningitis.—S. J. Maher describes cultural and animal experiments undertaken with pus from the spinal canal of an adult sick with cerebrospinal meningitis. The results lead the author to say that his findings seem to show that the diplococcus of Weichselbaum is only one phase in the life cycle of an organism, which at times is larger and rod-shaped, at others small and of the shape of the pneumonia diplococcus, and probably at others of yeast shape.

New York Medical Journal.

April 29, 1905. [Vol. LXXXI, No. 17.]

1. Nephropexy, Pro and Con. A. ERNEST GALLANT.
2. Gallstone Disease: Remote Effects and Treatment. SAMUEL P. GERHARD.
3. Contribution to the Plastic Surgery of the Urethra. G. FRANK LYDSTON.
4. Inflammation of the Glands of Bartholin. (Continued.) CHARLES C. MILLER.
5. The Problem of Exterminating Mosquitos: Discovery of Inaccessible Breeding Places. H. A. EBERLE.
6. Primary Epithelioma of the Uvula, with Report of a Case Where Recurrence Took Place after Operation for Removal. HARMON SMITH.
7. Infection through the Tonsils. WILLIS S. ANDERSON.
8. Modern Motherhood. THERESA BANNAN.

1.—Nephropexy, Pro and Con.—A. E. Gallant says that as the evidences of gastrointestinal displacement and disorders are noted for their chronicity and rebelliousness to treatment, he deems that: 1. Nephropexy is justifiable on a displaced kidney after operation thereon, involving it or its pelvis or ureter, or to relieve hydronephrosis or hematuria from a nonreplaceable kidney. 2. Hepatopexy, splenectomy, gastroplication, gastrojejunostomy, and suture of the recti may be occasionally indicated. 3. The main obstacle to nephropexy in women lies in the greater obliquity of the lower ribs, which prevents suturing the kidney high enough to avoid harmful compression by the ordinary corset and waistbands. 4. Nephropexy is unjustifiable when, in order to place the sutures, it is necessary to drag the kidney farther down. 5. Nephropexy may relieve the symptoms due to kidney mobility, but in order to overcome those caused by the general ptoses it has been necessary to adopt a new principle, viz: (a) Gravity replacement by the semiopisthotonos posture; (b) support of the replaced viscera by a corset made to order from measurements taken while the woman is lying down, laced with two strings, inserted from above down, put on while in the inclined dorsal posture, and fastened in front from below upward. By this method the viscera cannot prolapse while the corset is worn, and with this support nephropexy for replaceable kidney, *per se*, is but rarely indicated. Multiple operations can be avoided, and the patient be placed under curable conditions. [C.A.O.]

2.—Gallstone Disease.—S. P. Gerhard says that considering the great number of gallstones that remain quiet or are passed without any discomfort or dangerous symptoms, it would not be wise to worry too much about the remote effects, but to watch for them so as to give timely warning for the proper surgical interference. The cases that require the most careful watching are those with vague symptoms, without jaundice and only slight recurring pains over the region of the gallbladder; these are the cases that run on to suppuration and deceive the attendant. Means for the expulsion of the calculi are questionable, for it should be the duty of the physician and the aim of the treatment to prevent the disturbance of the calculi in the viscous and keep them quiet. Massage and excessive purgation are contraindicated. The drinking of large quantities of alkaline water should be encouraged with a view of increasing the bile salts. [C.A.O.]

3.—See American Medicine, Vol. VIII, No. 21, p. 873.

6.—Epithelioma of the Uvula.—Harmon Smith reports such a case in a man of 51, in which recurrence took place after two operations for removal. Five months after the last operation he was in fine health, with no evidence of recurrence. An enlarged gland of the left side, including part of the submaxillary, was removed. He cites other cases, and says that the adjacent glands have not been frequently involved, showing that the growth has not spread by the lymphatics, except when the tonsils and lateral wall of the pharynx have been implicated. He says this should lead us to the definite conclusion that the growth is one involving the muciparous glands of the soft palate, and consequently of slower growth than one extending through the lymph channels. [C.A.O.]

7.—Infection through the Tonsils.—W. S. Anderson calls attention to the tonsils as frequent portals of infection. Beside severe infections, he believes that many mild chronic infections are constantly taking place through the diseased crypts of the tonsils that are frequently not recognized. If the tonsils are the source of obstruction or irritation, or if the crypts are diseased and the seat of septic absorption, then it is our duty to advise the removal of the tonsils or the destruction of the crypts. [C.A.O.]

Medical News.

May 6, 1905. [Vol. 86, No. 18.]

1. Railway Spine. EDWARD B. ANGELL.
 2. Treatment of Nonmalignant Diseases by the Röntgen Ray. RUSSELL H. BOGGS.
 3. To What Extent are Cycloplegics Necessary in Determining the Refraction of the Eye and in the Prescribing of Lenses. FRANK VAN FLEET.
 4. Nasal Conditions Dependent upon the Generative Organs. JUSTUS SINEXON.
 5. Septic Thrombosis of the Femoral Vein, Following Influenza. D. F. TALLEY.
- Sporadic Cretinism: Observations Based on 14 Personal Cases. E. MATHER SILL.

1.—Railway Spine.—E. B. Angell believes that unless the spinal vertebrae are dislocated or fractured, the cord is rarely damaged in any way. Concussion of the spine, sprain of its muscles and ligaments, general bruises, or shock are not sufficient to cause serious disturbance of the cord itself. Very rarely severe concussion may cause hemorrhage into the cord. In railway spine the symptoms are out of all proportion to the injuries received. It is a disturbance of the mind, not of the body. The changing of the symptoms from day to day, and shifting of the areas painful to pressure, make a diagnosis of a permanent lesion absurd. The disorder is functional, not imaginary. It is not conscious malingering. The initial disturbance is due to the shock or fear. An imperative idea grows by what it feeds on. The condition is rarely met with in those having well-disciplined or critical minds. It is a delusion and yet a true disorder; the disability is as definite for the time being as though a limb had been lost, and is one for which proper compensation can justly be claimed. The proper treatment is isolation from such surroundings as encourage the patient to dwell on his injury. [H.M.]

2.—Treatment of Nonmalignant Diseases by the Röntgen Ray.—R. H. Boggs says the method of application and judgment of the operator account largely for successful or unsuccessful work. It is just as essential to administer a thera-

peutic dose as when prescribing powerful drugs. Idiosyncrasy is not a frequent cause of excessive dermatitis. It is one of the best remedies for acne and other skin diseases, but it is not necessary to use it in trivial cases. When supplemented by the Finsen light it is the most efficient agent in lupus, certain tuberculous glands, Hodgkin's disease, and selected cases of goiter. [H.M.]

4.—Nasal Conditions Dependent upon the Generative Organs.—J. Sinexon states that turgescence and marked hyperesthesia of the nasal mucosa always occur during the procreative act. There is more or less engorgement during menstruation and also during pregnancy, showing that it is not dependent on the menstrual flow. Operations destroying the functions of the generative organs cause the nares to return to the state existing before puberty. In the lower animals sexual excitement is always accompanied by occlusion of the nares. In the human species this may result in epistaxis or hemorrhage. Continued overstimulation of the nasal mucosa from sexual perversion results in its relaxation through vasomotor paresis. Long-continued congestion will produce either hyperplasia or atrophy. These conditions are in no way dependent on hysteria or neurasthenia. [H.M.]

6.—Sporadic Cretinism.—E. M. Sill has noted in a number of instances that the parents were cousins. Sporadic cretins rarely have goiter. When treatment is begun late, intellectual development never becomes normal. The effect of thyroid extract on growing children is almost magical. He begins with a grain daily in divided doses, increasing till there is a rise of temperature or the pulse is unduly accelerated, then keeps just below this point. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Automatic Artificial Respiration.—A. Lohmann¹ describes an apparatus devised by Brauer and Petersen which serves to prevent a collapse of the lungs in operations requiring the opening of the thorax by keeping the lungs artificially inflated. Oxygen is conducted into the trachea of the animal to be experimented upon through a T-tube, which leads into a vertical glass tube. This can be immersed to any desired depth into a vessel containing a fluid, preferably sulfuric acid, to make sure of electric contact between two platinum plates, one of which swims on the surface of the fluid, and the other is attached to the bottom of the glass tube. The degree of immersion controls the pressure within the animal organism, including the lungs. Each respiration causes gas bubbles to escape into the vessel, and the fluid in the latter to rise. Another T-tube, provided with an automatic valve, is connected with the first and introduced behind the lungs. As the pressure attains a certain degree, and the fluid rises, the platinum plates effect an electric connection which, through the action of an electromagnet, opens the valve and reduces the pressure. On the latter subsiding, the valve automatically closes by the action of a spring, the platinum plates separate, and the required pressure is again established. These rhythmic changes occur automatically with each respiration. The factors which are of importance for the respiratory process can be varied within very wide margins. For instance, changing the height of the glass vessel at which electric contact occurs, effects any desired modification of pressure; frequency of respiration may be controlled by a valve which regulates the introduction of oxygen. Compressed air or hydrostatic pressure may also be used instead of oxygen. Other advantages of the apparatus are convenience and ease of manipulation, small expense, and ocular control of its working. [H.R.]

Polycythemia and Splenic Tumor.—W. Weintraud² divides the cases of polycythemia into two groups, those with and those without splenic tumor. Of the former group he describes three cases, all of which correspond closely in their principal manifestations with the cases described by previous

¹ Archiv für die Gesamte Physiologie, No. 9, 1905.

² Zeitschrift für klinische Medizin, Bd. lv, p. 91.

writers. In all, there have been 19 cases reported. The patients were all of middle age and no known cause could be ascertained for the condition. The subjective symptoms fall into two groups, those attributable to circulatory disturbance, especially of the brain, and those referable to the development of the splenic tumor. Of the objective symptoms, the so-called cyanosis is the most prominent; it is not, however, a cyanosis in the ordinary sense of the word, being more like an intense hyperemia. The dark red coloration of the mucous membranes is also a prominent symptom. The enlargement of the spleen is usually so marked as to resemble that of leukemia, although it may at times be very insignificant. The liver is usually enlarged and of a very soft consistency. On examination of the blood the characteristic polycythemia is seen, the red corpuscles usually being of normal size, or even larger. Nucleated reds were rarely found. The leukocytes are also usually increased in number, often to a considerable extent; the polynuclears predominate, as in the normal blood. The hemoglobin is always increased and is firmly bound with the red corpuscles. The blood-serum is usually of lower specific gravity than normal. The circulatory disturbances are doubtless secondary in origin; the heart always fails in the course of time, producing dyspnea and edema. Albuminuria is an almost constant symptom, although usually of slight extent. The group of polycythemia without splenic tumor includes heterogeneous cases. Some of these evidently belong to the first group in their manifestations, while others are due to certain intoxications, such as carbon monoxid and phosphorus. The symptoms are often much the same as in the first group, but there is no enlargement of the spleen or liver. As all indications of increased production of red corpuscles are wanting, the condition of polycythemia can only be explained by a diminished or slower destruction of the corpuscles. The occurrence of polycythemia in such conditions as phosphorus poisoning makes it probable that the accumulation of erythrocytes in the circulating blood is due to a disturbance in the function of the liver, which organ is normally responsible for a great part of the destruction of these cells. [B.K.]

Strain of the Heart in Growing Boys.—A. Lambert¹ states that the passage from physiologic to pathologic distention is abrupt. The muscle fails to respond to increased functional stimulus and nutritive supply, from protoplasmic inadequacy. Fibrous hyperplasia and changes in the muscle fibers follow. Thus we can explain the symptoms of overstrain produced by mental shock, direct violence, or illness. The exercising boy is accustomed to extreme breathlessness, but he recognizes acute dilation as a sudden evil. It may bear no relation to the severity of the strain to which he has been exposed. The writer doubts whether the heart of the truly healthy boy ever breaks down as the result of athletics as practised in the great schools. There must have existed some cardiac insufficiency, either inherent or due to some condition such as anemia or recent influenza. Tendency to recurrence is common to all cases. There may or may not be constant symptoms or signs of inefficiency. The prognosis must be guarded, and every return to active exercise looked on as an experiment. The heart may be strong enough for a life work that does not entail great stress, but not strong enough to stand an anesthetic or some acute illness. A good muscle may compensate for a faulty valve, but there can be no compensation when it is the myocardium itself which is at fault. [H.M.]

Mirror Writing in the Right-handed.—Robert Kingman² says it is surprising to find how many of the laity know of mirror writing and the number of medical men who have never even heard of it. Anyone can produce writing which can be read only by the aid of a mirror by using pencils simultaneously in each hand, starting in the middle of the page and writing with the left hand toward the left and with the right hand toward the right. It has been stated that this faculty is more common in England than in this country, 5.1 % of a group of 450 examined in the former possessing this faculty. This disparity is probably due to the fact that little has been done here in the way of systematic investigation.

Kingman says that although mirror writing has been recognized as physiologic for the left hand, and as being often met in those who use that hand for writing, it can further be assumed to be present potentially and for both hands in every individual who has learned to write. As the graphic centers of the left midfrontal convolution store up graphic motor pictures, analogous pictures reversely formed are accumulated in the corresponding center on the right. The former produces ordinary writing, the latter mirror writing in either hand. [A.G.E.]

Two Cases of Autointoxication by Acetone.—R. Petter¹ reports the following cases: 1. A woman of 22 was taken ill six days before admission to the hospital, with vomiting, palpitation, constipation, and shortness of breath. The respirations were 48, the temperature normal, and the pulse 106. The face was slightly cyanotic, and its expression anxious. There was some swelling and redness of the arytenoid cartilages. The urine contained neither sugar nor albumin, but acetone and diacetic acid. The vomiting and dyspnea continued. The leukocytes were increased in number (14,800 and 18,000). After three days, the patient began to improve, the acetone and diacetic acid disappearing from the urine. 2. The patient was a man of 46, who, while at work, became delirious. When admitted to the hospital, he was in a state of coma. There were tonic spasms of the extremities, the diaphragm and the neck. Acetone was present in the urine, but albumin, sugar and diacetic acid were absent. The leukocytes were 12,000. The fluid obtained by lumbar puncture was clear, and contained a few mononuclear cells, albumin and sugar. This patient also recovered. It was formerly believed that acetone could occur only in conjunction with glycosuria, but the observations of v. Jaksch and others have shown that there may be an autointoxication with acetone independently of glycosuria or of the diabetic state. V. Jaksch holds that acetone, in autointoxications with that substance, is not formed from carbohydrates. Hagenberg and Waldvogel maintain that it is a product of fat metabolism that is formed pathologically, especially in disturbance of the digestive tract. In both the cases here reported there was a history of previous gastrointestinal disturbance; and in Case I, the acetonuria was succeeded by an indicanuria. The treatment of the first patient consisted principally in the use of calomel; that of the second, in the application of an ice-bag to the head, venesection, with the removal of a small amount of blood, and lumbar puncture. [D.R.]

Cancer of the Stomach in which the Main Symptoms are Unconnected with That Organ.—G. N. Pitt,² describes 17 cases, placing them in seven groups, according to the prominent symptom or symptoms: (1) Ascites and pleural effusion, 7; (2) matted intestine, 3; (3) intestinal obstruction, 2; (4) abdominal suppuration, 2; (5) profound anemia, 2; (6) iliac tumor, 1; (7) thrombosis of femoral vein. One case of this last type was seen, but other signs referable to the stomach were present, making it a doubtful case to include. The case of Trousseau, who developed this condition soon after giving a lecture on its occurrence, is well known. Pitt says these obscure cases form nearly 6% of cases of cancer of the stomach. Some of them present so little direct evidence that only a conjectural diagnosis can be given, but in others a correct diagnosis may be reached if the possibilities are known. Such cases are of particular value to the surgeon, as they usually mean that such remote parts are involved that effective surgical interference is precluded. [A.G.E.]

Absorption in the Small Intestine.—B. Heile³ examined the feces from a cecal fistula in dogs, in order to determine the completeness of absorption in the small intestine. A dog of 11 kilograms absorbed 98% of 250 gm. of meat and 86% of 500 gm.; 75 gm. of sugar was completely absorbed, as was 100 gm. of rice; 300 cc. of milk was absorbed, but 650 cc. left a large residue. Similar experiments made by injected substances into the upper end of the large intestine, and letting it pass through to the anus, showed in man that of 150 cc. water, about half was absorbed. Albumen was never absorbed; of 30 gm. of sugar,

¹ Prager medicinische Wochenschrift, April 13, 1905.

² The Practitioner, April, 1905.

³ Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, xiv, 4.

¹ Medical Chronicle, February, 1905.

² Brooklyn Medical Journal, March, 1905.

about 20%. Large amounts of alkali were absorbed; of 150 cc. 1% Na_2CO_3 solution, 20% was absorbed. This is important, as the small intestine stool is strongly alkaline, and patients with artificial anus may lose enough alkali to suffer from acidosis. [T.S.G.]

The Usefulness of Neumann's Orcin Test for Sugars in the Urine.—Mann¹ made a series of examinations to determine the reliability of the orcin test for sugar as described by Neumann. Special attention was paid to the presence of dextrose and levulose. Dextrin was obtained each time in the examination of the urine of 35 diabetic patients. In three of the cases the sugar had disappeared according to the polariscope, Trommer's, and Wylander's tests, yet it was found to be present by the Neumann test. The urine of 150 nondiabetics was also tested with orcin for levulose, but it was absent in all except two cases. Albumin, if present, interferes with the result and should always be removed. The urates and phosphates as well as biliary coloring matters have no influence. Mann concludes that the Neumann modification of the orcin test should be employed to control the findings of other tests. It is of clinical value because of its ability to distinguish the various sugars by a simple single test. [W.E.R.]

The Clinical Value of Feces Examination.—J. H. Salisbury² says an uncertainty regarding normal and abnormal processes in the intestines will continue until systematic efforts to examine the feces are made, as they now are, with the gastric contents. The test-diet of Schmidt gives very good results, but the making of the oatmeal gruel is very tedious; Salisbury employs cornmeal instead, this making a gruel without being strained. The consideration of the technic of examination and the interpretation of findings is taken up at length. Although in general, the examination of feces may be unpleasant, it is to be recommended on account of: 1. The accessibility of the material. No apparatus or disagreeable procedure is necessary to secure it, as in the case of the stomach contents. 2. The simplicity of the methods of examination. Only simple methods are of value to the practising physician. One who has had some experience with the work can make the examination in 15 minutes, and but little apparatus is needed. Salisbury says we may confidently hope that with increasing frequency of application, the tests will gain in certainty until diseases of the intestine may be as certainly diagnosed as are now diseases of the stomach. [A.G.E.]

The Dysentery Bacillus Group in Diarrheal Diseases of Children.—G. H. Weaver and R. M. Tunnickiff³ made and studied cultures from 102 cases. From 76 no cultures corresponding to the dysentery bacillus group were found. In the cultures belonging to this group the Shiga bacillus was not found. In attempting to group the cultures according to the classification of Park, there remained a group, not provided for, which ferments saccharose and not maltose. The agglutination reactions do not bear any relationship to the cultural properties in many cases. A specific cause for all cases of summer diarrhea in infants is still undiscovered. It is likely many cases are due to the single or combined action of various forms of bacteria. The presence of a certain bacterium in large numbers does not determine its etiologic connection with the disease. The agglutinins for the dysentery group may be formed in the course of infectious diseases having no possible connection with dysenteric or diarrheal diseases. When agglutination tests are reported it is important to know whether anti-dysenteric serum has been given previously, as the degree of agglutination may probably be very much increased in this manner. [H.M.]

Fever in Syphilis of the Liver.—F. Klemperer⁴ reports two cases, presenting a long-continued fever of marked remittent, and at times intermittent type, accompanied occasionally by chills. All organs were found normal, except for a moderate enlargement of the liver, with slight tenderness of that organ and mild icterus. A searching investigation revealed a previous syphilitic history, and antispecific treatment resulted in cure. The author rests his diagnosis of tertiary

syphilis of the liver on several points, among which are the results of treatment and the analogy to febrile phenomena in tertiary syphilis of other organs. He believes the lesion in his cases to have been a diffuse gummatous infiltration of the organ. The febrile reaction is probably due to the syphilitic virus. [B.K.]

Protective Inoculation against Asiatic Cholera.—R. P. Strong¹ reports at length the results of an experimental study, and believes that with the prophylactic used, human beings may acquire a good active immunity against the disease. By an autolytic digestion of carefully killed cholera spirillums in an aqueous fluid the receptors become separated from the bacterial cells and may be filtered off in solution. The injection of these free receptors into man and animals furnishes a means of producing high bactericidal and agglutinative blood-serums. The antitoxic value of these serums is, however, moderate. Subcutaneous injection into man is free from danger, produces practically no local disturbance and only a slight general reaction. Hence the method is practicable for producing cholera immune serum in man. It is possible that by a slight modification of this method a more satisfactory prophylactic against bubonic plague could be obtained and experiments with this end in view have been commenced. [H.M.]

Chemistry of Iodin in Goiter Cases.—A. Kocher² performed a large number of experiments on patients with various forms of goiter in order to determine whether iodine administered as potassium iodide was excreted more or less rapidly than in healthy persons. Patients who had had complete thyroidectomy for goiter or who showed congenital absence of the gland excreted the iodine more slowly and less completely than normal individuals. Patients with goiter which showed decrease in size during administration excreted iodine rapidly and often in larger quantity than administered. Those with goiter of long standing which showed no improvement varied little from normal excretion or were somewhat less complete. After 48 hours, in all cases, the amounts were inappreciable. Diet had no influence on the results. If iodine benefits the patient it will do so at once, and if it does not, thyroidectomy is the only cure. [T.S.G.]

Do Infant Schools Improve the Mental and Physical Condition of the Children?—D. Jackson³ believes it wrong to confine these little creatures when they should be reveling in the sunshine. Unrestrained action is preferable even to the outdoor drill. Until the child reaches the age of seven there is no necessity for physical drill. The teachers whom he interviewed were almost unanimous that those who come to school at the age of five quickly shot ahead of those of the same age who came at three, and had a keener grip of their work all through their school careers. Some experienced teachers thought even five too young for beginning work. [H.M.]

Fatal Infection by a Hitherto Undescribed Chromogenic Bacterium: Bacillus Aureus Fetidus.—M. Herzog¹ records the case of a person supposed to have died of plague, having an open wound on his leg and marked swelling of the inguinal glands. Smears from the organs showed a small diplococcus or diplobacillus. The name selected for this emphasizes its chromogenic and malodorous properties. Beyond doubt it was the cause of death, although single inoculations of moderate doses brought about only slight reaction in the animals experimented on. It is probably ordinarily a saprophyte. In this case it may have lived for some time in the necrotic tissues of a neglected ulcer, becoming modified there until it finally gained entrance. From the lymphatic system it entered the blood current, reached the liver and kidneys, and led to subacute and somewhat chronic interstitial fibroid processes and parenchymatous degenerations. [H.M.]

The Prevention of Beriberi.—H. Wright⁴ directs attention to the results of instituting, at his suggestion, various hygienic reforms in the jail at Kuala Lumpur. From May, 1902, to January, 1903, cases of beriberi averaged 73 per month. From February, 1903, onward they have averaged only 1.2 per month. These included acute and chronic cases. Of greater

¹ Berliner klinische Wochenschrift, February 27, 1905.

² Medicine, April, 1905.

³ Journal of Infectious Diseases, January 12, 1905.

⁴ Zeitschrift für klinische Medizin, Bd. lv, p. 176.

¹ Journal of Infectious Diseases, January 12, 1905.

² Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, xiv, 4.

³ Public Health, February, 1905.

⁴ Journal of Hygiene, Vol. v, No. 2, April, 1905.

importance is the fact that acute cases fell from 28 in September, 1902, to none in February, 1903, and for seven consecutive months no new cases occurred. The practical abolition of beriberi in the jail is attributed by Wright to the hygienic reforms founded on the view that the infective agent is contained in the excretions of the patient during the acute stage of the disease, and that infection results from fecal contamination. He suggests, as an additional preventive measure, the disinfection of the stools of those suffering from acute beriberi. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Entrance of Air into the Veins during Surgical Operations.—X. Delore and R. Duteil¹ report a case of death from this cause during an operation for the removal of an enormous tumor of the neck. The first symptom noted in such cases is a peculiar sound, caused by the passage of air into the vein. If no anesthetic has been given the patient utters a cry of anguish and then faints; there may be epileptiform convulsions. If the patient is under the influence of an anesthetic there is no cry or convulsions; the pulse becomes feeble, the arterial tension very low, the respirations at first accelerated and then shallow and slower, finally stopping before the heart ceases to beat. Death usually takes place in 8 to 10 minutes, but may not occur for some time in rare cases. Numerous theories have been advanced to explain the cause of death. The cerebral theory maintains that the phenomena are due to the presence of small air bubbles in the cerebral veins, distending these veins and compressing the origin of the nerves. This theory will not account for all cases. According to the cardiac theory, it is the heart's action that is responsible for the phenomena. Some maintain that the arrest of the heart is due to pure mechanical causes, while others claim a toxic action of the air on the heart. Various facts, however, disprove this theory. The pulmonary theory has two explanations: (1) Rupture of the capillaries with emphysema; (2) simple obstruction of the capillaries. Couty claims that death ensues as a result of acute asystole, due to distention of the right side of the heart. The recent investigations of Francois-Franck tend to show that there is an acute anemia of the myocardium, caused by air emboli in the coronary arteries. The author believes that all these causes may be operative, some predominating in one case and others in another. The introduction of the air into the veins is principally the result of a gaping of these veins, consequent upon a normal anatomic disposition or a pathologic induration of their walls; it is favored by a diminution of venous tension resulting from repeated hemorrhage. The quantity of air introduced is of great importance in the development of the symptoms. The author advises puncture of the auricle as the proper treatment of the condition. [B.K.]

Rational Treatment of Congenital Dislocation of the Hip.—P. Le Damany² concludes a long study of this question, running through several numbers, by saying that the rational treatment of this lesion consists in repairing the lesions consecutive to luxation by operative or nonoperative methods. In the beginning, the orthopedist should aim to do that which nature has failed to do, as she does in normal hips. In the normal infant the acetabular cavity, in part eliminated during the last months of fetal life, is formed anew after birth by the pressure of the femoral head. In treating luxation, the aim should be to maintain the femur in a position to allow the weight of the body to produce a similar effect upon the atrophied acetabulum. In the uterus, the femur of the fetus is rotated, but after birth it rights itself under conditions well recognized. In congenital dislocation, we should apply the same conditions, but in such a manner that relaxation cannot occur. These are the principles to guide in the treatment of luxation. The application of necessary methods will be considered in further communications. [A.G.E.]

Dupuytren's Contraction of the Palmar Fascia.—J. Knott¹ thinks the ring finger is the first to yield to the traction, because of its very small power of independent extension. His experience, contrary to that of Dupuytren's, is that the inflammatory changes in the fascia are distinctly traceable toward the skin. Its nutrition must necessarily be affected as indicated by its glossy appearance. The condition can be palliated to a very considerable degree, but radical cure is impossible. The hand from which the whole of its palmar fascia has been removed can, of course, never attain its former strength or usefulness. He prefers division by repeated punctures as advocated by Adams. With continuous extension for a sufficient period the position of the fingers can be quite as effectively corrected as by the open method of operation, and less cicatricial tissue will be exposed afterward in the very undesirable position of the cutaneous palmar surface. The slips along the sides of the first and second phalanges should be divided, both above and below the first joint. [H.M.]

Compression of the Portal Vein in Operations at the Hilum of the Liver.—E. Villard² reports three cases which show that gauze drainage in the region of the hepatic hilum may exercise undue compression on the portal vein. It is impossible to close the vein completely in this way, but a partial obliteration will give rise to serious and perhaps fatal results. The symptoms of this condition resemble those of internal hemorrhage—fall in temperature, respiratory acceleration, extreme weakness of the pulse, intense anemia of the skin and mucous membranes, gradual development of coma and general paralysis. The treatment of the condition, both prophylactic and curative, is evident. [B.K.]

Chronic Constipation Due to Invagination of the Sigmoid into the Rectum.—S. G. Gant³ says this condition occurs usually in adults and is more frequent in women. The earliest symptom is imperfect and unsatisfactory movements, followed by an unrelieved feeling. Catarrhal inflammation and superficial ulceration of the mucosa follow: Autointoxication is a logical sequence of these lesions. When a patient complains of constipation, frequent discharges of mucus, a dragging down sensation in the bowel, an unrelieved feeling after stool, and possibly presents symptoms of autointoxication, chronic invagination should be suspected. The condition may be due to an abnormally long sigmoid or mesentery, or to anything which excites frequent stools or straining. In rare cases relief may be given by increasing the tonicity of the intestinal musculature and pelvic structures by massage, mechanical vibration and electricity, and treatment of the catarrhal inflammation by topic applications, sprays, and irrigations. The surest and quickest method of cure, however, is colopexy. Gant has used this procedure 25 times and in a majority of cases the results were entirely satisfactory. Formerly the scarified gut was brought into contact with the peritoneum, but now he denudes the serous membrane and thus exposes the fascia; this prevents the formation of a long cord which in some instances allowed the intestine to drop back. [A.G.E.]

Surgical Treatment of Ulcer of the Stomach and Its Complications.—According to B. G. A. Moynihan,⁴ the complications of gastric ulcer requiring surgical intervention are (1) perforation; (2) hemorrhage; (3) chronic ulcer; (4) hour-glass constriction. Perforation may be acute, subacute, or chronic. In acute perforation the ulcer gives way suddenly and completely. In subacute perforation the escape of fluid from the stomach is small in quantity, owing to small size of the perforation, or emptiness of the stomach, or other reason. In chronic perforation, the ulcer has slowly eaten its way through the stomach, and a protective peritonitis has had time to develop at the base. In all these cases operation is called for sooner or later. Hemorrhage from gastric or duodenal ulcer may occur in four different degrees: (1) Latent and concealed; (2) intermittent and moderate in quantity; (3) abundant and repeated, often after a warning exacerbation of symptoms; (4) instant, overwhelming, and fatal. The one character that a hemorrhage should have to warrant operation

¹ St. Paul Medical Journal, March, 1905.

² Lyon Médical, March 26, 1905.

³ American Journal of Surgery, April, 1905.

⁴ British Medical Journal, April 8, 1905.

¹ Revue de Chirurgie, March, 1905.

² Revue de Chirurgie, February 10, 1905.

is recurrence, especially at shorter intervals. In acute ulceration operation is rarely necessary for this symptom; while in chronic ulceration it is demanded if the hemorrhages belong to the third class. At operation two plans are possible—obliteration of the ulcer, or gastroenterostomy. The first procedure may often be impossible, and recourse must then be had to the second. Chronic ulcer causes a great variety of symptoms, and is often at the basis of an unyielding chronic dyspepsia. If situated near or at the pylorus, it may cause hypertrophy and dilation of the stomach. If close to the cardia, it may cause symptoms of low esophageal obstruction. The operation in most cases of chronic ulceration must be a gastroenterostomy; if solitary it may be excised. Hour-glass stomach is a late result of chronic ulceration. [B.K.]

Carcinoma of the Spine.—Karl Petren¹ believes that carcinoma of the spinal column is not especially rare, and refers to the fact that it may occur as long as eight years after an apparently successful operation. The symptoms are not very definite. They are usually pain in the back, increased by motion, and pains deep in the body, which may change in location from time to time. Deformity of the spine and paralysis are rare. [T.S.G.]

Treatment of Suprapatellar Rupture of the Quadriceps.—E. Quenu and P. Duval,² from a lengthy analysis of this subject, reach the conclusion that suture is in all cases the rational treatment of this condition. This is more absolute than for fracture of the patella, as in some cases of the latter, operation is not demanded. Two questions then are to be settled—the time of operation and the operative technic. As to the first, the writers recommend a wait of several days, principally to put in proper condition the skin of the knee, it being as necessary to use all aseptic precautions in the knee as for opening the abdomen. To do this, a warm compress is applied, and each day the site is treated with a weak soda solution, followed by ether, and then by alcohol. In operating, a transverse incision is made at the level of the rupture, and extra and intraarticular clots carefully removed. The ends of the ruptured tendon are slightly trimmed by scissors, no antiseptic being allowed to touch the wound. A stout, silver wire is then passed through the upper end 1 cm. from the end, and then through the patella 1 cm. from the upper border; the wire is twisted, but not to bring strong pressure. The superficial fibers are united to the tendon by fine threads, and the torn portions of the lateropatellar expansions are also united. The skin is sutured without drainage, and the limb put in extension. After-treatment is the same as for fracture of the patella. [A.G.E.]

Treatment of External Anthrax.—In the Milroy lectures on industrial anthrax, T. M. Legge³ says that in addition to local treatment, the use of a serum derived from an immunized animal is coming more and more into use. Local treatment usually consists of free excision, followed by cauterization with pure carbolic acid. Subcutaneous injections of 5% carbolic acid around the pustule have also been employed. Another method of treatment consists of excision with the local use of powdered ipecacuanha and the internal administration of the same drug in 10-grain doses; this is based on the finding that ipecacuanha will destroy anthrax bacilli, but not the spores, which do not form in the human body, however. If excision is not practised before the fourth day, it is possible that the operation may promote generalization of the disease. The claims for the value of serum treatment are summarized as follows: (1) Very large doses are innocuous, even when introduced into the veins; (2) cure is invariably, if the serum is used in the early stages, and sometimes occurs later in otherwise hopeless cases; (3) if given intravenously, the extension of the edema is quickly arrested; (4) if used early enough, there is a minimum destruction of tissue; (5) in some situations of the lesion (eyelid) serum must be used in preference to excision; (6) in internal anthrax it is the only treatment that can hold out any hope. The serum is prepared by immunization of the ass. In the immunization of animals, the best results are

obtained by the simultaneous inoculation of attenuated anthrax cultures with the antianthrax serum. The action of the serum has never been satisfactorily explained, as an anthrax toxin has never been isolated. [B.K.]

Intestinal Perforation in Typhoid Fever.—R. H. Harte⁴ says the surgeon must take the responsibility of operation in suspected perforation in typhoid fever upon himself, however much the physician aids; hence, to be able to appreciate the changes in these patients produced by perforation, he must familiarize himself with the normal aspects of typhoid fever. It is well for a surgeon of a hospital to keep himself tolerably familiar with all the typhoid patients therein, and the attending physician should not resent this familiarity. The most frequent symptom of perforation is pain; sweating, either alone or accompanied by a fall in temperature, not infrequently occurs with the pain. In his experience, the fall in temperature has been fairly constant, varying from 2° to 4°. Rigidity of the abdominal muscles is the most valuable of all the signs. Dulness on percussion is a very uncertain sign, and obliteration of liver dullness is even more elusive. The result of a leukocyte count should not be considered, except in confirming the clinical signs. In operating for perforation, Harte sees no reason for changing from general anesthesia by ether. He has operated 24 times; in two no perforation was present, and both patients recovered. Of the 22 in which perforation had occurred, only 4 recovered, a mortality of 86%. [A.G.E.]

A Soluble Button for Intestinal Anastomosis.—P. Paterson⁵ has devised a button resembling the Murphy button, but made from gelatin that has been treated with a solution of chrome alum. This substance renders the gelatin more or less resistant to the action of the digestive secretions, the degree of insolubility depending on the strength of solution employed. The gelatin is properly molded, and the buttons are then placed in a solution of 10 gr. of chrome alum to the ounce of water. Casts up to three-fourths inch in diameter should soak for 10 to 12 hours, and should then be kept in 50% alcohol until required. A button thus prepared will resist the action of the intestinal juices for five to seven days, and will then be slowly dissolved. [B.K.]

Treatment of Pendulous Abdomen.—J. P. Creveling⁶ reports two cases of sagging abdomen, in women of 58 and 34, in which he secured very satisfactory results by resecting a portion of the superfluous belly wall. In one a curved incision beginning a short distance above and to the right of the umbilicus, and extending a maximum distance of 5 cm. (2 in.) to the right of the median line, was carried to the symphysis pubis. This extended through the entire belly wall, into the peritoneal cavity. A corresponding incision on the left was then made, thus removing a section 10 cm. (4 in.) in width, of the anterior abdominal wall. The margins of the wound were sutured in the usual way, and union was complete. No muscle was seen during the operation, and an incision down to the peritoneum 5 cm. (2 in.) to the right revealed no muscle. In the second patient the incisions were begun at instead of above the umbilicus. In both patients the abdomen was restored to normal size and shape, and there has been no tendency for sagging to recur. [A.G.E.]

Congenital Absence of the Pectoral Muscles.—W. Wendel⁴ reports in detail a case of congenital bilateral absence of the pectoral muscles and gives a list of 172 cases, only one of which was bilateral. [T.S.G.]

The Opening of Peritonsillar Abscesses.—St. Clair Thomson⁵ says that the abscess in quinsy is always peritonsillar and not in the tonsil itself, and in the large majority of cases forms above and in front of the tonsil. He believes that the abscess can best be reached through the soft palate, the point of election being just external to the intersection of an imaginary horizontal line, across the base of the uvula, and a vertical line along the anterior pillar. The author does not use a knife to open these abscesses, but prefers a pair of Lister's sinus forceps, or a similar one devised by himself. The tip of the in-

¹ Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, xiv, 4.

² Revue de Chirurgie, February 10, 1905.

³ British Medical Journal, March 18, 1905.

⁴ Cleveland Medical Journal, March, 1905.

⁵ The Lancet, April 1, 1905.

⁶ Buffalo Medical Journal, May, 1905.

¹ Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, xiv, 4.

² British Medical Journal, March 25, 1905.

strument explores the surface in the above region until a boggy point is reached; the forceps are then pushed into the abscess and withdrawn with the blades open. A great advantage lies in the absence of alarm produced by the instrument on the patient. [B.K.]

Result of Removal of the Spleen.—J. W. Hunter, Jr.,¹ quotes statistics of several hundred cases of splenectomy, particularly to show the lowered mortality of the operation in later years, and that the spleen is not by any means a vital organ. Bayer's series shows a mortality of 42% up to 1890, and 26% from 1890 to 1900. Claytor concludes from these and later figures that splenectomy in properly selected cases should be followed by as many recoveries as in any other abdominal operation. He reports splenectomy in a woman who had noticed a tumor in the left iliac region for at least seven years, during which time it gradually increased in size. The mass, which proved to be the spleen, was removed. The organ weighed 700 gm. (1½ lbs.), the pedicle was twisted, the capsule was greatly thickened, and necrosis was pronounced. The last made it evident the organ was removed none too soon. The after-history of the patient is contrary to the statements of several observers in that she was not emaciated before operation, though thin, and after operation she gained 20 pounds. [A.G.E.]

Relationships between Colitis and Appendicitis.—C. B. Lockwood² says that it is easy to understand how an appendicitis may give rise to a colitis by contiguity, and this inflammation may spread up the ascending colon and into the other parts of the large bowel. In fact, the colitis may be so prominent as to overshadow the symptoms pointing to appendiceal inflammation. The familiar form of mucous colitis due to coprostasis may be indirectly caused by appendicitis, since the latter disease often causes constipation, probably by interference with the nervous mechanism of the bowel. The author cites two cases in which a colitis obscured a coexisting appendicitis because the inflamed appendix was situated behind a distended right colon; when the latter was cleared of gas and feces, the appendicitis came to light. The form of colitis termed mucomembranous may exist for years without any serious disturbances; but it is possible for the same process to extend to the mucous membrane of the appendix, and in this case the peculiar anatomic features of the organ greatly increase the dangers of the disease. A true ulcerative colitis may also extend to the appendix, adding an additional element of danger to an already serious condition. [B.K.]

Penetrating Gunshot Wound of the Abdomen.—J. Y. Brown³ describes a case of more than usual interest. An Italian of 30 was shot in the abdomen, the revolver bullet entering the left side just below the costal margin and emerging between the ninth and tenth ribs on the right. Immediate operation revealed a perforating wound of the liver, perforation of the gallbladder, and two perforations of the stomach near the pylorus. The perforations of the stomach were closed and the liver wound packed with gauze; the gallbladder was removed. A drain from the stump of the cystic duct was placed, the abdomen flushed with salt solution, and finally through a stab wound above the pubes a glass drain was placed in the vesicorectal pouch. The operation required 37 minutes and the patient made a good recovery. Brown strongly emphasizes the value of the glass drain in the pelvis and the exaggerated Fowler position of the patient as soon as possible. This drain was removed in 48 hours. [A.G.E.]

Traumatic Rupture of the Aorta.—Revenstorf⁴ states that rupture of the aorta may occur in perfect vessels in two ways, either by internal pressure sufficient to overcome the tensile strength, which requires at least five atmospheres or by stretching beyond its extensibility. Rupture by direct violence only occurs in the abdominal aorta, unless there is fracture or dislocation of the vertebrae or ribs. Rupture by pressure from within is apt to be longitudinal, by overstretching always transverse; in either case the intima gives way first. The usual causes of rupture by overstretching are displacement of

the heart downward, as in compression of the upper part of the chest, and dislocation of the left lung, whose root is firmly attached to the descending thoracic. All the author's cases showed marks of such extreme violence that injuries of this sort could not be excluded, and he is not sure that any of his cases were from pure increase of pressure. [T.S.G.]

Prospects and Vicissitudes of Appendicitis after Operation.—Sir F. Treves¹ presents statistics covering 1,000 cases of operation for appendicitis. In 231 of these cases the appendix was removed during the quiescent period, and 11 of these patients complained that the attacks still persisted after the operation. The author also presents 45 private cases in patients who came to him complaining of failure of the operation. The causes for the persistence of trouble were imperfect removal of the appendix, coexisting ovarian trouble, persistent or relapsing colitis, neurasthenia or hypochondriasis, tender mass in right iliac fossa, due to fecal impaction or other cause, or continued attacks due to gallstones, intestinal colic, movable kidney, or renal calculus. Regarding the coexistence of ovarian trouble, the author says that the right ovary is frequently found diseased with the appendix, on account of the close anatomic relation of these two organs. In some cases no cause whatever could be found for the persistence of the local pain. Imperfect results frequently attend evacuation of perityphlitic abscesses, and include persistent sinuses, recurring abscesses, recurring attacks of appendicitis when the organ has not been removed, fecal fistulas, and inflammatory deposits in the right iliac fossa. Treves does not believe that the appendix should invariably be removed at the first convenient opportunity, if it has not been removed when the abscess is opened; he thinks that a second operation should be done only if further trouble is experienced. Among the complications which may attend appendicitis operations are mentioned fecal fistulas, thrombosis of the femoral vein, intestinal obstruction, pneumonia, pleurisy, empyema, bronchitis, pulmonary embolism, parotitis, pyelophlebitis, residual and secondary abscesses. [B.K.]

The Operation of Trendelenburg.—C. Viannay² presents a critical study of this question, meaning by the term not only the definitive operation of Trendelenburg himself but also any intervention on the trunk of the saphenous vein with the object of stopping the current in that vessel. He gives a historic review, a personal case in which after resection of the vein anastomotic circulation was reestablished, and the results of experiments upon cadavers. His conclusions are that when it is decided to interrupt the continuity of the internal saphenous vein in a case of varicosity with insufficiency of the valves, all intervention directed to a single point is inefficacious and illusory unless it be high resection in Scarpa's triangle. This may suffice, but it is better to interrupt the vessel in many places or to make assurance doubly sure, resect the vein entirely. These conclusions are arrived at after studying other cases which support them; Viannay does not give personal results, as his cases have been too few. The article is a well-condensed and most valuable discussion of the subject. [A.G.E.]

Albuminuria of Renal Palpation.—J. Schreiber³ finds that bimanual palpation of movable and dislocated kidneys produces invariably an albuminuria, which may, however, vary in amount. This also occurs in cases where the normally situated kidney can be palpated; in fact, it is only necessary to compress a part of the organ. So constant is this phenomenon that the author can positively assert that absence of albuminuria indicates that there has not been a compression of the kidney during the bimanual examination. Such an albuminuria may simulate that of renal disease; red and white blood-corpuscles may be present in both, but they differ in the absence of casts in the albuminuria of renal compression, and in the very evanescent and transitory character of the latter. There are four possible sources of this albuminuria: 1. Injury to the renal tissue (highly improbable). 2. Expression of serum through the capillary walls into the urine. 3. Expression of lymph into the urine. 4. Changes in the blood-pressure within the kidneys. The author finds this symptom of con-

¹ American Journal of the Medical Sciences, April, 1905.

² British Medical Journal, March 4, 1905.

³ St. Louis Medical Review, April 1, 1905.

⁴ Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, 1905, xiv, 4.

¹ British Medical Journal, March 4, 1905.

² Revue de Chirurgie, January 10, 1905.

³ Zeitschrift für klinische Medizin, Bd. lv, p. 1.

siderable value in the diagnosis of displaced organs and tumors of the abdomen. In the case of displaced organs, the presence or absence of albuminuria after palpation will enable the examiner to say positively whether or not the palpated organ was a kidney. In the same way, in the case of abdominal tumor, the absence of this symptom indicates that the growth does not involve the kidney. [B.K.]

Elephantiasis of Scrotum Due to Truss Pressure.—W. F. Campbell¹ reports this case, which occurred in a German weighing 225 pounds. For the respective periods of 25 and 12 years he wore a single and then a double truss for inguinal hernia. His occupation required much bending, and this, no doubt, added to the effect of the truss. The scrotum was amputated, a new one being formed of flaps from the perineum and thighs. A similar case in the literature has not been found by Campbell. The pressure of the truss for a long time where the lymphatics of the scrotum empty into the inguinal glands evidently produced lymphatic obstruction just as effectually as though parasites were present. When a truss is worn on both sides, a compensatory lymphatic circulation is prevented, and this doubtless leads to the condition. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

The Gas Bacillus in Puerperal Infection.—Ever since Semmelweis began his careful investigations into the causation of the frightful mortality attending labor in the Vienna Lying-in Hospital in 1847, obstetricians have been interested in the causation of puerperal infection. As is well known, *Streptococcus pyogenes* is the most frequent cause of the epidemic and fatal forms of puerperal sepsis. The staphylococcus and gonococcus have also played more or less prominent roles; and still more recently *Bacillus coli communis* and *Bacillus diphtheriae* have been found to be important etiologic factors. In 1896, Whittridge-Williams observed a case of puerperal infection, which was reported by Dr. Dobbin, in which *Bacillus aerogenes capsulatus* was isolated from a case of physometra. In 1900, Dr. Welch exhaustively reviewed the literature on this subject; and still more recently, Dr. Little,² of the Johns Hopkins Hospital, has made a valuable contribution with a synopsis of ten cases in which the gas bacillus was identified with absolute certainty. This microorganism was first described by Drs. Welch and Nuttall in 1892, and according to Dr. Welch, its introduction to the pregnant or puerperal uterus may give rise to one or more of the following conditions: (1) Emphysema of the fetus; (2) puerperal endometritis; (3) physometra; (4) emphysema of the uterine wall; (5) gas sepsis. *Bacillus aerogenes capsulatus* may gain access to the uterine cavity in one of two ways. The first and by far the most usual one is its introduction by means of the examining finger or by instruments, and by reason of its almost invariable presence in the feces of human beings, this is particularly liable to occur in spontaneous labor when the external genitalia are insufficiently cleansed, as well as in operative cases, even in spite of this care. In the second place, these organisms may be present in the blood by which they are carried to the uterus, and then may be cultivated from the lochial discharge. The passage of the bacillus into the circulation by way of typhoid ulcers has been proved. Symbiosis often enhances the virulence of the organism, as many investigators have noted that the virulence of the streptococci may be increased by associating anaerobes with them. The line of demarcation between sapremia and septicemia is so ill defined there is a question whether or not all cases of sapremia are not infective and not alone due to saprophytic organisms. Dr. Little reiterates that no case of sapremia should be diagnosed as such without a

bacteriologic examination, and refers to the fact that Dr. Bumm was able to demonstrate streptococcus in a number of cases presenting the supposedly characteristic clinical features of sapremia. In cases of gas-bacillus infection, the greatest danger is to be found in the passing of the organisms from the uterus into the circulating blood. While patients with streptococcus septicemia not infrequently recover, all known cases of gas sepsis—that is, general infection with the gas bacillus have ended fatally. The practical lesson to be learned from such careful observations as these is that the ideal treatment in all cases of infection is prophylactic, and can best be secured by careful aseptic technic during labor. It is of only scientific interest to know the exact microorganism which causes symptoms in the individual case. The practical obstetric point is that asepsis will prevent the entrance and activity of any and all of these pathogenic microorganisms.

REVIEW OF LITERATURE

Diagnostic and Prognostic Importance of a Microscopic Examination of the Lochia.—A. Leo¹ examined the lochial secretion of 38 normal women and 26 others, running a temperature after labor, for the purpose of noting its value in relation to the diagnosis and prognosis of puerperal diseases. The vaginal lochia of normal women contained streptococci in 50% of the cases, the chains never containing more than four links; in 50% of the subfebrile cases, streptococci were also noted, but the chains always contained more than four links; he considers the streptococci increase the cause, and not the sequence of the subnormal temperature. The uterine lochias of such women contained streptococci in respectively 17.6% and 20% of the cases; they were always less than four-link chains. In febrile cases the vaginal lochia of 76%, and the uterine lochia of 42.8% of the patients contained streptococci. He concluded from his results that if no streptococci are found in the vaginal, and therefore in the uterine lochia, grave affections of the genital tract can be excluded. Fever in such cases must be due to extragenital causes, simple stopping of secretion, sapremic intoxication or gonococcal infection; the prognosis in these cases is quite favorable. The presence of numerous and even long chains of streptococci in the uterine lochia does not justify the diagnosis of a grave uterine infection with certainty; four link chains are found frequently in perfectly normal cases; if streptococci of more than four links are present in the vaginal secretion, a genital disease is probable, as they produce either a febrile or subnormal temperature; chains of more than four links in the uterine lochia are found only in febrile cases, but the gravity of the affection does not seem to depend on the length of the chain. The number of leukocytes gives an inkling of the resisting power of the organism. [E.L.]

Anatomy of Atmocaenis.—Fleischmann² had an opportunity of seeing a patient who had been treated by this process, and in whom he afterward did a hysterectomy, giving him the privilege of studying the mucous membrane of the uterus under the microscope. In the lower part of the uterine segment portion, the mucous membrane was destroyed, obstructing the outlets of the gland which resulted in the production of cysts. In the middle of the uterine cavity the mucosa was destroyed as far as the muscularis, while in the upper part of the cavity the superficial epithelium was gone, although the glands were little involved. [J.F.]

Indications for Hysterectomy in Acute Puerperal Metritis.—Lemoine³ believes that hysterectomy should be resorted to without hesitation when in the case of postpartum or postabortion septicemia the general state is grave and tends to grow rapidly worse. When the local condition indicates an infiltration of the uterine wall by microorganisms, in spite of persistent treatment; when complicated obstetric operations or criminal abortions have been performed; and finally when blood-examinations show a leukocytic blood count of 25,000 or

¹ Brooklyn Medical Journal, April, 1905.

² Johns Hopkins Hospital Bulletin, April, 1905.

¹ Münchener medizinische Wochenschrift, 1904, II, 2131.

² Zentralblatt für Gynäkologie, 1905, No. 8.

³ Journal Médical de Bruxelles, October 13, 1904, p. 543.

more, with 90% persistence of a polynucleosis, or progressive increase in the polynuclear cells, with persistent absence of eosinophiles and basophiles, one can conclude that the organism is not resisting the infection and the operation is indicated at once. [J.H.W.R.]

The Production of Brachycephaly and Dolichocephaly through Arbitrary Positions of the Child's Head.—Walcher¹ is convinced that the position assumed by the child's head is, to a great extent at any rate, responsible for the production of these conditions. He illustrates by photograph these conditions found in twins, the eggs of which, he says, must have been conceived at the same time, and are, so to speak, duplicates. In one of these children, 10 days after birth, there was present a brachycephalia incident to a dorsal recumbent position, and in the other a dolichocephalia, incident to a lateral position. As an etiologic factor, heredity plays a part only in the taste and customs of the people; as an instance, he cites the custom of the people of southern Germany, who lay their children in the dorsal recumbent upon a soft feather pillow, and the English, who lay their children in the lateral position upon a hard hair cushion; in the former, brachycephalia and in the latter, dolichocephalia develop. These conditions can be changed by alteration of positions, if done before ossification is completed. [J.F.]

Concerning Rectal Gonorrhea in Infantile Vulvovaginitis.—K. Flügel² cites the cases found in the literature of gonorrhea of the rectum complicating that disease of the vagina in infants, and reports his own experiences. He states that it occurs much more frequently than is commonly supposed. He found that a third of the women in the City Hospital of Frankfurt undergoing treatment for gonorrhea also had rectal infection. Upon studying the children in the same wards he found that out of 56 patients, 11 suffered from rectal involvement. The diagnosis was made by passing a platinum wire loop into the rectum and withdrawing some of the secretion. By the use of a speculum (nasal speculum) small pus-like deposits were seen adhering to the mucous membrane. The subjective symptoms were few. Several of the children complained of a desire to frequently defecate, and a burning sensation in the anus. A single examination of the secretion was not always sufficient for the detection of the gonococcus, and had to be repeated several times to obtain a positive result. It is probable that the infection in children occurs through the vaginal discharge. The author suggests as a prophylactic measure the application of a pad of gauze to the vagina, and held in place with suitable bandages. The treatment consists in the use of suppositories containing silver nitrate or albargin, or ichthyol. In some cases rectal irrigations with a 1 to 3,000 silver nitrate solution were employed. The course of rectal gonorrhea is of varying length; in some cases the cocci were present from 4 to 14 days after treatment was begun, and in other cases as long as six weeks. [W.E.R.]

The Technic of Alexander-Adams' Operation.—Fehling³ has performed this operation in 106 cases in the following manner: He makes a curved skin incision extending from a point midway between the symphysis pubis and the anterior superior spine from one side to the other so as to run over the tubercle of the pubis. The outer portion of the wound is now extended with the knife and forceps as far as the fascia of the external oblique and until the angle of the inguinal is exposed. By light pressure on the inguinal canal the round ligament becomes prominent which is isolated after the ilioinguinal nerve is dissected out. When the round ligaments are dissected free from the surrounding tissue they are pulled down as far as the peritoneal attachment. [J.F.]

Contractility of the Unimpregnated Uterus.—A. Duke⁴ believes that the contractile function of the uterus by drawing cervical secretions into the cavity tends to produce chronic abnormal conditions. After impregnation the suction action is assisted by the return of the blood supply from the hyperemic uterus, and a similar action may occur from various causes, nervous or otherwise. Some of the toxic symptoms in patients

who have been vainly treated for rheumatism, suppressed gout, etc., have arisen from this cause, and treatment of the uterus alone has given relief. A uterine stem has been drawn into the uterus, button and all. These pessaries should be open from end to end or grooved at the side. When there is a uterine secretion free exit should be secured by a drainage-tube or dilatation or both. [H.M.]

Embryotomy.—Dr. Seeligmann¹ tells us that if an operator, when dealing with a transverse position, is confronted with such an operation, without assistants and with a scarcity of instruments, the process can be done in the following manner: With the fallen arm, the thorax is drawn well into the pelvis and then perforated with a pair of scissors. The field of operation is then irrigated with a liter of 2% lysol solution, in order to assure a clear field. After enlarging the opening in the thorax, he undermines the musculature of the back of the child with the index and middle fingers of the left hand, which, when accomplished, allows the introduction of the blunt hook with the right hand, this being guided with the free fingers of the left hand into the undermined portion and around the spinal column of the child. With traction on the hook and with counterresistance made by the thumb on the one side of the hook and the index and middle fingers of the left hand on the other, the spinal column can be readily broken, after which the hook is removed. In many cases, after the transverse tension of the lower uterine segment is relieved by the fracture of the spinal column, the attempt of delivery "conduplicato corpore" may now be made once more; with a normal pelvis and exenteration of the child, it is often successful at this time. The advantages of this operation are: (1) Assistants are unnecessary; (2) the operation can be performed in the patient's room, so that she need not leave her bed; (3) a pair of scissors and a blunt hook are the only instruments necessary; (4) the work is principally done in the vault of the vagina, so that the uterus is little injured; (5) the head being still connected with part of the trunk, is more readily removed. [J.F.]

Differentiation of Streptococci from the Lochia of Normal Lying-in Women.—To differentiate between the varieties of streptococci in the lochial discharge after labor, F. Schenk and A. Scheib² examined numerous colonies for their specific agglutinative properties, comparing them with each other and with known pathogenic organisms. The results of these examinations showed the organisms to belong to the pyogenic streptococci; most of them were virulent, some belonging to the type *Streptococcus longus*, others to the type *Streptococcus brevis*. The facts were proved by morphologic staining and cultural examination, also by animal experiments and specific agglutination. The organisms were found chiefly in the later days of the puerperium, this being probably the reason why the patients had neither fever nor other untoward symptoms. Of the patients examined between the third and fifth days 64.6% were sterile; examined during the eighth or ninth day 28.5%. During the early days 9.2% had pathogenic germs, during the late days 37.1%. It is evident that in the later days the uterus is already too full of granulations for the streptococci to develop. [E.L.]

Bacillus Aerogenes Capsulatus in Puerperal Fever.—Little³ deduced from his investigations and observations that if *Bacillus aerogenes capsulatus* is present in pure culture during an infection, the disease will be mild, and after removal of the material in the uterus in which it develops, the fever soon disappears, but if this organism is accompanied by such bacteria as the streptococci or the colon bacillus, the disease is always severe, and commonly terminates fatally. The gas bacillus apparently raises the virulence of the other bacteria. If *Bacillus aerogenes capsulatus* is accompanied by the staphylococcus, the disease is mild. [J.F.]

Chorioepithelioma and Hydatid Mole.—R. Dunger⁴ considers several cases of chorioepithelioma, in the uterus or in other sites, in some of which hydatid mole was known to be present, and in others was suspected. The relation between the two of effect and cause is believed to be demonstrated.

¹ Zentralblatt für Gynäkologie, 1905, No. 7.

² Berliner klinische Wochenschrift, March 20, 1905.

³ Zentralblatt für Gynäkologie, 1905, No. 8.

⁴ Medical Press and Circular, January 25, 1905.

¹ Zentralblatt für Gynäkologie, 1905, Bd. xlix, No. 8.

² Münchener medizinische Wochenschrift, 1904, II, 2129.

³ Zentralblatt für Gynäkologie, 1905, No. 7.

⁴ Zeigler's Beiträge z. Path. Anat., Bd. xxxvii, Heft 2, 1905.

Dunger does not regard excessive lutein production in the ovary as a cause of hydatid mole, and hence of chorioepithelioma. Conversely, he believes the ovarian changes due to the uterine overgrowth. The corpus luteum develops normally as the uterine changes due to pregnancy occur; chorioepithelioma is an excessive overgrowth of the placental tissues, and there is naturally a corresponding overproduction of lutein cells in the ovary. [A.G.E.]

Lutein Cell Proliferation in Atresia of the Follicles: A Physiologic Phenomenon during Pregnancy.—Seitz¹ notes that beside the primary follicle many other cystic follicles are found during pregnancy which can be scarcely differentiated from the primary follicle. Of the cystic there are two forms. After describing both types, he says if these findings of the ovary are compared with the findings of hydatidiform moles and chorioepithelioma a striking resemblance will be seen. A principle of a similar process is being dealt with, which, through circumstances, has experienced a modification and an involution; the preexisting, during the usual pregnancy as well as during the development of the hydatidiform mole, is the proliferation of the lutein cells of the follicles. He is inclined to believe that these lutein cells are of connective tissue, originating from the theca interna. The function of the cells is probably to elaborate a secretion for the mother's economy, which produces a set or a part of a set of changes in the body of the mother incident to pregnancy. [J.F.]

The Surgical Treatment of Complete Descent of the Uterus.—E. C. Dudley² treats extreme cystocele not associated with the most extreme procidentia by anterior colporrhaphy and perineorrhaphy. Cystocele associated with complete procidentia he properly treats by hysterectomy, anterior colporrhaphy, and perineorrhaphy. Conditions between the two and cases of very feeble or very old women call for especial judgment as to whether or not a hysterectomy should be performed. It is a fortunate fact that the completely prolapsed uterus in aged women is removed, as a usual thing, with ease and safety. The author condemns operations in which no effort is made to restore the normal axis of the uterus and the vagina, and says that the operation generally passing under the name of the Stultz operation should never be performed, as it leaves the uterus and the vagina in the same axis, and the restricted vagina produced by it cannot resist the downward force of the uterus, which almost invariably dilates the vagina a second time, forcing its way through, with the reproduction of the hernia. Amputation of the cervix to lighten the weight of the uterus he also considers of questionable value. [E.L.]

Cesarean Section on Account of a Retrocervical Myoma with Total Extirpation of the Uterus.—Michel,³ after failing in his attempt to bring what he thought was an ovarian tumor above the promontory of the sacrum, decided to do cesarean section and after removing the child found he had to do with a cervical tumor, which data, together with the fact that labor had been a prolonged one, induced him to perform hysterectomy. The age of the patient indicated this step also. [J.F.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Treatment of Leukemia with Röntgen Rays.—E. Meyer and O. Eisenreich⁴ treated two such patients with the röntgen rays. The first, a man of 31, had the spleen occupying the entire side of his abdomen, the liver markedly enlarged, and the leukocytes increased to 142,000; there were many eosinophiles and neutrophilic myelocytes, but no giant cells and large lymphocytes. He was losing flesh, getting gradually paler and ran an evening temperature. The second patient had 775,000 leukocytes, 32% hemoglobin and 2,750,000 red cells; the liver and spleen were very large. In both cases the patient's general

condition improved very much, the fever disappeared, the bodily weight increased as did also the amount of hemoglobin and the number of red cells. Both patients returned to their work. The leukocytes diminished very much, in the first case to normal, in the second to 66,000; upon the cessation of the treatment the leukocytes increased somewhat again. The first patient's spleen became much smaller, the second's not at all. Both patients, therefore, were much improved, but as the author is careful to point out, they were not cured; he advises a new seance of the treatment from time to time. The reason for the improvement must be looked for in the changes going on in the blood-making organs, and here especially in the spleen. Wendel's² patient also was in a most hopeless state; as long as only the spleen was treated, the improvement was not very marked; upon treatment of the sternum in addition, however, the leukocytes diminished, the erythrocytes increased and the spleen became softer and smaller. It was noticed that as soon as the treatment was omitted the condition became worse again; it cannot be considered a curative treatment therefore. He has been able to collect 36 cases from literature; 90% were markedly improved by the radiations; in 2 cases the condition was not influenced, and in 2 others it became worse in spite of treatment. The prognosis in myelemia is better than in lymphatic leukemia; no acute leukemias have thus far been treated by the rays. Of Schieffer's² 5 patients, 3 improved a great deal, 1 died suddenly after having improved considerably. He treated only the splenic area; the improvement continued even during the periods when, on account of dermatitis the radiations had to be stopped for a time. He thinks so well of the method as to compare it to digitalis in cardiac affections. [E.L.] [Recent observations go to show that the treatment is palliative only, diminishing the spleen and thus reducing leukocytosis, but not reaching the unknown toxin or microbe upon which the disease depends, and which finally produces death. S.S.C.]

The Value of Bitter Medicines for Digestion.—Borisow,¹ of Odessa, experimented upon dogs with the idea of determining the causes for the value of bitter stomachics in producing appetite and assisting digestion. The esophagus was sectioned so the bitters, after acting upon the taste buds of the mouth cavity could at once leave the body. Some of the dogs were permitted to see and smell food, and others had this phantom feeding preceded by bitters upon cotton. In the set of experiments associated with the stomachic the flow of gastric secretion was much greater than in the control tests without them; the author believes it to be due to gustatory irritation. Experiments in which the bitter was given 15 to 30 minutes before the feeding through a gastric fistula had an absolutely negative result. He concludes that the employment of bitters is useful in illness because of their producing an increase in gastric secretion. Large quantities he considers unnecessary, and if given some time before a meal, useless. They should be given a few minutes before eating. [E.L.]

Thorium Inhalations in Tuberculosis.—S. G. Tracy² says that the best method of inhaling thorium emanations is by means of Hugo Lieber's inhaler. In this apparatus thorium oxid is heated in a glass receptacle over a sand-bath. In using Lieber's thorium apparatus the inhalation of the emanations leaves in the pulmonary alveoli a fine film of radioactive matter, which in turn gives rise to induced radioactivity in the same parts. This induced radioactivity will remain in the air cells long after the original emanations have been exhaled. In most cases it lasts for from one to two days, after which it gradually disappears. In this connection it is interesting to observe that the radioactivity of thorium can be proved even after it has entered the lungs. If a patient inhales the thorium emanations and then, while in a dark room, exhales, allowing the breath to come in contact with a photographic plate, the exhalation affects, and partly decomposes the silver salts on the plate. The induced radioactivity of the thorium emanations lasts from 24 to 48 hours; this acts as a guide to indicate the proper frequency for the treatments. An inhalation given every day or every other day would keep the lung cells constantly in a

¹ Zentralblatt für Gynäkologie, 1905, No. 9.

² Canada Lancet, 1905, xxxviii, 887.

³ Zentralblatt für Gynäkologie, 1905, No. 6.

⁴ Münchener medizinische Wochenschrift, 1905, lli, No. 4, 153.

¹ Archiv für Experimentelle Pathologie und Pharmacologie, 1904, li, 363.

² Cohen's System Physiologic Therapeutics, Vol. xi.

radioactive and antiseptic condition. While the thermometer in the Lieber apparatus should indicate a temperature of from 250° F. to 300° F., the emanations are partly cooled by passing through the glass and rubber tubing, and may not be much above the normal body temperature at the moment of inhalation. These inhalations may be taken for a period of 15 minutes at the outset, which may be gradually increased to a half hour. This method of treating tuberculosis will not interfere with other measures, such as dietetic, hygienic, and even drug treatment.

Hypodermic Use of Mercury.—Schnabel¹ employed for hypodermic injections of mercury in cases of syphilis, a liquid petrolatum termed vasenol to suspend mercury salicylate. A 10% emulsion is prepared. Since using this, he has never seen the mercurial intoxication symptoms of the gastrointestinal canal that were noticed when liquid paraffin was employed. He explains this by the fact that the vasenol is absorbed more slowly and gradually. The two drawbacks to the use of vasenol are the fact that it causes at the point of injection a more painful infiltration, lasting for a longer time; and that air particles can so easily become mixed with the mass, associated with difficulty in ridding the syringe of this air. [E.L.]

The Treatment of Skin Diseases by Freezing.—M. Juliusberg² reviews the various methods which have been employed for freezing the skin in certain diseases, and describes the one employed in his case. He used carbonic acid gas as the freezing material, and an instrument similar to the freezing microtome, excepting that a nozzle with many perforations is substituted for the object holder. The carbonic acid gas is sprayed through this nozzle and allowed to act upon the skin for from 30 to 60 seconds. This keeps the part frozen for about two minutes. Juliusberg describes the various histologic changes which occur, and gives the case histories of the patients treated by him. These included cases of acne, psoriasis, lupus, sycotic processes, leg ulcers, röntgen-ray burns and canceroid. Good results were obtained in the cases of acne and in the superficial sycotic processes after repeated freezing. However, in the cases of psoriasis and lupus, the results were unfavorable. The author combined with this treatment cauterization with crude hydrochloric acid immediately after the freezing. Seven patients with lupus vulgaris were treated thus, with favorable results. The essayist, however, believes that this treatment should only be employed in the treatment of such tuberculous infections as cannot for any reason be treated by the röntgen rays. [W.E.R.]

Intravenous Salicylic Acid Treatment and Its Diagnostic Importance.—F. Mendel³ has made upward of 8,000 intravenous injections of salicylic acid, and is thoroughly convinced of its being absolutely devoid of danger when properly carried out with pure and suitable drugs. He describes his technic minutely, emphasizing the necessity of a broad, elastic bandage, which must not be loosened until after the injection has been made. This reduces to a minimum, the danger of air embolism, and possible thrombus formation in the vein. He has seen the latter in a few cases, but has never noticed any ill-effects from it; in most cases the vein became perfectly patulous again. Another point of great importance is the solution itself; he prefers a mixture of sodium salicylate 8 parts, caffeine 2 parts, and distilled water 40 parts. It does not injure the endothelial lining, nor does it produce corpuscular coagulation. Since employing this he has made 2,000 injections without thrombus, chill, pain, or any ill-effects. As to the result of his method he says it removes all rheumatic pains and fluid exudates from affected joints quickly and surely; it is effective in cases in which internal and external medication fails; it is free from all the unpleasant effects of salicylates when given by mouth. From a diagnostic standpoint the method is valuable, as every case in which the pain does not disappear, at least to some extent, must be considered of other than a rheumatic nature. A few instances of obscure pains are related; the diagnosis of acute rheumatism was made certain by a single injection removing all the pain. Its value in chronic rheumatic affections is also marked, both from a therapeutic and diagnostic

point of view. If the veins of the arm are not suitable, he prefers intramuscular injections into the gluteal region to injections into the veins of the leg. [E.L.]

Prophylactic Value of Antitetanic Serum.—Although the antitetanic serum has shown itself unable to combat all cases of tetanus, even though they may be treated very early and with what must be considered a sufficient quantity of the serum, it finds nevertheless, urges MacFarland,¹ a most important application in prophylactic medicine, and this phase of its employment is by no means receiving the commendation and application that it deserves. In a paper written in conjunction with E. M. Ranck the author called attention to an experience in this particular sphere that deserves great consideration. In one of the large antitoxin factories in which large numbers of horses were being manipulated, the deathrate from tetanus at one time reached 10%, and it became a serious problem how to continue to operate against such terrific odds. It finally occurred to MacFarland that the systematic immunization of all the horses might be a means of overcoming the difficulty, and when this was done, by the regular employment of antitetanic serum at trimonthly intervals, the deathrate immediately fell from 10% to less than 1%. These observations were made upon more than 800 horses. The practice has since become general in antitoxin and vaccine establishments, and should indeed be made obligatory by law. Surgical dispensaries and clinics constantly receive cases of lacerated, incised, and punctured wounds polluted with soil, in which the character of the injury and the attendant circumstances lead at once to the suspicion that tetanus may develop, and unfortunately in a very large number of these cases it does develop. If, however, each of these patients at the same time that his wound is opened and treated were to receive a prophylactic injection of the antitetanic serum, there is little doubt that many lives would be saved. In a recent communication before the Academy of Science at Paris, Calmette called attention to the fact that the antitetanic serum is readily absorbed from the surface of wounds. Hence, it is not necessary to give subcutaneous injections in early cases, but an excellent prophylactic method of treatment is to dust the antitetanic powder freely upon the surface of the wound. MacFarland has been able fully to confirm this suggestion of Calmette and in recent experimental work has by this method perfectly protected intentionally infected animals against the fatal effects of the tetanus organism.

A New Remedy for the Therapy of Tuberculosis.—J. Pollak² reviews the treatment of tuberculosis and presents his results in the use of sorisin. He found this drug to be an excellent stomatic, not only for tuberculous patients, but also for scrofulous children. It is a very effective expectorant, as well in tuberculosis as in bronchitis and asthma. In many cases sorisin has a favorable influence upon the night sweats and causes a fall in the temperature if fever exists. Sorisin caused a perceptible increase of body-weight in nearly all of the author's patients. This increase in weight is believed by Mendelssohn to be due to the favorable effect of this remedy upon the blood. [W.E.R.]

Concerning Skimmianin, an Alkaloid of Skimmia Japonica, Thumb.—J. Honda³ had found that skimmianin, when injected in medicinal doses into frogs, produces a primary lowering of the blood-pressure. This was also present in animals that had been chloralized; it is, therefore, not a result of vascular dilation. A secondary increase of pressure was noted. This is a sequence of a constriction of the vessels; as it was never observed in the case of the chloralized animals, and inasmuch as the pressure never rose beyond the normal height. The lowering of the blood-pressure is, therefore, directly due to the action of skimmianin on the heart; and the secondary rise is most probably due to a compensatory constriction of the peripheral bloodvessels. Skimmianin has no influence at all upon the secretion of the urine. It not only reduces the pulse, but it also slows it. This is due to a direct action upon the cardiac muscle. If continued, this action leads to a total paralysis of the heart. [E.L.]

¹ Serum Therapy, Cohen's System, Vol. xi.

² Wiener klinische Wochenschrift, March 23, 1905.

³ Archiv für Experimentelle Pathologie und Pharmacologie, 1904, III, 83.

¹ Deutsche medicinische Wochenschrift, 1904, xxx, 1893.

² Berliner klinische Wochenschrift, March 6, 1905.

³ Münchener medicinische Wochenschrift, 1905, III, No. 4, 185.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. OER

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPELMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 20.

MAY 20, 1905.

\$5.00 YEARLY.

Practice and Geography.—The recently formed department of tropic medicine has been the means of pointing out the fact, too little recognized, that disease has its geography, and that practice varies according to race, nation, or country. It is clearly so in the case of tropic countries, but, carefully observed, is it not as evident in different parts of the same country, subject to different climatic influences? The race characteristics will make diagnosis and therapeutics vary not only as between Occident and Orient, but between the different races, or their descendants, in one part even of the same State. If the role of insects, fleas, mosquitos, mites, bedbugs, etc., is as great in pathogenesis as it seems to be, this fact alone will produce noteworthy variations in the incidence of diseases according to the presence or absence of these carriers or modifiers of contagion. The great fundamental truths of philosophy and pathology will hold, but with far-reaching and profound changes in the outworkings of practice. Social and ethical variations and characteristics will modify not only details, but even general principles. Even religion has its power in the same way. Certain countries are said to be so thoroughly syphilized that, as the negro to malaria, they are comparatively immune. The fasting of devotees keeps a caution in the mind of the practitioner not needed when dealing with the well-fed. Even in America the thought must be remembered. In its last analysis it suggests the oft-emphasized but as oft-forgotten fact, that each disease must be individualized, because it differs from that of every other case. And as the individual disease is only an outgrown way of learning that there is no disease as such, only a diseased person, it ends in the perception that the individual patient is often to be studied, historically, racially, socially, and personally, before he can be given the most intelligent medical treatment.

Disease in the City and in the Country.—Our modern medicine is altogether too prone to become urbanized. The diseases of the cities take up too much of our attention, and this is certainly so of the practitioner of the city, the consultants, professors, banqueters, and the rest. The profession that forgets or too much ignores its country colleagues is itself getting morbid, and needs some sort of a cholagog or tonic. Agriculture, as we all know, is our greatest, most im-

portant, and most fundamental occupation. It is estimated that it employs nearly a fourth of the people of a self-sustaining state. Goldsmith's teaching in the "Deserted Village" will always ring true. And it is certain that in many ways practice in the country differs from that in the city. If the farmer's life is strenuous, it is strenuousness of a different sort from that of the broker and diner-out. If fresh air is necessary for health, the fact will be evident, and even unexpectedly, because generally the farmer sleeps in foul air and works in pure air. Does the country, in fact, promote health? Is the deathrate lower than in the city, and precisely what are the diseases more prevalent in one place than the other? Is it true that isolation, especially of farmers' wives, produces mental disease? The question of the supply of pure drinking water upon the farm has a vital significance, and the relation of human to animal diseases has another phasing there. Hygienic rules while in general uniform, vary decidedly in their country applications and in peculiar problems. Is village life to be preferred to isolated homes? What is the effect of the trolley in equalizing all such conditions? The nursing and hospital difficulties alone make country practice a different thing from that in the city.

The Growth of Specialism and Country Practice.

—Of all the causes that have worked to differentiate country and city practice none has been so influential as the growth of specialism. In some aspects it has been unnecessary, and even morbid, but in most it is not so, and in many it has been utterly unavoidable. Most debatable are the advantages of surgery as an exclusively urban specialty, and as to the diseases of women and those called nervous and mental, the question is about settled by those who take the negative side. There is also hardly any necessity for the urbanization of orthopedics. Quick intercommunication by means of the telegraph, telephone, and trolley are making it possible for the country practitioner to carry on the fight against infectious diseases as well as his city colleague. As to many functional diseases, he has many advantages over the professor and generally he should keep such patients at home, if the city man will allow him, and will encourage him to do so! In the diseases of certain organs, however, it becomes wholly unavoidable to prevent consultation with the city specialist. These are

absolutely those of the eye, as almost any attempt of the nonspecialist to treat them is peculiarly likely to end in disaster. Those of the ear, nose, and throat are usually to be placed in the same category. The crying criticism is too well authorized that the city is gluttonous and that the city specialist and leader is not careful to observe the just claims of his country brother as the official in charge of the case. All good men wherever living should unite in the most ethical treatment of the country family physician. The city specialist needs to observe every rule of courtesy toward the country colleague, just as well as if he were a next-door neighbor and referrer of cases.

Rivalry and Competition in Country and City Practice.—Carelessness of the rule just mentioned, bred sometimes by avarice and ambition, has brought about a spirit of savage rivalry between city and country, which is begetting shameless evils and abuses. It is written and published that: "When the country practitioner carries a patient to the city and delivers him over to the great man at the other end of the line, he has simply played the part of a medical valet." "The big men in the profession are entirely too big, and the little men are entirely too little." With the last epigram, one may have all sympathy. A pamphlet before us, entitled "An Appeal to Your Common Sense," says that "the conditions among village and country doctors were never more unsatisfactory. Income is decreased. Esteem in which the individual physician is held by his community is decreased. There is lack of opportunity to attract and hold patients, the curing of which would give at least local reputation." Rivalry among the local village and country doctors prevents them from referring special cases to each other, and so to avoid increasing a competitor's reputation, these are sent to the city specialist. They thus "play the part of unpaid and sometimes professional broker to some eminent man in another town or city." "The tide of patients who can pay has set strongly toward the cities." One cure advocated for the evil so patent and much to be deplored, is the abrogation of the secret division of the fee, instead of which is urged the open division of the fee. We, of course, agree as to the wrong of the secrecy, but are not so sure that openness makes the division ethical, or for the good of patient and profession.

The local, village, or town hospital as a cure for the abuses so vigorously depicted by Dr. Hyatt, of the North Carolina Cooperative Hospital Association, is worthy of all encouragement. Reduced to its last analysis, the chief sources of the rivalries and troubles of the country and city practitioners come from the advantages of the city hospital. There is but one cure, and that is for the country men to establish and carry on their own local hospitals, in connection with which shall be a body of experts and specialists who will deal honorably with members of the local profession, and whereby the patient may be spared the visit to the distant city. Further than the essayist, indeed, we would go, and advise not only one hospital in a village and country district easily reached by 250,000 people, but a hospital

in centers which would be reached by 10,000 or 20,000 neighbors. The establishment and maintenance is perfectly possible in such sized communities, and if the abuse exists in the large regions it is as evident in the small. An incidental advantage is that the quack and fraudulent hospitals would be discouraged thereby; the local profession would also be unified into a band of self-respecting and ethical men. Certain it is that the patient would be benefited. It would doubtless prove a capital means of equalizing conditions described as the overbigness of the big men and the underlittleness of the little. Let us have peace—and let us have village and town hospitals!

Tuberculosis in penal institutions is the subject of a valuable report by J. B. Ransom, physician to Clinton Prison, Dannemora, N. Y. It has been printed by Congress for the 1905 meeting of the International Prison Congress. Ransom has been a pioneer in the great reform now in progress to correct the dreadful conditions formerly existing in all prisons and still found in most of them. What he says should be given the widest publicity. He calls attention to the fact that the ordinary jail or prison, built upon medieval plans, is an ideal environment for preserving and transmitting the bacillus, and also for destroying the health and vitality of the criminals, so that they lose what little immunity they possessed when confined. He shows that infection generally occurs in the cells which have been previously occupied by tuberculous prisoners. The ordinary means of disinfecting by whitewash are productive of harm by reason of the bronchial irritation of the lime dust, and the bedding and clothing of a consumptive are frequently transferred directly to a new arrival without any disinfection whatever. The work exacted of the criminal is always invariably in dust-producing trades which have long been known to be potent primary causes of consumption in the free population and doubly effective in men deprived of free, untrammelled exercise in the open air.

Half the deaths among prison populations are due to tuberculosis, and autopsies on those dead of other diseases nearly always reveal infection to some degree. Jail life is particularly pernicious from a hygienic standpoint, and one instance is mentioned in which the cases of tuberculosis were six times as many as the general average of criminals. It is at this time that the accused is either infected or loses his natural immunity. All this sounds as though we were back in the dark ages, and it is certainly a blot on our civilization. It is a problem which demands early solution, regardless of cost. The wonder is not that so many are infected as it is why so many escape.

Criminals are Very Susceptible to Tuberculous Infection.—Much of this is no doubt due to that lowered condition of health which always results from an unnatural life. Prior to confinement the criminal is irregular in habits, generally intemperate, prone to excesses of all sorts, and lives in intermittent idleness in the worst habitations, so that he is far from normal. Beyond

all this, there is an undoubted instability of the nervous system which these unfortunates receive from their parents, which is in great part the reason why they are unable to devote themselves to steady labor, and which drives them into social parasitism for existence. Ransom states that about half of all criminals are born so—that is, born under conditions which make them criminals, and those conditions may be antenatal or postnatal. Since tuberculosis is often considered to be an expression of a weak nervous system—a symptom of some neurotic fault—we can well understand the criminal's susceptibility. It is then a double fault that we should thrust into such awful prisons the very men who are most prone to be infected. A long sentence in the average prison is too often a sentence of death. As the prison population changes every five years, there is a constant stream of infected men turned out to return to their old crowded haunts, and if we have no regard for them, we should have some thought for the damage they inflict upon others as a result of our penal methods. We are duly punished, no doubt, by the infection spread by every tuberculous criminal released.

Isolation is the basis of modern sanitation, not as a charity to the patient, but as a protection for others. A government thus has new and somewhat revolutionary duties thrust upon it by the modern course of events. In the case of the most contagious diseases, this has long been a recognized public duty, but in those diseases whose infectiousness has been the discovery of the last few decades, there is a natural opposition on the part of the patient and his family, as an interference with personal liberty. There are many people who claim the right to spread dangerous infections to others. The thinking and ruling people must be constantly taught what diseases are dangerous, to the end that we will be able to organize new institutions for the segregation of infection arising among those too stupid to appreciate the harm they may inflict upon others. It will be an economy to provide special jails for the tuberculous who are awaiting trial, and special prisons or prison farms for the convicted, as so ably advocated by Ransom. Popular articles on this and all allied topics are among the future duties of the medical profession.

Regard for the Welfare of Others is a Social Necessity.—Before men were organized into societies, each man or family was for itself, and the struggle for existence was individual, not national, but all such types were wiped out by the types which organized themselves into clans or tribes for mutual aid. Society's welfare is then the supreme law, and it bears rather hardly at times on the individual when his welfare is opposed to that of the mass. America is peopled by types which have resented this natural law, so that we claim greater personal liberty than any other people, but by the aggression of others we really have less. We even claimed the liberty to enslave. We always resisted any effort of the State to interfere with personal matters and the States resent interference with State rights on the part of the general government. Hence, liberty to disregard others is the great American evil. Foreign

visitors constantly remark upon our highly unnecessary loss of life and our indifference to the omission of the safeguards insisted upon in Europe. Particularly in theaters, railroads and steamboats are we careless of others, until a disaster opens our eyes to the faults for a few short weeks. All this is at the root of our personal indifference to the spread of infections, and of the resistance to modern efforts to reform public institutions. The outlook is not bad at all, for the whole trend of our history, particularly that of the last half century, is in the restriction of personal liberty to enhance the good of the greatest number. We can rest assured, then, that the present fight to restrict infections is certain of final success, for it is in obedience to natural law to restrict personal liberty.

Pigmentation of the Human Skin and the Effect of Tropic Light.—Many explanations have been given for the presence of pigment in the human skin, particularly regarding the extreme degrees of variation in its amount; none have been entirely satisfactory. In 1895, von Schmaedel advanced the theory that pigmentation is for the purpose of excluding the actinic or short rays of light which are inimical to living protoplasm. Of the researches to which this announcement gave rise, none have been more painstaking or thorough than that of Major Charles E. Woodruff, surgeon in the United States army, who sought to confirm or disprove von Schmaedel's theory. The recently published¹ results of his investigations form a most valuable contribution to the subject under consideration. Literature bearing upon this question is freely quoted, but Major Woodruff's army experience in this country, and more especially in the Philippines, has given him opportunity for personal observations of great value which he intercalates with the findings of others, and thus forms a very convincing presentation of his views. He fully endorses the theory of von Schmaedel, which he now regards as conclusively proved. In the first 12 chapters of his book, the author discusses certain principles of light and its action on protoplasm as found in plants and animals, the natural defenses of animals from light, the known effect of light upon man, actinotherapy, and the blondness of certain races in its evolution and its effect upon their migrations. Many supposedly well-grounded ideas of laymen and physicians are classed as erroneous, but always because of clearly-stated reasons. Not every one, however, will be disposed to agree with all of Major Woodruff's statements regarding the comparative value of sunlight and shade. We are yet too much wedded to the belief in sunlight as a purifying and disinfecting agent to class it as largely detrimental to mankind, and agree that if light injures or destroys the protoplasm of bacteria, it will also destroy that of human cells. If, however, we are wrong, it is just such temperate language and well-put arguments as abound in this book that will finally set us right.

Rules for White Men in the Tropics.—The thirteenth and last chapter in Major Woodruff's book can in no wise be called the unlucky one; it is the most

¹The Effects of Tropic Light on White Men, p. 358. Rebman Company, New York and London, 1905.

practical of all, as in it the author combines preceding generalizations and his personal findings as to their correctness in the Philippines and crystallizes them into plain, everyday rules for those who go hither from other latitudes. These rules, of course, apply with greatest emphasis to blonds. Light, more than heat, is to be guarded against, as acclimatization, in regard to pigmentation, is an impossibility. Hence, artificial protection against tropic light must be provided and maintained. In the daytime, white, gray or yellow outer clothing, and black or yellow underclothing should be worn; in the evening black alone is best. For those not exposed to the sun's rays, black or dark blue is the coolest color. Opaque headgear is demanded, bald men running a greater risk in the tropics than do those who possess a heavy covering of hair. Darkened houses are necessary, the lower edge of a porch or veranda coming within four feet of the floor line. Regarding working hours, the suggestion of Major Woodruff will cause northern bureaucrats and business men almost to collapse. Office hours should be from 7 a.m. to 11.30 a.m. only, as four and a half hours' brain work daily is all that ought to be expected from white men in the tropics. No one should be out doors between 11.30 a.m. and 3.30 p.m. Even brunet Spaniards and Malays, pigmented by nature to resist harmful light rays, are careful to observe the midday siesta. Only a small amount of study in the cooler months, and no examinations, should be held on account of the universal loss of memory. Cold baths should be substituted by tepid or warmer. Army regulations are of great importance. Recruits had best be limited to brunets, preferably of short stature. Men less than 20 and more than 35 should not be chosen. These points are of enormous economic and social importance to the United States, both in the Philippines and at Panama, and their publication at this time is most opportune. Major Woodruff concludes by directing attention to the great need of further investigations along the lines he so entertainingly leads the reader of his most interesting and valuable book.

Copper in the Purification of Drinking Water.—

Science for April 21, contains a report of the interesting discussion of the Washington Academy of Science on the use of sulfate of copper in the purification of drinking water. The remarks of seven out of the eleven speakers on the subject are given in full. George T. Moore, of the United States Bureau of Plant Physiology, who is responsible for the widespread interest in the copper treatment of drinking water, reiterated his wellknown and generally accepted views on destruction of algæ in public water-supplies by means of copper sulfate, and claimed for this substance, somewhat overconfidently, we think, a reliable bactericidal efficiency against typhoid bacillus in solutions as weak as 1 in 10,000,000. The experimental evidence has clearly established the great usefulness of copper sulfate on the destruction of algæ. There are no practical objections to its employment for this purpose, and a very refractory problem in the hygiene of water has been solved by this work of Drs. Moore and Kellerman. The failures hitherto reported in use of copper sulfate as an algicide have been very

few and unimportant. One such instance is mentioned by Marshall Leighton in this discussion. A reservoir, cleared of anabæna by copper sulfate treatment, showed shortly after a very vigorous growth of chlemydomonas, a rarer and in some respects more objectionable alga. It is unlikely that similar exceptions will occur in future in such number as to materially impair the value of the copper method.

The toxicity of copper sulfate for mosquito larvae was discussed by Dr. Marlatt, of the Bureau of Entomology. In the laboratory young larvae are destroyed quickly by solutions of 1 in 500,000, but older larvae are more resistant. Nearly grown larvae are stimulated by the copper salt and pupate rapidly. Pupae are immune to copper sulfate in the strength of 1 to 1,000. Copper foil also destroys mosquito larvae, rapidly in comparatively pure water, slowly in water containing considerable organic matter. These observations seem to indicate a field of usefulness for copper in the protection of water stored in small amounts, as in cisterns, and particularly in the tropics, where the disease-carrying power of mosquitos is to be combated. Dr. Marlatt did not get encouraging results in attempting to destroy mosquito larvae in open ponds by the use of copper sulfate.

The experiments which have established the value of copper sulfate in the destruction of algæ have all been made on a large scale under the conditions of actual practice, and the advisability of studying this part of the subject by laboratory methods does not seem to have been thought of. There is, however, a point which has not been and cannot be settled by experiments on large reservoirs, and that is the important point of dosage, alluded to briefly and in another connection by Marshall Leighton. It is difficult to see how a definite dose of copper can be administered to the algæ by towing a bag of the salt about a reservoir. No one claims to have made in a great public reservoir a copper solution of very definite uniform strength, though no one doubts that a pound of copper sulfate will in time be diffused equally through ten million times as much water. From the viewpoint of the algæ the dose is probably very much larger than that represented by the ratio of the weight of the salt to the estimated weight of water in the reservoir. Granting that the dosage cannot be more satisfactorily expressed, it is still worth while to remember that the amount of water in a reservoir is exceedingly difficult to estimate. There is one period in the life of a reservoir when its capacity can be stated with reasonable accuracy, and that is before any water has been admitted. In estimating the contents of a reservoir which has been long in use, errors of 50% to 100% are not very rare. In other words, there may be twice as much or half as much water as the engineer's figures indicate. The amount is somewhat more likely to be overestimated than underestimated.

The proper dose of copper for the destruction of algæ may be calculated in this way accurately enough for practical purposes; at least, experience with that

method has been satisfactory thus far, but the statement that algæ are killed by one part of copper sulfate in ten million parts of water, may not be substantiated by laboratory experiments. Error in estimating the amount of water to be treated cannot, however, be large enough to have hygienic interest to the consumers. On the point of dosage, two theoretic objections were mentioned at the Washington meeting. Dr. Wiley, chief of the Bureau of Chemistry, spoke of copper as a cumulative poison, and called attention to the fact that in estimating the dose of copper on the amount of water to be treated, an important factor is overlooked, namely, the amount of contamination. Whether the dose of copper is more or less than will enter into organic combination and be precipitated, in either event, a corresponding amount of copper sulfate will remain in solution in the water. Dr. Leighton spoke especially of too small doses of copper which might be expected to increase the resistance of the organisms, until at length they might become quite immune to copper sulfate. Each of these suggestions, though having a basis of truth, lacks practical bearing on the method, for continuous treatment would be necessary to give force to such objections. A strong point in favor of the copper method is that it is discontinuous. In the experience thus far reported, one treatment has sufficed for a year of time, and it seems almost impossible that in any climate the dose of copper need be so frequently repeated, or can be so grossly miscalculated as to become important to consumers of the water.

Experiments with copper in relation to the bacteria of water have not yet rewarded our hopes. The most favorable results so far reported are found in this symposium. The paper read by Dr. Kraemer at this meeting was published in *American Medicine* for February 12, 1905. In his experiments, Dr. Kraemer used three sorts of water, distilled water, filtered water, and ordinary tap water, all alike, however, in having been autoclaved and inoculated with typhoid or colon bacillus. Against these organisms in such waters, copper foil showed a strong bactericidal power, which seemed to the investigator to warrant the use of copper foil in the domestic purification of drinking water. Mary Pennington reported experiments on distilled water, sterilized filtered water and raw tap water inoculated with typhoid bacilli, showing that in bright clean copper vessels these germs were soon killed and the number of ordinary water bacteria diminished. Her experiments also showed that the bactericidal power of copper foil is markedly increased both in still water and in running water by charging the copper foil with low electric currents. These observations do not bring the use of copper within the scope of municipal hygiene and when one notes the special emphasis laid by each of these investigators on the necessity of frequently and thoroughly cleansing the metallic surface, it is not easy to see a marked advantage in the use of copper vessels or copper foil over other expedients in the domestic purification of water. On this occasion no reports were made on the use of copper sulfate against bacterial pollutions of water, but most of those present were of the

opinion that the method may be useful in emergencies, as in time of epidemic typhoid or cholera when filtration is wanting or defective. It was remarked in the course of the discussion that sulfate of copper has no place in domestic hygiene. This substance has, however, an immemorial history in the service of Hygeia. The time and place of its advent are lost in antiquity. The dosage and manner of administration are not modern. In warm climates and among primitive people a crystal of blue stone fixed in a cleft stick is a very old-fashioned domestic appliance. It is also a very durable implement. Stirred about in the rain barrel for a minute or two, "once in a while," the blue stone is believed to keep the water sweet and the container clean. According to Dr. Fuller this device came into the United States from over seas in early slave days and yet survives among the negroes of Dixie.

The criminal in fashionable philanthropy is a danger against which we have frequently warned the profession and the public. Fraudulent institutions have sprung up in the West and South to cheat the tuberculous out of their little money while pretending that charity is the motive of the scoundrels. It is one of the punishments of arousing public sentiment about one disease. The deathrate is twice what it should be, because of the public indifference to sanitary matters and preventive medicine, and as regards diseases far more easily controlled than tuberculosis. The methods, however, are not so dramatic and do not give such opportunities for self-advertisement. The side of the advertiser is at once seized upon by the confidence men. Knowledge has come to us more than suggesting that these gentlemen have found it more easy to get subscriptions to "charity" and pocket the money than it is to make money even by promoting worse "get-rich-quick" schemes. The national societies, and even others also for the control of tuberculosis, may have to direct a large part of their energies and money to outwit the scamps who are trading on the sentimentalism of the gullible. Attorneys and detectives might already be a part of their machinery.

Rations for the Japanese Army.—Although a great deal has been written about the Japanese soldier it is never amiss to drive home certain points made prominent by the present Manchurian campaign. A correspondent of the *London Truth* says of the Japanese army ration:

The other day I spoke of rice and dried fish being the uniform food of the Japanese army in campaigning times. This is the way in which the rice is cooked: It is boiled until quite thick and glutinous. Next it is placed on a ceramic slab, rolled out and cut into squares. The squares are then placed in the sun to dry and often turned. When hard as sea biscuit and greatly reduced in weight they can be stored. A certain number are allowed each day to the soldier. All he has to do is to break up a square in boiling water and to add the dried fish. In a few minutes he has what seems to him a delicious thick soup. If he cannot procure boiling water he simply eats his rice cake dry. In the fruit season he substitutes fruit when he can obtain it for the fish. The Japanese soldier, M. Pichon tells me, has muscles like whip cord, is a sure shot, has an eye for land-marks and a memory for locality. He can do with three hours' sleep out of the twenty-four, is cleanly, attends to sani-

tary instructions, is ardently patriotic, holds his life cheap, and runs up hills like a goat. He costs the state about 4½d. a day, and thinks himself well off.

It is instructive to compare these statements regarding food and sanitation with what we said last week about our own soldiers in 1898. In buckling down to discipline and philosophically accepting the hardships of war in the way of rations and sanitary requirements, the armies of the world can learn from the Japanese. Their military and medical records in this war are proof of such statement. Thousands of cases of typhoid fever among our volunteers in 1898 could have been prevented by a discerning acceptance of the stern realities of campaigning.

Subscriptions to the Craig Memorial Fund.

A Friend	\$50.00
Dr. A. G. Ellis	50.00
G. C. C. Howard	50.00
Dr. Geo. M. Kober	25.00
"A friend," Boston	3.00
H. B. C.	10.00
Cash	10.00
Dr. H. M. Simmons	10.00
Cash	10.00
Cash	5.00
Dr. Alfred Gordon	2.00
Anonymous	5.00
Dr. N. B. Williams	1.00
D. McLaughlin	5.00

Total to May 17 \$236.00

IN MEMORY OF THE LATE

DR. ALBERT B. CRAIG, M.D.

BY R. H. G. OSBORNE, M.D.

Dead in the line of duty—this the gain,
And this the fruitage of devoted powers!
Yet Heaven's own sunshine lights the wreaths and flowers
That deck the bier of one so nobly slain.
Great-hearted Craig! Thou hast not lived in vain,
Though brief thy share in this world's sun and showers;
And may the motto of thy life be ours,—
Brave to the last, and scorning to complain!
Honor is due to him who could enact
A part so fine, devoid of all display,
Content both life and life's best sweets to yield.
Yet be it noted, his heroic act
Was but a type of deeds that every day
Surpass the valor of the battlefield.

A City of Consumptives.—In accepting the \$1,000,000 tender of the Santa Fe railroad and the 10,000 acres of land given by the city of Las Vegas, N. M., the National Fraternal Sanitarium for Consumptives, acting in the interest of 8,000,000 members of fraternal organizations in the United States have put their new community—Fraternal City—on the map of New Mexico—six miles west of Las Vegas. It is to be a sanitarium for consumptives, maintained by per capita contributions of members of the big fraternal and religious orders. The gift of the Santa Fe railroad consists of the \$500,000 Montezuma hotel building in the Rio Gallinas canon, including several structures in the vicinity, several hot springs, and 1,000 acres of land, representing a value of \$1,000,000. This, with the 10,000 acres given by the city of Las Vegas, will be the basis upon which the sanitarium will be started. By next fall it is expected the place will be formally dedicated and opened. Plans are being made for the reception of 5,000 patients, this number to be increased indefinitely as rapidly as funds are available. It will require an expenditure of \$75,000 to put the place in shape for the reception of patients, a part of which has been contributed in small amounts. The government of the sanitarium will be vested in a board of managers composed of 15 representatives of fraternal and religious orders. It will be governed on the basis of common ownership, with profits to none. Most of the patients will come from the fraternal orders, but others will be admitted by the payment of a small fee. Those who desire to work will have a chance at stock farming or at any of the numerous positions incidental to the operation of the sanitarium.

AMERICAN NEWS AND NOTES

GENERAL.

Hospital Benefactions.—Columbia Hospital, Wilkesburg, Pa., is the recipient of an endowment of two private rooms, to be named in honor of Mrs. Carnegie and Miss Marguerite Carnegie, \$16,000 being donated by Mr. Carnegie for their maintenance.—In honor of its founder and donor, the **Bloomsburg Hospital** will hereafter be known as the Joseph Ratti Hospital.—According to the will of **Mrs. Clement B. Newbold**, the Maternity Ward of the University Hospital will receive \$5,000, and the House of the Merciful Saviour for Crippled Children, in Philadelphia, \$5,000.—The will of Emma F. Moffit gives the Rush Hospital, at Malvern, Pa., \$300, and the St. Faith's Home, at Tarrytown, N. Y., \$800.

Miscellaneous.—At a recent meeting of the physicians of the **Samaritan Hospital**, a permanent society of the staff was determined upon, the following officers being elected: President, Samuel Wolfe; vice-president, Henry C. Groff; and secretary, O. J. Arnold.—On commencement day the students of the classes of 1905, 1906, 1907, and 1908 will present to **Dr. Forbes**, professor of anatomy of Jefferson Medical College, a life-size portrait of himself. This year completes Dr. Forbes' twenty-sixth year as professor of anatomy in the college. Through his efforts the law legalizing dissection in Pennsylvania was passed, and the portrait is presented as a testimonial to his efforts.—The faculty of the medical department of the **University of Maryland**, at Baltimore, has announced the appointments to the departments of the University Hospital and the asylum at Bayview. The following are the new appointments: Assistant resident physicians, R. C. Metzel, R. P. Bay, and J. H. Smith, Jr.; assistant resident surgeons, J. W. Pierson and J. G. Matthews; assistant resident gynecologist, H. E. Jenkins. H. D. Purdum (reappointed), R. L. Mitchell, and W. B. Warthen were appointed resident physicians at the Maternity Hospital. S. L. Bare, W. H. Smithson, W. J. Riddick, and W. W. Brabham were appointed assistant resident physicians at Bayview.—**Glenwood**, of Dansville, N. Y., an institution devoted exclusively to the treatment of epilepsy, opened for the reception of patients on the fifteenth. James William Wherry is medical superintendent, and William P. Spratling chief consultant. The board of consultants includes Drs. Park, Putnam, Gould, Angell, Church, Bliss, and others.

EASTERN STATES.

A pure food laboratory will be established in Boston within a few weeks by H. W. Wiley, chief of the Bureau of Chemistry of the Department of Agriculture. At least two chemists and two clerks are to be employed, and it is expected that they will have the laboratory equipped and ready for work before July 1. The chief object of this laboratory will be to examine imported foodstuffs, and, in the matter of purity, place the importers on the same basis with the domestic manufacturers.

Maine's Pure Food Law Broken.—Under the Cousins pure-food law, Director Charles D. Wood of the experiment station at the University of Maine, has already made analysis of baking powders and vinegars, and is now at work on spices. None of the 20 or more samples of baking powders was marked properly. One sample contained 30% of crushed rock. The manufacturers have been notified of the results of the tests, and nearly all have promised to comply with the law. In several samples of what was labelled pure cider vinegar, no trace of apple juice was found.

Doctors Plied Shovels.—The Greenwich, Conn., Medical Society, composed of several physicians, stole a march on John T. Pratt of the Standard Oil Company by breaking ground with their own hands in the outskirts of town for a hospital building, which is to be given to the city. Mr. Pratt is the brother-in-law of Dr. Fritz Carlton Hyde, and they have secured subscriptions of \$25,000 from the State provisional upon their raising \$75,000 more. Of this latter amount, Mr. Pratt gave \$25,000. The medical men have voted against the Pratt scheme of a hospital in the center of the village, and their move was to forestall this plan.

NEW YORK AND VICINITY.

Sale of Water Illegal.—Governor Stokes has signed the bill making illegal the sale of the New Jersey potable water to the State of New York. The claim was made by citizens along the Passaic river that if the sale was allowed the river would be pumped dry, and they asked the Governor to sign the bill.

Meningitis Decreasing.—The city deathrate for the week ended May 13 was 19.01, a marked decrease from 21.57, the rate for the week previous. In the matter of deaths from cerebrospinal meningitis, there were 88, which was also a decided decrease from the 110 deaths of the weeks before, and about the same as the total (87) for the week before that. Last year in the corresponding week there were 94 deaths. Pneumonia cases resulting in death numbered 215. Last year in the same week there were 282. In all other diseases the deathrate was largely decreased.

Physician Pays \$75 Fine.—J. W. Perilli, of New York, paid a fine of \$75 last week for having wrongfully signed a death certificate. The physician admitted he had made out the paper certifying to the death of a child five days old, although he never had seen the infant. He tried to justify his act by saying that the practice was common in the tenement section of the city.

Ward for Meningitis Patients at Bellevue Hospital.—There are now 45 patients at Bellevue Hospital suffering from cerebrospinal meningitis, and a pavilion has been set aside for the treatment of patients under the age of 12. In a measure this will relieve the overcrowded condition of the city hospitals and enable the investigating committee to study the disease to better advantage.

Nonunion Headaches.—If one may believe reports coming from New York, the city never experienced so many "headaches"—just ordinary headaches which come from trying to read or write without one's spectacles or eyeglasses. The men who grind and polish lenses are on strike. The union shops, of course, are not experiencing any trouble, and there is no delay with them. But they happen to be in a very small minority.

New York Cerebrospinal Meningitis Commission.—At a meeting of the cerebrospinal meningitis commission on May 5, attention was called to the benefit derived from the free admission of sunlight into the sick-room. It was admitted that the best treatment for the disease was plenty of fresh air. From all experience no benefit had been derived from the use of any serum or antitoxin. Further experiments will be carried out with these agents.

Care of Destitute Children.—The State Board of Charities today sent to 1,200 superintendents and overseers of the poor throughout the State copies of the new law passed by the last Legislature to prevent evils and abuses in connection with the placing out of destitute children, together with the new blanks to be used by poor officials in making reports. Under the statute such reports must be sent to the department every month. The old law required only annual reports.

Residents Oppose Hospital.—Residents of the Heights district of Brooklyn are up in arms against a project of the Department of Health to establish a sanatorium for the tuberculous on Henry street. They have applied to the Supreme Court to have the department restrained from establishing the institution, and the case will probably be heard this week. It is proposed to have the clinic in a four-story building in a thickly settled district, and those who object to it say that the department's plan would endanger the health of the neighborhood and depreciate the value of property there.

PHILADELPHIA, PENNSYLVANIA, ETC.

Veto Aids White Slavery.—Agreeable to inside predictions, Governor Pennypacker has vetoed the bill licensing and regulating employment agencies in Philadelphia and the second-class cities. This is the measure which, if he had approved it, would have done much to suppress the white slave traffic.

Typhoid Fever in Philadelphia.—One hundred and fifty-five new cases of typhoid fever were reported to the health authorities last week. The number indicates that the disease is decreasing. The previous week 256 new cases were reported, and the number of the week before was 279. The Twenty-first and Twenty-second wards, which receive a supply of filtered water, are credited with seven cases. Wards that receive Delaware river water by direct pumpage have an aggregate of 92 cases.

Physicians' Meeting.—The physicians of the First Congressional District of the Medical Society of the State of Pennsylvania, comprising the counties of Chester, Delaware, and Philadelphia, will hold a joint meeting at the hall of the College of Physicians, May 26, at 8.30 p.m. Dr. J. N. McCormack, of Bowling Green, Ky., chairman of the Committee on Organization of the American Medical Association, will address the meeting on the need of organization. All regular physicians residing within the district are invited to attend.

SOUTHERN STATES.

Death by Beriberi.—Lieutenant Commander William Truxton of the Navy, retired, died last week at Norfolk, Va., of beriberi. While serving as executive officer on the gunboat Manila, in the Philippines, three years ago, he contracted the disease, which developed into a complication of diseases, and compelled his retirement from the service.

A Testimonial to Professor John C. Hemmeter, of Baltimore, on occasion of the twentieth anniversary of his doctorate, is planned by his friends. A distinguished portrait artist has already undertaken to paint a life-sized portrait, and the committee, with the aid of 25 postgraduate pupils and associates of Dr. Hemmeter, have already made sure of the success of the plan, so far as the expenses of the painting are concerned.

They are now seeking the names of as many associates, friends and other distinguished clinicians as signatures to a testimonial to accompany the picture, as may be deemed desirable. Those signing, simply express their appreciation of the work Dr. Hemmeter has done to advance the knowledge of the physiology and pathology of the digestive organs.

WESTERN STATES.

Newspaper Notoriety not Wanted.—At a recent meeting of the Moberly (Mo.) Medical Society a resolution was passed requesting local newspapers to omit mention of physicians' names in connection with accounts of births, accidents, surgical operations, etc. Another resolution was adopted requesting members to attend all society meetings and inviting the cooperation and membership of all physicians in Moberly.

Chicago's Health.—The seventh death from cerebrospinal fever since the first of the year occurred in the County Hospital May 9. The victim was another Italian immigrant, aged 20; ill on arrival, May 7; removed from train to hospital same day and died 48 hours later. Chief Medical Inspector Spalding reports 33 cases of smallpox removed to the Isolation Hospital during the week. Not one of these had ever been revaccinated, and 20 had never been vaccinated at all. Three were school children in attendance on false certificates of vaccination and five were children under the school age—the victims of parental criminal neglect.

New Work in Serum Therapy.—It is announced that the Memorial Institute for Infectious Diseases of Chicago has established a serum division as a branch of its scientific and experimental work. This division will undertake the preparation of various curative and protective serums, and will also prosecute investigation into some of the problems of immunity and serum therapy. In connection with this work it is expected that a limited amount of diphtheria antitoxin will be available for distribution at cost. Professor Edwin O. Jordan, of the University of Chicago, has been placed in charge of the serum division, and preparations for the new work are now well under way.

Mortality of Michigan during April.—The total number of deaths returned to the Department of State for the month of April was 3,022, a decrease of 345 from the number returned for the preceding month. The deathrate was only 14.4 per 1,000 population, as compared with 15.5 for March, and 15.7 for April, 1904. There were 432 deaths of infants under 1 year, 171 deaths of children aged 1 to 4, inclusive, and 934 deaths of elderly persons over 65. A marked diminution appears in the deaths of infants under 1 year. Important causes of deaths were as follows: Tuberculosis of lungs, 243; other forms of tuberculosis, 34; typhoid fever, 38; diphtheria and croup, 24; scarlet fever, 10; measles, 15; whoopingcough, 7; pneumonia, 228; meningitis, 57; influenza, 72; cancer, 140; accidents and violence, 147. A slight increase appears in the mortality from typhoid fever, and considerable decrease in the number of deaths returned from pneumonia and influenza. Meningitis caused 57 deaths during the month, as compared with 54 for March. There were four deaths from smallpox, distributed as follows: One in Alpena city, Alpena county; 1 in Dorr township, Allegan county; 1 in Walker township, Kent county; and 1 in the city of Grand Rapids.

FOREIGN NEWS AND NOTES

GENERAL.

Epidemic Meningitis Statistics.—The *Deutsche medizinische Wochenschrift* states that the number of cerebrospinal meningitis cases in upper Silesia in April was about 1,200. The deaths are roughly given as half that number.

The increasing ravages of plague in India are a source of the gravest anxiety to the government. So far none of the measures adopted in the hope of checking the disease has proved really effective, except inoculation, to which the native will not submit. From September, 1896, to the end of 1902, the deaths from plague in the whole of India amounted to 1,250,000. In the single year 1903 there were 853,573; in 1904 there were 1,021,648; while in the present year there is every prospect of a still greater rise in the deathrate. These figures include only the deaths admitted or proved to be due to plague in one of its forms, bubonic or pneumonic. Many authorities hold that, after making due allowance for concealment, for wrong diagnosis, and for defective registration, especially in native States, at least 50% should be added in order to arrive at the true mortality. Assuming that the deaths in 1904 amounted to 1,250,000, that would represent a rate of only 5 per 1,000 on the whole population. But great areas and vast numbers of villages and towns are still free from the scourge. It is only recently that the disease reached Burma. The weekly deathrate in the central provinces still scarcely exceeds that of Bombay city alone. In the Bombay Presidency there were 353,504 deaths in 1903, a deathrate of 19 per 1,000 on the population of the province. The

351,688 plague deaths in the Punjab in 1904 meant the death of 17 persons out of every 1,000. Each province seems to take its turn at the head of the list. Up to 1903 Bombay led easily; in 1904 the Punjab came to the front; in 1905 the United Provinces are likely to be most heavily afflicted.—[*New York Evening Post*.]

OBITUARIES.

Robert M. King, aged 61, May 2, from uremia, after an operation for the removal of gallstones, at the St. Louis Baptist Hospital. He was a graduate of Jefferson Medical College in 1867; formerly lecturer on physiology and clinical medicine in St. Louis College of Physicians and Surgeons, professor of materia medica and clinical therapeutics in Beaumont Medical College, and treasurer of the St. Louis Medical Society.

Oliver Woodson Nixon, aged 74, of Fountain City, Ind., May 8, at Biloxi, Miss. He was a graduate of Jefferson Medical College in 1854. During the Civil war he served as medical director of the Army of Missouri on General Pope's staff. After the war he served two terms as county treasurer of Hamilton county, Ohio, and then turned his attention to literary pursuits.

Lee Henry Streaker, aged 80, April 29, from tuberculosis, at his home in Salem, Ind. He was a graduate of the University of Louisville, medical department, in 1900. He was formerly assistant physician of the Northern Indiana Hospital for the Insane, Logansport, and physician to the Indiana Northern Penitentiary, Michigan City.

Heber N. Hoople, aged 49, May 8, at his home in Brooklyn, N. Y. He was a graduate of Toronto University, and of the Bellevue Medical College in 1885. He devoted his attention to diseases of the eye and ear. He was a member of the British Medical Association, the Long Island Medical Society, and other local medical societies.

Story N. Goss, aged 74, April 27, from locomotor ataxia, at his home in Chelsea, Vt. He was a graduate of the Dartmouth Medical School, Hanover, N. H., in 1856. During the Civil war he served as assistant surgeon of the Ninth Vermont Volunteer Infantry, and later acting assistant surgeon, United States Army.

William C. Shannon, aged 53, April 21, from nephritis, at his home in Oakland Farm, Elkhorn, Neb. He was a graduate of Bellevue Hospital Medical College, New York City, in 1875; major and surgeon, United States Army, but was retired from the army in 1898 on account of ill-health.

Gilbert E. McKeeby, aged 60, April 24, suddenly, from cerebral hemorrhage, at his home in Pueblo, Col. He was a graduate of Bellevue Hospital Medical College, New York City, in 1868. He was at one time mayor of Red Cloud, Neb., also State Senator in Wisconsin and Nebraska.

Israel A. Powell, aged 79, May 1, from senile debility, at his home in Homer, Ill. He was entitled to practise medicine on Years of Practice, Illinois, 1900, having practised for more than forty years. He was one of the organizers of the first medical society in Wabash Valley.

Alexander W. Rogers, aged 91, May 14, at his home in Paterson, N. J. He was a graduate of the College of Physicians and Surgeons, New York, in 1836, being the oldest alumnus of this college. At his own expense he maintained a missionary in India.

Francis W. Campbell, aged 67, May 4, at his home in Montreal. He was a graduate of McGill University, medical department, Montreal, in 1860; dean of the medical faculty of Bishop's College University, and editor of the *Canadian Medical Record*.

Albert Newman, aged 80, April 28, from senile debility, at his home in Lawrence, Kans. He was a graduate of Dartmouth Medical School, Hanover, N. H., in 1850. He served as surgeon of the Third Kansas Volunteer Infantry during the Civil war.

Henry P. Merrill, aged 62, May 10, at his home in Portland, Maine. He was a graduate of Harvard University Medical School, Boston, in 1867. He was a member of the Pension Examining Board, and was one of the best known physicians of Maine.

John Calvin Allen, aged 48, of Baton Rouge, La., April 23, after an operation for appendicitis, at the Touro Infirmary, New Orleans. He was a graduate of Louisville Medical College in 1883, and a member of the American Medical Association.

Myron Allen Todd, aged 58, May 4, from septicemia, at his home in Bradford, Pa. He was a graduate of the Cleveland University of Medicine and Surgery in 1876; served for several terms as health officer and city physician of Bradford.

John M. Cox, aged 81, April 10, from pneumonia at his home in South Salem, Ohio. He was a graduate of Starling Medical College, Columbus, Ohio, in 1854; member of the Ohio State Medical Society.

William A. McCoy, aged 60, April 25, from heart disease, at his home in Dallas, Texas. He was a graduate of Jefferson Medical College in 1884.

James M. Hutchinson, aged 62, May 6, from paresis, at his home in Chicago, Ill. He was a graduate of the Chicago Medical College in 1867.

Jared Bassett, aged 91, May 10, at his home in Evanston, Ill.

FOREIGN.—**Alexander Matthew**, April 17, from uremia, at his home in Corstorphine, Scotland: he was a graduate in arts of the University of Edinburgh and a fellow of the Royal College of Surgeons of that city; for many years he was visiting physician to the Convalescent Home of the Royal Infirmary; he had charge of the Murrayfield Home of the Society for Prevention of Cruelty to Children; was medical officer for the Parish of Corstorphine and postoffice and certifying factory surgeon. **Edward Henry Warner**, aged 49, April 17, from heart failure, at his home in Bristol, England; he was a graduate of the Edinburgh University in 1885; he devoted his attention to mental diseases and served as assistant medical officer at Lancaster County Asylum and the City and County Asylum, Bristol; he was surgeon to the Midland Railway, medical officer to one of the districts of the Bristol Union and a member of the British Medical Association. **Albert Henry Baines**, aged 61, recently, at his home in Southport; he was a graduate of Guy's Hospital; he served as assistant medical officer of Colony Hatch Asylum; medical officer to the Convalescent Home of the Manchester and Salford District Provident Society and medical referee to a number of assurance societies; member of the British Medical Association, the Liverpool Medical Institute, and the Southport Medical Society. **Keith Campbell**, aged 82, March 23, at his home in Ebb Vale; he was a graduate of Edinburgh University.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 12, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	Los Angeles.....	Apr. 15-22.....	1	
	San Francisco.....	Apr. 22-29.....	2	
District of Columbia:	Washington.....	Apr. 30-May 6.....	7	
Florida:	Jacksonville.....	Apr. 30-May 6.....	8	
Illinois:	Chicago.....	Apr. 30-May 6.....	13	3
Kentucky:	Covington.....	Apr. 30-May 6.....	1	
	Lexington.....	Apr. 22-29.....	1	
Massachusetts:	Boston.....	Apr. 30-May 6.....	1	
Michigan:	Grand Rapids.....	Apr. 22-May 6.....	47	5
Missouri:	St. Joseph.....	Apr. 30-May 6.....	20	
	St. Louis.....	May 1-8.....	11	2
Ohio:	Cincinnati.....	Apr. 29-May 5.....	8	
	Toledo.....	Apr. 22-May 6.....	7	
Pennsylvania:	Lebanon.....	Apr. 30-May 6.....	3	
Wisconsin:	Appleton.....	May 1-8.....	4	1
	Lacrosse.....	Apr. 22-29.....	1	
SMALLPOX—INSULAR.				
Hawaii:	Honolulu.....	Apr. 24.....	1	
	On steamship Coptic from Oriental ports			
SMALLPOX—FOREIGN.				
Africa:	Cape Colony.....	Mar. 25-Apr. 1....	1	
	Monrovia.....	Mar. 4-11.....	10	2
Brazil:	Pernambuco.....	Mar. 15-31.....	3	240
	Rio de Janeiro.....	Apr. 2-9.....	8	5
Ecuador:	Guayaquil.....	Apr. 11-18.....	11	3
France:	Paris.....	Apr. 15-22.....	10	
Great Britain:	Bradford.....	Apr. 1-22.....	1	
	Cardiff.....	Apr. 15-22.....	1	
	New Castle-on-Tyne.....	Apr. 15-22.....	4	
	Nottingham.....	Apr. 15-22.....	1	
	Southampton.....	Apr. 15-22.....	2	
	Among cases previously reported			
India:	South Shields.....	Apr. 15-22.....	2	
	Bombay.....	Apr. 4-11.....	88	
	Calcutta.....	Apr. 1-8.....	6	
	Karachi.....	Apr. 2-9.....	15	6
	Madras.....	Apr. 1-7.....	9	
Italy:	Catania.....	Apr. 6-27.....	1	4
Norway:	Christiania.....	Apr. 8-15.....	1	
Russia:	Moscow.....	Apr. 8-15.....	5	
	Odesa.....	Apr. 15-22.....	5	3
	St. Petersburg.....	Apr. 1-15.....	24	7
Spain:	Barcelona.....	Apr. 10-20.....	10	
Straits Settlements:	Singapore.....	Mar. 18-25.....	2	
YELLOW FEVER.				
Panama:	Colon.....	Jan. 23-Apr. 2.....	6	3
	Panama.....	Jan. 1-Apr. 29.....	50	20
CHOLERA.				
India:	Calcutta.....	Apr. 1-8.....	58	
PLAGUE.				
Africa:	Cape Colony.....	Mar. 25-Apr. 1....	5	1
Arabia:	Aden.....	Apr. 7-14.....	6	5
General:	General.....	Mar. 25-Apr. 1....	65000	57702
Bombay:	Bombay.....	Apr. 4-11.....	765	
Calcutta:	Calcutta.....	Apr. 1-8.....	712	
Karachi:	Karachi.....	Apr. 2-9.....	104	176
Rangoon:	Rangoon.....	To Apr. 11.....	500	380
Mozambique:	Govura.....	Feb. 2.....	Present.	

Changes in the Medical Corps of the U. S. Army for the week ended May 13, 1905:

- COWPER, First Lieutenant HAROLD W., assistant surgeon, is relieved from duty at Cottabato, Mindanao, and will proceed to Parang, Mindanao, for duty.
- HANSEN, MORRIS J., contract surgeon, will proceed to Cottabato, Mindanao, for duty.
- HUGHES, MICHAEL E., contract surgeon, will proceed to Camp Jossman, Guimaras, P. I., for duty.
- So much of orders, April 1, as direct Major Frederick P. Reynolds, surgeon, to report April 18 to the commanding officer of the detachment of the Fourth Cavalry designated for duty in the Yosemite National Park for duty with that detachment, are so amended as to direct him to proceed from his station, Presidio of San Francisco, to Madera, Cal., instead, and report to the commanding officer of the detachment of the Fourth Cavalry, for the duty allotted.
- SMITH, First Lieutenant HERBERT M., assistant surgeon, will report at Fort McDowell, Cal., for temporary duty.
- CORBUSIER, HAROLD D., contract surgeon, upon his relief from duty at Fort Mansfield by a medical officer, will proceed to his home, Elmira, N. Y., for annulment of contract.
- RENO, First Lieutenant WILLIAM W., assistant surgeon, is relieved from temporary duty on the transport Sumner, and will report to his proper station at Fort Myer.
- STEWART, LYLELL R., sergeant first class, Presidio of San Francisco, will report to the commanding officer, transport Sheridan, to relieve Sergeant First Class Nelson A. Hoberg. Sergeant Hoberg will report to the commanding officer, Presidio of San Francisco, for duty.
- HAVARD, Colonel VALERY, assistant surgeon-general, having completed his duties in Washington, D. C., will return to his proper station at Governor's Island, N. Y.
- MCCULLOCH, JR., Major CHAMPE C., surgeon, is granted leave for ten days.
- WADHANS, First Lieutenant SANFORD H., assistant surgeon, upon his relief from duty as surgeon on the transport Logan, will proceed to Alcatraz Island, Cal., for duty, relieving Captain Albert E. Truby, assistant surgeon, who will proceed to the Presidio of San Francisco, and report for duty with Company B, hospital corps.
- LAGRINDER, ROMANUS A., sergeant first class, hospital corps, the Presidio of Monterey, will be sent to San Francisco, Cal., reporting for duty aboard the transport Warren on her next trip to Manila, P. I., and return. Upon completion of this duty Sergeant Lagrinder will be returned to his proper station.
- MCGUIRE, WILLIAM A., sergeant first class, West Point, N. Y., will be sent to Fort Sheridan for duty.
- PAHNKE, RICHARD J., private first class, Fort Oglethorpe, will report to the commanding officer, Third Squadron, Seventh Cavalry, at that post, in time to accompany that squadron to Manila, P. I.
- OWEN, Major WILLIAM O., surgeon, is relieved from treatment at the Army and Navy General Hospital, Hot Springs, Ark., and will join his proper station. Leave for three months on surgeon's certificate is granted.
- FAUNTLEROY, Captain POWELL C., assistant surgeon, is granted leave for twenty days, to take effect May 18.

Changes in the Medical Corps of the U. S. Navy for the week ended May 13, 1905:

- HULL, H. F., assistant surgeon, detached from the Franklin and ordered to the Naval Hospital, Philadelphia, Pa.—May 8.

Changes in the Public Health and Marine-Hospital Service for the week ended May 10, 1905:

- PETTUS, W. J., assistant surgeon-general, granted leave of absence for two days from May 4—May 4, 1905.
- CARRINGTON, P. N., surgeon, detailed to represent the Service at meeting of the American Association for the Study and Prevention of Tuberculosis at Washington, D. C., May 18-19—May 9, 1905.
- LUMSDEN, L. L., passed assistant surgeon, relieved from duty at Philadelphia, Pa.; directed to proceed to Baltimore, Md., and report to the commanding officer of United States practice ship Chase for temporary duty—May 8, 1905.
- BILLINGS, W. C., passed assistant surgeon, relieved from duty at Quebec, Canada; directed to proceed to Seattle, Wash., and report to the commanding officer of the United States steamer Perry for temporary duty—May 8, 1905.
- KERR, J. W., passed assistant surgeon, relieved from duty at Ellis Island, N. Y.; directed to proceed to Quebec, Canada, for duty in the office of the United States Commissioner of Immigration—May 8, 1905.
- ROBINSON, D. E., passed assistant surgeon, relieved from duty at Port Townsend Quarantine; directed to proceed to San Francisco, Cal., and report to commanding officer of United States steamer Manning for temporary duty—May 8, 1905.
- HOLT, J. M., passed assistant surgeon, granted leave of absence, on account of sickness, for twenty-three days—May 8, 1905.
- FOSTER, J. P. C., acting assistant surgeon, granted leave of absence for ten days from April 17—May 4, 1905.
- STANTON, J. G., acting assistant surgeon, granted leave of absence for eight days from May 10—May 6, 1905.
- GAHN, HENRY, pharmacist, to report at Washington, D. C., for special temporary duty—May 9, 1905.
- BROCK, G. H., pharmacist, granted leave of absence for thirty days from May 18—May 9, 1905.
- TROXLER, R. F., pharmacist, to report to medical officer in command, Marine Hospital, Port Townsend, Wash., for special temporary duty—May 10, 1905.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

FIRST SESSION.

President's Address.—E. L. TRUDEAU (Saranac Lake) spoke briefly of the work of the association since its organization 19 years ago. In addition to representing the highest scientific achievements in medicine in this country, it has stimulated the growth of many new societies. The expectations of the charter members, of whom he has the honor to be one, have been abundantly fulfilled. But one member died during the past year. An exceptional occurrence of the year has been the calling abroad of two of the members, Cushny and Osler.

A Study of the Fear of Cats and the Power to Recognize Their Presence Unseen and Unheard.—S. WEIR MITCHELL (Philadelphia). This paper will appear in a future issue of *American Medicine*.

Intrapleural Lipoma.—R. H. FITZ (Boston) said that lipomas may project into the pleural cavity from the diaphragm, costal wall, or mediastinum. The first is an anatomic curiosity. The costal lipoma may penetrate the chest wall and appear externally; three such tumors have been operated upon, with two deaths. Of the mediastinal type, three which penetrated the thoracic wall have been operated upon, all the patients dying. FITZ adds a case of pedunculate intrapleural lipoma arising in the mediastinum. It occurred in a young man of 24, who had an attack of lobar pneumonia. Delayed resolution pointed to a complication and signs suggestive of pericarditis developed. Effusion was suspected and punctures in the fourth and fifth interspaces were made, both yielding no fluid. The chest was then aspirated, with the idea of detecting an empyema, but no pus was obtained. Fat adhering to the needle suggested the possibility of a new growth. The patient finally died. A puncture was then made in the right xiphocostal angle and a pint of pus withdrawn. Autopsy showed pneumonia, purulent pericarditis, and a lipoma as large as a child's head, situated as before described. The tumor explained the absence of the usual signs of pericarditis. The possibility of diagnosing such tumors by the presence of fat on the needle used for puncture is suggested. The most important point raised is the question of puncturing the pericardium at the point employed postmortem, especially in cases of suspected tumor. FITZ has punctured through the xiphocostal angle in two cases, with no untoward results, and other observers have reported cases. It seems desirable to use this route when fluid is not obtained by puncture elsewhere. An advantage is that if fluid be not obtained and drainage seems demanded, the puncture may be followed by incision, the insertion of a finger, and evacuation and drainage as indicated.

Discussion.—JAMES EWING (New York) exhibited a specimen of lipoma obtained in the dissecting-room. It consists of five lobules the size of goose eggs, united by connective tissue. It was in the lower part of the left pleura, and was joined to the mediastinal tissue over the pericardium by fatty projections, and thus partly surrounded the aorta; it also infiltrated the diaphragm. The lung was moderately compressed, but not atelectatic. The heart muscle was flabby. WILLIAM OSLER agreed with FITZ that in many cases puncture in the right xiphocostal angle is preferable. He observed the result of puncture at this point on bodies coming to postmortem in the Philadelphia Hospital, as to danger of wounding the liver, diaphragm, etc., and found these structures were not involved; in all instances of puncture high up in the angle, the pericardium was readily reached. He has used this method on several patients, in one case removing a large amount of fluid, when but little was obtained by punctures elsewhere. The liver is depressed, out of the way, when a large amount of exudate is present. Another point emphasized by Osler is, that too frequently we let patients die from a large pericardial exudate, or at least with it. He can recall four or five cases in which this should have been removed, but was unrecognized antemortem. He believes we should more frequently use a small hypodermic needle to explore doubtful cases; no harm is done if the heart be punctured. C. L. PEABODY (New York) says that pneumonia differs in type in different years. In one patient was a mass of fibrinous exudate so thick it could not be detected by a needle, and could not have been removed at operation. He believes a safer rule for tapping is to wait until there is impairment of cardiac function; it is not judicious to tap for diagnosis or as a routine in pneumonia. T. M. ROTCH (Boston) considers the fifth interspace the best place to tap, especially in children. FITZ, in closing, said the special reason for using the xiphocostal route is that if fluid is not obtained, and the symptoms indicate its presence, puncture may be followed by incision; in this way may be reached fluid not otherwise obtained, because it is behind the heart.

Rhythmic Lateral Displacement of the Heart as a Sign of Unilateral Pleuritic Exudate.—CHAS. LYMAN GREENE (St. Paul) in 1902 first called attention to this sign, the displacement being synchronous with respiration. Observations during the past three years confirm the original statements and show that the sign is of value in differential diagnosis. Cases were cited to show the application of the sign in pleural exudate and its absence in other conditions. It is absent in subdiaphragmatic abscess, malignant disease of the lung and pleura, and in pneumothorax. It is best observed by the fluoroscope or by auscultatory percussion. The degree of effusion markedly influences the movement, trifling amounts of fluid failing to respond and massive effusions showing a minimum displacement. Though sometimes obtained by inspection, such observation is subject to error. Right-sided effusions are more easily recognized. Deep respirations are necessary. Greene doubts that effusions cause the diaphragm to become immovable or to project into the abdominal cavity. He also takes issue with the statement that the fluoroscope is necessary accurately to determine the extent of cardiac displacement, auscultatory percussion and simple percussion having yielded outlines corresponding accurately to fluoroscopic findings. He concludes: 1. A rhythmic lateral movement of the heart occurs in unilateral liquid pleural effusions. 2. Such movement is most marked in medium-sized effusions. 3. The heart approaches the affected side in inspiration and moves outward in expiration. 4. The extent of movement is variable, but often amounts to two inches. 5. It may be measured by fluoroscopic examination, auscultatory percussion, or in the case of right-sided effusions, by simple deep percussion of the free cardiac border, or in some instances, by mere inspection of the apex beat. 6. Deep breathing, and especially forced expiration, are essential to the success of the maneuver, and to obtain this morphin must sometimes be administered.

Gonorrheal Septicemia and Endocarditis.—W. S. THAYER (Baltimore) said the frequency of gonorrheal endocarditis is now well known, the symptoms differing in no way from those of cases due to other pyogenic organisms. In addition to eight cases reported by other observers at the Johns Hopkins Hospital, he has seen two, making a total of 10 cases. The important point is that acute urethritis is not so infrequently followed by endocarditis. Of particular interest is a case seen last July. The patient was a man of 25, who gave a history of gonorrhea four years before and was at the time he came under observation not fully recovered from an attack, beginning three months previous. He had a fever which developed gradually and lasted for seven weeks. The general appearance was that of typhoid fever; the spleen was palpable and there were spots suspiciously like rose spots of typhoid. The leukocytes were from 9,000 to 12,000, with a slight polymuclear increase. On the twenty-first day, when they were about satisfied the case was one of typhoid fever, bacteriologic examination of the blood showed a pure culture of the gonococcus. No other lesion was to be found, hence the case was one of gonorrheal septicemia. The points to be noted in this connection are: 1. A mild continued fever may be the only evidence of a septicemia due to the gonococcus. 2. Gonorrheal septicemia, with no evidence of local complications may run a course of long duration and closely simulate typhoid fever.

Discussion.—WILLIAM OSLER said that in addition to these mild cases of gonorrheal septicemia of long duration, and difficult to differentiate from typhoid fever, demonstration of the organism in the blood being the only method, there are cases of overwhelming intoxication from the gonococcus, which at first may resemble typhoid. One case of this sort was mentioned, the patient dying within a week.

Fever in Chronic Endocarditis.—J. S. THACHER (New York) based an elaborate discussion of this question upon 901 cases selected as suitable for tabulation out of a hospital list of 1,093 cases. He divided them into three groups, according to temperature range, those having a maximum respectively of 100°, 101.5°, and 103°. In the first group were 316 cases. Of the 585 remaining, complications, as articular troubles, petechial or other hemorrhagic eruptions, or frank signs of marked complications ruled out 294, leaving 291 cases with the temperature above 100° with no apparent explanation of the fever, except in a very few the presence of bacteria. Of the 23 cases accompanied by hemorrhagic eruptions, 18 proved fatal, showing the seriousness of this type. Notwithstanding this, in the non-febrile group were five hemorrhagic cases. Autopsy showed that petechias are not necessarily associated with large fungating or ulcerating lesions of the valves, as 3 of 5 cases posted showed such lesions, and 2 did not. Of the 291 cases with no distinct complication, 45% of febrile cases, 172 ranged from 100° to 101.5°, 66 from 101.5° to 103°, and 53 above 103°. An interesting comparison between febrile and afebrile cases shows that in the two groups the percentage of cases with a previous history of rheumatism does not greatly differ. The effect upon the kidneys, as shown by the presence of albumin and casts, was also nearly alike in the two series, and the leukocyte counts did not vary greatly. As to mortality, the rheumatic cases with fever had a much lower deathrate, 7% than the afebrile, 19%. An interesting question is that of the form of lesion on the valve as compared with the clinical picture. The general rule is that those with fungating vegetations are more apt to be

febrile, and are also more fatal. To this rule are many exceptions. Of 104 autopsies, 70 upon patients who showed no fever, revealed either large vegetations or ulcerations; 4, which were called malignant, had very slight vegetations.

[To be continued.]

THE AMERICAN THERAPEUTIC SOCIETY.

Sixth Annual Meeting Held at Philadelphia, Pa., May 4, 5 and 6, 1905.

[Specially reported for *American Medicine*.]

[Concluded from p. 767]

The Practical Treatment of Several Cases.—JOHN V. SHOEMAKER (Philadelphia) lauded the use of electricity, especially the galvanic current, in hypertrophy of the prostate where operation is out of the question. He showed a case of xanthoma which has been benefited by the use of blood tonics and a case of alopecia areata treated with electricity and blood tonics.

The Recognition and Treatment of Cholecystitis.—ROBERT T. MORRIS (New York City) referred to the area occupied by the gallbladder as the "attic," and stated that adhesions occur so frequently in this region because of the thin walls of this organ. Gastralgia and intestinal disturbances may be due to eyestrain, pelvic adhesions, and to the normal involution of the appendix. If the gastric or intestinal distress be due to eyestrain neither ganglion situated on each side of the umbilicus will be sensitive, if the distress be due to the normal involution of the appendix, the ganglion on the right side will be tender, and if due to pelvic adhesions both will be sensitive. In cholecystitis, he maintains the irregular temperature is due to the dragging upon the sympathetic ganglion incident to the adhesion in the region of the gallbladder. To prevent adhesions he uses either powdered aristol or cargile membrane.

The Treatment of Intestinal Indigestion.—GEORGE B. FOWLER (New York City) maintains that the cause of indigestion is due both to the quality and the quantity of the food, but does not believe there is any difference in the digestive qualities between fresh and stale bread. He denies his patients rich soups, steak, pork, chicken, and turkey from storage houses, white potatoes (fried), sweet wine, cooked oysters, cheese, kidney, liver, and cooked tomatoes. Rice and hominy, he states, do not tend to provoke fermentation. He spoke of the value of hydrotherapy in this disease, and if the disturbance is due to alterations in the nervous system he is fond of prescribing the triple valerian or cannabis indica.

The Treatment of Chronic Diarrhea.—REYNOLD WEBB WILCOX (New York). This paper will appear in a future issue of *American Medicine*.

Rectal Alimentation.—WILLIAM H. PORTER (New York). This paper will appear in a future issue of *American Medicine*.

Symposium of Special Therapeutics.

The Etiology and Treatment of Infantile Atrophy.—JOHN BLAKE WHITE (New York). In discussing this topic he took the ground that the atrophy is due to faulty assimilation and absorption, and that the enteritis is secondary. He advises outdoor exercise, massage, codliver oil, and strychnin nitrite, 250 gr., also intestinal antiseptics, as guaiacol carbonate or menthol.

Notes on the Treatment of Hay-fever and Asthma.—CHARLES H. KNIGHT (New York) has seen good results in some of the cases of hay-fever treated with Dunbar's serum.

Prophylaxis of Pneumonia.—JAMES M. ANDERS (Philadelphia) pointed out that the disease may be propagated by the clothing of both the healthy and the diseased, and that the introduction of automobiles is an additional factor in the spread of the organisms by stirring up the dust of the street. He laid stress upon sprinkling of streets. Pneumonia should be reported to the Board of Health, and in his opinion the regulation of such patients should be under the direction of the municipal government.

The Recognition and Treatment of Pancreatic Inflammations.—CARL BECK (New York) outlined the types and symptoms of these inflammations and said that there is no pathognomonic sign for this disease. He called attention to the fat in the stools and the sugar in the urine, and favors operation in all cases where the disease is suspected.

The Management of Injuries of the Knee-joint.—DEFOREST WILLARD (Philadelphia). This paper will appear in a future issue of *American Medicine*.

The Value of the Correction of Errors of Refraction in Psychoses.—EDWARD D. FISHER (New York City) is convinced that although errors of refraction in epileptics should be corrected, such corrections do not relieve the epilepsy.

The Treatment of Incontinence of Urine in Children.—NOBLE P. BARNES (Washington, D. C.) gave the forms of this condition, and recommended that the children be trained to retain the urine for a certain number of hours.

ORIGINAL ARTICLES

REMARKS ON MITRAL STENOSIS.¹

BY

FREDERICK P. HENRY, A.M., M.D.,

of Philadelphia.

Professor of the Principles and Practice of Medicine, Woman's Medical College of Pennsylvania; Physician to the Philadelphia Hospital.

Mitral stenosis is in many respects the most interesting of the valvular lesions, and has always been a fascinating subject to the student of heart diseases. Mistakes are frequently made in its diagnosis, not only by the tyro but by the expert, and from our present standpoint of knowledge, it seems inevitable that such mistakes must now and then occur. Nothing is easier than the diagnosis of a typical case of the disease. The low-pitched, rumbling murmur occupying the entire diastolic interval, and terminating with the short, sharp, snappy first sound, is unmistakable. It is not necessary to time the murmur in such a case, *i. e.*, to ascertain its relation in time to the systole and diastole. Its sound, its pitch, I might almost say its voice, is all-sufficient; it says mitral stenosis as plainly as could be expressed in articulate language.

On the other hand, there are cases in which the diagnosis is more or less difficult, others in which it is at best conjectural, and some in which it is practically impossible. These difficulties are the necessary consequences of the fact that mitral stenosis is a slowly progressive lesion. It stands to reason that the physical signs of a lesion which, when advanced, reduces the mitral orifice to a mere buttonhole-like slit, must vary widely in its different stages.

Sir William Broadbent² has done more, in my opinion, than any other man to facilitate the study of mitral stenosis, and he does so, in great measure, by dividing the disease into three stages, and pointing out the signs and symptoms peculiar to each. In my remarks upon the subject I will follow this plan.

In the first stage of mitral stenosis there is no difficulty in detecting the existence of a murmur which is most distinct just within the apex beat, is usually accompanied by a thrill in the same region, and is followed by the first and second sounds. The murmur is not smooth and blowing, like that of mitral regurgitation, but low-pitched, vibratory, rumbling or, to use the expression of Flint, "blubbery." The second sound is also accentuated, as in mitral regurgitation, sometimes reduplicated, on account of asynchronous closure of the aortic and pulmonary valves, and is distinctly audible at and beyond the apex. These are the physical signs of the first stage, and at this time the diagnosis of mitral stenosis is comparatively easy.

The second stage is marked by the disappearance of the second sound at the apex and by the short, sharp character of the first sound, which closely resembles the normal second sound. A murmur and a short, sharp sound are heard at the apex and it is naturally taken for granted that the sound is due to the closure of the semilunar valves and that the murmur which precedes it is the murmur of mitral regurgitation. That the single sound heard at the apex at this stage is systolic and not, as it appears to be, diastolic, may be proved by listening over the base of the heart, where both sounds are distinctly heard, and gradually moving the stethoscope toward the apex of the heart. It will thus become manifest that the sound which becomes inaudible before the apex is reached is the second sound, and therefore, that the murmur is presystolic. I have said that the first sound becomes altered in character so as to resemble

the second sound. This is supposed by Broadbent to be due to imperfect distention of the left ventricle. The ventricle being partly filled, meets with little or no resistance when it begins to contract, but being suddenly brought up and made tense by the final resistance of the blood and the closure of the mitral valve, a short, sharp, clicking sound is produced.

What is the cause of the disappearance of the second sound at the apex? The second sound heard normally at this point is caused by the closure of the aortic valve. There are, therefore, two reasons why this sound should become enfeebled or extinct at the apex in the course of mitral stenosis: 1. Owing to the preponderating enlargement of the right ventricle, the left side of the heart becomes covered up and forced away from contact with the chest wall, so that the sound produced by closure of the aortic valve is not conducted to the surface as in health. 2. On account of the imperfect distention of the left ventricle, an abnormally small amount of blood is driven into the aorta with each systole, and, consequently, the second sound, which is due to the elastic recoil of that vessel, is rendered unusually weak and becomes inaudible at the apex.

The third stage of mitral stenosis begins with the disappearance of the presystolic murmur, this being due to the giving way of the tricuspid valve and consequent regurgitation of blood from the right ventricle into the right auricle. The only remaining signs of mitral stenosis in this stage are the short, sharp, first sound, so unlike the strong, booming first sound of a healthy heart and the absence of the second sound at the apex. In other words, at this stage, there is no murmur at the apex and but one sound, the altered first sound. It is not to be wondered at that in patients seen at this stage the true nature of the trouble is overlooked and that extreme degrees of mitral stenosis are often found post-mortem in patients in whom, shortly before death, no evidences of mitral disease were detected.

The fact that the establishment of tricuspid regurgitation is the cause of the disappearance of the presystolic murmur is well established. For example, suppose a patient with mitral stenosis, and a wellmarked presystolic murmur, to be attacked with bronchial catarrh or other acute pulmonary affection. This increases the obstruction to the pulmonary circulation, which is already great; the tricuspid valve gives way and the presystolic murmur disappears. If the pulmonary disease subsides and the former condition is restored, the presystolic murmur will return. This is one of many instances which prove that the disappearance of a cardiac murmur is often a sign of evil omen.

The establishment of tricuspid regurgitation is indicated, not only negatively by the disappearance of the presystolic murmur, but positively by the signs peculiar to that condition. These are a systolic murmur heard with greatest intensity just to the left of the ensiform cartilage, and pulsation of the jugular veins, and sometimes of the liver also. The murmur is not always present, but jugular pulsation is a constant phenomenon.

The reason why tricuspid regurgitation causes a disappearance of the presystolic murmur is manifest. The reflux of blood into the right auricle at each systole makes it impossible for the right ventricle to keep up sufficient pressure to generate sonorous vibrations in the blood current as it passes from the left auricle through the constricted mitral orifice into the left ventricle.

To recapitulate: The diagnosis of mitral stenosis in the first stage is comparatively easy. At that time there is a presystolic murmur easily recognized as such by the fact that it is followed by the first and second sounds, both audible at the apex. The second stage is indicated by disappearance of the second sound at the apex, this being due to dilation and hypertrophy of the right ventricle and feeble propulsion of blood into the aorta. The presystolic murmur continues. The onset of the third stage is marked by disappearance of the presystolic

¹ Read, by invitation, before the South Branch of the Philadelphia County Medical Society, April 28, 1905.

² Mitral Stenosis, American Journal Medical Science, January, 1886.

murmur and the establishment of signs of tricuspid regurgitation.

The foregoing account of mitral stenosis is practically that of Sir William Broadbent, whose paper, already quoted, is a model of accurate description, conveyed in the tersest and, at the same time, the choicest language. For teaching purposes, it is perfect, but for that very reason it is too schematic. In my experience, it is only exceptionally that the presystolic murmur disappears with the onset of signs of tricuspid regurgitation. Again and again I have heard a typical low-pitched, rumbling, presystolic murmur, coinciding with pulsation in the veins of the neck, a few hours before the death of the patient. This criticism is not intended to detract from the value of Broadbent's paper, which should be imprinted upon the mind of every student of valvular diseases. It is a masterpiece of description.

There is another phase of mitral stenosis, to which I have seen no distinct allusion in any description of the disease. I refer to an extreme arrhythmia, a veritable delirium cordis, which may persist without intermission for months or even for years. In such cases there is no murmur, and in them it is impossible to distinguish the sounds from each other. I call the condition to which I refer a phase, rather than a stage of mitral stenosis, because in the great majority of cases of this lesion it is not present at any period of the disease, and further, because it may continue indefinitely, in one of my cases for about two years, and constitute the chief expression of the lesion. The clinical syndrome of these cases is the following: Marked anemia, with somewhat dusky skin and cyanotic lips, a tendency to bronchial catarrh, marked periods of improvement, with little or no diminution of the arrhythmia, and no edema whatever, or none until shortly before death. I have the records of three cases, one occurring in my private practice, one at the Woman's Hospital of Philadelphia, and the third at the Philadelphia Hospital, in which the diagnosis of mitral stenosis was based upon the presence of these signs and symptoms, and was confirmed by autopsy.

In none of these patients could any one who examined them detect the slightest murmur.

Broadbent is the only one of the numerous authorities I have consulted who speaks of arrhythmia as a sign of mitral stenosis, but he apparently does not recognize the condition to which I refer. According to this well-known authority, the pulse in mitral stenosis is "almost invariably regular until the heart is obviously failing, unless the obstruction is complicated by regurgitation or by valvular affection of the right side of the heart or by intercurrent pulmonary affections. . . . When, however, the heart is staggered by some serious pulmonary complication, the irregularity in its action, and, consequently, the irregularity of the pulse may be indescribable, and it may be impossible to time either sounds or murmurs or to determine their relation to the systole or diastole." Again, "it is when there is regurgitation as well as obstruction that extreme irregularity is most likely to occur."

In one of my cases the patient was under my observation for about two years (from February, 1898, to December, 1899), during which, without pulmonary disease or mitral regurgitation, there constantly existed the most extreme irregularity of the heart's action without the suspicion of a murmur. With this continual arrhythmia the woman attended to her household duties, went to market, and led a decidedly active existence, except when incapacitated by bronchial catarrh, or, as happened once, by a pleuritic effusion, which disappeared in the course of a week or two by absorption. Subsequently, the effusion increased and she entered the Pennsylvania Hospital, where paracentesis was performed. She again recuperated and resumed her occupations, but several months later entered the same institution, where she died in December, 1899, or January, 1900. At no time,

except very shortly before her death, was there edema or dropsy other than the effusion into the pleural sac above mentioned. At the autopsy my diagnosis of mitral stenosis of extreme grade was confirmed. At all times during my attendance upon this woman, even when she considered herself well, her pulse was extremely irregular and at no time could I or any one else who examined her detect a murmur. Cases like this have led me to conclude that arrhythmia may be the sole cardiac manifestation of mitral stenosis. There are several other facts in the clinical history of mitral stenosis to which, if time permitted, I would make a more detailed reference. The chief of these are (1) the preponderance of the disease, to the extent of at least 70%, among females; (2) the frequent absence of a previous history of articular rheumatism; (3) the comparative rarity of edema; (4) the nature of the valvular lesion itself. No satisfactory explanation, at least to my mind, has been given of the process which fuses the delicate mitral valves into a thick cartilaginous diaphragm with a central buttonhole-like slit.

These facts and those I have previously mentioned combine with the physical signs to make mitral stenosis by far the most interesting of the valvular lesions.

ARTIFICIAL DILATION OF THE CERVIX IN OBSTETRICS.¹

BY

RICHARD C. NORRIS, A.M., M.D.,
of Philadelphia.

Assistant Professor of Obstetrics, University of Pennsylvania; Surgeon-in-Charge, Preston Retreat; Gynecologist to the Methodist, St. Agnes and Philadelphia Hospitals.

The recent advances in obstetric practice have been surgical, and among the preeminently practical surgical aspects of obstetrics, I know of none within the past few years that has occasioned greater discussion and difference of opinion than the indications for, and the relative value of, the methods of opening the cervix of the pregnant womb in order to terminate pregnancy or labor. Modern obstetrics aims to prevent, rather than to treat, serious complications, and skilful, relatively rapid dilation of the cervix is an assured means of preventing many disastrous complications, although there are those who condemn it as meddling and dangerous, and liable to be followed by serious results. The opprobrium of meddling midwifery had its genesis in the pre-aseptic era, and while temerity, unrestrained surgical impulse, inexperience and lack of obstetric judgment can, and do, beget a meddling midwifery of today, it is equally true that the aseptic surgery of experienced obstetricians is daily winning great triumphs, and is robbing maternity of some of its suffering, many of its dangers, and most of its tragedies.

In order to appreciate the problem of obstetric dilation of the cervix, and to estimate the practical value of any method employed for that purpose, we should remember nature's mechanism of dilation. The longitudinal fibers of the uterus exert a direct pull upward of the lower segment, and assisted by the downward push of the hydrostatic pressure of the bag of waters, and later of the presenting part of the fetus, the lower segment is dilated, the internal os is opened and drawn upward, and the cervix is thus attenuated and effaced, the dilation of the external os being the final stage of the process. These phenomena emphasize the fact that the value of any method of artificial dilation, whether gradual or rapid, should be measured by its power to evoke uterine contractions, and thus to assist the upward pull which promotes effacement of the internal os. Mechanical stretching and thinning of the external os and cervix is not physiologic dilation. Mechanical

¹ Read by invitation before the Allegheny County Medical Society, at Pittsburg, December 27, 1904.

stretching that does not cause uterine contraction, fails in that important factor in dilation, and explains to a great extent the lacerations that often follow rapid methods.

The methods for either slow or rapid dilation of the cervix and emptying the uterus, now claiming attention and which I shall present for your discussion, classed in the order of the length of time they require, are the following:

- (1) The flexible bougie; (2) the hydrostatic bag;
- (3) the bougie and bag, with preliminary partial mechan-

by boiling, is now inserted, the stylet being gradually withdrawn from that portion of the bougie that is entering the uterus. By this maneuver, the tip of the bougie is made to hug the anterior uterine wall, thus avoiding puncturing the amniotic sac, and the bougie from the internal os outward being kept rigid by the stylet, insures an upward and onward course of the tip of the bougie toward the fundus. This also prevents the coiling of the bougie at the internal os, which so often otherwise occurs and prevents the prompt institution of uterine contractions. After the bougie has been introduced at least 10 inches in the uterus, a bag of the Voorhees pattern, but having a capacity three times as great as the largest size for sale in shops (Fig. 2 a), is rolled into the smallest possible roll, caught in the instrument previously used as a dilator, but now used as a convenient forceps for placing the bag (Fig. 3), and is gently carried into the dilated cervix; the forceps is opened and removed, and the bag is distended with 480 cc. of sterile water by means of the metal syringe (Fig.

4), whose piston rod is graduated in cubic centimeters. This large bag incompletely filled, adapts its upper segment to the shape and position of the presenting part, without tending to displace the latter, and upon the occurrence of a uterine contraction, the lower segment of the bag is gradually distended in the cervix to the size of the largest Voorhees bag. After the bougie and bag have been introduced, the vagina is packed through a bivalve speculum with gauze. The entire operation is done in 20 minutes, ordinarily, and without an anesthetic. For a very nervous and apprehensive patient, a few whiffs of ethyl chlorid or chloro-

idal dilation; (4) manual dilation (the methods of Harris, of Bonnaire and Edgar); (5) branched steel dilators (Bossi's and its various modifications); (6) Dührssen's vaginal cesarean section.

While discussing these various methods and the conditions of their selection and use I shall be guided wholly by my own experience, for I take it that you have invited me to address you in a practical way and not to present a paper reviewing the work of others. I shall not attempt to discuss all the complications of pregnancy or of labor that may require some form of interference to open the cervix. The subject is too vast to be embraced in a brief address. Some of the more frequent and very practical complications will serve to illustrate which of the methods, in my judgment, should be chosen and why the choice is made.

(a) *Dilation when Rapid Delivery is Unnecessary.*—My experience with flexible bougies has taught me that, while efficient in promoting contractions and softening the cervix, their action is oftentimes slow and tedious, the uterus in some women being less responsive than in others, and in a few, not at all responsive after the repeated introduction of two or more bougies at intervals of 12 hours.

The hydrostatic bag also excites contractions and hastens physiologic dilation, but it alone will sometimes fail to irritate the uterus, for I have known it to remain in the uterus for 48 hours without provoking a pain. The tendency of recent years to resort to instrumental dilation, thus placing the termination of pregnancy upon the plane of modern surgical operations, induced me to combine all three methods, and during the past few years the cases indicating the relatively slow induction of labor have invariably been treated by this combined method with most satisfactory results. After a soap and water toilet of the vulva, vaginal entrance, perineum, and anal region, followed by a mercuric chlorid douche (1 to 2,000) of the external genitals, the cervix is caught with a double tenaculum, the canal, if required, is digitally or instrumentally dilated to the size of the index finger, and this instrument (Fig. 1) which I have devised (a branched dilator and bag introducer), is introduced into the cervix, taking care not to rupture the membranes. The entire length of the cervix is dilated to 4 cm. or 5 cm., the degree sufficient to admit the bag, and indicated on the instrument. The index finger, passed between the expanded blades, notes the degree of tension at the internal os, and can be used to assist the dilation acting as a third blade alternately stretching the anterior and posterior margins of the os internum. The hollow bougie (Delamotte, size No. 23), containing a stylet, having the curve of a prostatic catheter (Fig. 2 c), sterilized

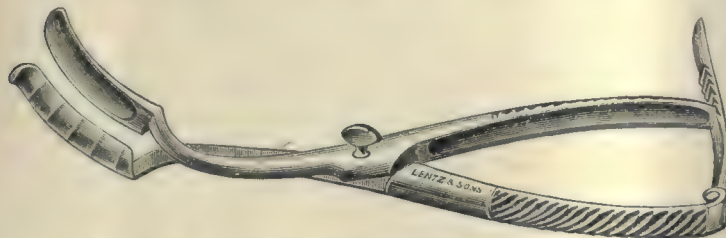


Fig. 1.—Branched cervical dilator and bag introducer.

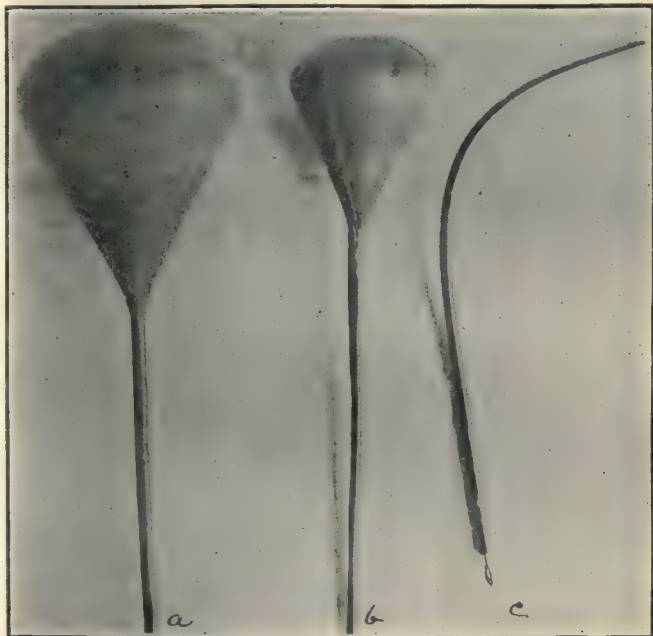


Fig. 2.—a, Large Voorhees bag; capacity, 600 cc. b, The largest Voorhees bag ordinarily sold in the shops; capacity, 300 cc. c, Hollow bougie containing stylet with prostatic curve.

form may be used during the dilation of the cervix. This large and incompletely filled bag more nearly resembles in function the natural bag of waters than any artificial aid we can employ.

When dilation is inordinately slow, continuous or intermittent traction should be made on the stem of the bag. This traction, to be most efficacious and least dangerous, should be made with the recurring pains, since during the pains the cervix is drawn upward by the action of the uterus and effacement of the cervix is then materially assisted by the bag. Continuous traction

by means of a tape and weight has some danger of tearing the lower segment of the uterus, but may be avoided by releasing the weight at intervals of a half hour, and never using a weight exceeding three pounds. When the bag, distended with 480 cc. of water, can be drawn through the external os by firm and steady traction, the cervix will be dilated to 9 cm., and the termination of labor may be left to nature, or when rapid delivery is indicated, forceps, or version, may immediately follow. After the bag has been removed, especially if the membranes have ruptured, an examination should always be made to note the occurrence of prolapse of the cord, or of fetal extremities, accidents that rarely follow and require immediate replacement, reinserting the bag if necessary, to retain the prolapsed cord in the uterus. Another important use of the bag to which I must refer is its great practical value in hastening a slow first stage

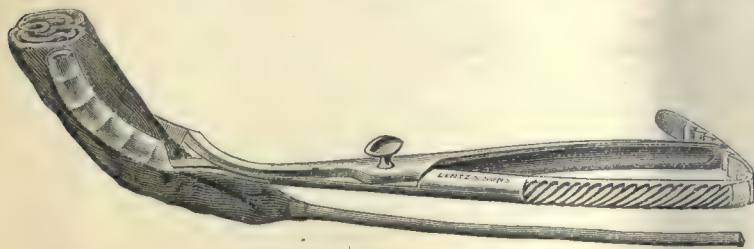


Fig. 3.—Dilator now used as bag-holder.

or labor, before or after rupture of the membranes; this is especially true of occipitoposterior positions arrested at the brim of the pelvis by incomplete flexion. In many such cases I know I have shortened the patient's suffering and have saved infants' lives by preventing prolonged labor and inevitable asphyxia. Its value as a tampon for the cervix I have also attested in lateral and marginal placenta prævia, and after replacing a prolapsed cord, it has proved a convenient means to keep the cord within the uterus during the stage of dilation.

The average time required for the completion of labor by means of the bougie and bag alone in 35 cases of induced labor for the lesser degrees of pelvic contraction in my practice, including the cases of spontaneous delivery, as well as those terminated by forceps or version, was 29½ hours. For other complications of which I have accurate records, such as toxemia of pregnancy, grave cardiac, kidney, and pulmonary diseases, pernicious nausea and vomiting, chorea, prolongation of pregnancy, etc., I find that in 52 such cases of induced labor, the average time required for the completion of labor was 34 hours. In this group of cases, there is of course, a larger proportion of labors terminated spontaneously. Since I have used the method in which the introduction of the bougie and bag has been preceded by partial instrumental dilation of the cervix, the average duration of labor in 18 cases terminated by forceps or version, has been 7½ hours; in cases of spontaneous delivery, 16½ hours. These latter averages, contrasted with the bougie-bag method, show a diminution of 12½ hours in the duration of spontaneous labors and of 5½ hours in labors terminated by version or forceps. Measured, then, by the standard of relatively quick delivery, by its physiologic effacement and dilation of the cervix and by the absence of lacerations associated with rapid and complete mechanical or manual methods, the method I have described has been most satisfactory. For cases not requiring accouchement forcé, an operation whose indications become less frequent, the wider my obstetric experience grows, the method I have described reinforces what past experience has taught us is a safe method, by adding thereto, partial mechanical dilation to a degree that is free from the danger of lacerations, and which diminishes the uncertainty and delay of the method of the bougie and bag, characteristics of that method which always have been annoying to the patient and physician,

and sometimes have jeopardized the life of the mother and child.

In recent years those of you who have followed the literature of obstetrics must have noticed the growing tendency to depart from the slower methods of terminating pregnancy and the first stage of labor. Manual and instrumental methods of rapid dilation of the cervix, and incisions of the cervix, have received a great impetus, and the indications for rapid surgical interference have widened under the influence of the writings of Dürrssen, Bossi, Leopold, and others, until it would appear that there is danger of the slower and safer methods being wholly laid aside. This is an error born of surgical enthusiasm and of inexperience among those who blindly follow enthusiastic reports. I welcome the advent of the gynecologist to obstetric practice; his surgical training well qualifies him for obstetric technic.

But he must be warned that the gloved hand and boiled instrument cannot invade the parturient canal with the same impunity practised upon the abdominal cavity. His obstetric experience and obstetric judgment must be proportionately greater than the gynecologic experience and judgment required in gynecologic practice. When the experienced obstetrician acquires gynecologic training, obstetrics gains; when the experienced gynecologist enters the obstetric field with overweening confidence, his early efforts in the latter field are sometimes disastrous. Of the rapid methods of opening the cervix,

the ones now most discussed and most likely to find a permanent place, which, however, has not yet been determined, are rapid dilation by one of the metal dilators—Bossi's or one of its numerous modifications; and Dürrssen's vaginal cesarean section, or better named vaginal hysterotomy. Bossi claims for his dilator immediate complete dilation of the cervix, with or without softening and effacement; he urges its superiority over cesarean section for antemortem or postmortem delivery; he praises its great value in inducing labor for any cause; and for terminating labor complicated by tuberculosis, heart disease, putrid fetus, intrauterine asphyxia, prolongation of the first stage of labor, cervical stenosis, anatomic or cicatricial (tried prior to incisions) and he especially advises its use in the grave cases of eclampsia, placenta prævia and in incarcerated placenta due to uterine tetany. Dürrssen, on the contrary, vehemently

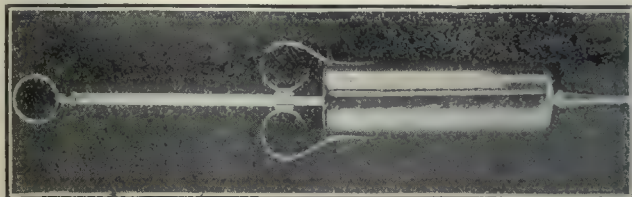


Fig. 4.—Metal syringe with piston rod graduated in cubic centimeters.

condemns the instrument and with equal enthusiasm recommends his operation for obstruction of the cervix and lower uterine segment due to cancer, stenosis, myoma, or extreme rigidity, which prevent cervical dilation in the presence of pains; for dangerous conditions of the mother, as grave cardiac, renal or pulmonary diseases, which may be relieved by prompt emptying of the uterus; or for diseases that may become fatal before the child is born, as placenta prævia or eclampsia in which treatment has been of no avail. The technic of Dürrssen's operation consists in cutting through the anterior fornix and rapidly separating the bladder from the uterus as far as the peritoneal fold; then with scissors a longitudinal incision as high as this separation is made through the anterior wall of the cervix and lower uterine segment. For full term delivery, the posterior fornix is also opened, the peritoneum in Douglas' culdesac separated, and the posterior wall of the cervix and lower segment

is incised similar to that of the anterior wall. The fetus is rapidly extracted, usually by podalic version, the placenta removed, the uterine incisions are closed by suture and the uterine cavity tamponed. A gauze drain may be inserted in the postvesical space.

So enthusiastically have Bossi and Dührssen championed their respective methods, that the indications enumerated practically cover the entire field of cervical dilation in obstetrics, at all times and under all circumstances. It is difficult for anyone to curb his enthusiasm when he has something of merit to offer the profession, and for that reason an inventor's claims may properly be discounted. As happened with the indiscriminate use of the curet, the symphysiotomy craze, the cesarean section fad, the recourse to serum therapy, colloidal silver, hysterectomy, and the lamented Pryor's pelvic gauze pack, so will the steady wisdom of obstetrics find the true value and relative field of usefulness of Bossi's dilation and Dührssen's hysterotomy. For my own part, I am convinced that each will find a place of assured value, but that the proper indication and employment of each will always require most discriminating obstetric judgment. Eclampsia and placenta prævia are without doubt the most frequent affections now sub-

operator, for no matter how trained his "mechanical sense," upon which he may be persuaded to rely with finger in the cervix to note and estimate the danger line of tension, extensive lacerations do occur in such cases without warning, and shock and hemorrhage are instantly added to the burden under which the patient is sinking. To one who hopes to obtain the skill necessary to use the Bossi dilator with success, Dührssen's vaginal section will be equally well acquired. It is quicker, accompanied by no greater shock, traction by an assistant upon the cut edges of the incision controls hemorrhage and the most difficult part of the operation, the introduction of stitches, is not difficult with assistants, a good light, large vaginal retractors, and vaginal incisions, if required. On the contrary, when we find the cervix partially effaced, softened, yielding, and therefore dilatable, Bossi's dilator has distinct advantages, and especially under the environment of obstetric practice outside of hospitals. My experience with this instrument has taught me that too rapid dilation under any circumstances is hazardous, never less than 30 minutes being devoted to a dilation of 11 cm., and I have learned the value of advancing the dilation with greater slowness and caution after passing the 8 cm. mark, for

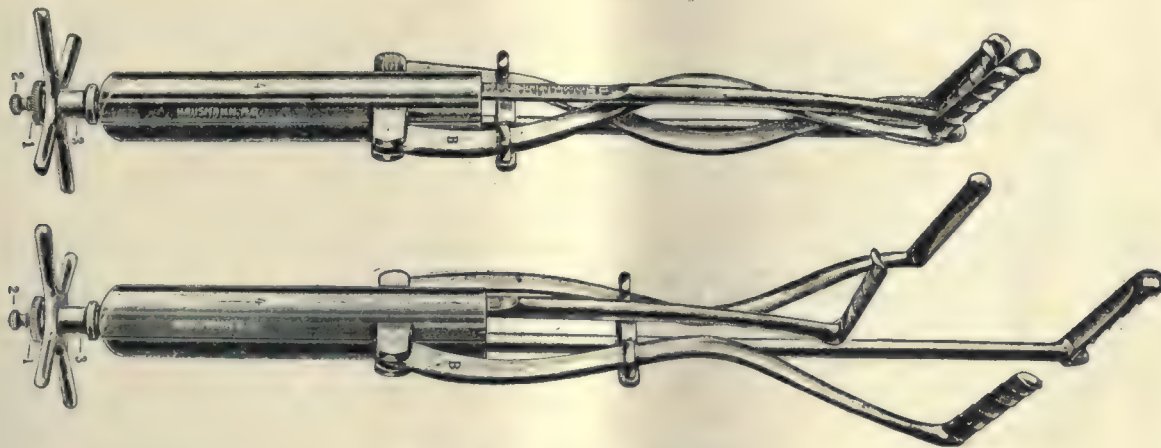


Fig. 5.—Closed dilator and open dilator.

jected to one or the other of these operations. That cases do occur demanding delivery in from 5 to 30 minutes is beyond question, but they certainly are rare, and the injudicious application of Bossi's dilator or Dührssen's operation to many or all cases of convulsions or of hemorrhage due to placenta prævia can only cast discredit upon obstetric surgery. My experience with more than 100 cases of eclampsia has taught me that the most rapid delivery is by no means a *sine qua non* of successful treatment. For the most violent cases, I have, in the past, resorted to cesarean section, to deep incisions of the cervix, and to craniotomy, only to find, as the literature of this disease is constantly declaring, that violent surgical measures often fail. With eliminative treatment first well under way, and showing no effect upon repeated and violent convulsions in a patient whose toxemia has apparently not produced the gravest structural changes in the kidneys, but has overwhelmed the nerve centers, in such a case, with an undilated and rigid cervix, I believe the proper obstetric treatment is to choose between Bossi's and Dührssen's methods. In this choice the character of the cervix to be dealt with, more than its degree of dilation, and the state of the patient, are the most important factors; for example, when the cervix is tough, elongated, and uneffaced, or scarred with dense cicatrices, Bossi's dilator is a dangerous instrument, even in the hands of an experienced

the lacerations are most likely to occur toward the close of dilation, when the tissues are thinned to their utmost.

A grave defect in Bossi's instrument, its liability to gouge and then lacerate the posterior wall of the cervix, theoretically has been largely removed in the instrument devised by De Seigneux (Figs. 5 and 6), the blades of which have practically a pelvic curve and vary in size, affording a broader surface in contact with the dilating cervical structures. Drawing the cervix down with a tenaculum and thus sharply anteflexing it, so often necessary to introduce the Bossi instrument, and favoring the gouging of the blades at the point of flexion, can be dispensed with and is a distinct advantage of De Seigneux's instrument. I have recently obtained this instrument and shall soon test these modifications, which appeal to me as being most valuable.

From the standpoint of quick delivery after dilation, the dilator is inferior to Dührssen's vaginal section, because version after the former is likely to find the cervix somewhat retracted after removal of the instrument, and the passage of the aftercoming head may produce lacerations wholly beyond one's control. The more rapid the dilation, the greater is this tendency to contraction. After Dührssen's section the upper angle of the incisions may be guarded by suture before turning the child. Whenever possible, therefore, for-

ceps delivery is to be preferred to version after using the Bossi dilator, because the degree of tension can be more readily observed and sufficient time may be taken in the delivery of the head through the cervix to prevent such lacerations that is out of the question in a head last delivery.

Rapid manual dilation after the methods of Harris, and of Edgar and Bonnaire, used to be our main reliance, but their value has been discounted by the more recent methods of Bossi and Dührssen. Harris' method is exceedingly tiresome, slow, and most difficult in a primigravida, because it requires the introduction of the entire hand into the vagina. To it, as well as to Edgar and Bonnaire's method, the same objections are applicable, viz., exposure to prolonged manipulation and the thereby increased risk of infection, the dangers of bruising and laceration, the necessity for partial or complete effacement of the internal os and upper portion of the cervix before attempting the method. Bossi and Leopold claim that the metal dilator promotes the effacement of the cervix, so desirable in all methods of dilation. Others have denied this function. The instrument certainly evokes uterine contractions, but their ability to efface the cervix in from 5 to 30 minutes, the time used for dilation, is certainly not in accord with my experience and with the time required in physiologic

area of the lower uterine segment, bag dilation followed by a forceps delivery, if necessary, is efficient. The large bag inside the ruptured amnion and traction, sufficient to control bleeding, should be used until the cervix is opened enough to apply forceps. More extensive invasion of the dilating segment of the uterus by the placenta and more profuse hemorrhage, may be successfully treated by partial metallic dilation, the large bag followed later by version with slow extraction to avoid laceration and serious hemorrhage after delivery. Central or marginal implantation, with rigid cervix, profuse hemorrhage, and a mature and living child—a combination of conditions I have yet to observe—is the only class of cases for which accouchement forcé should be considered. Bossi's dilator here meets formidable conditions in a softened, edematous and friable lower segment, with a rigid primiparous or a cicatricial multiparous cervix. Each degree of dilation adds to the terrifying hemorrhage. Nature's mechanism of hemorrhage in these cases teaches that fact, and with lacerations also added by the dilator, the situation becomes more alarming for both mother and child. An infant, often premature, usually apneic from severe maternal hemorrhage, and a mother in no condition for major surgery, do not warrant the classic cesarean section; theory, as well as statistics, opposes it.

If I should ever encounter just such a case, with my present knowledge and convictions, I would prepare for Dührssen's hysterotomy, for I believe it meets the indications more rationally than any plan of treatment heretofore proposed. Rapid separation of the bladder, incision of the cervix and the anterior uterine wall with scissors to the limit of the separation, pushing aside, or perforating if necessary, the obstructing portion of the placenta, and a rapid version and extraction of infant and placenta, followed at once by a firm tamponade from fundus to vagina, temporarily clamping the bases of the broad ligaments if the hemorrhage is profuse, and then diminishing the volume of the tampon for the proper introduction of sutures, appeal to my surgical and my obstetric judgment. The ill-effect and dangers in subsequent labors of these incisions—cicatrices and rupture—are yet to be determined, but to extricate the patient from the immediate dangers of grave placenta prævia and accidental hemorrhage, associated with marked rigidity or cicatricial contraction of the cervix, vaginal hysterotomy is the latest offering of obstetric surgery.

CONCLUSIONS.

1. The necessity for the induction of a premature labor by a method requiring less than 12 hours, is extremely rare.

2. The method most frequently employed, and most satisfactory in my experience, has been a combination of partial mechanical dilation, followed immediately by the insertion of a bougie and an extraordinarily large Voorhees bag incompletely filled.

3. For the relatively rare cases in pregnancy or labor requiring accouchement forcé, the choice of rapid mechanical dilation depends especially upon the character of the cervix, the general state of the patient, and the firm determination not to attempt too rapid dilation. Bossi's or De Seigneux's instrument is cleaner, less tiresome, applicable to the same class of cases, and is not more dangerous than manual forcible dilation.

4. Dührssen's vaginal section is a most valuable operation in the hands of an expert obstetric surgeon, and should be preferred to rapid metallic dilation, except when conditions favorable to the latter are unmistakably present.

5. For the treatment of the gravest form of placenta prævia and of accidental hemorrhage, Dührssen's hysterotomy, in the hands of an expert vaginal operator, should prove the best method of treatment ever offered.

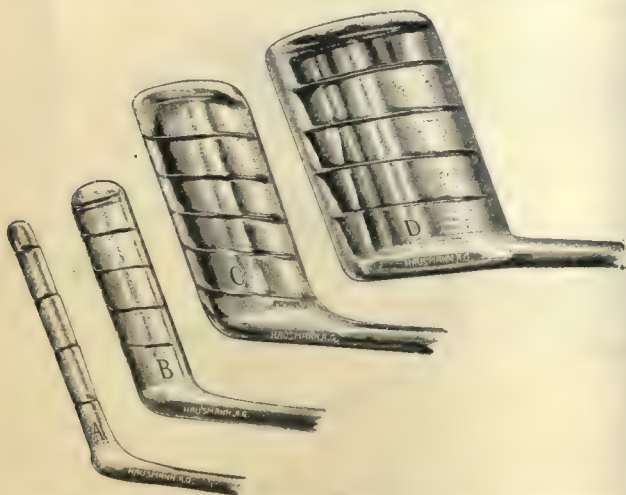


Fig. 6.—Assortment of the four series of blades (two-thirds size).

effacement, which is more nearly approached by the hydrostatic bag and bougie than by any other known artificial measures. I have used the Bossi dilator 11 times for various complications, and have even substituted it for my own instrument in the partial dilation preliminary to inducing labor, but for the latter indication I prefer the two-branched dilator, with an intelligent hand applying the force intermittently, to the four-pronged and corrugated blades forcibly opened by the unrestrained mechanical power of a screw. I prefer the intelligence of one's hand to estimate the force required, although I am aware of the fact that dangerous lacerations are only liable to occur toward the close of complete dilation when the Bossi instrument is used.

As I have stated, the lessons of my experience are against forcible delivery in the vast majority of eclamptic cases. Reviewing these three methods of delivery as they may be related to the treatment of placenta prævia, it is my conviction that Bossi's instrument and Dührssen's hysterotomy have even a more restricted field than in eclampsia. As you well know, the degree of hemorrhage, the variety of placenta prævia and the state of the cervix largely determine the treatment. Moderate hemorrhage is usually associated with lateral implantation, and when the placenta invades a small

GRAVES' DISEASE AND PARATHYROID THERAPY.¹

BY

JAMES J. WALSH, M.D., PH.D.,

of New York City.

Adjunct Professor of Medicine at the New York Polyclinic Hospital, School for Graduates in Medicine, etc.

Graves' disease is usually placed in the textbooks on nervous diseases among the major neuroses with such affections as epilepsy, paralysis agitans and the like. For all this class of diseases there have been many therapeutic suggestions, but few of them have proved of much success when used by others than their inventors. There is little need to recall the many disappointing experiences in such cases. Graves' disease has been particularly the field in which many therapeutists have thought to make discoveries and have made many announcements, yet at the present time we are probably as far from any definite agreement as to the treatment of the disease, apart from care for the general health of the patient, as for any other affection in the whole range of medicine.

It is generally conceded that proper regulation of diet with absence, as far as possible, of responsibility and mental overwork, and an abundance of sleep and fresh air will favorably affect the course of the symptoms of moderately severe or mild Graves' disease; indeed, in mild cases a symptomatic cure will be effected by such simple measures. There is, however, still a craving for specific therapy for the disease, which is evidently dependent upon some functionary derangement, for in even very severe cases the patients may recover so completely as to lose all trace of an affection which made life very miserable to them for years.

When organotherapy, or as it is perhaps better called, opotherapy, became the fad of the hour, after the discovery that the thyroid gland of animals could be made to supply the place of the absent gland, in those suffering from myxedema or congenital cretinism, and from the similar state that develops when the thyroid gland is removed in adult life, it was hoped that the key to many mysteries in therapeutics had been found. The usual theory of the etiology of Graves' disease is that there is a superfluity from the thyroid gland which acts as an irritant to the circulatory system and either through that or perhaps by direct influence also upon the nervous system, brings about the production of the wellknown triad of symptoms, exophthalmos, tachycardia and enlargement of the thyroid with the fourth symptom, of tremor, which as pointed out by Marie, and confirmed by all subsequent observers, is quite as unfailing and important a symptom of the disease as any of the other three. It was somewhat of a surprise then to be told about 10 years ago that the administration of thyroid substance had been found to give relief to the worst symptoms of Graves' disease. This seemed entirely contrary to the theory of the affection and the curing of like by like.

The authority for the announcement, however, was excellent, and there could be no doubt of the sincerity of the claims. Accordingly a number of physicians began to try to obtain the results claimed by Jones, the name of the English discoverer of this form of treatment. It was very soon found, however, that far from benefiting Graves' disease, the administration of thyroid extract always made the affection worse. Accordingly Prof. Jones was asked for an explanation. He found on careful inquiry that the substance he had been using in the treatment of his patients, while supposed to be the thyroid gland of the calf, was really the thymus gland of that animal. The butchers had been asked to supply portions of the large gland in the neck of the calf. Under the age of one year the thymus gland of this animal is at least as prominent as the thyroid, and the butcher's mistake was not unnatural.

Far from damping the enthusiasm of the opother-

apeutists, this only added new ardor to the flame of their investigating zeal, and now a number of patients suffering from Graves' disease were given thymus in considerable quantities. So far as I have been able to find, however, this produced no effect upon the symptoms of Graves' disease. The patients consumed a certain amount of sweetbreads in a condition in which they are not nearly as tasty as when usually put upon the table, but the therapeutic effect was nil. Contrary to the experience with the use of the thyroid gland, however, there was this advantage in the use of the thymus that it did not produce any serious exacerbation of the symptoms nor was it the source of inconvenience to the sufferers.

This would about seem to exhaust the possibilities of opotherapy with regard to Graves' disease, but there was one more experiment to make, and it is the record of that which I have to present to you. At the session of the American Physicians held in Washington in May, 1903, Dr. MacCallum of Johns Hopkins presented a paper in which he suggested that Graves' disease might not be due to hyperthyroidization as had been almost accepted before this, but rather to the absence, or atrophy, or incomplete development of certain small glands in the neck lying not far from the thyroid gland. These little organs, scarcely larger than medium sized peas even in the adult, and often even smaller than this, occur constantly in both animals and men, usually close to the thyroid, sometimes actually buried in its substance, occasionally, however, at some distance away. There are four or five, though sometimes two may be fused together, giving a larger gland and reducing the number.

Dr. MacCallum found that when these glands were removed from dogs, care being taken at the same time not to injure the blood supply to the thyroid gland nor the important nerves in this neighborhood, a series of symptoms, not unlike those which develop in very severe cases of Graves' disease occurred. One thing was very clear. While the removal of the thyroid gland and the careful preservation of the parathyroids was not followed in a short time by the death of the animal, the removal of the thyroids and parathyroids together was; and the removal of the parathyroids alone proved fatal after the development of rapid pulse and a fever with some projection of the eyes.

Accordingly Dr. MacCallum suggested the possibility of a diminution of parathyroid secretion as the cause of the disease. Careful examination of a series of bodies of patients who had been sufferers from Graves' disease during life, showed that the parathyroids were nearly always atrophic or absent. This seemed to point out then the specific indication for the treatment of the disease. Due primarily to the absence of parathyroid secretion, or at least to its serious deficiency, its relief might be expected by supplying the substance which the gland manufactures, and whose absence is the cause of the symptoms noted.

Personally I have been much interested in the whole question of the importance of the parathyroids, having been in Paris when Professor Gley, the perpetual secretary of the Academy of Sciences, announced the series of experiments by which he demonstrated the importance in the animal of these hitherto overlooked glands, and showed especially that the removal of the thyroid gland alone did not cause death, while the removal of the parathyroids did. Later on, I was in Berlin when Professor Munk sent to Professor Virchow a monkey for dissection from which the thyroid gland had been completely removed nine months before, and in which Professor Virchow was unable to find any trace of thyroid substance. The animal had not only lived for nine months, but had lived in excellent health. Professor Munk had been very careful not to injure the parathyroid glands and to avoid all injuries of other important structures in the neighborhood of the thyroid.

¹ Read before the New York Celtic Medical Society, October 28, 1904.

Accordingly I was tempted to try the effect of parathyroid extract on patients suffering from Graves' disease, several of whom I had under observation. The material was obtained, at Dr. MacCallum's suggestion, from the biologic laboratory of Armour & Co., at Chicago, Mr. Bell, the head of that department, having very kindly consented to make special arrangements for securing pure parathyroid substance. The material was obtained in the shape of desiccated glands. Mr. Bell assured me that if the remedy should ever become popular it would prove very expensive. It was very troublesome to get at, and could be obtained with assurance only in small quantities, and when thus collected was worth nearly its weight in gold. As a tentative price, he suggested about \$10 an ounce. About a half ounce of the material was supplied gratuitously.

The first patient was a sufferer from a wellmarked but not severe form of Graves' disease, who came to the nervous department of the Presbyterian Hospital in New York, and on whom, with Dr. Schlapp's permission, the remedy was employed. The dose at first given was .065 gm. (1 gr.), three times a day. After all, the parathyroid glands are not very large, and it seems likely, if they do transmit some powerful substance to the circulation, that this is not very large in amount. No untoward effects were noted, though the patient was kept under observation every second day. She was an intelligent woman, and the state of the case was explained to her very candidly, and the fact that she was using a hitherto untried remedy not concealed. The possibility of cure was made very clear. At the end of about a week her symptoms began to abate. At the end of about three weeks, though the dose of .065 gm. (1 gr.) three times daily, was not increased, she was so much better that she considered herself nearly well, and as she had to go out of the city, she passed from observation.

The remedy was next tried in an incomplete case of Graves' disease—that is, on a patient suffering from the characteristic rapid heart, a sense of fullness in the neck, though no visible goiter, and a fine tremor, but without exophthalmos. She, too, improved under the use of the remedy until she considered herself well. She thought that the new remedy was the long looked for specific for the disease. It may be said at once that both of these patients suffered from the symptoms of whatever Graves' disease they had, not continuously, but intermittently. Under these circumstances it is easy to understand that remission of their symptoms might very well have been brought about through the suggestive influence of the thought that a new remedy or a new physiologic theory was being tried on them. Suggestion may play a large role in the relief of the symptoms of Graves' disease, and it must never be forgotten in this respect that we are dealing with a major neurosis with regard to which, of course, suggestibility is sure to be a prominent feature.

The next two cases were very severe forms of Graves' disease, and in neither of them did the parathyroid extract seem to do any good. In one of them a slight increase in the dose promptly led to the symptoms apparently of thyroidism. In the other the continued use of .065 gm. (1 gr.) of desiccated parathyroids three times a day for four weeks led apparently to an exacerbation of the symptoms, though at the beginning there was apparently some improvement. The first case mentioned was not under my own care, but under that of John Rogers, Jr., of New York City, who asked for the opportunity to use the parathyroid substance on a friend. He wrote me:

Your very courteous gift to me of the parathyroid material should be acknowledged more fully, but I regret to say I could make out no beneficial effect from its administration. In fact, it seemed to aggravate the symptoms. I gave it in .065 gm. (1 gr.) doses for some days, and then in .2 gm. (3 gr.) doses until it was used up. At the end, the tremor, tachycardia, restlessness and exophthalmos seemed a trifle worse if anything, and I wondered if there might not have been included by the makers a little thyroid tissue in the substance supplied. As

the latter (the thyroid tissue) aggravates, or has always in this case, the symptoms immediately, you can readily understand the reason for my suspicion. I would expect any benefit to be shown almost as quickly as the ill-effect that I have noted, so I have resolved to give up that form of treatment.

I may add that this did not discourage Dr. Rogers with regard to the possibilities of organotherapy for Graves' disease. He said in his letter:

I am now trying the serum of a thyroidectomized goat, and that seems, if anything, to do a little good. I was sure of it yesterday, but am more sceptical today. I am going to try the dried clot of the same animal's blood tomorrow, or so soon as it is ready to pulverize.

A later communication from him gave the information that these substances had proved no more effective for good than the parathyroid, though they had produced no ill-effects. As various German investigators have emphasized the benefit derived from these methods of treatment, it has seemed worth while, with Dr. Rogers' permission, to include the results in this discussion.

The fourth case, of which slight mention has already been made, was that of a young woman of about 30, who for 10 years had been suffering from a severe form of Graves' disease. The exophthalmos and the goiter were very marked. The pulse was seldom under 120 and on the least excitement rose to 140 or even 160. She was for a time an assistant in the domestic department at the Polyclinic and therefore could be kept well under observation. At the beginning of the treatment there seemed to be some improvement. The pulse certainly was slower than it had been for some months. At the end of about ten days, there seemed to be some improvement in the exophthalmos. At the beginning of the fourth week, however, she began to complain of feeling nervous and restless and her pulse became higher than it had been for some time. Finally she objected to taking the remedy any more, because she felt sure that it caused her exacerbation of symptoms.

It is easy to understand that the suggestive effect of being brought before the class with the explanation that a new remedy was to be employed, for whose use there seemed to be ample justification in a new physiologic principle, would be sufficient to bring about an improvement of symptoms.

Personally then I do not think that parathyroid extract produces any benefit in cases of Graves' disease and that if employed in large doses even for a few days, or in small doses for many days, it will produce an exacerbation of symptoms not unlike those which are produced by the ingestion of a certain amount of thyroid substance.

The cases are entirely too few, however, for a definite opinion, though I have lost my own hope of good results, and should be very glad to hear if others have succeeded in accomplishing anything with this new remedy. I cannot quite get away from the thought too, that some slight admixture with thyroid substance may have occurred in the preparation of the material provided which would, of course, vitiate all the results and conclusions.

THE SURGICAL TREATMENT OF PROLAPSUS UTERI, WITH SPECIAL REFERENCE TO THE OPERATION OF COLPECTOMY.

BY

CHARLES GREENE CUMSTON, M.D.,
of Boston, Mass.

Vice-president of American Association of Obstetricians and Gynecologists; Honorary Member of the Surgical Society of Belgium, etc.

The operations proposed for the radical cure of complete prolapsus are numberless, and from resection of a portion of the mucosa of the vagina up to complete removal of the genital organs by laparotomy there is hardly a technic which has not been proposed. The very fact of these various technics would seem to demonstrate that there is not a single one which is completely satisfactory. It is also evident that individualization is necessary in the choice of the method to be followed, because the age of the patient, the degree of the prolapsus, the condition of the pelvic floor, perineum, etc., are all factors which decide the necessary extent of the

operation in each given case. Colpectomy particularly does not appear to be well known, and it having given me several excellent results I desire to publish its technic.

Operations for the radical cure of prolapsus uteri may be divided into three classes, each having a separate end to be attained: (1) To obtain normal resistance to the various structures holding the uterus; (2) to reinforce the uterine suspension apparatus, which has become relaxed; (3) to remove the prolapsed organ, which by its weight, it is impossible to retain within the abdomen.

The first class comprises all plastic operations on the vagina and perineum, such as anterior and posterior colporrhaphy, perineorrhaphy, elytrorrhaphy, and so forth. To these may be added amputation of the cervix, which is intended to diminish the size and weight of the uterus. The technic of these operations is of little interest, as they are too well known, and I will merely mention some of the results obtained.

If the prolapsus is not marked, anterior and posterior colporrhaphy, combined with amputation of the cervix, if the uterus is increased in size, are usually sufficient to remedy matters, but these means very frequently result in complete failure in advanced cases, and after a variable lapse of time all the former symptoms again make their appearance. For example, Munchmeyer, out of a total of 180 cases, was able to follow the ultimate results in 73 patients and to hear from 66 others. Out of 14 plastic operations on the anterior vaginal wall, there were 10 successful outcomes, while out of 55 on the posterior vaginal wall alone there were 43 cures. In operations in which both anterior and posterior plastic vaginal work was done, 40 cures were obtained out of 50 cases in which operation was done in a single seance, and 17 cures resulted out of 20 cases when the operation was done in two seances. Niebergall collected 50 operations of anterior and posterior colporrhaphy and 60 cases of simple colporrhaphy. Anterior and posterior colporrhaphy gave 29 cures out of a total of 34 cases, while simple colporrhaphy only resulted in 28 successful results out of 36 cases. Richelot found 13% of recurrences of prolapsus in cases treated by colporrhaphy, while Mangin relates 105 cases of prolapsus of medium intensity, in which elytrorrhaphy was done with amputation of the cervix, with 91 cures. In cases of prolapsus in the first degree, elytrorrhaphy with amputation of the cervix and perineorrhaphy gave 100% cures.

This first group of operations should include the wellknown operation of Le Fort-Neugebauer, but we have not referred to it, as it probably is never resorted to at the present time. The same thing may be said of the method formerly employed by Freund, which consisted in narrowing the vagina by introducing a series of silver sutures, circularly under the mucosa. The statistics given by Goertig show that out of seven cases there were four relapses, one result unknown, and in only two was the condition satisfactory at the end of the year.

In the second group of operations may be included all those which attack the ligaments of the uterus, or which tend to substitute artificial fixation of the uterus for that normally produced by its ligaments. In the first place we have Alexander's method, modified by so many various surgeons that a whole page could be consumed in giving their names, and also the intraperitoneal folding of the round ligaments advised by Werth and many others. After these comes an entire series of technics which endeavor directly to provoke the formation of solid adhesions between the uterus and the abdominal wall, and the same thing may be said of hysteropexy that has been said of Alexander's operation, namely, that of all the modifications introduced and all the slight changes that have been made, nothing has as yet been found that is perfectly satisfactory. And lastly, one should not forget the technic which has been proposed a number of times, consisting in shortening the broad ligaments and the uterosacral ligaments.

All these operations have given good results, but it is most important to note that they are merely capable of fixing the uterus in its normal situation and that, in all probability, this fixation is only temporary. On the other hand, it would be unreasonable to expect this fixation to take the place of the normal supports of the uterus; that is to say, the pelvic floor, the vagina, and the perineum. Consequently, all these technics are simply adjuncts to the principal operation, which should always be done on the vagina and perineum. If these two structures are not remodeled, any form of uterine fixation will result in an absolute failure. Out of 55 cases of hysteropexy, Panhut found that death occurred in 3 cases; in other words, 5.4%; and of 50 cases examined some time after the operation he found 60% of cures, 15% improvements, and 19% of recurrences. Of 11 cases of abdominal hysteropexy, Jacobs had 10 recurrences.

As to Alexander's operation, the only possible chance of having any success at all is when the uterus is small, and even then I can hardly believe that it can ever result in anything but failure. I must, however, say that 15 successful cases have been reported by Polic, and Imlach has applied this operation in 9 cases of complete uterine prolapsus; 3 patients were over 70 and in these he had 2 relapses and 1 cure. Out of 3 patients varying in age from 23 to 29, there were 2 relapses and 1 cure.

Many operators have combined ventrofixation with plastic operations on the vagina, as well as vaginal fixation, but they all present this difficulty, that in future pregnancies, complications of a more or less serious nature are apt to arise; and for this reason I have always done hysteropexy and anterior and posterior colporrhaphy on women who have passed the child-bearing period. But I must add that so far as I am aware, out of 27 cases of total prolapsus in women varying in age from 49 to 67, I have never seen a relapse, and for this reason I have always placed great confidence in the combined operation so far as permanent cure is concerned. I would point out that hysteropexy without plastic operations on the vagina is absolutely useless.

Kiriak has advised doing cystopexy along with hysteropexy and his operation, to which he has given the name of hysterocystoventropexy, consists in first fixing the anterior aspect of the bladder to the abdominal wall and its posterior aspect to the anterior surface of the uterus, after which ventrofixation is done. As may be seen, this operation is rather a laborious and complex one, and so far as recurrence of the prolapse is concerned, the ultimate results are little known.

I would also mention an operation which, strictly speaking, does not enter into any one of the three divisions made; I refer to the technic proposed by Freund in 1897, in which the uterus itself is used as a kind of pad to retain it within the abdominal cavity. This operation has given very good results apparently, but it has its inconveniences as well. The technic consists in an incision in Douglas' pouch, the uterus is turned back and fixed at the bottom of the vaginal wound. Then the anterior aspect of the organ is sutured to the anterior vaginal wall, which has been freshened in order to produce firm adhesions, but in pushing up the uterus the external os points upward, and in order that the uterus may empty itself, an artificial orifice must be made in the fundus uteri, and it is this very point which is a serious objection to the operation. Other than this difficulty it would appear that it is an excellent one and has given most encouraging results.

It is evident that with the exception of Alexander's operation, all these technics may give good results in cases of slight prolapsus, but when one is dealing with an enlarged and heavy uterus, with lax and stretched vaginal walls and a ruptured perineum, the results are less encouraging, and it is in just these cases that removal of the uterus has been proposed in order to obtain a radical result. Experience, however, has shown

that even hysterectomy is not superior to the various fixation technics, and it must be combined with plastic vaginal operations, because it is evident that the removal of a heavy organ increased in size, can only facilitate the result desired from a vaginal, or perineal operation. On the other hand, hysterectomy necessitates a mutilation that one hardly feels justified in proposing to women until they have passed the menopause, and then again the operation is relatively serious. Out of 55 cases, Hartmann and Bouchet found 5 deaths, 2 from peritonitis, 1 from pyelonephritis, 1 from shock, and 1 from cardiac paralysis. The mortality, according to Zolotnitzky, is 4%, and out of 137 cases collected by Panhut, the following percentage was found, namely, death, 8%; recurrence, 8.8%; improvement 13.8%; and cure, 77.4%. In 18 cases of vaginal hysterectomy Jacobs had 8 recurrences. Consequently it becomes evident that hysterectomy has not given satisfactory ultimate results, and it is for this reason that more radical operations have been undertaken; I refer to hysterectomy combined with complete resection of the vagina. It is very evident that this operation assures a positive cure, but it cannot be said that it is without danger when the patients are women already somewhat advanced in age. Now, in order to diminish the gravity of this operation without making it less certain in its ultimate results, Müller, of Berne, excised the vagina alone without doing a hysterectomy, and this operation he termed colpectomy. The results of the first series of cases, as well as the details of technic, have been published by Wörmser,¹ while Biehly published a second series of cases in his thesis upheld at Berne in 1902.

Colpectomy, as its name indicates, consists in excising the vagina, as in Fritsch's or Martin's operation, but the distinctive point is that the uterus is allowed to remain in place without paying any attention to what becomes of it and without even opening the peritoneal culdesacs or pushing back the bladder. The uterus is pulled down with a pair of stout bullet forceps so that the prolapsed organ is completely drawn out of the vulva; the vaginal culdesacs are thus effaced and nothing remains but a slight sulcus surrounding the prolapsus. Holding the uterus drawn down, a circular incision is made starting from the urethral tubercle, or about 1 cm. below it, and continuing along the sulcus for about 1.5 cm. The incision is begun on the right side, the point of the knife being directed downward and then it is carried around up the anterior aspect, all the time lowering the handle of the knife until the left side is reached. The cervix is then raised up and, sweeping around the posterior aspect of the vagina, the incisions are made to meet. When this circular incision has been made, the vaginal mucosa covering the uterus is peeled off completely and is turned outward like a glove finger; the dissection carried down until the insertion of the vaginal mucosa on the cervix is reached and it is then detached from the circumference of the cervix. In this way all the mucosa is removed, excepting a small strip that is allowed to remain near the vaginal opening, and the vagina represents a large wound deprived of its mucous membrane. If the cervix is enlarged, it is amputated by a clip of the scissors. The wound is next united by sutures in layers in such a way that the lateral walls of the vagina are approximated in their entire extent and will later on form a cicatricial column which will hold the uterus in its position. As the wound is closed by a running suture of catgut, the uterus is pushed back into its primitive position in the abdominal cavity, the reduction taking place itself; according to the extent of the wound, which itself depends on the degree of the prolapsus, the occlusion will require two, three or even four layers of sutures. There now only remains to unite the remainder of the vaginal collar of mucous membrane by a few sutures of silkwormgut placed in the axis of the vulva.

In the place of the vagina there only remains a small infundibuliform depression and the uterus is held up by a solid cicatrix, including the entire depth of the vagina and which prevents any further prolapse of the organ.

We now come to the results obtained by colpectomy from various authors. Wörmser published 8 operations with excellent results; Pflantz records 8 cases, Bumm 1, Freund 3, Stocker and Brose each 1, and 25 operations done at the Berne Clinic. Von Erlach, of Vienna, has done the operation several times, and appears to be perfectly satisfied with it, so far as one may ascertain, for he only makes mention of the operation during a discussion at the Medical Society of Vienna. In order to be complete, I would add two cases done at the Gynecologic Clinic of the University of Geneva, recorded by Krüková and one unsuccessful result in a case reported by Fellenberg. The unsuccessful outcome in this case cannot be attributed to the operation, because the prolapsus was complicated by an inversion, but, on the other hand, Biehly records a death which can be directly attributed to colpectomy. Within the last year I have resorted to this operation three times, with excellent results so far, although it is premature to state what the ultimate result will be. I am, however, fully satisfied with the operation and believe it to be one entailing very little risk and that consequently it is well suited to women in advanced years.

Theoretically, there is one objection to colpectomy, namely, that the uterus does not possess any outlet, and consequently one would be led to suppose that a hydro-metrium must inevitably result, but the originator of the technic at once repulsed these theoretic reasons, and practice has shown that he was in the right. In those cases in which a persistent secretion from the uterine mucosa is to be feared, the operation is preceded by a thorough curetment, but generally speaking, in elderly women, after the menopause, the mucosa is atrophied and gives rise to little or no secretion, and then again, a very marked atrophy of the uterus itself appears to take place after the operation.

The second theoretic objection is, that by a pressure on the cicatrix the uterus might finally come down, but the ultimate results of colpectomy that have been published show that this is not the case.

The importance of colpectomy, as shown by the results published by Wörmser, Biehly and others, is that the removal of the uterus is not at all necessary in order to cure the prolapsus completely, and since removal of the uterus always involves some danger, and is useful only as a complement to excision of the vagina, which will always be the essential step of the operation, it is clear that it is better simply to do the latter alone. Unfortunately, the indications of colpectomy, like those of hysterectomy, with excision of the vagina, are limited. This operation can only be resorted to when pregnancy and sexual intercourse are no longer to be expected, but after the menopause, it appears to be a most excellent one and deserving of trial.

Colpectomy is extremely easy to do, and should be accomplished in 20 or 25 minutes, and what is still better, the patients may be allowed to leave their beds in five or six days. This is, naturally, a very great advantage in cases of elderly women. There is still another advantage, and that is, if necessary, the operation can be carried out with Schleich's infiltration anesthesia. Naturally, the only danger to avoid is opening the bladder or rectum.

Chalky Deposits in the Fingers.—Theo. Dunin (*Mittheil. aus den Grenzgeb. der Med. und Chirurg.*, xiv, 4) describes a condition which resembles very closely the chalk deposits described by classic writers on gout, but he thinks that it has nothing to do with this diathesis. In both his patients there were acute exacerbations of pain, and in one of them he was able to draw off some pus during one of these. He proposes that the chalk deposits are due to calcification of an encapsulated pus collection. The deposits consisted of calcium carbonate and phosphate. He gives röntgen-ray pictures of the hands. [T.S.G.]

¹ Monatschrift für Geburtsh. und Gyn., Bd. vii, H. 4.

INFECTION OF THE URINARY TRACT BY THE COLON BACILLUS, SIMULATING UREMIA.

BY

JAMES RAE ARNEILL, A.B., M.D.,

of Denver, Colo.

Professor of Medicine in the University of Colorado.

Now and then one becomes convinced the customary search for albumin and sugar, casts, blood, pus, and crystals, is not a sufficiently complete urine analysis. At times bacteriologic examination of the urine obtained by catheterization under aseptic conditions can alone furnish the correct diagnosis. The importance of tubercle bacilli and pyogenic bacteria in the urine has been appreciated for many years, but little attention has been given to infection of the urinary tract by other bacteria, more especially by the colon bacillus. It is more than likely that many hitherto obscure diseases of the urinary organs will be explained by germ infections. Cabot's recent startling and instructive delving into the records, urine, clinical, and postmortem, of the Massachusetts General Hospital, proves that even with excellent urine examinations by well-trained men, it is frequently impossible correctly to diagnose kidney lesions. However, this fact only proves the incompleteness of our methods and deductions, and does not detract from the great diagnostic and prognostic value of our well-established methods of urinalysis. The present case emphasizes the vital importance of making repeated analyses, and of supplementing the chemic with a careful microscopic examination. Extensive bacteriologic (cultural) examinations of the urine, though highly desirable, are practically impossible for the rank and file of the profession. They are necessary in many cases for an accurate etiologic diagnosis, but not essential for a practical working diagnosis. Bacteriologists have of late years called our attention to the highly important condition of bacteriuria in some of the acute diseases, such as typhoid fever. Their researches have opened up interesting fields in preventive medicine. We now realize that it is just as important to disinfect the urine as the stools in typhoid fever, and that this disinfection must continue till the bacilli have disappeared from the urine. The importance of bacteriuria in chronic conditions, however, has not been so thoroughly impressed upon our minds. Flexner has called attention to the fact that chronic Bright's disease and uremia are often complicated by a terminal infection with the colon bacillus.

Very recently, Allen¹ reported a case of chronic pyelitis diagnosed as *renal tuberculosis* by himself, and operated as such, which proved to be an infection of one of the kidneys with a pure culture of the colon bacillus. This case, together with the one which is reported below suggests this infection is much more common than we have generally supposed, and that it should be carefully considered in the diagnosis of our more difficult and obscure urinary cases.

Mrs. B., aged 60, had always had good health, with the exception of occasional bilious attacks, and very obstinate constipation, extending over a period of many years. During the winter and spring of 1904, she traveled in California and the northwest. As usual, her bowels were constipated, and it was necessary to take cathartics and use enemas. During the latter part of her trip she neglected her bowels because of the inconvenience of taking physic while journeying. On her return trip to Denver she became violently ill with a severe chill, high fever, vomiting, and severe pain in the right lumbar region. Several physicians administered to her on board the train. She reached Denver about June 1, 1904. Vomiting was almost incessant, and at first the vomitus contained bile. Every attempt to take food resulted in emesis. The bowels were obstinately constipated, and had not moved for several days. There was slight fever. The mind had gradually become so cloudy that the patient remained in a stupor most of the time. Suspecting uremia, the family physician examined the urine chemically, but found no albumin. On physical examination he was unable to make out any evidence of malignant disease, intestinal obstruction, or peritonitis. A stomach expert was called in, and stomach

washing twice daily was instituted, with considerable relief to the stomach symptoms. The bowels were moved with glycerin enemas. However, the stupor persisted, and even became more profound, so that the patient could be roused only when pointedly questioned. Because of the negative urine examination, a provisional diagnosis of autointoxication was made. On June 9, 1904, I saw the patient in consultation. Stupor was marked; the patient, however, could be somewhat roused by questions, but would immediately lapse back into a semicomatose state. The stomach-tube was passed and lavage practised, the patient apparently remaining asleep during this ordinarily distressing procedure.

The eye symptoms were negative except for a slight sluggishness of the pupils. Examination of the lungs and heart was practically negative. The arteries were sclerosed and the blood-pressure to the palpating finger somewhat high. The pulse occasionally skipped a beat. The abdomen was distended, more especially above the pubes. There had been dribbling of urine for some hours, and the bladder was found to contain a large quantity of urine. The liver and spleen could not be felt, and there was no evidence of newgrowth in the abdomen; palpation, however, was unsatisfactory on account of the distention. To the physicians in attendance the case appeared like uremia, but the negative urine examination was puzzling. It seemed wise to examine another specimen of urine. It was done, and the diagnosis then seemed absolutely simple and certain, as a fairly large trace of albumin was found, and the microscopic field was literally packed with dark granular casts of all sizes. There were a few waxy casts and a moderate number of pus cells. The patient was immediately put on colon irrigation with hot normal salt solution at a temperature ranging between 110° F. to 115° F., through the Kemp irrigator, every four hours. Medicinally she received spartein, strychnin, and pilocarpin. Rectal feeding was instituted. The effect of the colon irrigation, with the hot saline solution, was to increase the secretion of urine, cause the bowels to move, reduce the abdominal distention, allay the vomiting, and gradually to cause a clearing of the mind. On June 12, three days after instituting this treatment, the following note was made: The patient's mind is much clearer; she is able to take malted milk by the mouth and retain it. The hot saline irrigation revived her from a feeling of collapse, and usually makes her feel better. The bowels move fairly well and the abdomen is flat. Urine, 30 oz. to 40 oz. in 24 hours. Albumin negative, with the Boston and ferrocyanid tests; very few hyaline and granular casts, several leukocyte casts. On June 14, the fresh sample of urine was cloudy as before, and in addition to a few hyaline casts and pus cells, there was seen under the low dry lens what appeared to be a field covered with a granular deposit which somewhat resembled amorphous phosphates or urates. A cover-slip was applied, the high dry lens used, and this granular sediment resolved itself into enormous numbers of fairly large bacilli. A preparation was made and stained with Wright's stain, and a tentative diagnosis of infection with the colon bacillus made. On June 15, 16 and 17 the same findings were made. The urine was turbid from the bacilli; an occasional hyaline and granular cast, a few pus cells, and no albumin.

On June 18 a catheterized specimen of urine, obtained under aseptic conditions, was sent to Dr. William Mitchell for a complete bacteriologic examination. By cultural and staining methods he demonstrated a pure culture of colon bacillus. The following treatment, in addition to the colon irrigation and attention to the bowels, was commenced: Urotropin in fairly large doses, together with an intestinal antiseptic. Part of the time urisepin was substituted for the urotropin. The patient improved slowly but surely. The return of appetite, strength, and weight was very tardy. Careful and well-directed attention was given to the bowels, but the constipation remained obstinate after the hot saline irrigations were stopped. A condition bordering on paralysis of the legs appeared, resembling that described by V. C. Vaughan, Jr., in animals inoculated with cultures of colon bacilli. It was months before the patient was able to walk. The urine has been examined frequently. The colon infection has gradually lessened, but even as late as March, 1905, notwithstanding persistent treatment for months with urotropin and urisepin, colon bacilli were still present in moderate numbers, sufficient to make the urine somewhat turbid. There was no albumin, only an occasional hyaline cast, and a few pus cells. The patient is now feeling moderately well, but has not fully regained her strength, vitality, or weight. The ureters were not catheterized, so it is impossible to state the exact location of the infection. It is doubtful whether the infection will ever clear up entirely.

The question may well be asked, was this a case of uremia with a so-called terminal infection by the colon bacillus, which did not quite terminate, or was it a simon-pure infection of the urinary tract by the colon bacillus, with a secondary irritation of the kidneys, with the resulting production of enormous numbers of casts and some albumin? Were the symptoms partly due to the absorption of the intracellular toxins of the colon bacillus, as described by Vaughan?¹ For many days

the quantity of urine varied from 12 oz. to 30 oz. The total solids were low, according to Trapp's coefficient.

One might theorize and analyze as follows: There was marked constipation, absorption of toxins, auto-intoxication, irritation of the kidneys by the intestinal toxins, diminution in secretion, and infection of the urinary tract by colon bacilli, which migrated through the tissues from the distended colon, just as the tubercle bacilli are known to penetrate an intact intestinal mucosa, and travel in the lymph spaces to a suitable soil, and that the symptoms were partly due to the kidney condition and partly to the absorption of the intracellular toxins of the colon bacilli.

INTESTINAL OBSTRUCTION.¹

BY

DYER F. TALLEY, A.M., M.D.,
of Birmingham, Ala.

The subject of intestinal obstruction is one which cannot be too frequently presented to the medical profession, and one with which it can never become too familiar. Indeed it is a condition which presents many difficulties in its early diagnosis, and it is a well-recognized fact that in acute cases the life of the patient depends on early recognition and prompt surgical intervention. The alarming fatality of this condition is too generally looked on as a natural and expected termination, and it is time that physicians wake up to the realization that practically every patient can be saved by prompt action, directed in the proper line of treatment.

Rather recent statistics show that of operated cases nearly 50% prove fatal; the cause of this high mortality is delay in operating, waiting until the patient's vitality is overcome by the absorption of poisonous products and until the pathologic changes become so extensive as to get beyond relief.

There are two difficulties in the way of early operation: 1. It is hard to make a positive diagnosis in the first 24 hours, indeed, in some cases impossible unless an exploratory laparotomy is done. 2. There is a tendency on the part of the patient, his friends and also the physician, to wait until tomorrow and see what purgatives and enemas will accomplish. When a patient suffers extreme pain in the abdomen, especially in the epigastrium, which is not relieved by an ordinary dose of morphin, when he vomits and his bowels do not respond in 10 to 15 hours to the usual purgatives and enemas, we should diagnose intestinal obstruction; then if we err in our diagnosis, the error will be on the side of safety for the patient.

If the proper care is taken in opening the abdominal cavity no harm will be done, so it would be better to open many cavities and find no obstruction than to fail to open one in which an operation is the only means of saving life. In practically all of these cases when no obstruction exists some other condition is found requiring operation. In nearly all diseases and conditions an operation is looked on as a last resort, while in this condition it should be considered the first and only means of relief. The few cases that we read of having undergone spontaneous cure should not be considered, for the faint hope inspired by them will cause more deaths in a month's time than it will cure throughout eternity. To meet the second difficulty it is necessary for the physician to inform the patient or his relatives of the danger and fatality of the condition and to insist firmly on an operation. If the operation is refused, the proper thing for the physician to do is to give up the case, for he is not only morally but legally responsible for treating a patient improperly, even if it be in accordance with the wishes of all parties concerned.

In order to get more practically at the subject, I will report the cases that have come under my care during the last 15 months:

CASE I.—Mrs. H. M., aged 46, on the night of July 7, 1903, had a severe cramping spell. A nearby physician was called, and gave a hypodermic of morphin; she was only partially relieved by this, and I was called early on the morning of July 8; at this time she was suffering great pain in the epigastric region, and had vomited several times. She had eaten some indigestible article of food the night before, and as the pain was confined strictly to the stomach it impressed me as a case of acute indigestion. During the day her pain was so great that morphin .065 gm. (1 gr.) was given, and that amount did not entirely relieve her. A moderate dose of calomel was given and followed by salts, but her bowels did not respond; high enemas were given during the day, with no result, but as so much morphin had been administered, it was thought that bowel action would be slow.

On the second day she grew very weak, her pulse was about 160, she was given normal salt solution, by hypodermoclysis, which brought the pulse-rate down to 120, and she appeared much better. She vomited at intervals through the day, but did not suffer very much pain; only two small doses of morphin were given; the abdomen was sensitive in the epigastric region, but there was no distention; several high and stimulating enemas were given with no result. On the third day she was still vomiting, the abdomen began to swell, and about noon a small fecal action followed a high enema. The fourth day her abdomen was very much swollen and rigid, and peritonitic symptoms marked; it was very evident that death would soon follow unless the obstruction was relieved, and even then there was little hope. I rather favored operation as the only hope, but consultation advised against it, and the patient was kept as quiet and comfortable as possible on hypodermics of morphin. On the next day the vomited matter had a decidedly fecal odor, and this continued until her death on the ninth day of the attack.

This case is a sad one, because the patient could have been relieved by timely operation, and yet, it is very instructive, for several reasons. First, it was very deceptive to one not thoroughly familiar with the aberrant symptoms of intestinal obstruction; for instance, the pain during the first day or two was confined to the stomach, or epigastric region, while the constriction was low down at the pelvis; on the third day there was a slight fecal movement, which came from below the obstruction, but which inspired a false hope that the obstruction had given way. On autopsy it was found, that three or four feet of the ileum was caught up and strangulated by an adhesive band anchored to the promontory of the sacrum. There were extensive adhesions in the surrounding intestines. This patient had been operated on the year before, when the uterus was removed.

CASE II.—Mrs. S. P., aged 62, had been suffering pain in the region of the right groin for several days when I saw her; on examination, I found a hard tumor in the groin, about the size of a walnut; her bowels had not moved since the appearance of this tumor. I operated on June 12, and found a femoral hernia; the bowel was somewhat discolored, but appeared healthy after the constriction was relieved and was returned to the cavity and the canal was closed. This patient progressed nicely, the bowels moved well, but on the fifth day she became suddenly worse and died in a few hours. As no autopsy was allowed, I could not determine the cause of death. She gave no evidence of peritonitis, so I thought possibly she died from embolism.

CASE III.—Mrs. A. G., aged 34, had severe cramps in the epigastrium on Friday night, November 20, 1903. I was called in consultation on the afternoon of November 23, when the patient said her pain had stopped rather suddenly that morning, and that she would feel all right if her stomach could be settled. I learned from the attending physician that she had been vomiting occasionally since the attack began; she had also suffered considerable pain in the epigastrium, for which he had given morphin repeatedly; he had also given calomel, salts and numerous enemas, which failed to move the bowels. On examination, I found little distention of the abdomen, but the walls were rigid, showing peritoneal involvement; her pulse was 130, and temperature 100.4° F., facial expression rather pinched and indicative of serious trouble. I diagnosed intestinal constriction, with gangrene, and the patient was, as soon as possible, placed in an ambulance and carried a distance of five miles to the hospital, where I operated as soon as preparation could be made. When making the abdominal incision, as soon as the peritoneum was reached, dark, gangrenous fluid came welling up through it, and on opening the cavity, it was found filled with this foul-smelling fluid, which had a decided fecal odor. The obstruction was readily found, and consisted of a loop of ileum, constricted by an adhesive band, which was bound down near the vertebral column, not far from the

¹ Read before the Southern Surgical and Gynecological Association, December 13, 1904, at Birmingham, Ala.

sacrum; there were also adhesions between the left fallopian tube and the intestine, outside the constriction. She gave a history of tubal trouble for several years previous; this constriction band was broken and the bowels liberated from the tube, after which it was easily brought out, and the gangrenous bowel 24 inches in length was resected; the anastomosis was made with a Murphy button, the abdominal cavity flushed with normal salt solution and left full of the solution, and closed without drainage. This patient was in rather a critical condition to undergo a radical operation, so she was given a large quantity of salt solution, both by hypodermoclysis and intravenous injection in order to avoid, as much as possible, the shock attending operations of this kind, which so often proves fatal. She left the table in a fair condition for recovery and, although very weak for 12 hours, never suffered another moment's discomfort, as her nausea and vomiting were entirely relieved. Her bowels moved spontaneously on the third day after operation, and she progressed nicely until the ninth day, when a fecal fistula formed in the lower angle of the abdominal incision; the button could be felt with a probe in this fistula; on the twentieth day of the operation the fistula was enlarged and the button removed, after which the fistula closed. I discovered after removing the button that it was the large size, usually employed in the colon, which my assistant gave me by mistake, as I asked for the medium size. I believe if the latter had been used there would have been no fistula. This patient was in excellent health, and doing all her housework when last heard from.

This case is instructive in that it shows that extreme conditions may be relieved, and the patient cured, even after gangrene has set in.

CASE IV.—J. D., colored, aged 38, had cramping pains in the abdomen for several days, during which time strong purgatives had been given, with no effect. He had vomited occasionally during this time. When I was called to see him the abdomen was somewhat swollen, but soft; temperature normal, and pulse about 100 per minute, and good; this patient had part of a rib resected 10 days previous, for tuberculous trouble. The symptoms of obstruction in this case were not alarming, but the distention, pain, and inability to get a bowel movement led me to open the abdomen, and I found a band extending from a cluster of tuberculous glands in the mesentery, to the convex border of the ileum, which had the effect of reining the intestine down, without constricting it; this band was broken and some adhesions between intestinal loops relieved, and the abdomen closed. I did not see the patient after the operation, but was informed that his bowels moved four or five times on the night after the operation, and he had an uninterrupted recovery.

CASE V.—L. J., aged 50, had worn a truss for complete inguinal hernia for 30 years; on the morning of February 2, 1904, he got up to answer the telephone without putting on his truss, and the hernia came down; in a few minutes it began to pain, and when he returned to bed it would not reduce. I was called to see him and administered morphin; after he got easy I employed gentle manipulation, but with no effect. I do not spend much time trying to reduce hernia for two reasons: (1) I do not believe in manipulating a strangulated bowel; and (2) every one who has a hernia, and can stand an operation, is entitled to a radical cure.

This patient was carried at once to the infirmary and operated on in six or eight hours after the bowel came down, and at this early time the bowel was turning dark and fluid had collected in the sac; after relieving the constriction the circulation returned, the intestine was returned to the cavity, and a radical operation completed. He made a perfect recovery, has gained about 20 pounds over his usual weight, and feels better than he has for years.

CASE VI.—Miss S. B., aged 28, was suffering severe cramps in the region of the appendix, and had been for about a week, when I saw her on May 8, 1904. The diagnosis of appendicitis was made, and she came to my infirmary where I removed the appendix, on May 11. She continued to suffer about the same pain after the operation, and in the course of a week she grew worse, the abdomen began swelling and the bowels could not be moved. By the ninth day she was in a critical condition, the abdomen so distended that respiration was very much embarrassed, and her facial expression was one of great distress; she was also vomiting almost continuously. It was evident that she could not live much longer unless relieved, so I opened the abdomen and relieved what must have been a volvulus, as the act of pulling the bowels out of the cavity relieved the obstruction; the colon was collapsed, and the small bowel very much distended until the obstruction was relieved, when the colon became distended. She made a satisfactory recovery.

CASE VII.—C. N., male, aged 6, began having pains in the abdomen on May 28, 1904. His father, a physician, started him on calomel, followed with other purgative medicine, but his bowels failed to move in 30 hours, so the father, fearing obstruction, hastily brought him to the infirmary. When I first saw him, on May 31, he was getting weak, had an anxious expression and pains or cramps in the bowels, but the abdomen was not rigid. I considered it a case of intussusception, and operated as soon as preparation could be made; four distinct intussusceptions were found in the lower part of the ileum, within

three feet of the cecum; these intussusceptions involved from three to four inches of bowel in every one; no adhesions had formed, so they were as easily relieved as pulling out an inverted glove finger. The appendix was near at hand, and as it looked somewhat enlarged, was removed, and the abdomen closed. The mesenteric glands were very much infiltrated, showing a tuberculous condition which was responsible for the whole trouble. The little patient's bowels moved a short time after the operation, the vomiting stopped, his expression changed to normal, he recovered rapidly and was sent home on the nineteenth day after the operation; he has gained considerable flesh since, and feels well, but still has some increase of temperature, owing to his tuberculous condition. A later note says his temperature now runs normal and he is the picture of health.

Only one case of fourfold intussusception is reported in the literature on the subject, and it is extremely rare to have more than two or three; usually only one is present.

CASE VIII.—M. T., male, aged 5 months, commenced suffering with cramps on June 10, 1904; small doses of calomel were given, as is the custom in intestinal disorders of children, but there was no response; other purgatives and numerous enemas were given with no result. I saw the child in consultation on June 13, three days after the onset of the attack, and found him vomiting, with rigid abdomen and distressed facial expression. Intussusception was diagnosed, and the baby was carried at once to the infirmary for operation. He took the anesthetic badly, and just as the skin incision was made he stopped breathing, and artificial respiration had to be employed for some minutes before he was resuscitated. It appeared as though the chloroform would surely prove fatal, so I abandoned the operation on the frail hope that the trouble would relieve itself, so the skin cut was closed with a subcuticular suture, the child put to bed and enemas tried again; during the next day he grew worse, and by night I was fully convinced that he would die in a short time unless relieved, and I decided to complete the operation with local anesthesia. When I started the operation the hypodermic syringe had been cracked by sterilizing, and I did not have time to spare, so proceeded without any anesthesia. The subcuticular suture was pulled out and the wound easily opened down to the fascia; the abdomen was entered with apparently little pain to the child, and as soon as the cavity was opened a large portion of the intestines protruded. The intussusception was found to be one of the ileocecal variety, and was easily relieved, although some adhesions had formed. A large amount of gas passed as soon as the obstruction was relieved, but great difficulty was experienced in returning the intestines to the cavity as the child was straining with all his might; however, this was accomplished, and the incision closed. The little fellow passed considerable gas all night, and was decidedly more comfortable than before the operation. On the next morning he had a satisfactory fecal action, but soon after this he began to grow weaker, and died in 15 hours after the operation.

This patient would have been saved had the operation been completed on the first night, and I would have finished it that night without an anesthetic had I not been informed by textbooks that a fair percentage of intussusceptions relieve themselves.

This case shows that a laparotomy can be done without anesthesia, and many patients seen late, who are too weak for an anesthetic, may be operated on and relieved without a general anesthetic.

THE NEW ASIATIC BLOOD FLUKE (SCHISTOSOMA JAPONICUM, 1904; SCHISTOSOMA CATTOL, 1905) OF MAN AND CATS.

BY

CH. WARDELL STILES, PH.D.,

of Washington, D. C.

Chief of Division of Zoology, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.

The discovery of a new species of parasitic worm in man is always of sufficient scientific interest to warrant its being called to the attention of American physicians, no matter in what quarter of the globe the parasite occurs. In view of our present closer relations with the East, however, the Asiatic parasites now demand our attention from a practical as well as from a scientific standpoint.

To the long list of worms parasitic in man, must be added a new and not unimportant species of blood fluke

which has recently been described in Japan; independently and almost at the same time, a new blood fluke was described in London as occurring in man in China, which appears to be identical with the Japanese species.

Historical Review.—According to Katsurada (1904, pp. 147, 148), Japanese physicians have for some years past recognized an endemic disease in certain localities of the provinces Yamaguchi, Hiroshima and Saga, characterized by the following symptoms in particular: Enlargement of liver and spleen, increased appetite (in exceptional cases loss of appetite), diarrhea, frequently with mucosanguineous stools; occasionally also fever, anemia, cachexia, ascites and edema. In some cases the patients finally die from exhaustion.

The cause of this disease has not been understood, although Yamagiwa (1890), Kurimoto (1893), Fujinami (1904), and other authors have observed instances in which numerous eggs of an unrecognized parasite occurred in various organs, especially in the liver, of cadavers coming from the infected localities.

Katsurada had occasion, in April, 1904, to study this disease in the Province Yamaguchi. In the feces of 5 out of 12 patients examined, he found eggs which resembled to a certain extent those of the African blood fluke (*Schistosoma hæmatobium*), and he suspected that the disease might be due to these eggs and the worms from which they came, and that the latter probably inhabited the portal vein. As he was unable to obtain an autopsy, and as it occurred to him that the trematodes which are most commonly found in man in Japan (namely, *Paragonimus westermanni* and *Opisthorchis sinensis*) also occur in dogs and cats, he dissected two dogs and a cat in the hope of finding this unrecognized parasite in these animals. In the cat he found a fragment of blood fluke which, together with the eggs found in man, he described in a Japanese paper (1904, June 30). Later he succeeded in obtaining from a second cat in Yamaguchi numerous blood flukes, which were identical with the one first found and which inhabited the portal venous system. These parasites he described in a second Japanese paper (1904, August 30), proposing the name *S. japonicum* for the species. In a fourth paper (1904, December), Katsurada publishes an interesting German article on the same subject, and in a postscript to this paper he states that Fujinami (1904, October) announces the discovery of a female *S. japonicum* in a human cadaver.

Independently of Katsurada, Dr. John Catto has found what appears to be the same parasite. While he was resident medical officer at St. John's Quarantine Station, Singapore, he found some peculiar oval bodies in certain pathologic lesions in a Chinaman, from Province Fukien, China, who had died of cholera. The case was published in the Journal of the Malaya Branch of the British Medical Association (not accessible to me) as one of coccidiosis in man.

Subsequently, in London, he made a further study of the case and exhibited slides before the Medical Research Club, London, but no definite interpretation of the structures was made. Some eminent German authority who examined the slides stated that the oval bodies were the eggs of some unrecognizable round worm. Further study by Catto, however, revealed the fact that adult trematodes were present in the tissue, and that the oval bodies in question were in reality the eggs of this worm. Catto then presented a paper before the British Medical Association, at Oxford (July 26 to 29, 1904), claiming that he had a new species of trematode for man, which, however, he did not describe minutely, or name. This paper was published September 7, 1904.

Sir Patrick Manson sent some of Catto's slides to the International Zoological Congress, at Berne, Switzerland (August 14 to 19), where they were examined by Blanchard, Grassi, Looss, Monticelli, Ward, and myself, and recognized as representing a species of blood fluke (*Schistosoma*), distinct from *S. hæmatobium*. Visiting London in September, I was able, through the courtesy of Dr. Catto, to examine additional material and to convince myself beyond doubt that the worm was not *S. hæmatobium*.

Catto (1905) has now published another article on the parasite, for which he uses the name *Schistosoma cattoi* Blanchard.

Becoming aware of Katsurada's work a few weeks ago, I have compared his description and illustrations with those of Catto, and although there are certain differences in their observations, it is difficult to escape the conclusion that they are dealing with the same parasite. Further study of material should of course be made, to do away with all doubt upon this point, for it must be recalled that there are actually some minute differences in the observations, and that while Catto's specimen came from a man, Katsurada's anatomic details are based upon worms from a cat. Some of the differences in detail can doubtless be based upon the (preserved) condition of Catto's material, while others are probably differences in interpretation.

In the following diagnosis I have tried to bring out

the points of agreement and disagreement by uniting all the characters given by the two authors:

Schistosoma japonicum Katsurada, 1904, August 13, from cats (and eggs from man) in Japan; and *Schistosoma cattoi* Blanchard in Catto, 1905, January 7, from man in China.

Diagnosis.—*Schistosoma*. **Male:** Alcohol specimens, light brown-yellow (Catto); 7 mm. to 12 mm.; average, 10.43 mm. long (Katsurada), 9 mm. long (C.); dirty color; maximum breadth of a 12 mm. worm, 0.53 mm., slightly behind equator (K.); breadth 0.447 mm. at acetabulum (C.); anterior portion of body in a 12 mm. worm, 0.8 mm. long by 0.35 mm. broad (K.); body flat (K.); anterior end blunt, with terminal sucker (C.); caudad of oral sucker, body slightly constricted, forming a neck 0.18 mm. in diameter (C.); caudad of acetabulum, body tapers gradually to a truncated posterior extremity (C.); caudal end attenuates (K.). Oral sucker terminal, dorsal lip longer than ventral, circular, 0.124 mm. in diameter (C.); mouth funnel-shaped, 0.29 mm. in diameter in a 12 mm. worm (K.); provided with minute spines (C., K.); acetabulum in gynæcophoric canal, 0.552 mm. from mouth, oval and trumpet-shaped, 0.29 mm. by 0.189 mm., its long diameter transverse, larger and more muscular than oral sucker, retractile (C.); acetabulum pedunculate, a little larger than oral sucker, 0.33 mm. diameter in a worm 12 mm. long (K.); provided with minute spines (C., K.). Gynæcophoric canal extends entire length of worm (C.); worm forms a gynæcophoric canal, the surface of which is provided with minute spines, similar to those found on suckers, but not so numerous (K.). Dorsally, spinose warts are wanting (K.); a distinctive feature is the absence of ciliated (i. e., spinose) warts on the integument (C.). Mouth with sphincter; strong muscular esophagus, surrounded by numerous gland cells, and constricted at its middle (C.); esophagus simple, with numerous gland cells, and widening to 0.29 mm. (K.); esophagus bifurcates immediately cephalad of acetabulum into the two intestinal ceca (C., K.); ceca run along either side of body, joining posteriorly to form terminal ampulla, there are three anastomoses (C.); caudad of acetabulum the ceca unite sooner or later to form median stem, the point of union usually further caudad than in *S. hæmatobium*; in a 10 mm. long worm this median canal was about 1.6 mm. long in posterior sixth of body; the ceca may separate again once or several times; intestine contains chiefly polynuclear leukocytes and colorless granules (K.). Testicular bulbs between intestinal ceca, in anterior part of posterior portion of body, usually six in number and close together (K.); testicles lobular, vesiculæ seminales present, vas deferens longer than in *S. hæmatobium* (C.); genital pore (with its sphincter, C.) closely posterior of acetabulum (C., K.), (in median line, C.) at entrance of gynæcophoric canal (K.); excretory pore ventrosubterminal (C.); dorsoterminal (K.).

Female: Dirty color, caudal half darker, nearly black, because of highly developed vitellogene glands and because of blood in the intestine (K.); darker than male (C.); 8 mm. to 12 mm. long (K.), almost cylindric (C., K.), longer and more slender than male (C.); diameter 0.113 mm. (C.), 68 microns at equator, 88 microns immediately caudad of acetabulum, greatest thickness 0.4 mm. somewhat caudad of equator (K.). Cervical constriction quite as marked as in male (C.); anterior portion of body, 0.29 mm. long (K.); anterior and posterior ends pointed (K.). Oral sucker circular, 0.051 mm. (C.), 63 microns in a specimen 11.5 mm. long (K.); provided with minute spines (C., K.). Acetabulum 61 microns by 47 microns, larger than mouth, longitudinal diameter longitudinal to worm 0.146 mm. from oral sucker (C.); suckers approached, acetabulum pedunculate, 74 microns in diameter in a specimen 11.5 mm. long (K.), provided with minute spines (K., C.). Integument smooth (K.), but anterior extremity of both sexes spinose (C.). Excretory pore terminal (C., K.), excretory apparatus well developed, similar to that of *S. hæmatobium* (K.). Esophagus branches immediately cephalad of acetabulum into two intestinal ceca, which unite caudad of ovary to form median canal, latter running in zigzag or spiral course to the tail; the median stem is much thicker (i. e., 0.234 mm.) than in *S. hæmatobium* (i. e., 40 microns, after Leuckart), and contains yellow-brown pigment and leukocytes (K.). Ovary nearly in equator, elongate oval, 0.59 mm. in a worm 11.5 mm. long, and 0.39 mm. in one 8 mm. long (K.); ovary marks a slight bulging in the worm, which tapers from hereto a sharply pointed caudal extremity (C.). Oviduct begins at caudal end of ovary, turns and runs cephalad, and unites with vitellogene canal cephalad of ovary; here empty the shell gland cells (K.). Ootyp present (K.). At caudal extremity of uterus are the shell glands and opening of the oviduct with vitellogene canal. The muscular, central, elongated, (C.) uterus extends in the median field (K.), occupying [nearly (K.)] the anterior half of the body (C.), to genital pore which is directly caudad of (K.) [near (C.)] the acetabulum; ova are arranged irregularly in single or double rows (C.); caudally of ovary are the vitellogene glands, which are different from those of *S. hæmatobium* (C.); the vitellogene glands begin caudad of ovary and extend nearly to caudal end, not filling the entire half of body; vitellogene canal nearly median, at side of unpaired intestinal canal (K.).

Eggs.—Yellow-brown (C.), yellow, or light brownish-yellow

low (K.), oval (C., K.), or elliptic (K.), no trace of spine or operculum (C., K.), thin, double contoured shell (K.), stout smooth shell (C.); 60 to 90 by 30 to 50 microns, average 70 by 40 microns (C.); eggs in utero of worm, 58.4 by 42.5 microns, in liver host (*Homo*) 64 to 72 by 47 to 49 microns, in intestine of host (*Homo*) 67 by 50 microns, in feces (*Homo*) 75 to 90 by 52.5 to 72.5 microns, in cat (*Felis*) 70 by 47 microns (K.); uterine eggs contain no embryo (K.), eggs in tissues of host with (K.) or without (C., K.) embryo, eggs in feces with embryo (K.).

Miracidium.—Elongate oval, gradually attenuate anteriorly, with pointed proboscis-like structure, ciliated, the cilia on the anterior portion, being especially large and active; yellow, highly-refracting "gastric sac" on border of first and second thirds; the two large glands seen in *S. haematobium* not observed in this species.

Habitat.—Adults in portal and mesenteric veins of man and cats; eggs in various parts of body, as intestinal wall and lumen, mesenteric lymphatic glands, outer wall of gallbladder, in pancreas, liver (C.), most frequent in liver, mucosa, and submucosa of intestine, especially colon, feces, and brain (K.).

Geographic Distribution.—Japan (Prov. Yamanashi, and apparently also Hiroshima, and Saga), and China (Prov. Fukien).

Types.—Type of *S. cattoi* is deposited in the London School of Tropical Medicine; original slides also in Hygienic Laboratory, U. S. P. H. and M. H. S., No. 9,572, in Coll. Blanchard (Paris), and Coll. Ward (Lincoln, Nebraska). Types of *S. japonicum*, probably with Katsurada.

The foregoing diagnosis is convincing so far as the specific distinctness of the Asiatic and the African blood flukes is concerned. The differential diagnosis is seen from the following:

African fluke *S. haematobium*: Body with numerous spinose warts; eggs 120 to 190 by 50 to 73 microns, with terminal or lateral spine.

Asiatic fluke (*S. japonicum* and *S. cattoi*): Body without spinose warts; eggs with blunter ends, 58.4 to 90 by 30 to 72.5 microns, without spine.

Several other differences (in suckers, intestine, vitellogene glands, etc.) between the species are reported, but the foregoing are sufficient to establish the two forms as distinct.

The source of infection by blood flukes is still an open question, but evidence seems to be accumulating in favor of the view that the African fluke enters through the skin.

Both Katsurada and Catto lay considerable stress upon the absence of bladder symptoms in case of infection with the Asiatic blood fluke, but it is perhaps an open question whether a sufficient number of patients have been examined to establish this point as standing without exception, especially in view of the reported frequency of vesical calculus in China and Siam.

One of the interesting clinical points brought out by Katsurada is the possibility of having cases of epilepsy due to brain infection with eggs of this worm. All of the cases of cerebral distomatosis thus far reported for man have been attributed to the lung fluke (*Paragonimus westermani*), and among these cases is one reported by Yamagiwa (1890) as due to the lung fluke. Katsurada now informs us that Yamagiwa assumes an error in his earlier determination.

In harmony with the brief account of symptoms mentioned by Katsurada, Catto reports that during the life of his patient, the right lobe of the liver extended two fingers' breadth below the costal margin, the left lobe a hand's breadth below the sternum, and its percussion dulness merged into the splenic; the spleen was palpable an inch from the iliac crest, and its notch was in line with the anterior axillary fold.

Pathology.—Katsurada states that the worms feed on the blood, and if numerous they cause anemia; the blood-corpuscles are more or less injured; he also suggests that the worms probably form a toxin which perhaps is the cause of the enlargement of the liver; the eggs may form emboli in various organs, most frequently in the liver, in which they may result in inflammation and increase of the connective tissue; the liver becomes cirrhotic as a result, its upper surface becoming coarse and irregularly granulated; these changes result in more or less prominent phenomena of portal stasis. The eggs in the mucosa and submucosa of the intestine, especially of the colon, cause more or less severe inflammation resulting in part in destruction, in part in growth of tissue, these changes are sometimes followed by tumor-like growths

on the intestinal wall which frequently cause ulcers in the mucosa. The eggs may be carried to other parts of the body.

In Catto's (1905, pp. 11-13) case, the adipose tissue throughout the body was a prominent feature, the appearance of the peritoneum suggested repeated attacks of peritonitis. The appendices epiploicae were thickened, and in some cases matted together. The rectovesical pouch was almost obliterated. Encasing the large intestine was a coat of fat, most marked at the mesenteric attachment. The mesenteric and prevertebral glands varied in size from a bean to a golf ball, the largest forming a cluster near the duodenum. The liver was uniformly enlarged; its surfaces were markedly nodular, its borders sharp and irregular, the whole presenting the appearance of a very coarse cirrhosis. Its consistence was greatly increased, but its color was not appreciably altered; the coats of the gallbladder were thickened, and a layer of fat almost completely encased this viscus, which was distended with clear, mucoid, apple-jelly-like material containing minute gallstones. The colon was much thickened throughout; the mucous membrane was swollen, hyperemic, and friable, presenting numerous small circular, superficial erosions and patches of necrosis; the outer coats were very tough, almost cartilaginous, and showed no tendency to ulcerate. The rectum was three-fourths of an inch thick all around, and was adherent to the bladder; it nearly filled the true pelvis. Where adhesions had formed, the bladder wall was thickened, but elsewhere it was healthy, and nowhere was the vesical mucosa diseased. The sigmoid was uniformly thickened; in tracing the bowel upward the thickening became less marked and more patchy. The coats of the cecum and appendix vermiformis were uniformly hypertrophied, the mucous membrane presenting small patches of ulceration and necrosis. The appendix was provided with a mesentery, and a distended lymphatic could be recognized running along its free surface. The liver and bowel cut gritty on section. The lower end of the ileum was thickened in patches, and the mucosa congested over corresponding areas. The enlarged spleen was pigmented. Stomach, pancreas, suprarenals, kidneys, heart, and lungs showed no gross lesions.

Microscopic Findings.—Of the intestinal tract, the rectum and appendix were most affected; the distended lymphatic vessel, mentioned above, was choked with ova; everywhere throughout the small intestine, ova were found, but only in patches and in relatively small numbers. The obliteration of the rectovesical pouch was probably caused by the irritation produced by ova accumulating in vast numbers in the rectum; no ova were found in the vesical mucosa, though they were present in small numbers in the outer coats of the bladder. In the liver, ova were plentiful, lying singly or in larger or smaller clumps embedded in the markedly hypertrophied fibrous connective tissue. The adult worms were found in small groups at the bifurcation of the smaller mesenteric vessels, which they partially or completely plug. Where ova accumulate, they provoke at certain places a small cell infiltration, which gives place later to a greater proliferation of fibrous tissue. Pigment was seen in the liver and bowel. In the intestine, from cecum to anus, ova occupy, roughly, two concentric layers—one subperitoneal, where the eggs are comparatively scarce; the other in the submucous coat, where they are innumerable, in some places densely packed. Between these zones in the muscular layers, the ova are with their long axis at right angle to the bowel, lying in single or in double rows; eggs are plentiful in the mucosa, more numerous in the necrotic areas; the ulcerative lesions of the bowel differ from the corresponding lesions of the bladder caused by the African blood fluke in the entire absence of the fungating masses so characteristic of the latter. Perihepatic nodules were not observed.

In many of the enlarged mesenteric lymphatic glands, ova were found in the thickened trabeculae. Eggs were also found in the outer wall of the gallbladder, in the pancreas, liver capsule, fibrous coat of the larger mesenteric vessels, mesentery, pylorus, duodenum, jejunum, and ileum, but not in the round ligament of the liver, and the diaphragm.

BIBLIOGRAPHY.

- Catto, John, M.B., D.P.H., Pathologist, Great Northern Central Hospital: 1904—A new trematode. Read before Brit. Med. Ass'n, July 26-29; Brit. Med. Jour., Lond. (2281), Sept. 17, p. 663. 1905—*Schistosoma cattoi*, a new blood fluke of man. Cragg's prize essay, 1904, London School of Trop. Med., Brit. Med. Jour., Lond. (2297), January 7, pp. 11-13. Figs. 1-8. 1905—Idem. Reprint, 6 pp., Figs. 1-9, 89. London.
- Fujinami: 1904—Kyoto Igaku Zasshi, v. 1 (1). (Not accessible to me.) 1904—Ibidem, v. 1 (3), October. (Not accessible to me.)
- Katsurada: 1904—Concerning an endemic disease in the province Yamanashi. Japanese text. Mittell. med. Ges., Okayama (178), 30 Juni. (Not accessible to me.) 1904—The determination of the cause of the endemic disease in the provinces Yamanashi, Hiroshima, Saga, etc. Japanese text. Tokyo Iji-Shinshi (1871), August 13, pp. 1-22. *Schistosomum japonicum* n. sp., p. 21. 1904—Idem. Japan. Keichansu-zeiger (6887), August 13. (Not accessible to me.) 1904—*Schistosomum japonicum*, ein neuer menschlicher Parasit, durch welchen eine endemische Krankheit in verschiedenen Gegenden Japans verursacht wird. Annot. zool. japon., Tokyo, v. 5 (3) December, pp. 147-160, Figs. 1-10.
- Kurimoto, T. Dr.: 1893—Concerning the eggs of a new parasite. Japanese text. Ztschr. d. Tokio med. Gesellschaft, v. 7 (22), November 20, pp. 1-6, 1 Fig.
- Yamagiwa, Dr.: 1890—The changes in tissues caused by parasites. Japanese text. Ztschr. d. Tokio med. Gesellschaft, v. 4 (21), November 5, pp. 11-17, 1 Fig.; (22), November 20, pp. 20-26, 1 Fig.

SPECIAL ARTICLES

THE HOSPITAL AND THE DISPENSARY IN THE WARFARE AGAINST TUBERCULOSIS.¹

BY

LAWRENCE F. FLICK, M.D.,
of Philadelphia

In the consideration of any phase of the tuberculosis problem it is well to keep in mind as a fundamental principle that tuberculosis is a microorganic disease and that all the phenomena set up by it from its beginning to its end are due to organic life. It is our knowledge of these facts which enables us to bring tuberculosis under control along the lines laid down by the modern crusade against the disease.

The tubercle bacillus, the primary cause of tuberculosis, probably is a saprophyte which has evolved into a parasite through the degeneration of higher organisms. Even now it grows only on debased tissue and therefore only gets a foothold in the tissues of a human being who has for some reason or other deteriorated from a normal standard of health. The microorganisms which cooperate with it for the destruction of human life, such as the pus-producing microorganisms, the influenza bacillus, the pneumococcus, and perhaps some others also are more or less dependent upon depraved health and unsanitary conditions for parasitic existence and development. These facts give us the minor keys in a scheme for the prevention of tuberculosis.

We now know tuberculosis as the world has never known it before, etiologically, pathologically, and sociologically. In the past it was recognized only in the form of consumption; now we know it in many other forms in which it either causes death under a false name or does untold damage without bringing those whom it afflicts to the grave, often serving as the indirect cause of death when some other disease is the direct cause. It has decreased from 30% to 50% throughout the civilized world in the past half century, but it probably still afflicts half of all human beings at one time or another during life. Among the poor probably three-fourths have the disease. Many recover, and at the present day many more than in the past; but it must be borne in mind that tuberculosis is a tissue destroyer and people who recover nearly always recover with a handicap.

Our present knowledge of tuberculosis—its causes, prevalence, and effects—enables us to formulate plans of warfare against it which, could they all be put into operation at once, would wipe it from the face of the earth in a very short time. Quite naturally, our plans are not all feasible and some are more feasible than others. The chief obstacle is popular ignorance and prejudice. It is not an easy matter to turn the popular train of thought into a new channel and therefore it is not easy with a disease which popularly has been looked upon as hereditary, providential and incurable, to get people to look with favor upon schemes which are based upon views diametrically opposite to those that have been held.

As usual in the evolution of human thought and human progress, the proverbial crank has had to have his day. He has been on hand and has done his work. He has cried the new ideas from the house-tops and has made himself obnoxious everywhere for the last quarter of a century; but he has sufficiently influenced the public mind to make the introduction of comprehensive schemes possible at the present day. His theories, moreover, have been worked out in places—in some consciously and in others unconsciously—thereby removing them from the mere domain of theory to that of practical application.

Of the plans of warfare which have been worked out, two perhaps are more efficient and more easily introduced than others, namely, the hospital and the dispensary. If a choice must be made between these two the preference undoubtedly should be given to the hospital because of its isolating element; but both are of easy introduction in any place as they are in line with what has been done for other diseases for a long time.

The value of the hospital as a weapon in the warfare against tuberculosis had already been demonstrated to the world

¹Read before the National Association for the Study and Prevention of Tuberculosis, held at Washington, D. C., May 10, 11 and 12

before the modern crusade began, although the demonstration had been unintentional. As far back as 1791 a few philanthropic people in London started a movement to provide hospital accommodations for poor consumptives. The movement was based purely and simply upon charity. The seed was planted in good ground and the work grew. To provide hospital accommodations for poor consumptives became quite a fad after a while and in years the work reached large proportions. The Royal Hospital for Diseases of the Chest, The Brompton Hospital for Consumptives, The City of London Hospital for Diseases of the Chest, The North London Hospital for Consumptives, and a number of others came into existence on this wave of philanthropy. When the movement began, pulmonary tuberculosis was exceedingly prevalent in London as it was in all large cities at that time. Nearly a third of all deaths were returned under consumption. Probably half of all deaths were due directly or indirectly to the disease. Even as late as 1848, when official registration of the cause of death began in London, a sixth of all deaths were returned under consumption, and probably a third of all deaths were due to tuberculosis directly or indirectly. In 1888, at the end of 40 years there had been a reduction in the deathrate from tuberculosis in London of about 33%, although nothing had been done to bring about such a result except the establishment of these hospitals. That the reduction was due to the hospitals cannot be doubted, for in the city of Paris, where sanitary measures had been introduced to a much greater extent during the 40 years than in London, and where no hospitals had been established, the deathrate from tuberculosis was still exactly the same in 1888 as it had been 40 years before. London now has one of the lowest deathrates from tuberculosis of any of the large cities of the world and she has brought about this condition of things through the charity of her citizens.

In Italy, also, the preventive value of hospitals has been demonstrated. Here it was done knowingly. In 1782 the kingdom of Naples passed a law requiring all consumptives to be removed to a hospital or isolated in their homes. The enforcement of this law for half a century almost exterminated tuberculosis in the kingdom of Naples.

Since the crusade against tuberculosis began along modern lines, some of our American cities have established hospitals or hospital beds in a small way. It is true this was not the only preventive measure, but it has been the most far-reaching one. In all of these cities there has been a marked reduction in the deaths from tuberculosis. In Philadelphia we now have an isolating capacity of about 300 beds. We have had a reduction of 45% in our deathrate from tuberculosis since 1861, the greater part of which has occurred since 1890. More than a half of this reduction has been during the last 10 years.

When we analyze the influence of hospital treatment of the tuberculous as a preventive measure, we can understand the striking results of such work. The hospital is the place for the sick and the helpless. The consumptive becomes dangerous to his fellowman in proportion as he is sick and helpless. His disease is contagious only during the process of breaking down and emptying out of tissue. This is when he has his bad spells, and these spells come oftener and get more severe as he approaches his end. He looks for assistance at these times, the very time when he is most dangerous to others, and if given the opportunity, will enter a hospital. Removal from his surroundings at such times into a place where he can be under control, abates a great danger to others. It is easy to understand what a far-reaching influence upon a community the isolation of the consumptive during those potent epochs of contagion must have. These are the times when new implantations of the disease take place, and by this abolition of the opportunity the implantations are prevented.

Anyone who has observed a consumptive during a period of exacerbation or during the last few weeks of life, appreciates how prolific a source of contagion he must be at such times. Usually, diseased tissue when sufficiently broken down to come away, comes away profusely. If the disease is in the lungs, the patient expectorates large quantities, and if it is in some other part of the body he discharges large amounts of pus. The matter which thus comes away contains ripened tubercle bacilli in large numbers. The patient is quite sick

he has fever; he may have sweats; he feels weak; he has no appetite, no ambition, and probably feels more or less depressed. Unless he has been well informed, he does not know how properly to dispose of the broken-down matter, and he is apt to distribute it carelessly throughout the enclosure which he at the time occupies. He wants to be comfortable, and probably occupies the cosiest room in the house. If he is very poor, this is the kitchen. He is chilly, and he keeps his windows closed. The room naturally becomes contaminated from end to end, and anybody who occupies it for any period of time with him or after him takes into his system a large number of tubercle bacilli, probably enough to produce an implantation. Usually other members of the family are thus exposed, and this is why tuberculosis is a family disease.

In a hospital a consumptive can be taken through his exacerbations and even through his terminal stage without danger to anyone. His family, being away from him, is absolutely protected. The attendants of the hospital can be protected. What is difficult in the home is relatively easy in the hospital, on account of the discipline in the hospital. The mere fact of being under the observation of strangers makes people more careful and cleanly than they otherwise would be. During the exacerbations, when the patient still has ample strength and a fair amount of mental activity, all that is necessary is to give him the means to keep himself clean, and tell him how to use them. If he has a spit-box to spit in, he will use it, and if he has paper napkins to wipe his mouth with, he will use them. The example of those who have been in the hospital before him and who already have been trained, has a great influence on him. He unconsciously goes with the crowd, and does what they do. In the last stage of the disease the problem is more difficult. The patient is physically unable to keep himself clean, and no longer has the mental activity to realize fully what cleanliness means to himself and to others. He soils his bed linen and his body linen, and does so frequently during the twenty-four hours. He can be kept harmless only through most careful and vigilant supervision by a competent nurse. Every time the linens are soiled they must be removed before the broken-down tissue has become dry, and every particle of broken-down tissue that falls upon the furniture or upon the floor must be sterilized immediately and removed. This is an expensive procedure. For the poor it can be carried out only in a hospital, because only in a hospital can discipline be exacting enough to make it possible.

For the prevention of tuberculosis the hospital undoubtedly is the most potent factor at our command. It helps people who are most likely to spread the disease, and it helps them at a time when their power for evil is greatest. It protects the rest of the family, by removing the source of contagion and by relieving it of a burden which has a powerful predisposing influence—a prolific cause of the spread of the disease among the poor. The father, mother, sister, and brother of a consumptive often get the disease in turn because they have been prepared for it by the hardships which they have undergone in trying to minister to the wants of the stricken one at a great personal sacrifice and a deprivation of the necessities of life. Among the poor, when tuberculosis crosses the threshold, poverty and distress stalk in behind and enter into a partnership with it, which is kept up until the family becomes either immune or extinct. Hospitals for consumptives break up this partnership for evil.

Hospitals are preventive in still another way. They serve as schools and propaganda in the crusade against tuberculosis. The patients who come in during periods of exacerbation often go out restored to a fair condition of health with valuable knowledge about the disease which enables them not only to preserve the health which they have regained, but to protect themselves and others against the contagion which they still give off. They, moreover, impart this knowledge to others, and thus become valuable agents in the educational movement. Even patients who come into the hospital to die, during their stay serve as object lessons to relatives and friends, and attract attention to the new ideas about the disease.

The hospital also is a potent factor for the increase of scientific knowledge about tuberculosis. In the past the disease practically has been put beyond the pale of progress by the

exclusion of tuberculous subjects from hospitals. The hospital and the laboratory are the ladders upon which science must climb to higher levels of knowledge about disease, and like the firemen's ladders, they must intertwine and extend one from the other. All progress in medical science has been made in this way. By this method our knowledge of tuberculosis has been greatly augmented in the last few years, and the disease has been brought within the domain of curable diseases. We have much yet to learn, however, and for the acquisition of more knowledge we must have well-equipped hospitals with modern laboratories attached.

Above all is it important that tuberculosis hospitals, or at least tuberculosis wards in general hospitals, be attached to medical schools. One of the chief defects of the medical training in the past has been the disregard of chronic diseases. Skill in diagnosing tuberculosis, for instance, in its early stages, is an art and takes as much training as any of the fine arts, and yet in our medical schools in the past, and I regret to say, even at present, it is dealt with in a few didactic lectures and one or two hours' bedside instruction. Is it any wonder that the young physician starts out in life incompetent to recognize tuberculosis except in an advanced stage, and, as a rule, unable through his own efforts to acquire greater skill. Tuberculosis now is a curable disease in the hands of all men who recognize it early enough and understand the modern scientific treatment. Were it possible to make all medical men experts in tuberculosis with a magic wand we could at once settle the tuberculosis problem. We then would cure all early cases, and it would only be a question of time until the advanced cases having terminated fatally there would no longer be any tuberculosis. We have no magic wand by which we can do this, but if every teaching institution in the land will at once equip itself with either a tuberculosis hospital or a large tuberculosis ward we will do in time what we cannot do at once.

Large hospitals connected with medical schools could at very little expense be equipped for the treatment of tuberculosis in all its forms and stages. The top story could be made available for the advanced cases and the roof for the earlier cases. In this way even hospitals in built-up portions of cities could be used for modern treatment of tuberculosis. Thus students could be taught in a practical way and be given unlimited opportunity for acquiring skill in physical examination. No class of patients likes to be examined so well as tuberculous subjects. Early cases could be used daily for this purpose without injury. More advanced cases in all stages of the disease could be had for observation and study, so that students could familiarize themselves with all the physical signs and symptoms in a way that would give them at least the fundamental knowledge necessary for helping themselves to acquire greater skill when going out to practice.

Tuberculosis hospitals would also give us specially trained nurses for tuberculosis. Strange and paradoxical as it may seem, nurses trained in general hospitals, even with the most comprehensive courses, are not well fitted to nurse tuberculous subjects. The knowledge and temperament and even the mechanical skill, if I may so term it, necessary for nursing people suffering from tuberculosis, are different from what are required for nursing surgical and medical cases other than tuberculosis. There is a neurotic element in tuberculous subjects which places them in a class by themselves, and only the doctor and nurse who understand this neurotic element can successfully deal with such patients. There, moreover, are services required of women who are nursing in tuberculosis which are not usually exacted in other diseases. The nurse may at any moment have to scrub the floor or turn washerwoman in an emergency, and to be a good nurse for tuberculosis, she must do it with alacrity and good humor.

Next to the hospital, the dispensary undoubtedly is both the most available and the most potent weapon in the warfare against tuberculosis. It supplements the hospital in a sense, and ought to be closely associated with it. In a gap between the two comes the sanatorium, and outside of all three is the convalescent farm, the four constituting a complete equipment or armamentarium for fighting tuberculosis from a clinical point of view. The dispensary and hospital fit well together, because they are adapted for the cases at both ends, namely,

the very early ambulatory cases and the advanced helpless cases. Both of these must, as a rule, be treated at home, so far as the poor people are concerned; the early cases, because the sufferers cannot afford to give up work, and the advanced cases, because the patients are too sick to be sent away from home. The advanced case in the hospital helps to bring to light the early case in the home.

For ambulatory patients, the dispensary gives every facility for successful treatment, provided the dispensary is run upon the broad basis of supplying food and preventive-measure supplies, as well as medicine and medical advice. A little help in the early stages of tuberculosis, frequently is all that is necessary to bring about recovery. Just a little more food, a little more rest, and a little more fresh air than the patient can get with his own resources, are all that are necessary to turn the scales when these can be supplied exactly at the right time, and this is where the dispensary can give just what is needed at a very trifling expense.

In many households there are a number of cases of tuberculosis varying in degree, one perhaps in the advanced stage, another in what might be called the middle stage, and another or perhaps more than one other in the incipient stage. The burden of the advanced cases weighs heavily upon the rest of the family and bears it down. If the patients with advanced cases can be removed into hospitals and sanatoriums, it may be that the others will have sufficient buoyancy left to bear up by themselves. If not, a little help may be all that is needed, and this can best be given in a dispensary. The assistance given should be just enough to hold up the family in self-respect and not enough to pauperize it.

That tuberculosis can be cured in the dispensary no longer admits of doubt. At the Henry Phipps Institute, where a large dispensary has been in operation for two years, most excellent results have been obtained and patients have been restored to health without losing much time from their occupations. The results, indeed, have been beyond expectation. It has been proved there, too, that the practical operation of dispensary treatment is easier than would be expected from a theoretic point of view.

The dispensary is a powerful factor in the prevention as well as in the cure of tuberculosis. It performs both of these functions in the ambulatory cases. As a rule an early ambulatory case is not contagious. If cured before it becomes contagious, excellent preventive work has been done. Beside this, however, the dispensary gives opportunities for educational work and the supervision of preventive measures in the homes of the poor.

While the incipient ambulatory case is the legitimate beneficiary of the dispensary, the advanced case, which at present cannot find accommodations in hospitals and sanatoriums, is lured to it by the hope of recovery and thus brings to it additional labor in prevention. Through the dispensary the way is opened into the homes of the poor and by judicious tactful assistance and supervision, those homes can be patrolled against danger of contagion. Doctors and inspectresses can step in and say just what must be done in those homes and by kind persistent effort bring about observations of regulations which make the home harmless. It is surprising how easy it is to get control of the home of even the most ignorant through a little human kindness and sympathy.

The dispensary also gives opportunity for advancement of knowledge about tuberculosis. For this purpose it must be conducted upon a scientific basis and the people who go into it must do their work unselfishly and with a view of aiding humanity and furthering science. That it can be done has been demonstrated at the Henry Phipps Institute during the past two years.

It may not be amiss to say a word about the expense of running hospitals and dispensaries for the treatment of tuberculosis as exemplified at the Phipps Institute. At first blush the cost looks prohibitive. It does not turn out to be so in practice. Palatial buildings and expensive appliances are not necessary. The very best results can be obtained under what might appear to be most unfavorable conditions, provided the hearts and brains back of the work are of the right fiber and caliber. Cleanliness, exactness, and kindness are the factors which count; and if these are up to the proper standard it makes

very little difference what the quality and style of the buildings may be. In a measure there is an advantage in keeping the buildings on somewhat the same plane as are the homes of the poor because when these poor people see a building of their own kind kept clean and orderly they have more courage and earnestness in keeping their own humble homes in the same condition.

The Henry Phipps Institute has transformed an old building into a hospital and dispensary and has equipped it with all facilities for scientific work at an outlay of about \$12,000. In spite of many difficulties in administration, some of which seemed insurmountable, it has kept the cost of maintenance, including wear and tear, during the first year, down to \$9.33 a week per patient for the hospital, and about 85 cents a week per patient for the dispensary. The very best of everything has been supplied to the patients in the hospital and about half of the patients in the dispensary have received milk and medicine free. This expense, moreover, includes clerk hire, honorariums to physicians and the necessary paraphernalia for keeping exact records.

It may perhaps be well to explain how it is that dispensary work can be done so economically in tuberculosis as compared with dispensary work for other diseases. The chief element of economy lies in the infrequency of visits. It is not necessary to see tuberculous patients oftener than once in two weeks. They do not need much medicine and preventive-measure supplies can be given them in a very economic form. Good food, fresh air, and discipline are really the essentials in the treatment. The item of greatest expense is the milk and that needs to be given supplementarily to what they can purchase themselves. Many patients, moreover, can buy all that is needed for their treatment and need only to be given advice and supervision.

A WORKING PROGRAM FOR ASSOCIATIONS FOR THE PREVENTION OF TUBERCULOSIS—NATIONAL, STATE, AND LOCAL.¹

BY

EDWARD T. DEVINE,
of New York.

General Secretary of the Charity Organization Society of New York.

It is 101 years since Sydney Smith, the caustic reviewer and indefatigable reformer, astonished the members and supporters of the British Society for the Suppression of Vice by an article in the *Edinburgh Review*, attacking the fundamental principle upon which that and all similar societies are based, turning their axioms ruthlessly upside down and inside out, convicting them of sectarianism, hypocrisy, tyranny, arrogance, and injustice; administering much wholesome reproof and admonition, and concluding by the assurance that if they would attend to "these rough doctrines, they will ever find in this journal their warmest admirers and their most sincere advocates and friends."

There is one initial difference between the society which Sydney Smith satirized and that which we are founding. The suppression of vice meant, of course, or appeared to mean the prosecution of the vices. The suppression of tuberculosis means, and it is our place to make clear from the outset that it means, not persecution, but help for the individual consumptive. The machinery of the law must be invoked in our case as in theirs, but it is the law in its most benign aspect, with stern compulsion in the background always, but in the foreground the kindly physician, the uniform of the nurse, the educational leaflet, the persuasive talk, and for those who are not ill, freedom from preventable infection.

The ultimate responsibility for the control of epidemics, as for the cure and prevention of disease in general, lies with the medical profession. To our medical brethren this may appear a hard saying, and, as I shall show, it requires qualification. It is, nevertheless, the large truth and the controlling truth to which all other considerations are subsidiary. Just as it is the duty of the business man to do business, and not to cheat, just as it is the duty of the philanthropist to do good, and not to

¹ Read before the National Association for the Study and Prevention of Tuberculosis, held at Washington, D. C., May 10, 11 and 12.

pauperize, so it is the duty of the physician to cure disease in the individual, and not to permit epidemics. It is indeed conceivable that a physician may refuse to recognize any social obligation, and that his vision may be limited by the terms of the contract between himself and his individual patient, just as the philanthropist may insist upon dabbling in a particular form of distress which appeals to his sympathies, and refuse to consider the relatively greater needs at his side, or even the possibly injurious social effects of his actions. But the medical practitioner of this type is false to the lofty traditions of his own profession, which may well challenge comparison with other callings as to the measure in which it meets its social obligations.

The problem then for laymen, for legislators, and public officials, for the public press, and other instruments for the molding of public opinion, in relation to the scourge of tuberculosis, as in relation to any other great epidemic, may be defined to be the centering of complete responsibility upon the medical profession. This, however, cannot be done merely by logical demonstration as to what their duty is, by hypercritical fault finding as to the manner in which it is being discharged, or by eloquent exhortation to physicians to attend to the matter. Responsibility can be devolved upon the medical profession only by meeting the conditions which authoritative medical opinion prescribes as essential.

For example, when it has been shown that hospitals and sanatoriums are necessary, it is no more the duty of physicians than of others to secure their establishment. Physicians must do their part, according to their abilities, like other citizens, but the only way in which the complete responsibility for procuring results can be placed squarely upon the shoulders of the medical profession, as such, is for the State, the municipality, or private philanthropy to provide the hospitals and the sanatoriums which authoritative medical opinion has declared to be indispensable. Again, when appropriations for sanitary inspection, for the enforcement of antisputting ordinances, or for special investigations are demanded upon reasonable and conservative grounds, it is only by making the appropriations and paying the taxes which they necessitate that the community transfers to the medical profession responsibility for results. It is clearly the duty of representative medical men not to demand the impossible, to subject to rigid professional criticism the actions of officials or experts who are using such appropriations, and to see that expenditures are made in such a manner as to ensure maximum results.

So far as the movement for the prevention of tuberculosis is concerned, there is little difficulty in formulating a positive program. It has at least 10 features:

1. The maximum of sunlight and fresh air for all mankind, at work, at leisure, and at sleep, and if there be any other occupation than these three, then while engaged in those other occupations as well.
2. An abundance of simple, and yet sufficiently varied and nourishing food, especially—to put it concretely—of pure milk and fresh eggs.
3. Early diagnosis of every case of pulmonary tuberculosis by the family physician, and the utmost attempt to secure compliance with his advice as to medical treatment and diet, change of work or complete release from regular employment, change of residence, or removal to sanatorium or hospital—such advice naturally taking into account all the circumstances of the individual patient.
4. Registration of all cases, whether in tenements or palaces, whether in city or country—not to be followed by any unnecessary interference by health board inspectors or nurses, if there is a physician in charge, or by any other invasion of privacy or other personal hardship—but enabling the duly constituted health authorities to know their problem and to deal with it on the basis of complete knowledge. I am aware that in many communities this is a counsel of perfection, but it is a part of our program.
5. The establishment of hospitals, or hospital wards, or houses of rest, or whatever other institution will best serve the purpose for advanced cases, with two primary objects in view: To make such patients more comfortable in their last months, and to diminish the centers of active infection.

6. The establishment on a generous scale, of State, municipal, and private sanatoriums for the treatment of patients in the earlier stages, cases promising either cure or at least arrest of the disease, and radical improvement of general health, no expense being spared so far as essentials are concerned, no extravagance being tolerated in nonessentials.

7. Publicity as to the means of preventing infection and as to the other elementary rules of hygiene, through every known channel of public instruction, newspapers, schools, the lecture platform, leaflets in all necessary languages, appropriate special periodicals, and instructive visits from physicians, nurses, or competent lay visitors.

8. Conference for interchange of views and experiences among those who in any way, however humble, are working at our common task.

9. Relief in various forms, but especially in the form of special diet for those who can and must be treated at home rather than in sanatoriums, and who are without sufficient income to provide for the necessities of life, which in some cases include the prescribed diet essential to life and recovery.

10. And finally, further research. Even here, where I am a rank outsider, I must round out my statement of our general program. We need more knowledge, better authenticated records, further comparison of results, ever more and more accurate knowledge, and for these we must have laboratories, endowments, and favorable conditions for scientific research, travel for observation and study abroad, and training for fruitful investigation.

In these ten tasks, each society, each committee, nay, each individual who joins us, may take a direct personal interest, and to any or all of them he may directly or indirectly contribute. It is not for any learned academy to say that the next discovery may not be made by the unknown student or the local practitioner. It is not for the most powerful health board to be sure that some unknown health officer in a remote rural community may not hit upon the best working plan for securing cooperation of patient and citizen. The best leaflet for popular propaganda may be written in the office of the National Association, or it may be hammered out in the brain of a busy inspector, pushing up one dark stairway after another; or it may come to light in the long drive of a country doctor, who has time to think between calls. And when it is written, whether by one who approaches the subject from a medical standpoint or by one who writes from the social and educational point of view, it is equally the property of all the rest. The law of copyright is superseded in this field, as the patent law gives way in the medical profession to the higher code.

Fortunately there is no single procedure for an antituberculosis campaign in any community. If the actual history of the movement in the cities and towns represented in this meeting were studied they would be found to offer many very interesting and striking contrasts. The only general principle is to build on local foundations and to incorporate all that is good and that is applicable in the experience of similar movements elsewhere. For example, if there is a good active local medical society, which is accustomed to take an effective part in social movements, let the beginning be made there, attracting to itself such additional forces as are available in the community. If there is the right kind of health board or health officer, let that be the starting point. On the other hand, a woman's club, or a health protective association, or a civic league, or a charity organization society, or any similar philanthropic body, may be more free to take the initiative—always in such case, however, in cooperation, if possible, with appropriate public authorities. The responsibility will fall back usually in any event in each community upon some one man or woman who has the inspiration, who feels the responsibility, upon whose shoulders the burden is laid.

My remaining suggestions may be understood to be addressed directly to this chosen person, called from on High, to undertake this service, called by a personal experience, or by a sense of official responsibility, or only by a fatal capacity for seeing a little earlier and a little more clearly than others see.

To such public official or private citizen, then, I would suggest first of all the careful reading of some pamphlet or book in which the general idea is fully set forth. Dr. Knopf's prize

essay on "Tuberculosis as a Disease of the Masses, and How to Combat It"; Dr. Flick's book on "Consumption: Preventable and Curable"; Dr. Hillier's "Tuberculosis: Its Nature, Prevention and Treatment"; or the papers in the "Handbook on the Prevention of Tuberculosis," especially—if I may name three without disparagement to the others—Miss Brandt's "Social Aspects of Tuberculosis"; Dr. Biggs' "Tuberculosis: Its Causation and Prevention"; and Dr. Prudden's "Tuberculosis and Its Prevention"—any of these three little books or papers, or any one of a half dozen others which might be added, will suffice to give the keynote of a preliminary campaign or skirmish. In some respects, better and more directly useful than any of these, and especially for one who is already trained to analyze, compare, and interpret for himself, is the "Directory of Institutions and Societies Dealing with Tuberculosis in the United States and Canada," in which little volume the bare facts in regard to all such agencies are set forth. In the introduction prepared for one of the divisions of this directory, there are some suggestions concerning organization and function of a society for the prevention of tuberculosis, from which I venture to reproduce one paragraph:

The need for such effort is more conspicuous in the large cities, but the chance for satisfactory results is greater in the town of a few thousand inhabitants. In the small town, it should be possible to give proper care to every consumptive, to control every center of infection, to inform the public mind thoroughly, and to keep up with the needs of the population as it increases. These needs would be chiefly in the way of education, inasmuch as the original provision for the sick would, if the society worked effectively, continue to be adequate and ultimately become unnecessary. In a large city, on the other hand, the great numbers of sick requiring hospital and sanatorium care, the far greater number of persons to be instructed, and the greater difficulty in securing for all wholesome conditions of living, make the task seem less hopeful at the same time that they emphasize the importance of undertaking it. Fortunately, in a large city many agencies will be found already working indirectly for the solution of the tuberculosis problem, and ready to undertake various parts of the task. But, however efficient the health department, however plentiful the hospitals, there will always remain the work of education.

Then get into relations with the National Association for the Study and Prevention of Tuberculosis, and secure a number of copies of some one suitable paper for distribution among those who might naturally be expected to become interested in a definite movement. Supply an editor or special writer for the local press with material from which an article or a series of articles may be prepared for publication in the local newspapers. Unless it is a very exceptional community, this has probably already been done, but it may be done again to renew the public interest in the subject. Find out, if possible, whether tuberculosis is, in fact, especially prevalent in the community, and thus give added point to the suggestion for local organization. When the ground has thus been prepared, arrange for a public address by some one who speaks effectively with recognized authority on the subject. There are, probably, such speakers in every State, but if it seems likely to be more appreciated, do not hesitate to invite some eminent physician from a distance, such as is to be found in the board of directors of this association, and in the numerous local associations already in existence. Either in advance of such an address or at the time of its delivery, proceed to organize a special committee of some existing body, or a new association for this particular purpose, whose objects and general methods will be suggested by those already in the field, although its scope should not be too narrowly restricted.

When the movement has thus been officially inaugurated, with both physicians and laymen, both women and men in its membership and active in its work, there should be no delay in making a thorough study at first hand of the local prevalence of the disease, whether it is increasing or diminishing, whether there are unfavorable housing or industrial conditions responsible in any abnormal degree for its existence, whether there are appropriate laws and local ordinances and whether they are being enforced, whether there are adequate hospital and sanatorium, and dispensary facilities, whether the particular occupations of the people of the community are in any special degree responsible for a high deathrate from this disease, and if so whether it is because of their essential character, or because of accidental features which might readily be mod-

ified. In the Havana cigar factories, for example, the operatives were seated on both sides of narrow tables, thus facing each other, and those who coughed almost necessarily discharged the sputum directly into the faces of their fellow-workers on the opposite side. It required only a little additional floor space to face them all the same way, and the removal of an unnecessary board ceiling nearly doubled the cubic air space of the factory.

It will not be necessary to know all the facts before setting on foot remedial measures. Study should precede action, but it is a poor substitute for it. On the basis of sure knowledge, gained in part from fresh and independent investigation, and in part from the accumulated experience and observations of physicians and earlier reformers, get to work. You will need new laws, new appropriations, new methods, and sometimes new officials. You will need an educated and aroused public opinion, and you will need the widest diffusion of elementary information. You will need the coordinated and active support of the medical profession, of the teaching profession from university and professional school to the kindergarten; of the journalists, the business community, the religious and charitable fraternity, and of every other individual—whether grouped into classes or not—who is indignant at unmerited and needless suffering, and who is willing to lend a hand in a world-wide humanitarian movement—a movement which already enlists the enthusiasm of a larger number than all who marched in the crusades of old, which already commands greater capital than would provide a modern navy for a first-class power, which has already won a hearing at the awakened conscience of mankind, and which is nevertheless, as yet, in its feeble beginnings, with comparatively few lives lengthened, comparatively little pain mitigated, comparatively few families saved from unnecessary dependence. Those who are taking up the initial responsibility for these local movements should personally in some way connect themselves with the larger plans, and thus keep alive their interest in all the varied aspects of the movement. The plan of local auxiliaries of Stony Wold Sanatorium, and the affiliation of the local Young Men's Christian Associations with the Health Farm at Denver, are especially commendable for the opportunity which they give to private individuals widely separated from each other to feel that they are engaged in a common cause.

By following the progress of the movement in all parts of the world as recorded in the pages of *Charities*, or *Out Door Life*, or some of the medical journals, or the daily press, by direct personal correspondence with those who are at work elsewhere, by becoming a member of the National Association and by attendance upon its meetings, one binds himself to the goodly fellowship which is engaged in what often seems to me the most honest and useful piece of work now going forward upon God's footstool.

The specific measures for which a local association or committee for the prevention of tuberculosis should work, naturally vary with the size and the character of the community in which it is to operate. It is safe to suggest to all the desirability of securing the services of an executive secretary who need not, but may sometimes advantageously be a physician, an office open at convenient hours for callers, and so much of a constitution or by-laws as will insure regular meetings of a governing body, and the fixing of responsibility of work to be done.

If there is no special hospital for consumptives, or separate ward in a general hospital, that will frequently be a good objective point of attack. In this connection the pamphlet published by the New York Committee on County and City care of Consumptives, showing various methods of safe and economic housing will be suggestive. If there are many who are not receiving suitable medical oversight, and who are likely not to consent to removal to a hospital, it may be expedient to establish a special dispensary with both medical and nursing service, or, if dispensaries already abound, to organize in existing dispensaries classes for pulmonary tuberculosis, for the double purpose of removing these patients from the general waiting rooms when they are occupied by other patients, and securing for the consumptives the advantage of closer specialization and more appropriate treatment.

There is as yet no city of considerable size in the United States in which there is even an approach to adequate hospital and dispensary facilities for consumptives. In these two tasks alone, therefore, there is ample opportunity for useful service for all the associations which are likely to be formed in the near future. Washington, the national capital, has as yet only four tents for consumptives, and has no distinct hospital, sanatorium, or dispensary.

It is not impossible that there may be some relation between this lack and the fact that the city of Washington in 1900 had a deathrate higher than that of any other city except New Orleans, and a deathrate from tuberculosis higher than that of any other city except New Orleans and San Francisco. Baltimore with 135 hospital beds for consumptives, Boston with 250, Chicago with 400, St. Louis with 100, and New York with 1,000 have but begun to provide for the need.

Next to the creation of hospital and dispensary facilities, possibly of even earlier urgency, is the necessity of educating the rank and file of the medical profession as to the need for early diagnosis, registration, and protection from infection by all conservative and reasonable means. One need not go so far as an eminent physician has gone in declaring that on a subject like this it is infinitely easier to secure the cooperation of the tenement house population, than to win that of the doctors. I hold that to be an unduly pessimistic view, though it was based on sad experience. Without going so far, it may still be permitted courteously to point out that if the specialists, and the pioneers are right, the practice of a very large number of family physicians is wrong—wrong, that is to say, in not making sure from the first manifestation of the disease in any member of the family that rigorous prophylactic measures are taken to insure immunity for the others, and wrong in the failure to join heartily in securing the adoption of energetic educational and preventive measures.

And next after these two great undertakings, comes the yet greater, and it may be we should say even more elementary undertaking, to which repeated reference has already been made—the creation of a sound public opinion, midway between indifference and phthisiophobia, an enlightened public opinion in which every one is frightened just enough to act sensibly, and not enough to act foolishly; just enough to insure necessary public appropriations and private donations, but not enough to make it difficult for a cured and educated consumptive to find a job; just enough to cause the railways to disinfect the hangings of a sleeping car, and the cushions of a day coach, but not enough to cause them to refuse to an indigent consumptive girl, on her way to a sanatorium, the charitable reduction which is given to all other indigent persons; just enough to cause the city to build a sanatorium, but not enough to induce the legislature to permit local prejudice to close county after county to the urgently needed sanatorium, except on a bribe to the county commissioners, and the township trustees. When this happy golden mean of public opinion is to be found in every community, the deathrate from tuberculosis will diminish with a rapidity which will enable us to contemplate the speedy dissolution of our association for the prevention of this disease, and will release for the next big task the energy and the financial resources which for the present are imperatively demanded for this above all others.

The question of color-blindness among service men is obviously one of considerable importance, and the British admiralty have lately been making some experiments in the direction of providing a surer test for recruits than the colored card which has been hitherto used. In order to give recruiting officers and recruiters the fullest opportunity for detecting this color-blindness, colored bunnings and Berlin wools are to be used in future, as they have been found more capable of detection than the colored card.

The Undesirable Naval Service.—Another class of candidates for appointment to the naval medical corps is under examination at the Naval Medical Museum in Washington. There are some six candidates for this position, and very nearly 40 vacancies to be filled. The usual difficulty attends the effort to obtain candidates who are in all respects qualified. The inducements for service in the naval medical corps are not as alluring as one might suppose, although the opportunities of rendering undeniably valuable services to the country are undiminished.—[*Army and Navy Register.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 13, 1905. [Vol. XLIV, No. 19.]

1. The Therapeutic Art. OLIVER T. OSBORNE.
2. The Therapeutic Use of Röntgen Rays: Three Years After. WILLIAM ALLEN PUSEY.
3. A Bacteriologic and Clinical Study of a Curative Serum for Typhoid Fever. WILLIAM ROYAL STOKES and JOHN S. FULTON.
4. Lead-poisoning: A Study of the Gastric Contents in 12 Cases. JOSEPH SAILER and JOHN M. SPEESE.
5. Brain Hemorrhage. W. A. DICKEY.
6. The Manufacture and Use of Tin Splints: With Some Special Appliances. ARTHUR T. MANN.
7. The Diagnosis and Treatment of Abdominal Pain. JOHN B. DEEVER.

1.—See *American Medicine*, Vol. IX, No. 19, p. 767.

2.—**The Therapeutic Use of the Röntgen Rays.**—W. A. Pusey gives the results of his later experience. In some disorders, such as hypertrichosis and lupus erythematosus, the results have not equaled expectations; in some others, such as tuberculous glands and joints and deep sinuses, the results have been variable, though with some marked successes. The value of the röntgen rays has been most markedly demonstrated in syphilis, tinea, acne rosacea, lupus vulgaris, blastomycosis, cutaneous carcinomas, and senile keratoses. The value of the röntgen rays has also been shown in hyperidrosis, inflammatory dermatoses, pruritus, nevi, keloid, sarcoma, and as a prophylactic after operation for malignant disease. In some other conditions, abdominal tuberculosis, actinomycosis, mixed tumors of the parotid, there has been apparent benefit from the röntgen rays, but Pusey does not feel inclined, from his experience, to make any very positive generalizations. In the deeper situated cancers, as might be expected, the treatment is less hopeful, though palliation may be hoped for and some surprisingly good results are reported. In conclusion, Dr. Pusey gives his latest experience with pseudoleukemia, leukemia and goiter. In the former, he has repeatedly seen clearing up of the glands, but in the only case he has been able to follow up there have been repeated recurrences. In true leukemia, he has seen like good effects as regards disappearance of the enlarged glands, but generally without any corresponding improvement in the condition of the blood. One remarkably successful apparent cure is reported, the blood-examination revealing normal conditions and the patient apparently well. In some small parenchymatous goiters he has seen reduction in size of the tumor, but in most of his cases no benefit was observed.

3.—See *American Medicine*, Vol. VII, No. 25, p. 974.

4.—**Lead-poisoning.**—Joseph Sailer and John M. Speese examined the gastric contents, after test-meals, in 12 cases of lead-poisoning, and report the findings. The stomach contents were tested for lactic acid, free HCl, and amount of pepsin present. In all cases a microscopic examination was made for the Oppler-Boas bacillus. Their conclusions are as follows: 1. In a series of 12 cases of lead-poisoning, or of suspected lead-poisoning, deficiency in the secretion of HCl was noted in 10 of the chronic cases, and was not observed in 2, one of which was doubtful and the other acute. 2. This deficiency in the secretion of free HCl, in the majority of cases, is associated with an extreme reduction in the percentage of peptic digestion, and with the presence of lactic acid. 3. It is not justifiable at present to regard it as an indication for treatment, at least not until the effects of the ordinary treatment for achylia gastrica in cases of lead-poisoning have been tested. The authors have found no similar studies in the literature, which they consider rather remarkable in view of the pronounced gastric disturbances produced by lead-poisoning.

5.—**Brain Hemorrhage.**—W. A. Dickey considers alcohol and syphilis the two most prominent causes of the arterial degeneration favoring brain hemorrhage; next to these comes chronic interstitial nephritis, and after these a multiplicity of other factors leading to arterial decay. Still another factor is required in all cases, namely, increased intracranial blood-pressure, such as may be caused by muscular effort, indigestion, etc. Beside the prophylactic measures, such as quiet, avoidance of whatever may cause cerebral congestion, increased work of the heart, etc., he advises for the attack itself the use of powerful cardiac depressants, naming, in the order of their im-

portance, aconite in full doses, veratrum viride, gelsemium, and venesection. Gelatin is, he thinks, too slow in its action, and not always practicable. Cathartics should be avoided for the first few days, and he sees little utility in an ice-cap to the head. The patient should be kept absolutely quiet in bed for ten days or two weeks.

6.—See *American Medicine*, Vol. IX, No. 3, p. 95.

7.—**Diagnosis and Treatment of Abdominal Pain.**—J. B. Deaver insists on the importance of most careful study of every detail in patients with abdominal pain. The abdominal surgeon must, of all things, shun superficial methods in diagnosis, while at the same time delay in diagnosis must also be studiously avoided. Too early resort to exploratory operation after insufficient examination is also condemned, as is also the too frequent palliative use of opium. The character of the pain, the patient's history, especially as to prior attacks, etc., the age and sex and occupation must all be considered. The location of the pain, especially in relation to nervous distribution, must be studied and the possibilities of referred pain from disorder in distant organs be kept in mind. Another matter of importance in abdominal pain is its diffuse or localized character, whether it is at first diffuse and later becomes local, or vice versa. Illustrations of all these points are given by Deaver. The differential diagnosis is of special importance in abdominal pain, and he here gives the list of the conditions that are most necessary to be distinguished from each other, among them the abdominal referred pain from thoracic disease, perforation, uremia, hernia, colic, calculi, movable kidney, the visceral crises of nervous disorders and of arteriosclerosis, ectopic pregnancy, etc., as well as appendicitis. One who closely studies his patients, even if an error is made, will be less to blame than one who jumps to a conclusion or who confessedly makes habitual resort to an operation to discover his patient's ailment. In considering treatment the cause of the pain must first of all be kept in mind. To remove the cause surgery is not always the only recourse. Deaver is strongly opposed to the use of opium in abdominal pain, only in exceptional cases just before operating for appendicitis, and in far advanced cases of malignant disease does he consider it advisable. While other means than surgery, such as rest, position, attention to the condition of the digestive tract, regulation of diet, etc., will suffice in many cases, there are still the severer conditions requiring operation, and here the diagnostic ability of the surgeon comes into play. The reason why the surgeon is called on oftener to operate than to assist in the diagnosis is, Deaver says, his own fault and the result of the fallacious teaching of exploratory incision. Diagnosis should be the forerunner of operation, without a diagnosis operation should only very exceptionally be done. The importance of prompt diagnosis and operation is insisted on, and in some cases, such as probable perforation or abdominal hemorrhage, it may even be advisable before a certain diagnosis is made. Deaver is not a believer in last-resort operations, and even in chronic cases operation should not be left too long untried.

Boston Medical and Surgical Journal.

May 11, 1905. [Vol. CLII, No. 19.]

1. Infections of the Respiratory Tract, with Influenza Bacilli and Other Organisms, Their Clinical and Pathologic Similarity, and Confusion with Tuberculosis. FREDERICK T. LORD.
2. Perforated Duodenal and Gastric Ulcers: A Report of Two Cases; Operation; Recovery. CHARLES L. SCUDDER.
3. Some Suggestions in Regard to the Diagnosis of Seminal Vesiculitis. HUGH CAHILL.
4. Report of a Case of Extrophy of the Bladder, with a Consideration of Operative Treatment. HENRY G. SPOONER.

3.—**Seminal Vesiculitis.**—H. Cabot believes that enlargement and tenderness are both unreliable signs and advises examination of the contents of the vesicle itself. The urine from a full bladder gives an idea of the amount of pus in the urethra. The bladder should, after evacuation, be irrigated with 4 oz. or 5 oz. of boric solution and again emptied. It should then be distended with either boric acid or salt solution and the prostate be massaged without disturbing the vesicle. The bladder must be for a third time, emptied and again distended with fluid and the vesicles massaged, expressing the contents as thoroughly as possible. Some of this runs back into the blad-

der and is passed when that viscous is evacuated. We thus get the contents approximately free from contamination. The writer describes methods of staining the cells and bacteria. In some healthy cases a bluish white viscid material was obtained and in others the secretion contained slightly amber colored spheroid bodies. In only 3 out of 19 cases referred to Cabot, was pus in anything more than negligible quantities found. If thickening, tenderness, and purulent exudate are essential to the diagnosis the other 16 cases were not seminal vesiculitis, but examples of subacute or chronic prostatitis. [H.M.]

4.—**Extrophy of the Bladder.**—H. G. Spooner states that continence is never obtained by the most successful plastic operation. Implantation of the ureter in the bowel is difficult and apt to be followed by infection of the kidneys. Sonnenburg's operation is simple and less dangerous than others and permits the patient to wear a comfortable urinal. Patients can live to old age without any operation. [H.M.]

Medical Record.

May 13, 1905. [Vol. 67, No. 19.]

1. The Tuberculosis Situation in Penal Institutions: With Especial Reference to the State Prisons at Sing Sing, N. Y., and Columbus, Ohio. S. A. KNOPP.
2. Dermatitis Seborrhoica and Its Relations to Alopecia and Other Conditions. L. DUNCAN BULKLEY.
3. Prostatectomy. REGINALD HARRISON.
4. The Importance of Early Recognition of Suppurative Ear Disease. ALICE G. BRYANT.
5. The Treatment of Epidemic Cerebrospinal Meningitis with Injections (Chiefly Intraspinal) of Diphtheria Antitoxin. GEORGE L. PEABODY.
6. A Case of Long-standing Major Hysteria Characterized by a Paroxysmal and Fixed Pain, Mental Depression, Confusion, Delirium with Delusions, and Hallucinations Terminating in Sudden Recovery. THEODORE DILLER.
7. A Case of Menstrual Urticaria. D. J. M. MILLER.

1.—**The Tuberculosis Situation in Penal Institutions, with Especial Reference to the State Prisons at Sing Sing, N. Y., and Columbus, Ohio.**—S. A. Knopp, after a visit of inspection to the State prisons at Sing Sing and Columbus, makes the following suggestions: All prisoners detained in jails should be subjected to careful medical examination, and all tuberculous individuals be isolated. Having arrived at the penal institution, tuberculous prisoners should be assigned to the sort of labor best suited to their condition, and the temperature of the work-rooms should be carefully regulated to prevent overheating, while proper dust consumers should also be installed. All prisoners should receive periodic medical examinations. Rules against expectoration should be strictly enforced and the use of stationary and pocket cuspidors is advised, suitable types being illustrated. Tuberculous prisoners should always have separate cells, and all inmates should have a chance to exercise in the open air several times a day. Whenever possible, those predisposed to tuberculosis and those in earlier stages of the disease should be assigned to agricultural work. The more advanced cases should be treated in special wards, and be required to wear mouth masks to prevent infection. The indiscriminate pardoning of far-advanced cases is to be deprecated, as their families are often too poor to provide for them, and they easily become sources of infection to others. Prisons should be constructed so that there is plenty of light, air, and ventilation, on soil that is dry and porous. These conditions do not exist in Sing Sing prison, which is notoriously damp, and the author suggests some temporary improvements, including the substitution of paint for whitewash on the cell walls, which would make it more sanitary, until an institution can be erected in a more suitable situation. The cells of the Ohio prison are, if anything, worse than those at Sing Sing, and the conditions existing in the workshops, particularly in the tobacco rooms, are highly unsanitary.

2.—**Dermatitis Seborrhoica and Its Relations to Alopecia and Other Conditions.**—L. D. Bulkley reviews his experience in private and clinical practice, and concludes that the eruption should be recognized, since it forms about a tenth of the cases which come to a dermatologist. Both sexes are affected in about equal proportions, and though observed at all ages from 1 to 89, it is mainly a disease of middle life, almost 53% of the cases occurring between the ages of 20 and 40. Combining the statistics of alopecia and dermatitis

seborrhoica, it appears that in 557 out of 880 cases, or 63%, the loss of hair was due to the latter condition. The differential diagnosis from psoriasis, ringworm, pityriasis rosea, syphilis, and eczema is discussed, and the author describes his method of treatment, which consists mainly in the application of various combinations of resorcin, sulfur, salicylic acid, carbolic acid, formalin, etc. In this connection, he says that proper local treatment is all essential, but for the best results a certain amount of reconstructive treatment is necessary, that the skin may not furnish such a suitable ground for the growth of the microorganisms found in it, and believed to be of etiologic moment.

3.—Prostatectomy.—R. Harrison says of perineal prostatectomy that he believes it of limited applicability and adapted principally to partial removals of the gland. Freyer's operation of supraprostatectomy is considered the operation of choice in the majority of cases, some of its advantages being that it may be completed with a knife aided by the fingers in a very few minutes, and that the bladder and prostate are approached from their most accessible position where there is little or no danger of encountering hemorrhage or of permanently damaging the sphincter or retentive apparatus of the bladder. The drainage provided is free so that secondary strictures need not be feared, and any calculi present are sure to be detected and removed. Partial supraprostatectomies have not proved, on the whole, successful. In regard to the mortality attendant upon the two types of operation, the author believes there is not much difference between them, and he puts it, including all causes of death, at about 10%.

4.—The Importance of Early Recognition of Suppurative Ear Disease.—A. G. Bryant says the disease is so common an accompaniment of the ordinary diseases of childhood that the practitioner should be as familiar with the ear speculum and probe as with the stethoscope, and it should be remembered that it is often the objective examination that gives the first clue as to the existence of middle-ear trouble in small children. The following plan of treatment is outlined for early cases: Douche the ear gently every two hours with one or two quarts of a sterile normal salt solution as warm as can be borne, to be followed by a hot-water bag or a hot salt bag. Give 1 gr. of calomel in $\frac{1}{10}$ -gr. doses, and repeat as necessary. Use cleansing and astringent washes for the throat, and cleansing sprays for the nose. Caution against too forcible blowing of the nose, or blowing both sides of the nose at once. Have the patient remain in bed until the acute symptoms have abated. The bromids or phenacetin may be given, but with caution, and only for a few days. Avoid all opiates, as they mask the symptoms. Early paracentesis is urged, especially in influenza cases, and the technic of the operation and the after-treatment are described. Mastoid involvement and the treatment of chronic suppuration are also discussed.

5.—The Treatment of Epidemic Cerebrospinal Meningitis with Injections (Chiefly Intraspinal) of Diphtheria Antitoxin.—G. L. Peabody gives the results obtained in 22 cases of the disease treated in this way by himself and Jacobi in the Roosevelt Hospital. In all but one the diagnosis was proved by finding the meningococcus in the spinal fluid. Of the 22 cases 4 received the antitoxin only subcutaneously, 7 received it at different times both subcutaneously and intraspinal, and 11 received it only intraspinal. In only one case did it seem to cause any unpleasant effect. The mortality of the 22 cases, while still uncertain, will go well beyond 50%, and the percentage of recoveries to date is a little over 9. There has not seemed to those who have watched the cases, to have been any influence for either good or evil ascribable to the antitoxin treatment.

6.—Long standing Major Hysteria.—T. Diller reports the case of a married woman of 35, who for over two and a half years presented the picture of serious illness of which uterine hemorrhage, severe autointoxication, mental depression, delirium, elevation of temperature, dyspnea, and great local tenderness and pain in the left lower abdominal and inguinal regions, were different phases. No organic basis for the clinical condition could be detected, and one day during a consultation it was suggested that an exploratory incision be made through the tender abdominal muscle. From that day the patient began

to improve, and three weeks later was discharged, apparently in the best of physical and mental health.

7.—A Case of Menstrual Urticaria.—D. J. M. Miller epitomizes the literature of this condition and describes its occurrence in a girl of 15, who menstruates regularly and whose attacks of urticaria make their appearance seven or eight days before and cease two to three days before each period. Occasionally the urticaria persists until the flow begins, rarely during the first day or two of its course. During the intervals between the periods the patient is quite free from attacks and she is perfectly healthy in other respects. The urticaria itself is of the ordinary type.

New York Medical Journal.

May 6, 1905. [Vol. LXXXI, No. 18.]

1. Politicosociologic Aspects of Tuberculosis Problems. JONATHAN WRIGHT.
2. Dietetic Exercises in Infant Feeding. E. KIRKLAND SHELMEKDINE.
3. Inflammation of the Glands of Bartholin. (Concluded.) CHARLES C. MILLER.
4. Immediate Abdominal Section. DENSLOW LEWIS.
5. Adenoids in the Adult. DONALD M. BARSTOW.
6. An Operation for the Cure of Chronic Bursitis, Especially Adapted to Housemaid's Knee. PHIL. HOFFMANN.
7. Remarks on the Problems Connected with the Study of Pulmonary Tuberculosis, and Suggestions of a New Plan for Improving Statistics Relating to the Disease. E. L. SHURLY.

1.—Politicosociologic Aspects of Tuberculosis Problems.—Jonathan Wright says that the real fight against tuberculosis is not carried on by, nor does the base of its operations rest upon the activities of our health boards; it is carried on by that struggle of industrialism with militarism which is resulting in shorter hours for labor, better food for the workmen, and more of God's sunshine and fresh air for his children. He says that when we turn to the study of statistics from different countries as far as they go, they show that the decrease of mortality from tuberculosis has been proportional in each country to their advance in the equality of justice to all men, and of enlightenment in all classes. He urges that we do not permit the infliction of regulations of so-called sanitation which are based on half-baked theories, and the unwarranted deductions drawn from inept animal experimentation and inaccurate clinical observation, but that we see that blows are struck in the body politic in behalf of the animal cell, which has to fight the ubiquitous microphytes of disease which it is impossible to banish from contact. [C.A.O.]

2.—Infant Feeding.—E. K. Shelmerdine calls attention to the important points in modified milk feeding. He says it is of the utmost importance that an infant should be started in the right direction when it enters upon its bottle career. With modified milk mixtures, it is only a question of finding out which of the milk constituents is at fault and remedying the errors by increasing or decreasing the percentages, according to the indications. A table is given showing the percentage of the constituents of a modified milk, and the changes that are generally necessary during the first year. A table is also given showing the percentage of the different whey mixtures. An illustrative case is reported. [C.A.O.]

5.—Adenoids in the Adult.—D. M. Barstow says that adenoid growths in the adult are much more common than is generally supposed. The condition is a frequent cause of nasopharyngeal catarrh, with dropping back of mucus, and frequent clearing of the throat. It is also a frequent cause of nasal obstruction, and is the causative lesion in some cases of apparent hypertrophic rhinitis. The cases tabulated by the author show that a thorough examination of the nasopharynx should be made in all cases of (1) ear disease, and (2) pulmonary tuberculosis. Treatment is generally very satisfactory. [C.A.O.]

6.—Cure of Chronic Bursitis.—Phil. Hoffmann has devised an operation which consists of puncturing the bursa, thoroughly scarifying its walls, expressing its fluid contents, bringing its walls in contact, and holding them so by means of a compress until their raw surfaces have grown together and have thus obliterated the cavity. The operation is especially adapted to housemaid's knee. No anesthetic need be given and the patient need not be confined to bed, or even use crutches during the after-treatment, but may attend to almost any tasks, except such as require kneeling, immediately after operation. The operation may be performed with an ordinary

tenotome, but the writer has devised an instrument, the blade of which is strongly curved and raised from the shank; its cutting edge can more easily reach all parts of the cavity without interference from the shank. The writer has operated upon 104 cases of housemaid's knee. In 2 the operation had to be performed twice and in 4 three times, while in 98 it was primarily successful. [C.A.O.]

Medical News.

May 13, 1905. [Vol. 86, No. 19.]

1. Physiology the Basis of Clinical Medicine; Suggestions as to Courses in Applied Physiology. J. MADISON TAYLOR.
2. On the Hypodermic Use of Adrenalin Chlorid in the Treatment of Asthmatic Attacks. DAVID M. KAPLAN.
3. Principles Governing the Technic of Röntgen-ray Therapy. ENNION G. WILLIAMS.
4. Common Causes of Gynecologic Disease, with Some Remarks on Prophylaxis. GEORGE GRAY WARD.
5. Remarks on Treatment of Fulminating Appendicitis. J. M. INGE.
6. Gonorrheal Arthritis. HENRY W. FRAUENTHAL.
7. A Case of Sudden Death in a Newly-Born Infant Due to Suprarenal Apoplexy. R. E. PICK.

2.—Adrenalin Chlorid in Asthmatic Attacks.—D. M. Kaplan uses hypodermic doses varying from 10 m. to 25 m. Each patient must be treated individually. A large dose is especially indicated in extensive emphysema with weak heart. The less the tension in the radial artery the less it will be in the pulmonary capillaries, therefore, the dose must be larger to augment this tension. A neurotic person or one with arteriosclerosis should receive a small initial dose. If the drug does not produce its full effect the seizures may soon recur. There should be increased tension, shortened systole, lengthened diastole, and coarse tremors. The cardialgia resulting is of no importance. In 4,000 injections the writer has seen no gangrene. The contraindications to adrenalin are generally overstated, and it is more efficient in the relief of asthmatic attacks than any of the drugs ordinarily used, although in no sense curative of the disease. Even large doses do not give rise to glycosuria. [H.M.]

4.—Causes of Gynecologic Disease.—G. G. Ward emphasizes the dangers of gonorrhea when it extends above the cervix. In vulvitis or urethritis the douche should be prohibited, and the cervix walled off from infection with bichlorid gauze. Instruments should be boiled after every use. Two-thirds of the specialist's cases are due to pregnancy followed by subinvolution from cervical tears or too early abandonment of recumbency, or from retained products of conception. Even after apparently complete abortion it is generally possible to bring away adherent decidua with the curet. The retained remnants are liable to putrefaction, followed by sepsis. The radical method of treatment is to empty the uterus with finger or instruments at once under anesthesia. [H.M.]

5.—Fulminating Appendicitis.—J. M. Inge advises Ochsner's stomach lavage with prohibition of food. In a patient too late for early operation, and too early for late operation, when the mass due to adhesions can be easily felt, he drains by a small stab wound. If pus escapes, he drains with a strip of rubber the width of a pencil; if only serum, he uses a loosely-rolled gauze wick, surrounded by rubber tissue not larger than a pencil. Such drains will draw quarts of fluid from the abdominal cavity by capillarity. [H.M.]

6.—Gonorrheal Arthritis.—H. W. Frauenthal states that when this affects the joints of the feet, if unrecognized, it will cause hopeless flat-foot. In ankylosis of the knee-joint, he has successfully used dry heat, followed by Credé's ointment, electricity and splints, and later by massage. The pain of gonorrheal arthritis is intense, and increases at night, and the outline of the joint is peculiar. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Fever in Gallstone Disease.—The investigations of H. Ehret¹ disprove the older theory that fever in gallstone disease is due to reflex action on the heat centers. There can be no

doubt that the fever is of infectious origin; if there is no infection, there can be no fever. Not every case of infection of the biliary passages, however, produces a general febrile reaction. The fever depends upon the nondevelopment of sufficient protective powers in the organism. The protection of the body against the effects of infection may lie in the development of an antitoxic immunity, or in the production of local conditions in the biliary passages that limit the action of the bacteria on the body. If a new organism is introduced into the gallbladder and becomes active, a fresh febrile reaction will be set up. Likewise, if those organisms already present in the biliary tract reach parts as yet unaffected, a fresh outbreak of disease may be produced. The absence of fever in gallstone disease does not indicate, therefore, that there is no infection, unless it can be shown that there has never been a febrile reaction to the presence of the gallstones. Diagnostic and prognostic conclusions must be drawn only with the greatest care from the tendency of fever to recur with more severity and greater frequency, or vice versa. A series of severe attacks indicates a spreading infection, but this may occur even with very slight febrile reaction. The persistence of high fever in chronic cases is a bad sign. The later the fever sets in during an attack of gallstones, the more favorable the prognosis. Repeated attacks of fever with undiminished intensity point to chronic impaction in the common duct. A fall by crisis indicates that the infected zone has again become sterile; if, however, the fever falls by lysis, it does not indicate a termination of the infection. If icterus accompanies the fever, it indicates that the infection has reached the smaller biliary passages, where moderate swelling produces obstruction. The regular, simultaneous occurrence of fever with jaundice points to chronic impaction of a stone in the common duct. Regarding operative therapy, the author has noticed that death from operation always occurs in cases that come to operation during high fever. Rise of temperature after operation is almost invariably due to bacterial infection of the bile. [B.K.]

A Hitherto Unknown Phenomenon of Paresis of the Peroneal Nerve.—H. Hirschfeld,¹ in studying a large series of cases of paralysis of the peroneal nerve, noted the presence of an interesting motor symptom which seems not to have been observed before. This phenomenon consists in a decreased ability of the patient to flex the foot dorsally. According to this phenomenon, the patient's ability to flex the foot is less when the leg is extended than when it is flexed on the thigh. This sign is not present in complete paralysis, but only in peripheral palsies. The author found this sign present in 11 patients whom he examined, of whom 5 patients had multiple neuritis, 4 had hemiplegia, and 2 had myelitis. This phenomenon is explained by the anatomic conditions. The peroneal muscles are opposed in movement by the muscles attached to the tendo-achillis, and this resistance because of the insertion of the gastrocnemius and the plantaris on the femur, is much greater when the leg is extended than when it is flexed. Hirschfeld describes this sign not only because it is of scientific interest, but because he has found it to have a certain practical significance. By means of it, variations in the degree of paralysis may be observed, and the effect of treatment noted. [W.E.R.]

Pathology of Fat Necrosis.—Jos. Wiesel² found in several cases of pancreatic fat necrosis a change in the liver, consisting of fatty infiltration and degeneration, with areas of necrosis due to emboli of cells, probably pancreas cells, although possibly splenic. He cites 16 cases, in which change in the liver is recorded. Gallstones and icterus are also very frequent. [T.S.G.]

Otology and General Practice.—P. McBride³ says that most of the young physicians nowadays possess sufficient knowledge of aural surgery to treat intelligently many cases of ear affection. Difficulties will arise however, in which advice of a more experienced man is needed. To point out indications for a consultant is the purpose of the paper. McBride concludes the services of a consultant may be legitimately utilized

¹ Berliner klinische Wochenschrift, March 13, 1905.

² Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, xiv, 4.

³ The Practitioner, April, 1905.

¹ Zeitschrift für klinische Medizin, Bd. lv, p. 249.

for two purposes: 1. To throw light upon what is obscure whether with regard to diagnosis or treatment. 2. To avoid any reflections on the part of the patient or relatives. Each physician must judge for himself, whether a consultation is or is not needed to elucidate the case further, this depending on his knowledge and experience. A general rule to follow is that in ear cases where the prognosis is not good, always, if possible, have a second opinion. [A.G.E.]

Nature of Diabetes Mellitus.—In the Goulstonian lectures W. C. Bosanquet¹ says that excess of sugar in the blood may be caused by overproduction of sugar in the system, or by diminished use or excretion. There is no evidence of the latter, but there is convincing evidence that there is increased production in at least one stage of diabetes mellitus. Overproduction of sugar may depend upon some digestive irregularity, whereby more sugar than normal is poured into the blood, or upon manufacture of sugar from the tissues of the body. Both of these processes are probably at work in diabetes. There seems to be no doubt that there is some connection between the pancreas and diabetes, the function which is in abeyance being normally performed by the islands of Langerhans. The action of the pancreas may be exerted in the direction either of supplying a substance necessary for the assimilation of sugar by the cells of the body, or in that of counteracting a poison which in some way causes accumulation of sugar in the blood. Experimental evidence, such as poisoning with phloridzin or suprarenal extract, is all in evidence of the latter theory. We cannot as yet state positively what tissue of the body gives rise to the sugar, although certain observations show that a serious disturbance of the adipose tissue exists in diabetes. Glycosuria as opposed to diabetes, may be due to mere excess of sugar poured into the blood from the alimentary canal, or it may be due to causes acting analogously to the diabetic puncture of Claude Bernard. In the earliest stages the diabetic process may constitute rather a predisposing cause of glycosuria than the actual cause, a slight increase of saccharin food, or a slight nervous shock precipitating the condition. Diabetes might, therefore, be defined as an increased internal dissociation of tissue into sugar, caused by a toxic substance which is normally produced, and is normally neutralized by the pancreas. [B.K.]

The Morphology of Cancer and the Parasitic Theory.—J. Orth² discusses in an exhaustive article the status præsens of the parasitic theory and its relationship to the etiology of cancer. He concludes that the essential element of all cancers, primary and secondary, is the cancer cell; without the cancer cell, no cancer metastasis. The presence of parasites is not necessary for the explanation of the occurrence of metastatic deposits, for cancer cells capable of proliferation suffice for this. An analogy cannot be established between the metastasis of malignant growths and those of suppurative processes, tuberculosis, etc., and therefore it cannot be concluded from analogy that cancer is of parasitic origin. The transplantation of cancer to another individual can be explained without regard to the parasite theory, by assuming that the cancer cells are directly transplanted to another body where they cause metastasis. The various parasites which have already been described cannot be accepted as a base for the establishment of a scientific theory and the etiology of cancer. [W.E.R.]

Trauma and Diabetes Mellitus and Glycosuria.—W. Kausch³ says that any degree or form of glycosuria or diabetes mellitus may arise after trauma. Alimentary glycosuria is the form most frequently observed after fractures, while true diabetes is the least frequent. Milder fractures are usually succeeded by milder glycosurias, and vice versa. The transitory glycosuria is the form usually seen after cranial injuries, and in fact is the typical glycosuria of that trauma. The author maintains that true diabetes very rarely occurs as a direct result of injury, and he has been unable to prove absolutely this association in any of the cases observed. He admits, however, that true diabetes may result indirectly from injury to the brain, but these cases are very rare indeed. The transitory form of

diabetes after cranial injuries is analogous to the experimental sugar puncture of Claude Bernard in the floor of the fourth ventricle. The traumatic glycosuria sets in later, however, than does the experimental form. The pathogenesis of traumatic diabetes is still obscure. The organic changes found at autopsy do not lie in the medulla oblongata, and often are not in the brain at all. It must be assumed that there is a reflex influence of the nervous system on the carbohydrate metabolism. It is evident that "predisposition" must play a prominent part, for identical injuries will produce glycosuria in one person and not in another. [B.K.]

Epilepsy a Public Menace.—C. E. Riggs⁴ states that no patients are so likely to commit atrocious acts as those with epileptic mania. Petit mal and psychic epilepsy have attracted too little attention. All employees who occupy positions of responsibility, involving not only property, but life, should be carefully examined as to their mental and nervous condition. There is good reason to assume that some, at least, of the terrible railroad accidents are due to minor forms of epilepsy. The great corporations have hitherto overlooked the mental and nervous condition of their employees, especially their engineers. Can the latter in an attack of psychic epilepsy remember orders, observe signals, or manipulate complicated machinery? And the mental strain of an engineer's life is bound to increase the severity of his neurosis. [H.M.]

The Simultaneous Appearance of Manifest Syphilis and Tabes.—C. Adrian⁵ finds the combination of manifest syphilitic phenomena with tabes to be not so rare as has been formerly supposed. These syphilitic manifestations may consist of other tertiary lesions in the central nervous system, or of lesions in other organs or on the skin. The coincidence of syphilis with tabes would perhaps be more frequently found, if all syphilitics, especially in the tertiary stage, were carefully examined for early symptoms of spinal cord disease. The male sex shows this combination more frequently than the female, the reason for which can be readily seen. In a number of cases of tabes the demonstration of active syphilitic processes indicate the etiology of the tabes, even though a previous history of syphilis be wanting or be denied. The simultaneous occurrence of primary degenerations of the nervous system with specific manifestations in other organs, renders irrational the separation of postsyphilis, parasyphilis and metasyphilis from syphilis itself. From a diagnostic standpoint, the occurrence of osteitis, enlargement of the liver, meningitis, etc., together with a manifest tabes, points to a probable syphilitic origin of the former conditions. As tabes sets in relatively later than the late manifestations of syphilis, the coincidence of both indicates that the spinal cord disease is still in its early stages; hence the prognosis becomes more favorable. [B.K.]

Clinical Study of Summer Diarrhea in which the Intestinal Contents were Examined for Dysentery Bacilli.

—M. Michael⁶ divides the cases into those in which toxic and those in which inflammatory symptoms predominated. In the 97 cases studied dysentery bacilli were not found in all that were characterized by mucus and bloody stools. Those in which these bacilli were isolated presented the clinical picture of ileocolitis. Cases of ileocolitis in which dysentery bacilli were isolated from the stools did not differ clinically from cases of ileocolitis in which these bacilli were not found. [H.M.]

A Gastrointestinal Type of Measles.—During an epidemic of measles at Tours, Gillard⁷ observed that 18 out of 25 patients seen by him, presented gastrointestinal symptoms as their predominant manifestations. These symptoms consisted of a bilious diarrhea, the stools being greenish and of extremely fetid odor, often accompanied by a bilious vomiting also. These phenomena appeared usually about the second or third day of the eruption, although they may be delayed much later. In some cases they seem to cause a slight fall in temperature. Eight of the cases were very grave, and four terminated fatally. These cases presented a typhoid state—prostration, brown furred tongue, delirium, etc. Six of these eight cases were complicated by bronchopneumonia. [B.K.]

¹ The Lancet, April 22, 1905.

² Berliner klinische Wochenschrift, March 13 and 20, 1905.

³ Zeitschrift für klinische Medizin, Bd. iv, p. 413.

⁴ St. Paul Medical Journal, February, 1905.

⁵ Zeitschrift für klinische Medizin, Bd. iv, p. 327.

⁶ Journal of Infectious Diseases, January 12, 1905.

⁷ Lyon Medical, April 23, 1905.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Foreign Bodies in the Joints.—V. Cornil and P. Coudray¹ have made an experimental study of this subject by detaching the condyles of the femur in dogs. After varying periods of time the animals were killed and a histologic examination of the joints made. The detached pieces were almost always found reattached to some structure, either to the bone or to the synovial sac. The attachment to the bone was occasionally found to be a true osseous one; at times also a fibrocartilaginous union occurred, but more frequently the union took place by means of the synovial membrane. The detached fragments usually increased in volume, lost their osteoblasts, and underwent an increase in their cartilaginous and fibrous tissue, especially on the surface of the fragments. Other modifications occurred, which were variable, and depended upon the adherence of the fragments to the synovial membrane. The articular cartilages were comparatively unaffected in cases where the fragments remained free; but where the latter became attached to the synovial membrane the cartilage was rapidly invaded and disintegrated by fibrous connective tissue. The authors also describe a pediculated foreign body removed from an apparently healthy knee-joint and presenting quite different characteristics from these traumatic foreign bodies. They ascribe the presence of this body to an echondrosis. Certain tuberculous sequestrums at times resemble the foreign bodies above described, and are especially found at the lower extremity of the femur. Usually they are found still attached to the condyle, of which they are an osteoarticular fragment. They are flattened in form and lie embedded in grooves on the articular surface of the joint. One case is cited in which the osseous tissue at the base of one of these grooves was ulcerated and was found to contain tubercles. [B.K.]

The Early Diagnosis of Carcinoma.—J. Noever² called attention to the importance of examining for occult blood, which Boas found present in 65 out of 67 cases. It is important to exclude from the diet food containing blood for a few days before the examination. The presence of HCl in the stomach contents does not exclude the diagnosis of cancer. It was found in 11% to 13% of Noever's cases. In the early stages the presence of HCl is more constant in cancer of the pylorus than when the tumor involves the small curvature, or when the gastric mucous membrane is rapidly encroached upon. The hyperacidity met in cancerous lesions presents certain characteristics which distinguish it from the other varieties of hyperchlorhydria. In cancer the ordinary means for combatting the hyperacidity are absolutely ineffective. The subjective sensations of well-being are lacking. In spite of the hyperacidity there exists an inexplicable distaste for food. The age of the patients is usually greater than those in whom the hyperacidity is habitually observed. The evolution of the condition offers several peculiarities: The presence of mucous catarrh; motor difficulties; and modifications in the quantity of acid. While the presence of lactic acid is not pathognomonic of carcinoma, it is never present in such large quantities in any other disease. It is therefore proper to consider the presence of large quantities of lactic acid as an early symptom. It exists frequently when cancer of the pylorus, of the small curvature, or of the posterior wall, is present, or when the neoplasm does not present any palpable tumor. Gluzinski examines the gastric juice (1) after fasting; (2) after a trial breakfast of egg albumen, and (3) after a breakfast of beefsteak. If an ulcer is present HCl is found in all three examinations. The absence or presence of a small amount of HCl in one or more of the three tests indicates a diagnosis of mucous catarrh. The existence of mucous catarrh and the presence of other symptoms speak in favor of carcinoma. Solomon claimed that in cancer a certain amount of albuminous serum is transuded. The presence of the Boas-Oppler bacillus has no diagnostic value. The presence of small

brown coaguli of blood with numerous bacilli, in the absence of HCl constitutes a probable sign of carcinoma. The presence of megastomas which adhere to the stomach-tube, together with mucus, is frequently proved. Noever does not approve of the procedure of Hemmeter, which consists of cureting the tumor for the purpose of obtaining small particles. Examination of the urine shows increase in the volatile fatty acids, and the presence of albumoses. The lesion found in the blood is that of simple anemia which is accentuated during the progress of the disease. [J.H.W.R.]

Case Simulating Intracranial Tumor; Recovery Associated with Cerebrospinal Rhinorrhea.—T. R. and E. E. Glynn¹ report a case in which an injury to the head was followed by the development of paroxysmal headaches, vomiting, vertigo, depression, diplopia, gradual loss of memory, mental deterioration, failing health, epileptiform convulsions. One day a clear fluid commenced to drop from his right nostril, and with the persistence of this discharge the patient's improvement toward complete recovery became rapid. Examination of this fluid showed it to be cerebrospinal fluid, and the presence of a few polymorphonuclear leukocytes proves that there was a slight inflammatory process present. The authors ascribe the symptoms to a chronic, acquired, internal hydrocephalus, caused by an ependymitis and meningitis in the neighborhood of the roof of the fourth ventricle, closing the foramen of Magendie and the neighboring lateral foramina. [B.K.]

Symptomatology of Carcinomatous Gastrocolic Fistula.—G. Sandberg² reports a case of carcinoma of the stomach with gastrocolic fistula, in which periods of limentary alternated with periods of fecal stools and fecal vomiting. The probable explanation of this phenomenon is that most of the ingested food passed directly through the fistula into the descending colon, producing limentary. Small quantities of food, however, passed through the pylorus, were digested, and the resulting feces accumulated in that part of the colon anterior to the fistulous opening, there being a stenosis at that point. At certain periods the accumulated feces discharged themselves partly into the stomach and partly into the lower colon, producing the fecal vomiting and stools. [B.K.]

Toxic Symptoms in Nonulcerative Cancer during Treatment.—Haret³ describes three patients treated by the röntgen rays, in which the patients complained of symptoms absent before treatment began, such as vertigo, palpitation, complete anorexia, insomnia, cephalalgia, extreme prostration, violent sickness, and precordial oppression. Cessation of treatment relieved the symptoms. Under treatment, the cutaneous nodules disappeared and the tumor was decreased in size. The doses given were from 14 to 17 H. units. The writer thinks the symptoms due to absorption of toxic products from the disintegration of morbid cells, which find their natural channel of evacuation in ulceration, when this exists. We should diminish the dose when such symptoms appear, lest we provoke serious complications. [H.M.]

Gallstones and Cancer.—At autopsy G. R. Slade⁴ found carcinoma of the gallbladder in 30% of all cases of gallstones, in 56% of all cases in which gallstones had caused symptoms during life, and in 58.8% of all cases in which the gallbladder showed "inflammatory thickening" macroscopically. In 62 patients on whom operation was called for, owing to the presence of gallstones, 18% were shown, either at the time of operation or postmortem, to have carcinoma of the gallbladder. This percentage is no doubt far below the true ratio, as many patients were not fully examined for various reasons. The author concludes, therefore, that the association between gallstones and carcinoma is very close, and that the former condition may be regarded as the cause of the latter. Thickening of the wall of the gallbladder is presumptive evidence of carcinomatous change, and calls for cholecystectomy if present at the time of operation. [B.K.]

¹ Revue de Chirurgie, April, 1905.² Journal Médical de Bruxelles, March 2, 1905, p. 129.³ British Medical Journal, April 22, 1905.⁴ Zeitschrift für klinische Medizin, Bd. lvi, p. 13.⁵ Archives of the Röntgen Ray, February, 1905.⁶ The Lancet, April 22, 1905.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Concerning the Nature of Hay-fever Toxin and Antitoxin.—C. Prausnitz¹ presents statistics to show the results of Dunbar's hay-fever antitoxin (pollantin). Out of 505 patients treated with this remedy, 299 became absolutely immune, 143 were partially cured, and 63 showed no improvement. The etiology of this disease is discussed and the method of obtaining the antitoxin from horses is described. He found by making counts of the pollen floating in the air that they varied in proportion to the rise and fall of the hay-fever season. The toxin of this disease was extracted from 30 different varieties of pollen by maceration in salt solution and later precipitation by dialyzation or with alcohol. The toxin obtained is called pollentoxin. This substance is of such strength that when 300000 mg. is applied to the conjunctiva all the symptoms of a genuine attack are produced. The author concludes that the majority of patients treated with this antitoxin are curable. [W.E.R.]

Thyroid in Skin Diseases.—Thyroid feeding increases the peripheral circulation, stimulates the sweat glands and possibly the sebaceous glands, hence improves the condition of the corium, and induces more rapid exfoliation of the epidermis. Thyroid is, therefore, says Dr. Osborne,² indicated in chronic skin diseases, especially such forms as cause dryness of the skin or a scaly eruption, as psoriasis and scaly eczema. Some dermatologists dislike to use thyroid preparations because of the debility and loss of weight which they have observed to follow this form of treatment. Such untoward effects have generally been due to the use of excessive doses, and with due care good effects without undesirable symptoms can be achieved in most of the scaly eruptions. Thyroid is certainly a satisfactory remedy, when given in small doses, for the scaly eczemas of old age and for the pruritus that occurs in patients with dry skin. He has seen good results from small doses in young, flabby, strumous children who were prone to recurrent cracks and fissures of the skin in various parts of the body. Enlargement of the glands of the neck is often found in such children, and this condition may be relieved by small doses of desiccated thyroid, as 5 cg. to 10 cg. (say 1 gr. to 2 gr.) a day.

Zinc Sulfate or Silver Salts in the Treatment of Gonorrhea.—M. Juliusberg³ employed injections of zinc sulfate in 30 patients with gonorrhea, five of whom were limited to the anterior urethra, in the other 25 the disease affecting the posterior urethra as well. The posterior inflammation was treated with instillations of 1% to 1% silver nitrate solution. In 17 patients, gonococci were still found in the anterior urethra as long as 17 days after the treatment was begun, while the posterior urethra was free of them; protargol injections then freed the patients very quickly. In six patients the discharge and gonococci disappeared, to reappear as soon as the treatment was stopped; they remained away after protargol was injected for a time. In only three patients was a definite cure obtained, four others did not stay in treatment long enough to have a definite idea of the result. He concludes that the silver injections, and he uses protargol almost exclusively, are to be preferred to the zinc sulfate treatment. [E.L.]

Treatment of Scalp Ringworm.—T. C. Fox⁴ employs a treatment adapted from Aldersmith, applying an ointment containing 4 gm. (1 dr.) of croton oil to 30 gm. (1 oz.) of base. This is rubbed in daily, or as often as necessary to excite the desired inflammation. Pus is cleaned away rigorously and crust formation is not allowed. For isolated and residual stumps, croton oil needling is by far the best treatment. This is performed by lightly coating a triangular glover's needle with croton oil and then gently insinuating it deeply into the diseased follicle, care being taken not to pierce the skin. [A.G.E.]

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Elliptic Human Erythrocytes.—It is generally stated by physiologists that all mammals, with the exception of the camel, alpaca, and allied species, as well as cyclostoma among fish, possess circular red blood cells, and that lower animals, with the exceptions noted, have oval erythrocytes. These characters are unqualifiedly accepted as a distinguishing feature; that is, blood containing elliptic red cells cannot be from man. An instance recorded last year,¹ and recently supplemented by confirmatory evidence,² appears to be an exception to this rule. The case referred to was reported by Melvin Dresbach, of the Ohio State University, who during a period of four months systematically studied the blood of a mulatto student, who so far as could be determined was in perfect health. About 90% of the red cells were elliptic in outline, averaging 10.3 m. in length and 4.1 m. in width. The number of red cells and of leukocytes was normal, and the hemoglobin was also normal in amount. There were no nucleated red cells. Since the first report, specimens of the blood have been examined by Ehrlich, Flint, Ewing, and other authorities, who concur in the opinion that the shape of the cells is congenital or developmental in origin. This departure from a rule that was considered absolute is of considerable pathologic and medicolegal importance. The case appears to be the only one of the kind recorded, which renders it especially noteworthy.

Immunity in Typhoid Fever.—The question of preventive inoculation or of curative serum therapy in typhoid fever depends upon the factors which govern immunity of the human body to that disease. Thus far these factors have not been satisfactorily determined and the problem remains one of the most difficult that at present confronts investigators in experimental and clinical medicine. Wright's work in the line of preventive inoculations is probably the most promising of present methods of employing serum, but this has not met with universal acceptance. In a most careful review of this subject before the Pathological Society of Philadelphia, Professor James Ewing recently directed attention to several points which are not usually emphasized and which led him to certain important conclusions. Chief among the latter is that from the chemic aspect of the subject a curative serum for typhoid fever seems more and more doubtful; endotoxins probably dominate the scene and for them there appears to exist no immunity. Prevention of the disease, as in the manner suggested by Wright, possesses a much better basis. Ewing spoke particularly of the importance of changes in the host as compared with the exciting bacillus, changes we are inclined to minimize. Giving emphasis to this view are the facts that several different bacilli cause diseases exhibiting the same symptom-complex, the number or the virulence of the bacteria do not seem to determine the clinical picture, and spontaneous cure is not accompanied by destruction of all the bacteria, some of which may persist for a long time after convalescence. The so-called typhoid state, which develops in the course of many infectious diseases, is due to toxins from degenerated and necrotic tissue cells rather than to bacteria. There is thus shown a unity in infectious diseases which in our present tendency to draw conclusions from test-tube experiments and magnify unduly invading microorganisms we are prone to disregard. Ewing believes there is still much to be learned at the autopsy table and from the histologic study of tissue. Recent experiments of Smallman with typhoid cell juices³ appear to demonstrate the possibility of immunizing animals by a

¹ Berliner klinische Wochenschrift, February 27, 1905.² Organotherapy, Cohen's System, Vol. xi.³ Münchener medizinische Wochenschrift, 1905, III, No. 4, 163.⁴ The Practitioner, April, 1905.¹ Science, March 18, 1904.² Science, March 24, 1905.³ Journal of the Royal Army Medical Corps, April, 1905.

bacteria-free vaccine and still further support Ewing's views regarding the prevention of the disease.

Experimental Studies in Yellow Fever and Malaria.—The announcement some two years ago by working party No. 1 of the United States Yellow Fever Institute of the finding in mosquitos infected with blood from yellow fever patients of an animal parasite resembling the coccidia, and named *Myxococcidium stegomyiae*, gave rise to the hope that the cause of another grave disease had been discovered. It was not long, however, before developments cast doubt upon the specificity of the so-called parasite. To settle this question in particular, and in general to determine the cause and modes of transmission of yellow fever, a second working party was sent out in 1903. Their results have previously been briefly announced, and now, in a somewhat belated report,¹ the members of the party gave in detail their reasons for not corroborating the findings of party No. 1, and for announcing that the cause of yellow fever is yet unknown. They found the so-called myxococcidium in normal mosquitos, and decide that for the most part these bodies are yeast cells in various stages of reproduction, hence not an animal parasite. It appears that the infection of yellow fever is in the blood-serum early in the disease, but has escaped detection by the best lenses. Filtration experiments show it may pass through a Pasteur-Chamberland B filter, but Rosenau points out that this does not prove it to be ultramicroscopic in size as visible particles of carbon pass the filter. In the course of investigations regarding mosquitos and malaria there was demonstrated in the blood of a tertian infected person, during the chill, a poison which reproduced the symptoms of the disease when injected into another man. Data are still too limited to consider this the toxin of malaria. As the findings of this party regarding yellow fever have been corroborated by the French commission, it appears that the cause of yellow fever yet remains to be isolated. It is positively stated that fomites play no part in the transmission of the disease.

Comparative Virulence of Human and Bovine Tubercle Bacilli.—A year ago² we noted the results of testing the virulence of human and bovine tubercle bacilli for guineapigs and rabbits, as determined by the United States Bureau of Animal Industry and published as Part I, Bulletin No. 52. The second part of that bulletin,³ which has just appeared as the joint work of Drs. DeSchweinitz, Dorset and Schroeder, describes in detail the continuation of those experiments as made upon hogs, cattle and monkeys. As in the case of the smaller animals, lesions were produced by both human and bovine bacilli, and in character were such as to permit of no conclusion other than that certain tubercle bacilli of human origin possess quite as great pathogenic power for the larger animals as do those of bovine origin. Some 25 excellent plates show the gross lesions as they appeared in these animals, and strikingly emphasize the conclusions drawn by the writers. They repeat their previous statements that they find no essential difference between tubercle bacilli derived from bovine sources and those derived from man. They do not accept the theory so ably advocated by Dr. Theobald Smith, that human tubercle bacilli possessing cultural and pathogenic characters similar to bovine bacilli, are originally of bovine origin. To prove this contention, it must be shown that the human infection came originally from meat or milk, and for this the biologic characters of the bacilli will not suffice. The practical conclusion is that cattle constitute a very important source of infection for human beings. The report, with its illustrations, is a very valuable contribution to the accumulating literature which tends to show the difference between human

and bovine tubercle bacilli, which is due to environment rather than to properties inherent in the bacilli themselves.

REVIEW OF LITERATURE

Relations between Various Cell Types.—E. Krompecher¹ contributes a very lengthy discussion of the connections existing between epithelial, endothelial, and connective-tissue cells in the embryo, lower vertebrates, and tumors. Many of these cells possess no nuclear or protoplasmic characters that clearly differentiate them, and in the tissues mentioned, transformation forms between the varieties may be observed. This is particularly true in pigmented nevi and basal cell cancers of the skin; in the latter the basal cells of the epidermis wander into the underlying tissue, and finally it is impossible to tell whether they are of epithelial or connective-tissue origin. For these reasons, Krompecher radically changes the usual classification of tumors, placing them in four main groups: (1) Carcinomas with different epithelium; (2) carcinomas with slightly differentiated epithelium; (3) sarcomas; (4) carcinosarcomas. Groups 2 and 4 are each made to contain a variety of endothelioma.

Maternal Impressions.—J. P. McMurrich² very clearly sets forth his reasons for holding the opinion that while a belief in the view that emotional disturbances of the mother may affect the embryo is justifiable, the theory of maternal impressions, to the effect that the maternal emotions may produce a definite and determinate abnormality corresponding to the emotion, is, to say the least, improbable. The grounds for this opinion are: 1. There is no definite relation between the occurrence of the cause and the effect. 2. The evidence of the theory is very largely *post facto*. 3. The supposed cause has acted in many cases at a time, long subsequent to that at which the abnormality could have arisen. 4. No plausible means for the transmission of the cause to the embryo have as yet been discovered. 5. All abnormalities can be explained on the basis of known physical forces. McMurrich states in conclusion, however, that it cannot be maintained that the theory has been absolutely disproved. The status is largely a question of the balance of evidence, but this seems greatly in favor of the anti-impressionists.

The Tumors of Mice.—M. Haaland³ contributes a very instructive paper on this subject, illustrating the histology of the tumors from different laboratories and breeding places by five colored plates. Among the types of tumors discussed are the adenocarcinoma of Paris, the tumor of M. Jensen, and one of the jaw, first studied by M. Borrel. The last appears to correspond most closely, as a whole, with cancers of human beings. The type most frequent in mice shows many of the characters of an infectious disease, it being endemic or epidemic in certain breeding places. Many mice previously free from tumors for generations, develop them when affected ones are kept in their cages. Three of the forms produced metastases, two by the blood, one by the lymph stream. Small tumors in the lungs of some cancerous mice appear to be derived from lung tissue, and not from metastatic cells. This raises the question of the presence of cancer virus. Cellular inclusions are for the most part leukocytes which have penetrated the cancer cells.

Relationship of the Pseudodiphtheria to the Diphtheria Bacillus.—G. F. Petrie,⁴ from studies made in a further effort to settle this vexed question, concludes: (1) No substances capable of neutralizing diphtheria antitoxin are present in filtrates of pseudodiphtheria bacilli; (2) the results of immunization of horses with large quantities of the filtrates make it apparent that they do not contain substances capable of stimulating the production of an antitoxin to diphtheria toxin. These studies serve to accentuate the differences between the two organisms and thereby diminish the probability that they stand in a close relation to each other. Clinically, the results show that in cases of infection by both organisms no

¹ Yellow Fever Institute, Bulletin No. 14, United States Public Health and Marine-Hospital Service.

² *American Medicine*, Vol. vii, No. 20, p. 800.

³ United States Department of Agriculture, Bureau of Animal Industry. Bulletin No. 52, Part II.

⁴ *Zeigler's Beiträge z. Path. Anat.*, Band xxxvii, Heft 1, 1904.

² *The Physician and Surgeon*, January, 1905.

³ *Annals de l'Institut Pasteur*, No. 3, March 25, 1905.

⁴ *Journal of Hygiene*, Vol. v, No. 2, April, 1905.

toxoids which might combine with administered diphtheria antitoxin are elaborated by the pseudodiphtheria bacilli.

Copper as an Algicide and Disinfectant in Water-supplies.—G. T. Moore and K. F. Kellarman¹ summarize their investigations on this subject, many of which have been previously mentioned. During 1904, more than 50 reservoirs were, by their method, successfully treated for the removal of algæ. They regard the use of copper an efficient emergency method for sterilizing water contaminated with the typhoid bacillus, and of great value as a supplement to filtration in case of accident or mismanagement. Under certain conditions copper may be used to great advantage in connection with filtration, and may be useful in the proper disposal of sewage. There is no authentic record of fatal copper poisoning, and many of the best authorities do not consider copper a true poison. The suggested medicinal use of copper in cholera, typhoid, and related diseases seems important. More complete information on the influence of the chemic constitution and temperature of water upon copper sulfate purification is yet needed.

Improved Method of Artificial Parthenogenesis.—Jacques Loeb,² continuing his studies on this subject, found that by adding a solution of ethyl acetate to sea water and treating unfertilized eggs of *Strongylocentrotus* with this after using the original osmotic method, he could obtain much better results. With the latter alone, only a fraction of 1% of the eggs developed; with the two in succession, 90% to 100% developed. The order is not essential, but in some respects it is better to employ the ethyl acetate last.

Relation between Malformation and Traction Diverticulum of the Esophagus.—B. Fischer³ reports finding in an infant, a twin, which lived 12 hours, complete occlusion of the esophagus shortly above the level of the tracheal bifurcation, the tube above this being twice as large as at the lower end. About half way between the occlusion and the level of the larynx was a communication between esophagus and trachea. The case is reported to show the connection between congenital malformation and traction diverticulum of the esophagus. The infant also showed perforate septum ventriculorum, accessory pancreas in the stomach, and Meckel's diverticulum.

Cytodiagnosis of Pleural and Cerebrospinal Fluids.—E. Turton⁴ summarizes the subject by stating: 1. In pleural effusions an excess of lymphocytes generally indicates a tuberculous origin; a preponderance of polynuclear cells an inflammation due to other bacteria; a large number of endothelial cells a passive transudation. 2. The cerebrospinal fluid corresponds to the first two of the preceding statements. Many discordant results, due in some instances to a secondary infection, have been recorded. 3. The presence of lymphocytosis is almost constant in general paralysis of the insane, in tabes dorsalis, and in syphilitic diseases generally. The cytologic picture is to be taken as only one part of the means of diagnosis. As in blood-examinations, more than one cytologic count of the pleural or cerebrospinal fluid should be made in each case in which this is possible.

Structure and Geographic Distribution of Certain Trypanosomes.—G. F. Petrie⁵ furnishes notes on trypanosomes obtained in the neighborhood of Elstree in Hertfordshire. They are valuable as showing how many animals of widely varying species in a limited area harbor these parasites. Incidentally what appears to be a new species of trypanosome was found in a mole. In the five types of mammals examined, results were: Bats, 33% positive; rats, 30%; wild rabbits, 10%; field vole, all negative; mole, 30%. Of the birds, 16.4% were positive, 8 of 10 species containing the parasite. Of fishes, 19 goldfish were examined, and all gave positive results.

Decapsulation of the Kidney.—G. Herzheimer and J. W. Hall⁶ present the results of investigations upon normal

and diseased animals to determine the effects of decapsulation of the kidneys. In the case of normal animals they found that operation was well borne, and albumin usually did not appear in the urine. A new capsule was quickly formed, and contained many small bloodvessels, but these did not penetrate the kidney and anastomose with those in the interior; this was fully demonstrated by serial sections in one case, and by many sections in others. A second series of experiments was conducted on animals in which chrome salts were injected to produce nephritis. Part of these were not operated upon; in the others the kidneys, one or both, were decapsulated. The results briefly were that essentially no differences were noted between the two sets. Albumin was excreted by both in about equal quantities, and the recovery rate was also nearly identical.

Handy Method of Determining the Amount of Carbonic Acid in the Air.—W. Mackie¹ describes a short method for this purpose which very closely approximates the results obtained by Pettenkofer's method. The special recommendations are ease and rapidity of execution, simplicity, and inexpensiveness of apparatus and the simple calculation necessary to obtain the final result. Briefly, the technic is to expose a number of as nearly as possible equal spots of an alkaline solution, colored by phenolphthalein, on a white surface to the atmosphere in which it is proposed to estimate the CO₂ and note the time necessary for the complete discharge of the color. The steps of the test, as well as the formula for estimating the percentage, are detailed in full.

Function of the Hypophysis.—G. Guerrini² studied the hypophysis of normal animals and reached the conclusion that it contains only one type of cells, different appearances being due to different periods in the function cycle. The so-called colloid substance is a secretion, instead of degeneration product. In addition there is a granular secretion. A study of dogs and rabbits showed a slight increase of secretion during pregnancy, this being true of both the granular and colloid elements. In omnivorous animals under various degrees of inanition, no changes in the secretion of the hypophysis attributable to the state of nutrition could be observed. Injection of pilocarpin and the extracts of hypophysis or thyroid substance gave rise to no prominent change. Lastly, experiments upon animals with exogenous or endogenous toxins caused diminution or exhaustion of the secretion of the hypophysis; blood-serum from these animals, when injected intravenously into others, caused diminution of the secretion. Guerrini concludes that the hypophysis is not a rudimentary organ without function; it possesses secretion of two types, neither of which exerts trophic influence; the secretion does possess a general antitoxic function.

Morphology of Exudate Cells.—K. Helly³ made an extensive study of pleural and subcutaneous exudates produced in animals by injections of various bacteria and arrives at the following conclusions: Within the first 24 hours many forms of cells appear under the influence of toxins. All are similar to those found in the blood and may be divided into two groups, the granular polynuclear, and the basophile mononuclears. Functional and degenerative changes take place in the cells, the former consisting chiefly of the acquirement of phagocytic properties. Mitotic and other appearances serve to distinguish three forms, amphophile (neutrophile) leukocytes, eosinophile leukocytes, and lymphocytes. These are specific types and do not change into each other. The last of these, macrophages, may be phagocytic for the first, but not the reverse. The lymphocytes are actively ameboid. Fixed tissue elements (epithelial, endothelial, connective-tissue cells) take no part in the exudate formation during the first 24 hours, unless it be swelling preliminary to proliferation or from direct injury by the irritant; they do not become phagocytic.

Protozoan-like Cells in Kidney and Parotid Gland.—Ribbert⁴ reports finding cells resembling protozoa in the renal tubules of an infant which had congenital syphilis. Sim-

¹ United States Department of Agriculture, Bureau of Plant Industry, Bulletin No. 76.

² University of California Publications; Physiology. Vol. II, No. 9, February 25, 1905.

³ Centralblatt für Allgem. Path. u. Path. Anat., Band xvi, No. 1, 1905.

⁴ The Practitioner, April, 1905.

⁵ Journal of Hygiene, Vol. v, No. 2, April, 1905.

⁶ Virchow's Archiv, Bd. clxxxix, Heft 1, 1905.

¹ Journal of Hygiene, Vol. v, No. 2, April, 1905.

² Centralblatt für Allgem. Pathologie, Band xvi, No. 5, 1905.

³ Ziegler's Beiträge zur pathologischen Anatomie, Band xxxvii, Heft 2, 1905.

⁴ Centralblatt für Allgem. Path. u. Path. Anat., Band, xv, No. 23, 1904.

ilar cells were also found in the parotid glands of two children, one a year, the other three months old. The cells were very large, and contained a deeply-staining nucleus, or occasionally, a mass of coarse granules instead. A number of these cells in the parotid showed a tendency to enter between the lining cells of the tubule, in some instances becoming quite pointed during this process. Ribbert has found no analogous cells in other normal or pathologic tissues, and mentions them that others may note their presence or absence.

Primary Cancer of the Appendix.—F. Neri¹ reports a primary adenocarcinoma found among 80 organs from the clinic of Biondi. The patient from whom the appendix was removed was only 29 and had suffered from repeated attacks of appendicitis. The appendix was 12 cm. (5 in.) long. The cancer was circumscribed and limited to the mucosa and submucosa. Neri mentions 15 recorded cases of primary cancer of the appendix, but this is not a complete list.

Rothberger's Neutral Red Reaction on Gelatin at 37° C.—O. Heller² has been experimenting to improve the method of Rothberger's test, which consists in adding neutral red to culture medium for the purpose of differentiating typhoid from colon bacilli. The greater number of observers have employed agar either as first used by Rothberger, or later modified by Oldcoop; Heller advises instead of agar, ordinary laboratory gelatin to which is added 4 drops of sterilized, saturated, watery solution of neutral red, keeping the whole in the oven at 37° C. The reaction (fluorescence with later clearing and decolorization of the colon bacilli) takes place quickly, usually within six hours; it is distributed evenly, lasts a long time, and is neither influenced by the culture medium nor the oxygen of the air. [E.L.]

Relation of the Parasitic Protozoa to Each Other and to Human Disease.—E. J. McWeeney³ reviews the advances recently made in our knowledge of the disease producing protozoa. These organisms are divided into four classes—rhizopods, sporozoa, flagellates, and infusorians. The rhizopods include the amebas, of which there is the harmless *Amoeba coli*, renamed *Entamoeba*, and the pathogenic *Amoeba dysenteriae*, the latter having been renamed *Entamoeba histolytica*. The amebas have two cycles of development—an asexual and a primitive sexual. The latter occurs inside a capsule or cyst when conditions become unfavorable, and is accompanied by a change of host. Investigations have shown that it is probably the dried-up, spore-containing feces, present in dust and water, that is responsible for the propagation of dysentery. Of the sporozoa, the important organisms from the standpoint of human pathology, are the hemosporidia, or parasites of the red blood-corpuscles, which include the malarial organisms. The order of flagellates includes the trypanosomes. Numerous varieties of this organism have been found in various lower animals, and their causation of sleeping-sickness and other analogous diseases in man, has been demonstrated. The bodies found by Leishman and by Donovan in the splenic pulp in so-called splenic cachexia, have since been shown to be stages in the development of a trypanosome, *Halteridium* or *Trypanosoma noctuae*. The author also describes another cycle of development, which, if established by further investigation, will effect a connection between a trypanosome and an organism hitherto regarded as a bacterium. The trypanosome is called the leukocytozoon, and the bacterium in question is the Spirochete of Obermeier, the cause of relapsing fever. The author also hints at the possibility of the parasite of yellow fever being a spirochete too small to be seen with our present powers. [B.K.]

Spirillum Pyogenes.—R. Doerr⁴ reports the case of a man who, 11 years before death had acquired syphilis, and who for the last three years of his life had been afflicted with a hepatic disturbance which had been diagnosed as syphilitic cirrhosis associated with gumma. The autopsy confirmed this, discovering also suppurative cholangitis, chronic splenic

tumor, bilateral empyema, and hemorrhagic pericarditis. From the pus of the pleural cavities and the bloody contents of the pericardial sac the author cultivated a spirillum, which was nonmotile, grew well on bouillon, with difficulty on serum agar and ascites fluid, and was not pathogenic for animals. He considers it identical with that described by Mezinescu three years ago, and which because of being the first pyogenic member of the group of spirillums, deserves special attention. As no other organism was found in the pleural and pericardial cavities, and the process had been an acute one, he believes these spirillums, even though they are not pathogenic to animals, to have been the cause of the pleuropericardial sup-puration. [E.L.]

Pathology of Fat and Fatty Degeneration.—H. A. Christian¹ emphasizes the following points: Osmic acid does not stain all forms of fat and fat alone, and so imperfectly demonstrates it. Sudan III and Scharlach R, though having disadvantages, give more satisfactory results. Usually, demonstrable fat is present normally in very many cells of the body, while extractive fat occurs in practically all of the tissues. Under abnormal conditions, visually demonstrable fat appears in cells in increased amount, and is an index of cell injury. Fatty infiltration is the physiologic appearance of fat in the normal cells and fatty degeneration is the appearance of fat in injured cells; the fat is an index rather than the direct result of cell degeneration. In both, the origin of the fat is mainly from without the cell by transport from fat depots elsewhere, but many arise within the cell from fat-related bodies, not from proteid. [H.M.]

The Keeping Qualities of Antidiphtheric Serum.—E. C. L. Miller,² of Detroit, examined a large number of specimens of antidiphtheric serum kept under all sorts of conditions, to determine the percentage and rapidity of deterioration. He found that all undergo gradual deterioration, the high potency serums changing more rapidly than the weaker ones, but in neither case is the loss of potency as rapid as is usually supposed. The ordinary packages of serum, containing as they do the excess allowed by the manufacturers, retain their full therapeutic value for months or even years after their time limit, as stamped on the labels, has expired. The demand frequently made for fresh antitoxin is, therefore, not justifiable, nor is it advisable to postpone the treatment of a patient until the receipt of fresh serum. [E.L.]

Tuberculosis of the Mitral Valve and Aorta.—J. Witte³ performed an autopsy on a patient with pure tuberculous endocarditis of the mitral valve, meaning by this a perfectly healthy valve infected by direct deposition on the endocardium or a hematogenic infection from the vessels of the leaflet; an infection in which a previously existing endocarditis has tubercle bacilli deposited on it, he speaks of as secondary. His patient had, in addition, a tuberculous hip-joint, generalized lymphoid, pulmonary and peritoneal tuberculosis. In the cheesy mass found on the valve, microscopic examination revealed typical tubercles containing giant cells and tubercle bacilli; no other bacteria were discovered. There was no fibrin; no thrombi; no old valvular changes. He also reports two cases of aortic tuberculosis; in one case the intima was the point of onset, a thrombus being intimately adherent at the affected place; in the intima and media were found tubercles; the adventitia showed infiltration only. In the second case the affection entered from without, a tubercle being in close relation to the outer wall of the bloodvessel. [E.L.]

Blastomyces in the Urine.—Vedeler⁴ has been able to cultivate blastomyces on pepsin; he added small pieces of different varieties of carcinoma to a pepsin solution and kept it at room temperature for several weeks; a small portion of the fluid was then stained with Lugol's solution and blastomyces in different stages could be demonstrated. He was able to demonstrate the same parasites in the urine of carcinoma patients; the urine is permitted to stand for 24 hours, and the lowermost layer centrifugated; the sediment is then stained

¹ Johns Hopkins Hospital Bulletin, January, 1905.

² Zentralblatt für Bakteriologie und Infektionskrankheiten, 1905, xxxviii, No. 1, 117.

³ Zentralblatt für Bakteriologie und Infektionskrankheiten, 1905, xxxviii, No. 2, 238.

⁴ Ziegler's Beiträge zur Pathologischen Anatomie, 1904, xxxvi, 192.

⁵ Zentralblatt für Bakteriologie und Infektionskrankheiten, 1905, xxxviii, No. 1, 15.

⁶ Zentralblatt für Bakteriologie und Infektionskrankheiten, 1905, xxxviii, No. 1, 54.

and examined. The blastomyces or their fragments are black or brown in color. Urine from an equal number of noncancerous men and women did not, with two exceptions, show these parasites; one of them came of a carcinomatous family, in the other their presence could not be explained. In several individuals of families with a history of carcinoma, the parasites could be demonstrated also, although the persons were not known to have the disease. In one patient with vesical carcinoma the blastomyces could be demonstrated not only in the urine, but also in the blood, sputum, nasal mucus, uterine secretion and milk. [E.L.]

The Growth of Cancer.—E. F. Bashford¹ believes the study of cancer in the lower animals offers a much wider field for research than does the same study in human beings. The slow progress in our knowledge of this disease is largely due to our failure to make the best use of this line of investigation. Cancer is identical in all vertebrates, and in growing it accommodates itself in a striking manner to the time limitations imposed by the compass of life in different animals. Under favorable experimental conditions its growth is undefined and limitless. The artificially propagated cancer shows all the characters of sporadic tumors; its growth is due to the continued proliferation of the parenchyma cells, and this parenchyma makes the reaction of the host subserve its own needs. Artificially propagated tumors cause no symptoms in the organism to which they have been added. The power of differentiation is definitely in one direction only, even three and a half years after separation from the original host. The number of chromosomes constant for the healthy body tissues is retained, notwithstanding the recurring reduction of this number to the exact half. The balance of evidence is in favor of the growth being interrupted instead of continuous. These investigations thus far establish the early surgical treatment of cancer and of the conditions suspicious of cancer upon that experimental and rational basis which has hitherto been wanting. [B.K.]

The Mechanism of Resistance of the Organism against Infection with Tubercle Bacilli.—Markl² injected into guineapigs intraperitoneally virulent cultures of human tubercle bacilli, and one of a bovine organism, all of which had been kept for eight weeks on glycerin agar at body temperature; the organisms were then rubbed up dry and mixed with normal salt solution, 25 mg. of this being injected. At various intervals drops of exudate were taken from the peritoneal cavities and stained for tubercle bacilli. After three hours a polynuclear leukocytosis was observed, this increasing for 48 hours; the cells contained many tubercle bacilli, and the extracellular organisms were grouped about the phagocytic cells. After 48 hours the leukocytes diminished in number; very few of them still stained well and contained well-stained bacteria; most of them stained poorly, and contained numerous small, colorless granules, without distinct contours. Outside the cells were found swollen bacteria with a red stained central point, also numerous refractive granules with a red point as center. For a matter of 24 hours the mononuclear leukocytes then increased and became phagocytic, to be assisted again for another 48 hours by the polynuclear leukocytes. After the fifth day the phagocytes disappeared altogether, the extracellular granules dominating the picture. This indicates that guineapigs, so susceptible to inoculation tuberculosis, are still possessed of considerable resistance against the infection; the resistance is exerted partly by leukocytes, and partly by the peritoneal fluid. [E.L.]

Prophylaxis of Experimental Hydrophobia.—Successful animal experiments have led D. Konradi³ to the conclusion that if in cases of slight injuries in man, local treatment was carried out within 10 minutes, outbreak of hydrophobia would be prevented, a state of affairs of especial importance in laboratory infections. His present experiments were to determine within what length of time local treatment was successful. Two sets of experiments were performed: In the first the rabbits were inoculated in the skin of the thigh, in the second in the

tip of the nose, and local treatment was begun at variable intervals after inoculation. He found that in the former cases local treatment should be begun within 12 minutes, in the latter within 3 minutes, but if begun even as late as 30 minutes after, it can be of service. In two cases the disease developed and the animals recovered, to die of it some days later, thus showing that animals can have true relapses, as in other infectious diseases. [E.L.]

Increase of Virulence of the Human Tubercle Bacillus to That of the Bovine Bacillus.—D. A. De Jong,¹ still sceptical about Koch's theory of the difference between tubercle bacilli coming from man and cattle, performed a large series of experiments on calves, employing human sputum and cultures therefrom; the bacilli were of variable virulence, most of them too weak at first to produce more than a local tuberculosis with a tendency to heal. After passing them through a series of animals, goats, guineapigs, and calves, they invariably produced general inoculation tuberculosis. He concludes, therefore, that there is no characteristic difference between the tubercle bacilli of man and bovines, and that the opinion propagated by Koch and his disciples is wrong. A human bacillus of low virulence can, by being passed through other animals, be increased to the virulence of the bovine bacillus. [E.L.]

The Pathology of Tetany.—E. E. Foss² reviews the current conceptions of tetany as a motor neurosis. His own series of observations covers 49 cases. These he compares with the monograph of Frankl-Hochwart, of Vienna, where tetany appears to be very frequent. He agrees with the Austrian author in many points. Young men of 13 to 18 are especially predisposed to the disease. Workers in lead, such as painters, printers, etc., are often attacked. Quite frequently tetany has occurred together with an infectious disease. In some cases the acute infection (erysipelas, follicular tonsillitis, pneumonia), has cured the patient of his tetany. The coincidence of tetany and epilepsy is discussed. The author believes in a genetic relationship between these two neuroses. The condition underlying both is possibly a "spasmophile" state of the motor centers of the spinal cord. Other motor neuroses, notably myotonia, and the professional "cramps," are perhaps similarly related to tetany, the spinal motor centers being affected in all these disorders. [L.J.]

Virulence and Immunizing Action of Typhoid Bacilli.—A. Pettersson's³ experiments had for their object the determination of the relation existing between virulence and immunizing action of typhoid bacilli. He found that both virulent and avirulent strains of typhoid bacilli showed the same combining property when mixed in serum with suitable amboceptors. When immunizing rabbits with dead cultures, virulent types produced larger amounts of immune bodies than less virulent or avirulent types. The formation of immune bodies in animals is due to the action of a thermolabile substance. [E.L.]

Action of Gastric Secretion on Salt Solutions.—C. Rzentkowski⁴ tested the changes which overcome sodium chlorid solutions in the human stomach, using a boy, who, on account of esophageal stenosis, had a gastrostomy performed. The stomach washed as well as possible had various concentrations of these solutions introduced into it; small quantities were removed every 10 minutes and cryoscopy performed. He found that hypertonic sodium chlorid solutions are diluted by the stomach, but never to the isotonic state of the blood, inasmuch as the motor function of the stomach is more powerful than the diluting function. The rapidity with which such solutions leave the stomach depends upon their concentration; pure water enters the intestines at the rate of 7 cc. every minute; the stronger in sodium chlorid, the longer they remain in the stomach; saturated solutions stay in the stomach three times as long as pure water. Hydrochloric acid is not secreted when sodium chlorid is introduced. Very weak salt solutions and water incite the stomach to the production of a secretion which

¹ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, Nos. 2 and 8, 146 and 254.

² Russki Vrach, December 4, 1904.

³ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, 78.

⁴ Archiv für experimentelle Pathologie und Pharmacologie, 1904, 11, 289.

¹ The Lancet, April 1, 1905.

² Zentralblatt für Bacteriologie, 1905, xxxviii, 69, No. 1.

³ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, No. 2, 194.

increases the concentration of the solution and this is not due to hydrochloric acid. Quantities of food are made isotonic quicker than salt solution, due to the production of HCl. Opium doubles the diluting power of the stomach as regards hypertonic solutions; alcohol does the same, but to a lesser degree. [E.L.]

Hemolysis and Agglutination of Streptococci.—J. Kerner¹ performed a series of experiments with different strains of streptococci to determine their hemolytic and agglutinative properties, with the following results: Of 16 different strains examined, 11 showed distinct hemolytic properties; those markedly pathogenic showed the greatest amount, those not pathogenic the least. The streptococcus coming directly from the animal body is especially hemolytic, this property being diminished by inoculating it into artificial mediums, but especially sugar bouillon. Ordinary room temperature does not affect hemolysis for the first two weeks, but heating the cultures for 30 minutes at 55° C. suffices to destroy this property. Filtrates from bouillon cultures showed no hemolytic properties, but those from fluid blood-serum did. Repeated injections of heated or old cultures of a highly pathogenic streptococcus succeeded in producing a serum agglutinating the streptococcus in question; this property increased for two to four months and did not exist after six months. Other strains were also agglutinated, but less so than the homologous strain. Precipitins were present, but to a lesser degree than agglutinins. The urine contained no agglutinins. The examinations do not permit of any determination of relationship, as no sharp distinction could be drawn between the individual strains; pathogenic organisms were, however, more hemolytic and agglutinative than nonpathogenic. [E.L.]

Studies in Phagocytosis.—L. Hektoen and G. F. Ruediger² emphasize the following points: Phagocytosis of many bacteria is dependent upon special substances in the plasma designated by Wright and Douglas as opsonins. These become attached to the bacteria which then become susceptible to phagocytosis. The opsonins in the blood of one species may sensitize bacteria for phagocytosis by the leukocytes of a different species. Opsonins are thermolabile substances of a constitution analogous to that of toxins and complements in that they seem to have two groups, haptophore and opsoniferous; by heating sensitized bacteria the opsoniferous group appears to be destroyed, but the inactive opsonin (opsonoid) by saturating the receptors of the bacteria prevents further sensitization by fresh serum. Like complements the opsonins may be neutralized by various salt solutions and other substances, as formalin, so that they cannot act upon bacteria. Antiphagocytic action of this nature may be an important factor in various infections, especially those caused by streptococci, pneumococci, and other microbes in the destruction of which phagocytosis is important. [H.M.]

Acetonuria in the Phloridzin Diabetes of Dog.—J. Baer,³ experimenting with dogs, found that aciduria is not produced as easily in them as in man. Dogs with phloridzin diabetes do not have acetonuria so long as the nitrogen equilibrium is maintained. So soon as the glycosuria produces a loss in nitrogen, acetone, acetic and oxybutyric acids appear in the urine, even though the dog retains a considerable number of calories in fats and proteids after the excreted sugar is subtracted. In spite of increased alimentation, aciduria persists in phloridzin diabetes, the loss of nitrogen and the excretion of sugar remaining the same. It disappears as soon as the animal regains its nitrogen equilibrium and as soon as no more sugar is excreted, even though the animal is kept hungry. In starving man the aciduria persists. Sugar if partaken of in moderate quantities, will prevent aciduria completely, but not altogether the loss of nitrogen. Those albumin bodies which break down easily when sugar is formed from body albumins, and are again easily reconstructed, seem to have special power in preventing aciduria; they either prevent the formation of acetone bodies or favor their destruction. [E.L.]

Preservation of the Virulence of Microorganisms in Dried Spinal Cords.—L. Czarnecka¹ inoculated a number of rabbits with different organisms, and after their death, suspended the spinal cords in bottles containing caustic potash. The next day, and every two weeks thereafter, inoculations were made with small pieces of the cords, to determine the length of time the contained organisms were capable of living under the circumstances named. The streptococcus grew eight months afterward, the diplococcus of Fränkel seven and a half months after, and the anthrax bacillus six and a half months after. Their virulence did not suffer in the least during these periods of dormant life, and some of them were more luxuriant in their growth after a time than before the preserving method was employed. Preserved in the spleen, they did not conserve their powers of growth as long. [E.L.]

Extirpation of Suprarenals.—A. K. Krishtopenko² experimented on rabbits, extirpating the suprarenal glands. In eight of the animals both glands were removed in one sitting, with the result that only one rabbit survived. In six rabbits the left suprarenal was taken out, and all six survived. In 28 cases the right gland was removed, and 12 of the animals survived the operation. The surviving 12 were then subjected to removal of the second suprarenal, and three lived through all this. From these experiments the author concludes that rabbits can live without both suprarenals, and that there is more danger in removing the right gland because it is deeper seated. The examination of the remaining gland in unilateral removals showed that it performed its functions very actively, and that hypertrophy of the parenchymatous tissues took place. Finally, the author examined the suprarenals in rabbits that had been castrated, and found the connective suprarenal tissues exuberant. Some relation may, therefore, exist between the suprarenals and the ovaries. [L.J.]

The Nature and Causes of Morphin Glycosuria.—R. Luzzetto³ finds that large doses of morphin injected into dogs or rabbits, either subcutaneously or intravenously, produce glycosuria. This is transient, disappearing completely when the action of the morphin has passed away; it is directly dependent upon the hyperglycemia. The diet has no special influence upon the amount of sugar present, but a prolonged state of hunger prevents the production of glycosuria. It can also be prevented by gradually accustoming the animal to morphin. This drug produces considerable increase in the excretion of nitrogen and of phosphoric and uric acids, and it is probable that morphin glycosuria is due to an increased destruction of albumins. It should always be remembered, however, that the glycosuria stands in no relation to albumin destruction; a marked breaking down of albumin may exist without glycosuria. If the latter is associated with marked albumin destruction (carbonic oxid diabetes), there must be present some other factor thus far unknown. Whether during morphin glycosuria the sugar is derived from glycogen or from albumin cannot as yet be determined, for experiments with animals fed on a diet free from, or poor in albumins, but rich in carbohydrates are lacking. [E.L.]

Eberth Bacillus in an Ovarian Cyst after Typhoid Fever.—L. Maldague⁴ reports the case of a woman in whom he discovered, while she was suffering from typhoid fever, a right-sided ovarian cyst. At the beginning this showed no signs of inflammation, but during convalescence signs and symptoms of suppuration appeared, necessitating its removal. It contained 6.5 liters of odorless, creamy, pus-like liquid, containing cellular debris and fat droplets, but no bacteria when examined by microscope. Cultures made from the liquid showed the presence of *Bacillus typhosus*. This case shows the necessity of paying attention to organic lesions already existing or arising during typhoid fever, which favor the localization of the typhoid bacillus; also the necessity of early surgical intervention, it being the only procedure capable of saving such patients. [E.L.]

¹ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, No. 2, 164.

² Dissertation, St. Petersburg, 1904.

³ Archiv für Experimentelle Pathologie und Pharmacologie, 1904, III, 95.

⁴ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, No. 3, 249.

¹ Zentralblatt für Bacteriologie und Infektionskrankheiten, 1905, xxxviii, Nos. 2 and 3, pp. 223 and 329.

² Journal of Infectious Diseases, January 12, 1905.

³ Archiv für Experimentelle Pathologie und Bacteriologie, 1904, II, 271.

American Medicine 541

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology
M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

Vol. IX, No. 21.

MAY 27, 1905.

\$5.00 YEARLY.

National Association for the Study and Prevention of Tuberculosis.—The first annual meeting of this association, held last week under the presidency of the veteran Trudeau, marks an advance step in the work against tuberculosis in this country. Numbering among its members many of the leaders in clinical and experimental medicine and sociology, the outlook for a career of usefulness is exceedingly bright. There has been in the past too great division of forces, too many societies actuated by diverse influences. The association now so auspiciously launched has within it the capability of being the leader, a position which we trust it will deservedly reach and maintain. The addresses of the president and vice-presidents, abstracts of which appear elsewhere in our columns, clearly mapped out the work to be done. We possess much knowledge regarding tuberculosis, more is to be gained, all is to be applied. The meeting was well attended, enthusiasm was contagious, and the program was replete with excellent papers. The address of Dr. Welch was an instructive and critical review of many disputed points in the pathology of tuberculosis. The division of the program into clinical, pathologic, and sociologic sections permitted grouping of papers on various phases of the work and was a distinct advantage. We believe the section work should have been finished on Friday forenoon, however, and the afternoon session made general in order to summarize the section work for all the members and map out a general scheme of work for the coming year.

The Work before the Association.—This leads us to say in all sincerity, and with no desire to criticise, that we believe future meetings may be made to accomplish much more than the one just ended. An enormous amount of ground was covered by the papers in a most commendable manner, but this society must carry on its work in a way different from most other medical organizations if it is to attain its high ideal. Its members do not need eight or ten twenty-minute papers telling what has been accomplished by sanatoriums throughout the country; current medical literature is surcharged with this information. What they need is the outline of a systematic campaign to secure more sanatoriums. Men in each State and city and town should be named to look after this part of the work and see that individuals, corporations, municipalities, and legislatures are properly

reached. The pathologic section should spend only a part of its time in summarizing what has been done and the remainder in devising means for doing more. Research problems should be divided so that each worker or set of workers is doing that for which it is best equipped. Each State and county needs a bureau to direct the work of educating the people, and see that they are reached individually as they are in a red-hot political campaign. The foregoing is inspired by the idea that the society is not primarily for instructing its members so much as it is to instruct others. It is to exert that pressure upon public opinion so well described by Mr. Devine in his admirable paper. How many men left the Washington meeting with a definite, clear-cut idea of how, and upon whom, such pressure is to be exerted? Concretely to attack the educational, clinical, and experimental problems appertaining to tuberculosis, we take to be the special function of the national association; on this are based the foregoing suggestions.

Drunkenness and immorality in the Russian army are receiving comment in the press dispatches from Berlin. It is reported, though not from reliable sources, that the Emperor William called attention to the matter in an address to some higher officers after a review of troops at Strasburg. He is reported to have said that the defeat at Mukden could be explained in no other way. The enervation due to these abnormal habits is stated to have been the real incapacity and not lack of training of officers and men, or lack of proper appliances. Whether or not the facts are as cabled from Europe, it is certain that the matter is being given enough thought to appear in the public prints. It is also evident that the results of chronic alcoholism are now becoming not merely of national importance, but of international. It is hinted that if Russia fails to restrain the current of an alleged yellow peril, Germany must take up the task in self defense, and that another war may result. The modern practical temperance movement is thus a German national necessity for the defense of the people. Receiving comment in a nation where nearly every man is a moderate drinker, it is very significant of the far-reaching results of the study of the pathology of chronic alcoholism. If wars can really be prevented by excluding the chronics from places of authority, it is good public

policy to take the matter up seriously. Being a sociologic necessity, as it now seems, temperance is quite likely to become universal by the ordinary laws of natural selection, even if universal total abstinence be long deferred or never attained. The German officers are apparently ordered to live sober, upright, and industrious lives. It is not for their own selfish benefit as usually taught in the past temperance crusade, but for the nation's benefit. The welfare of the individual is of little importance compared to the good of all, and he will be ruthlessly sacrificed if he does not come up to the new standard for the future warrior who is employed for his brain power.

Insane persons as witnesses have been the sole reliance of the prosecution in a murder trial in Newark, N. J., and the case is probably unique in the history of medical jurisprudence. It is remarkable in this age, when so much is known of psychology, that any prosecuting attorney would rest his case wholly upon such testimony, any grand jury consider it sufficient to return an indictment, or any trial judge permit such incompetent witnesses to take the stand. Certain attendants in the Essex County Insane Asylum were accused of having caused the death of a patient who had attacked one of them with a fork, stabbing him in the neck. In the ensuing struggle to subdue the patient and place him in a restraint apparatus, he bit off one of the ears of another attendant. Three patients are reported to have testified that after a considerable interval the attendants returned, beat the helpless maniac with a baseball bat, repeatedly pounded his head upon the floor, and killed him. The details they gave were so inhuman and revolting as to be unbelievable, and the jury promptly returned a verdict of acquittal.

The credibility of a witness is a matter for the decision of the jury, and in that view of the case, the insane are reported to have been permitted to testify in other cases. Yet is it an old trick to get alleged evidence before the jury to influence them, even if it is subsequently taken from the record, and to avoid such influences the greatest safeguards must be thrown around the testimony. The main effort in jury trials generally is to satisfy the court that each witness is competent, and that he gives pertinent facts and nothing else. The action of the judge in this case has given rise to considerable adverse criticism though he is said to have been technically correct. It is a revelation, nevertheless, that our judicial procedure admits testimony from those who cannot form a correct judgment of what they see, and who may swear to the reality of their delusions and hallucinations. Lawyers can be delightfully inconsistent when they try. Not one of these insane witnesses could be convicted of perjury or conspiracy should it later be discovered that they had deliberately and spitefully conspired to give false testimony—and many of the insane are very cunning in this way. Let us hope that the experiment will never be repeated, for no physician or attendant of the insane will be safe from insane accusations and trial. The prompt action of the jury was a well-merited rebuke. It would have been safer to

adhere to the old plan of using one or more of the accused as State's evidence.

Medical Interest in the Schiller Centenary.—The widespread interest manifested in America in the recent celebration of the one hundredth anniversary of the death of the poet Schiller showed how sympathetic are the two great branches of the Teutonic people in their recognition of enduring literature. It must not be forgotten, however, that for physicians there should be a special interest in any celebration that concerns Schiller. The great German dramatist spent five precious years of his young manhood in the study of medicine and always insisted that it had been of lasting profit to him, and had proved almost more than anything else, that he might have devoted himself to a source of breadth of intellectual sympathy and understanding of men. Later in life, when literature proved as ever to be a poor paymaster, he thought of again actively taking up the practice of medicine, and it was only the patronage of Goethe, who secured for him a professor's chair at the University of Jena, that eventually prevented him from carrying out this idea. Unfortunately, Schiller, as many brother physicians before and since have done, used the medical knowledge obtained during his years of application to the medical sciences, not for the purpose of maintaining his health up to its normal standard, but rather in encouraging himself with the idea that he could with impunity abuse his physical strength in various ways. He seems to have felt more or less as a distinguished English physician of the next generation, who is reported to have said: "What's the use of being a doctor, if you can't neglect your own health?" As the result of the feeling that he understood his own constitution, Schiller did not hesitate to spend most of the night in serious application to literary work. He learned how to use various of the milder stimulants, such as coffee and chocolate wine, in order to enable him to continue with his writing in spite of physical fatigue, and, it is said, used to keep a basin of cold water underneath his desk in which to plunge his feet, with the idea of preventing blood from finding its way from his brain in any great quantities, lest he might be hampered by sleepiness from spending as long as he would at his desk. It is not surprising, with habits like these, that he was carried off at the untimely age of scarcely more than 45. Undoubtedly some of these peculiarities, and the intensity of his abuse of his physical condition, were due to a certain lack of mental equilibrium, as regards the direction of the ordinary affairs of life. Schiller illustrated in many ways the old aphorism of Quintillian that genius is not far removed from insanity. In his early manhood he had suffered from more than a passing phase of what would now be termed melancholia. Later on he had been rather notorious even at a time when such divagations were not considered of any special significance, for the changeableness of his affection toward women. Between 20 and 30, there was scarcely a year when there was not a new object of his affections, to whom, if we should judge from his letters, he was deeply and inalterably devoted. Certain imperative ideas meant much in his life, and it was said that he

could never write with any satisfaction, nor indeed with any hope of literary success, unless the odor of rotten apples was in his nostrils. For this purpose he used to keep apples in one of the drawers of his desk for months or even longer, and this would be opened whenever the desire to write came to him. In a word, Schiller's life and career represent many details of interest to the modern physician that are deserving of careful study for that larger appreciation of and sympathy with men, which is so important for the practitioner of medicine, who wishes to secure his own intellectual development at the same time that he follows his profession.

State Medical Examinations for 1904.—A most elaborate series of statistics containing the results of all the medical examining boards in the United States, except Florida and Indian Territory, for 1904,¹ furnishes very interesting and instructive material for study. Tables are arranged to show the number of graduates from each of the 160 medical schools examined by each of the State boards during the year. The graduates are further divided into three groups—those graduated during 1904, from 1900 to 1904, and in 1899 and previous years. This enables comparison between the work of the colleges at different periods, and in a general way indicates they are improving. The percentage of failures in all States, for graduates of the three periods named, was 11.2, 13.9, and 30.5. Due allowance must be made for the lessened ability of the older graduates to answer examination questions, whatever their equipment when they left school. Most of the individual States show improvement in their product, though a few have declined. The figures show the larger colleges to have a lower percentage of failures than do the smaller. Considering that the former are almost without exception in the larger cities, with better facilities and more competent instructors, this is to be expected. A table of great value, especially to State boards studying the question of reciprocity, is that giving the results of examinations in home States and elsewhere. This shows the percentage of failures from all colleges in the home States to be 7.5; in other States, 18.4, an indication that, as a rule, graduates of institutions have a better chance of passing the home State board. Many more instructive points might be gleaned from these statistics, the collection and tabulation of which represents an enormous amount of work. They form a valuable guide for those organizations which are seriously considering the question of medical education in its various phases. For instance, colleges whose graduates show 50% or 60% of failures before the various State boards, need investigation by some one possessing salutary power. The *Journal* deserves commendation for collecting and publishing these statistics.

A Further Riddling of Eddyism.—That many people, otherwise sane, appear to disregard exposures of fraudulent cults which they fanatically espouse, is no reason for discontinuing one's efforts in their behalf; if the thralldom by which they are held is too strong to be unloosed, the unwary who are yet untrapped may

thereby be frightened from the savory bait. Hence, we again speak of eddyism, or Christian science, a tenet which is not only gaining new adherents, but also is constantly adding to its already superfluous list of pernicious teachings. We are encouraged to a renewal of the attack by the appearance of a second edition of Mr. Frederick W. Peabody's "Plain Truth in Plain Terms Regarding Mrs. Mary Baker G. Eddy." This booklet, which can be obtained from the author, a member of the Boston bar, at No. 2 Kilby street, Boston, Mass., should be read by every thinking person that they may learn what eddyism really is. The original pamphlet was published by Mr. Peabody in 1901 and disproof of its statements has never been attempted by Mrs. Eddy or her representatives. Copious additions now still better show the enormity of this so-called science and brand not only its teachings as a colossal fraud, but also the founder as mercenary and blasphemous. Surely, as he himself says, if these statements are not true the writer should not go unpunished.

Mrs. Eddy's Claim to Originality.—Mr. Peabody utterly repudiates Mrs. Eddy's claim of originating the doctrine which she has so successfully inculcated for her financial gain, and definitely shows that it was derived from the teachings of one P. P. Quimby, who originally cured (?) her of some ailment. In 1866 she likened Dr. Quimby to Jesus, and from 1868 to 1870 she taught a mental healing system which she said she learned from Dr. Quimby. Later she made the "discovery" that she herself had discovered this "scientific mind healing" and that Dr. Quimby was a vulgar mesmerist. Her claim of having received an inspiration from God is sufficiently disproved by such passages in her book as: "The condition of the stomach, bowels, food, clothing, etc., is of no serious import to your child;" "the blood, heart, lungs, brain, etc., have nothing to do with life;" "the less we know or think about hygiene, the less we are predisposed to sickness." The veriest infidel would hesitate to ascribe such things to the Creator. And if they are inspired, then Deity must have joined the mad rush to bring books "down to date," as "Science and Health," in its dozens of editions, has changed many times since Mrs. Eddy has therein transcribed her "revelations." Yet, Mrs. Eddy authorizes the belief that she is the successor to Jesus, and has actually restored the dead to life. This she did twice in the case of her third husband. Evidently her mind was of the earth, earthy enough to realize that her matrimonial stock was being quoted low on 'change, even though her age of 56 went at bargain-day figures of 40 when she married Eddy. And how, at his third attempt to shuffle off, she must have respected his earnest desire to exchange his earthly bliss for the proverbial blister! For surely he would not care to spend the hereafter where she was joint ruler. Possibly, however, the good man was hypnotized, as are more than 50,000 people at the present time.

The Real Mrs. Eddy.—This "equal with Jesus" who to a friend "in speaking of a woman she disliked, savagely said, 'I would like to tear her heart out and

¹ Journal American Medical Association, May 6, 1905.

trample it under my feet;’ who, at Stoughton, being denied hospitality she had abused, mutilated the furniture of the room she had occupied, cut each breadth of matting its entire length, slashed the mattress into shreds and, with obvious intent left live coals from her stove upon a heap of newspapers in the closet; who, at Lynn, because of her abuse of her husband and violent outbursts of temper, was known as ‘the she-devil;’ who at Boston figured first as a professional spiritualist medium and later as the president of a bogus college issuing illegal degrees,” is sending forth her pernicious teaching for what? For a price. Hear one of her original announcements: “The collegiate course in Christian Science metaphysical healing includes 12 lessons. Class convenes at 10 a. m. The first week, six consecutive lessons. The term continues about three weeks. Tuition, \$300. Tuition for all *strictly in advance*.” Later the course was reduced to seven lessons. And thousands are willing to pay the tuition! Verily, Mrs. Eddy can give the smartest get-rich-quick promoter valuable tips on a sure thing that bids fair to last until the fool-killer mightily increases the number of his assistants. Every Christian scientist, on pain of excommunication, must sell as many of Mrs. Eddy’s books as they insistently can—at 500% profit to the author. Each member of the church pays an annual tax which enriches her coffers. She acquires Boston property which she ostensibly gives to the church, but which is still hers and which was acquired for her by means which, while “spiritually inalienable” were “materially questionable.” The two lawyers who aided her in this acquirement have since been disbarred. She donated (?) to the Boston church the outfit of a publishing society “worth \$22,000,” and the fact is exploited by her agents. They forget to state that the property was conveyed to her by the society three days before for the sum of one dollar, and that she still retains the right under her deed of at any time occupying the entire building. Verily, she reveals (?) God’s teachings to her subservient dupes with the cunning of the most exacting usurer.

The Significance of Eddyism.—Two teachings of this fatuous fraud stand out in bold relief and should be accorded the widest exposition. One is the existence in individuals of the power of “mental assassination,” or the evil influence upon others of mental desire. This Mr. Peabody says characterizes “a new-old witchcraft, which has so taken possession of the minds and lives of many people that they live in constant terror of its believed baneful work. Unless you know it to be a fact, as I do, that right here in the city of Boston there are hundreds and hundreds of people living in the confident belief that the malicious minds of others have the power to cause, and are causing disease and death and all forms of domestic, social, and business disaster, it will be difficult for you to believe it.” Mrs. Eddy now calls this “malicious animal magnetism,” and teaches that it has the power to cause pregnancy in women and the death of disliked persons, and dramatically calls for its suppression. This same spirit and teaching once led to the hanging of witches! Could anything be more damnable? And yet definite proof is offered that Mrs. Eddy

herself seeks to exercise this power upon those she dislikes and asks her friends to assist in bringing upon them disease and death. Her latest husband was indicted by a grand jury for conspiring to murder a man whom she had failed mentally to blight; the trial was stopped by money. The other teaching is that marriage is sensuous and impure; that the birth of children, except those “spiritually conceived,” is decidedly discreditable; that in time there will be no marriage, human generation being entirely independent of sex, and woman will conceive through an effort of the will! This is from a much-married woman who even now is supposed to be the wife of her ostensible coachman and general overseer! Is it not worth while to protest against such doctrine? Let some philanthropist distribute a million copies of Peabody’s book.

A Suggestion to Vacation Takers.—The chief desideratum of those wishing to take a summer rest is the presence of nature and the absence of man. To get into the woods, upon the hill or lake, and escape from the hotel and crowd, even the country boarding-house or farm-house, is the condition of true rest and recuperation, both for physician and sensible layman. But the housing problem makes the plan almost impossible, unless we adopt the sanatory tent. Permission is usually obtainable to erect it where one likes. Let it preferably be far from instead of “on Fame’s eternal camping ground,” whereon “the silent tents are spread.”

And the night shall be filled with music,
And the cares that infest the day
Shall fold their tents like the Arabs,
And as silently steal away.

The poet’s unsuspected suggestion is especially applicable at the end of the vacation time, when the tent may be stored for another season, and if one will, for another placing.

Consumption of Quinin in Italy.—According to the *Riforma Medica* the people of Italy consume six tons of quinin in a year. The state produced nearly 30,000 kilograms of quinin during 1903-4, of which nearly half was sold. The population of Italy is 32,449,754.

A Red-tape Complication.—A question of issuing medicines and giving medical attendance to some 5,000 civilians employed in the construction of Fort McKinley, near Manila, has been presented by Colonel J. D. Girard, chief surgeon of the Philippines Division. The law permits the purchase of medical supplies by civilian employees of the army stationed at military posts, and as the contractors for the construction of Fort McKinley failed, the quartermaster’s department has undertaken to complete the work, the excess of cost, if any, being charged to the contractors and their bondsmen. In carrying on the work the quartermaster’s department has continued to employ the mechanics and laborers who were in the service of the contractor. The Judge Advocate-General reports that he is not able to see that the effect of the transaction has been to confer upon such people the status of “civilian employees of the army stationed at military posts” within the meaning of the law. It is his view that each of the employees of the defaulting contractors, who has been engaged by the quartermaster’s department, is himself an independent contractor who, in consideration of services rendered in connection with the construction of the post, becomes entitled to compensation at the daily or monthly rates stated in his contract of employment. If no medical attendance and medicines are stipulated for in that undertaking, the contractor is not in a position to claim that such services will be rendered him, free of cost, or that they shall be rendered him, in any event, if they are not stipulated for in his contract of employment. If such supplies and attendance were furnished the 5,000 men—let alone the many women and children connected with the force—in one and the same locality, it would amount to rendering that service to a population larger than the total military force of the department of the Visayas and of some departments in the United States. The question has been referred to the general staff and the surgeon-general.

AMERICAN NEWS AND NOTES

GENERAL.

The American Federation of Nurses met in Washington last week. This federation is composed of two societies, the American Society of Superintendents of Training-schools for Nurses, and the Nurses Associated Alumnae of the United States—the former comprising 250 superintendents of the leading training-schools in the country, and the latter made up of about 100 societies. This society, the Associated Alumnae, recently admitted eight State societies into affiliation. There was considerable discussion upon the plan of training nurses for district work, and suggestions were given as to the cooperation of charity organization societies. There is need in this country for some central society, which would train nurses in a manner similar to that of the Victorian Order of Canada, or of the Queen's Nurses in England.

State Boards of Health.—The twentieth annual conference of State and Provincial Boards of Health of North America adopted a resolution expressing a realization of the sanitary condition of Panama and addressed to President Roosevelt and Secretary Taft an expression of confidence in the American health officials on the Isthmus and asking for them the greatest liberty of action. It also adopted a resolution inviting the International Congress of Hygiene to hold its meeting of 1909 in the United States. A committee was appointed to report on methods of making vital statistics more uniform as to detail and to encourage the enactment of State laws requiring such statistics to be taken throughout the country. The conference elected the following officers: President, Richard H. Lewis, North Carolina; vice-president, J. F. Kennedy, Iowa; treasurer, J. A. Eaden, Illinois; secretary, J. S. Fulton, Maryland. The conference will meet next year in Washington.

Conditions at Panama.—Major Jefferson R. Kean of the medical department of the army, on duty in the Surgeon-General's office, has gone to Panama to consult with the chief sanitary officer in regard to the purchase of medical and hospital supplies required in the Isthmian health department. It has been decided to purchase these supplies through the army medical supply officer in New York City, it being one of the first reforms instituted by the new canal commission that the medical officers in charge of the sanitary system on the Isthmus shall enjoy all the facilities possible in carrying out their project of preserving the health of the employees. One of the first things to be accomplished is the construction of a sewer system and water-supply system at Colon and Panama. The work already done has lagged considerably, with the result, say the medical officers, that much sickness has resulted from the neglect of ditches and other excavations incident to the work. One of the rules which will be strictly observed is that no water shall be allowed to collect in pools. Colonel Gorgas says that the recommendations of the medical officers are receiving prompter attention than hitherto.

EASTERN STATES.

Boston Helps Babies, Too.—The Boston common council has adopted a resolution condemning discrimination by landlords against families with children, and inviting the legislature to take some action in the matter.

NEW YORK AND VICINITY.

Smallpox Scare in Jail.—Every precaution is being taken to prevent the spreading of smallpox in the Passaic county jail at Paterson, N. J., as the result of five negro prisoners being brought to the jail from Passaic on Saturday evening. When it was found they were suffering from the disease they were hurried to the pesthouse. There are about 140 prisoners in the jail, and all of them have been vaccinated.

Low Deathrate for New York City.—A deathrate within thirteen one-hundredths of the low record for the city since the Health Department has kept records on the subject is shown by the returns for the week ended May 20. The rate for the week was 16.87 per 1,000 of population. The lowest rate was in the first week of May, 1900, when the figure was 16.74 per 1,000. The deaths from cerebrospinal meningitis numbered 72. In the preceding week there were 88, and in the week before that 110. There were 171 deaths from pneumonia last week, and 247 in the corresponding week of 1904. The total deathrate in the city during the corresponding 1904 week was 21.29.

Restoration of Hospital Boards and Other New York Legislation.—Governor Higgins has signed Senator Alld's bill reestablishing local boards of managers for State hospitals. It takes effect on June 1. The bill generally amends the insanity law, but especially restores the detail of management of the State hospitals to local boards, to be appointed by the governor and confirmed by the Senate, consisting of seven managers, at least two of whom are to be women, for each hospital, each serving for seven years, and one term expiring annually. The salary of the medical inspector of the Commission in Lunacy is increased from \$3,500 to \$5,000. The governor signed also Assemblyman Fish's bill giving the Commission in Lunacy

power of inspection over private sanatoriums. Senator Hill's Child Labor bill, which increases the responsibility resting on an employer of a child "apparently under the age of 16," was signed.

PHILADELPHIA, PENNSYLVANIA, ETC.

Fifty-two New Typhoid Cases.—Fifty-two new cases of typhoid fever were reported to the health authorities of Philadelphia during 48 hours last week. The number is 35% of the total for the whole of the previous week. The comparatively small number reported the previous week encouraged the authorities to think that the malady was on the wane, and the present outbreak came as a surprise. The bulk of the new cases are located in the northeastern section of the city, where unfiltered water is supplied.

Injunction against Physician.—At the instance of Horace F. Taylor an injunction has been issued by Judge Johnson against F. A. McMasters, of Ridley Park, restraining him from the practice of medicine in that place. Dr. Taylor claims to have purchased the goodwill and practice of Dr. McMasters for \$300, when the latter decided to locate in Pittsburg. Later Dr. McMasters returned to Ridley Park and resumed practice. He denies that he sold his goodwill, stating that Dr. Taylor paid him for introducing him to his patients as qualified physician.

SOUTHERN STATES.

Changes in Baltimore College of Physicians and Surgeons.—Thomas Opie, one of the founders of the College of Physicians and Surgeons, and who for 33 years has been dean of the faculty and professor of gynecology, has resigned. His resignation has been accepted by the faculty. Chas. F. Bevan, professor of surgery, has been elected dean of the faculty and has assumed his duties. No names have been considered to fill the vacant professorship of gynecology.

Admissions to Army Medical Department.—The Surgeon General of the Army is advised that as a result of the recent examination of candidates for commissions in the medical department, five have been reported qualified in a preliminary way. There are probably other candidates who will be favorably reported during the next week or two. They will come to Washington for the course of instruction which precedes the final examination before the candidates are appointed.

Loving Cup to be Presented to A. W. DeRoaldes.—It is the custom of the New Orleans *Picayune* to present each year a cup, known as the *Picayune* loving cup, to some citizen of New Orleans who has been instrumental in accomplishing some good for the city. The committee appointed by the board of directors of the New Orleans Progressive Union has decided that the cup should go Arthur W. DeRoaldes this year for his labors in behalf of the Eye, Ear, Nose and Throat Hospital, in giving his time, energy and strength in the upbuilding of that institution.

Serum for Typhoid Fever.—It is reported that William Royal Stokes and John S. Fulton, of the Maryland State Board of Health, have, after nearly four years of careful and painstaking investigation, discovered what they believe a curative serum for typhoid fever. They have tested the serum they have made in 23 human patients with typhoid. There were 2 deaths and among the 21 cases ending in recovery there were 15 in which they considered that the favorable result was due to the influence of the serum. The two deaths were due to complications apart from the original disease.

WESTERN STATES.

Bars \$100,000 Medical Bill.—The claim for \$100,000 for medical services by L. C. H. Zeigler, of Chicago, against the estate of Harriet McVicker, widow of the theatrical manager, was disallowed by Judge C. S. Cutting of the Probate Court, who held that the claim was excessive and instructed Dr. Zeigler to submit a modified bill.

Chicago Making a Smallpox Record.—Before the month of May has passed the record of smallpox cases for the first five months of 1905 will exceed the highest mark for any 12 months for the last 10 years. So far this year there have been 378 cases, while the highest mark for the previous decade is 336 cases in 1903. If the present rate continues the year 1905 will exceed even the figures for the epidemic year of 1895.

Transmission of Variola.—Recently, a woman died in St. Louis, Mo., the cause of death being described as bronchitis and pulmonary hemorrhage. The body was embalmed and shipped to Indianapolis for burial. Advices from Indianapolis state that the undertaker who took charge of the body there became infected with hemorrhagic smallpox and that a number of people who attended the funeral have developed smallpox. About 150 persons who were near the body are under quarantine. The undertaker who embalmed the body in St. Louis has since developed hemorrhagic smallpox, from which he died. The local Board of Health called the attending physician to account, but he claims there were no signs of smallpox in the case. The women who dressed the body state that there was no eruption on it, but the board at Indianapolis claims that the body showed signs of hemorrhagic smallpox when it was exhumed.

Conference of Health Officials of Michigan.—The objects of the eighth general conference of the health officials of Michigan, which will be held in Ann Arbor, June 1 and 2, are the presentation of facts and the general comparison of views by the health officers and other delegates of local Boards of Health, among themselves, with the members of the State Board of Health and with those in charge of the State Laboratory of Hygiene, and especially with reference to the duties of supervisors and other officials, relative to the restrictions of dangerous communicable diseases and other subjects bearing directly on the public health service of the State.

FOREIGN NEWS AND NOTES

GENERAL.

The Plague at Harbin.—According to the correspondent at Tokio of *The London Daily Telegraph*, a severe epidemic of plague has broken out at Harbin. The deaths, it is added, average 300 daily.

Burial by Machinery.—The Armley Burial Board at Leeds is considering the desirability of adopting a singular labor-saving device for interments, consisting of an appliance for lowering the coffins into the grave. When the coffin reaches its resting-place the girths of the appliance release themselves automatically.

Premiums for Babies.—The new mayor of Huddersfield, England, has promised to give to the mother of every child born during his year of office, a promissory note for one pound, payable a year after birth, if the child lives so long. His object is to prevent the wastage of child life by making it worth while for the parents to be careful about their children.

Radium \$3,000,000 an Ounce.—The price of radium has increased owing to the difficulty of obtaining further supplies. The consequence is that research work involving its use is almost at a standstill. Sir William Ramsay states that \$100 a milligram, or a rate of \$3,000,000 an ounce, is now demanded. An expert expresses the opinion that not more than half an ounce of radium has been manufactured since Professor Curie discovered it.

Women and Forensic Medicine in Russia.—According to the *Bourse Gazette*, the question of allowing women medical practitioners to act as experts in matters connected with legal medicine, is to be determined this year. A law for this purpose has been drafted by the Minister of Justice and is under consideration by the Imperial Council. A provision is made that female medical practitioners may be accepted for independent medicolegal testimony as to women and children.

Hindu Plague Victims 750,000 in Five Months.—Three-quarters of a million people have already died from the plague in India this year, according to figures furnished by Indian Secretary Brodrick. The mortality from January 1 to April 1 was 471,744, while 215,961 more succumbed in the four weeks ending April 29. It is evident that the mortality this year will far exceed even the appalling figures for last year. The *Lancet* strongly urged the necessity of more effectual efforts. In one week in the Punjab this year the mortality was 20,000.

Medical Student at 80.—The *Novosti* announces that the Russian Minister of Education has authorized the admission of Phedor Maratzevitch, who is past 80 years of age, to examination before the medical examination committee of the Kiev University of St. Vladimir, for the degree of doctor. The *Kieff Gazette* states that at the end of the "fifties" Maratzevitch attended lectures at the University of Kharkoff and entered the University of St. Vladimir in 1863, being then over 40, but failed to obtain a degree.

Bequests to Charity.—By the will of Miss Hannah Beswick, of Mossley, \$5,000 each has been bequeathed to the following: The Ashton-under-Lyne Infirmary, the Manchester Royal Infirmary, the Manchester Eye Hospital, and Henshaw's Blind Asylum, and the residue of her estate, nearly \$120,000, after certain bequests amounting to \$3,500 to \$4,000 to some local churches, is to be divided equally between the four institutions named above.—By the will of Mr. William Holborn, \$10,000 is bequeathed to the Royal Hospital for Incurables, Putney, and \$10,000 to such hospitals for the sick in London as his executors shall select. In the event of their disagreeing this sum is to be paid to the London Hospital, Mile-end road.—Mr. Joseph Proctor Mann has bequeathed \$500 each to Guy's Hospital, St. Thomas' Hospital, King's College Hospital, and Epsom College.

OBITUARIES.

John W. Bayne, aged 59, May 15, from throat disease, at his home in Washington, D. C. He was a graduate of the University of Maryland School of Medicine, Baltimore, in 1888. He was professor of clin-

ical surgery at Georgetown University. He served as assistant surgeon in the United States Army for many years, and in 1879 was appointed police and fire department surgeon. He was also connected with the Providence Hospital. During the Spanish-American war he was surgeon and brigade surgeon of the army, serving at Chickamauga. He was a member of the American Medical Association, of the staff of the Episcopal Eye, Ear and Throat Hospital, Medical Society of the District of Columbia, of the staff of the Casualty Hospital, and was a prominent Mason.

Erwin Fischer, May 21, at his home in Pittsburg, Pa. He was a graduate of Tübingen, Germany, in 1887. He had been in a comatose condition for a period of five weeks, with short intervals of consciousness. His condition baffled the attending physicians. Several operations had been performed to determine the cause of the condition. An autopsy revealed a tumor on the brain, this was given as the cause of death.

Washington Matthews, aged 61, April 29, from locomotor ataxia complicated with chronic nephritis and fracture of the right femur, at his home in Washington, D. C. He was a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1864. He was appointed assistant surgeon in the United States army in 1868, promoted to surgeon in 1889, and retired from active service in 1895.

George W. Friend, aged 77, May 5, from cerebral hemorrhage, at his home in Richmond, Va. He was a graduate of Jefferson Medical College in 1851. For more than half a century he practised in Manchester, Chesterfield county, Va.; he was assistant surgeon in the Confederate service during the Civil war, and a member of the State Legislature from 1872 to 1874.

John A. Finlayson, May 9, from appendicitis, at his home in Armstrong, Iowa. He was a graduate of the Kentucky School of Medicine, Louisville, Ky., in 1892. He was a member of the American Medical Association, and a leading factor in local matters in Emmet county, Ia.

Robert Dickey Wallace, aged 77, May 2, from arteriosclerosis, at his home in Newcastle, Pa. He was a graduate of the Cleveland Medical College in 1853. He was the oldest practitioner of Newcastle and was for some time president of the Lawrence County Medical Society.

Edward W. Altwater, aged 69, May 15, from apoplexy, at the home of his son-in-law near Upper Falls, Mo. He was a graduate of the St. Louis Medical College in 1859. He served as assistant surgeon to the Fifty-sixth Illinois Infantry during the Civil war.

Thomas L. Newberry, aged 71, of Hiseville, Ky., May 3, after an operation for cystitis, at an infirmary at Louisville, Ky. He was a graduate of Jefferson Medical College in 1866. He served as surgeon in the Confederate service during the Civil war.

Frank McMahan, aged 26, May 7, from fatty degeneration of the heart, at his home in Sioux City, Iowa. He was a graduate of Sioux City (Iowa) College of Medicine in 1905, and was demonstrator of chemistry in the same institution.

Pierre A. Marks, aged 61, May 12, at his home in Chicago. He was a graduate of Miami Medical College, Cincinnati, in 1867. He served as first assistant surgeon on the gunboat *Fairplay* throughout the Civil war.

John F. Oakley, May 3, from malaria poisoning, at his home in Augusta, Ark. He was a graduate of Vanderbilt University, medical department, Nashville, Tenn., in 1890; member of the American Medical Association.

Charles B. Warder, recently, at his home in Philadelphia. He was graduated from University of Nashville, medical department, Nashville, Tenn., in 1859 and from Jefferson Medical College, Philadelphia, in 1871.

Joseph O. Yost, aged 37, May 2, from heart disease, at his home in Hazleton, Youngstown, Ohio. He was a graduate of the medical department of Western Reserve University, Cleveland, in 1892.

F. M. Baldwin, aged 32, May 1, from pneumonia, at his home in Reno, Nev. He was a graduate of the College of Physicians and Surgeons of San Francisco in 1900.

William M. Hammond, aged 89, April 27, at his home in Rosedale, Kan. He was a graduate of the University of Maryland School of Medicine, Baltimore, in 1845.

Walter L. Taylor, aged 85, of Cincinnati, Ohio, May 9, from cerebral hemorrhage, in Brooklyn, N. Y. He was entitled to practise medicine on Years of Practice, Ohio.

Seymour C. Troutman, aged 83, May 6, at his home in Somerville, N. J. He was a graduate of the College of Physicians and Surgeons, New York City, in 1854.

S. D. Welch, aged 81, May 1, at his home in Nicholasville, Ky. He was a graduate of the Transylvania University, medical department, Lexington, Ky., in 1847.

Joseph H. Ford, May 3, at his home in Auburn, Ind. He was a graduate of the Medical College of Indiana, Indianapolis, in 1872.

Jacob H. Asch, aged 75, May 19, at his home in New York. He was a graduate of the University of Berlin in 1864.

F. Q. Wensel, aged 28, May 17, from tuberculosis of the bowels, at his home in Natchez, Miss.

Ernest J. Lowenthal, aged 92, May 14, at his home in Hoboken, N. J.

FOREIGN.—Joseph Everett Dutton, aged 29, in the Congo, February 27. He was sent to Africa by the Liverpool School of Tropical Medicine to investigate trypanosomiasis and tick fever.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 20, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
District of Columbia:	Washington..... May 6-13.....	6	
Florida:	Jacksonville..... May 6-13.....	12	
Illinois:	Chicago..... May 6-13.....	33	1
	Galesburg..... May 6-13.....	1	
Louisiana:	New Orleans..... Apr. 29-May 13.....	23	1
Two cases imported			
Massachusetts:	Lowell..... May 6-13.....	2	
	Quincy..... Apr. 29-May 6.....	2	
Michigan:	Detroit..... Apr. 29-May 13.....	5	1
	Grand Rapids..... May 6-13.....	15	
Missouri:	St. Louis..... May 6-13.....	12	1
New Hampshire:	Nashua..... Apr. 29-May 13.....	5	
New York:	New York..... May 6-13.....	6	1
Ohio:	Cincinnati..... Apr. 28-May 5.....	8	
Pennsylvania:	Lebanon..... May 6-13.....	1	
	York..... Apr. 29-May 13.....	29	
Rhode Island:	Providence..... May 6-13.....	1	
South Carolina:	Charleston..... Apr. 29-May 6.....	2	
	Greenville..... Apr. 20-May 6.....	4	
Tennessee:	Memphis..... Apr. 29-May 13.....	12	
	Nashville..... May 6-13.....	2	
Wisconsin:	Milwaukee..... Apr. 29-May 13.....	10	

SMALLPOX—INSULAR.

Philippine Islands:	Manila..... Mar. 11-Apr. 8.....	3	
---------------------	---------------------------------	---	--

SMALLPOX—FOREIGN.

Belgium:	Ghent..... Mar. 25-Apr. 1.....	1	
China:	Ntuchwang..... Apr. 8.....	Present	
	Shanghai..... Mar. 11-Apr. 8.....	3 cases among foreigners; 14 deaths, natives	
Ecuador:	Guayaquil..... Apr. 18-25.....	1	3
Great Britain:	Edinburgh..... Apr. 15-22.....	1	
	Nottingham..... Apr. 22-29.....	4	
	Southampton..... Apr. 15-29.....	1	2
India:	Bombay..... Apr. 11-18.....	95	
	Calcutta..... Apr. 8-15.....	14	
	Karachi..... Apr. 9-16.....	5	3
	Madras..... Apr. 7-14.....	5	
Italy:	Ancona..... Apr. 13-20.....	2	
	Callagione..... Apr. 13-20.....	4	
	Catania Province..... Apr. 13-20.....	23	
	Cosenza Province..... Apr. 13-20.....	3	
	Lecce Province..... Apr. 13-20.....	3	
	Messina..... Apr. 13-20.....	3	
	Palermo..... Apr. 15-22.....	6	1
	Perugia Province..... Apr. 15-22.....	3	
Japan:	Tokyo..... Apr. 8.....	3	
Turkey:	Constantinople..... Apr. 16-23.....	3	
West Indies:	Grenada..... Apr. 6-14.....	9	

YELLOW FEVER.

Mexico:	Tierra Blanca, State of Vera Cruz..... Apr. 21-May 6.....	6	
Panama:	Colon..... Jan. 23-Apr. 6.....	6	3
	Panama..... Jan. 1-Apr. 29.....	50	20

CHOLERA.

India:	Calcutta..... Apr. 8-15.....	38	
--------	------------------------------	----	--

PLAGUE—INSULAR.

Philippine Islands:	Manila..... Mar. 11-Apr. 8.....	8	7
---------------------	---------------------------------	---	---

PLAGUE—FOREIGN.

Africa:	East London..... Apr. 1-8.....	1	1
Australia:	Brisbane..... Apr. 1.....	1	
	New Castle..... Apr. 3.....	2	
China:	Amoy..... May 10.....	Present	
Egypt:	Alexandria..... Apr. 1-8.....	1	
	Magagha..... Apr. 1-8.....	1	1
	Tukh..... Apr. 1-15.....	4	4
India:	General..... Mar. 18-25.....	61688	58805
	Bombay..... Apr. 9-15.....	1	979
	Calcutta..... Apr. 8-15.....	1	762
	Karachi..... Apr. 9-16.....	191	182
	Formosa..... Apr. 10.....	19	6
Japan:	Hiroshima..... Apr. 12.....	1	1
Peru:	Chiclayo..... Apr. 9-16.....	6	5
	Lambayeque..... Apr. 9-16.....	1	
	Lima..... Apr. 9-16.....	4	3
	Chopen..... Apr. 9-16.....	7	6
	Mollendo..... Apr. 9-16.....	1	
Straits Settlements:	Singapore..... Mar. 25-Apr. 1.....	1	

Changes in the Medical Corps of the U. S. Army for the week ended May 20, 1905:

BOWMAN, MADISON H., contract surgeon, is granted leave for three months, with permission to visit the United States, and with authority to apply for an extension of one month. He will sail from Manila May 15.

WINTER, Major FRANCIS A., surgeon, having arrived on the transport Logan, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

IVES, Major FRANCIS J., surgeon, having arrived on the transport Logan, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

KENDALL, Major WILLIAM P., surgeon, having arrived on the transport Logan, will report to the commanding general, department of Luzon, for assignment to duty.

KEEFER, Major FRANK R., surgeon, is assigned to duty as attending surgeon, headquarters, Philippines Division, effective April 15, relieving Major Alfred E. Bradley, surgeon.

STARK, Captain ALEXANDER N., assistant surgeon, having arrived on the transport Logan, will report to the commanding general, department of Luzon, for assignment to duty.

ANDERSON, EVERETT A., contract surgeon, having arrived on the transport Logan, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

SANFORD, JOSEPH L., contract surgeon, having arrived on the transport Logan, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

HALL, HENRY M., contract surgeon, is relieved from duty at Margosatubig, Mindanao, and will proceed to Manila, reporting to the commanding general, department of Luzon, for assignment to duty.

HEWITT, JOHN M., contract surgeon, having arrived on the transport Logan, will report to the commanding general, department of Luzon, for assignment to duty.

GARDNER, FLETCHER, contract surgeon, is granted leave for three months, with permission to visit the United States, and with authority to apply for an extension of one month, sailing from Manila, P. I., May 15.

HUSSEY, SAMUEL W., contract dental surgeon, having arrived on the transport Logan, will report to the commanding officer, dental base station, No. 1, Manila, for temporary duty.

KENDALL, Major WILLIAM P., surgeon, will proceed to Camp McGrath, Batangas, for duty.

STARK, Captain ALEXANDER, assistant surgeon, will proceed to Camp Wallace, Union, for duty.

COLLINS, Captain CHRISTOPHER C., assistant surgeon, is relieved from duty at the division hospital, Manila, and will report to the commanding general, department of Luzon, for assignment to duty.

PYLES, First Lieutenant WILL L., assistant surgeon, now at Camp Wilhelm, Tayabas, will proceed to Fort William McKinley, Rizal, and report to the commanding officer for duty.

HEWITT, JOHN M., contract surgeon, will proceed to Calamba, Laguna, for duty, relieving Contract Surgeon Thomas B. McCown, who will proceed to San Francisco de Malabon, Cavite, and report to Major Frederick W. Sibley, Second Cavalry, for duty, relieving Contract Surgeon William E. Cass, who will return to his proper station, Fort William McKinley, Rizal.

COLLINS, Captain CHRISTOPHER C., assistant surgeon, will proceed to Santa Mesa, Manila, for duty.

SMITH, First Lieutenant LLOYD L., assistant surgeon, now at Mariquina, Rizal, will proceed to San Mateo, Rizal for duty, relieving First Lieutenant Charles L. Foster, assistant surgeon, who will proceed to camp Stoisenburg, Pampanga, for duty.

HALL, First Lieutenant JAMES F., assistant surgeon, on being relieved from duty in this division, is authorized to proceed to San Francisco, Cal., by commercial liner at his own expense, provided he arrives there as soon as if he had gone by transport.

WINTER, Major FRANCIS A., surgeon, will report at Base Hospital, Iloilo, P. I., for duty.

WILSON, Captain WILLIAM H., assistant surgeon, is granted leave for one month and ten days, with permission to visit China and Japan, effective about April 12.

COFFIN, First Lieutenant JACOB M., assistant surgeon, is relieved from duty as surgeon of the transport Liscum, and is assigned to temporary duty as sanitary inspector, these headquarters, and in command of Hospital No. 4, quartermaster's dispensary, Fort Santiago, Manila, and in charge of the hospital corps detachments on inter-island transports, relieving First Lieutenant James F. Hall, assistant surgeon.

BERNHEIM, JULIEN R., contract dental surgeon, is granted leave for one month, with permission to visit China and Japan, effective about May 15.

A board of medical officers is appointed to meet at the division hospital, Manila, May 1, for the preliminary examination of such candidates for admission to the medical corps of the army as may be designated by the chief surgeon of the division. Detail: Major W. Fitzhugh Carter, surgeon; Major Frank R. Keefe, surgeon; Captain Weston P. Chamberlain, assistant surgeon.

RUTHERFORD, First Lieutenant HENRY H., assistant surgeon, will report to the commanding officer, Army General Hospital, Presidio of San Francisco, Cal., for duty.

MARROW, Captain CHARLES E., assistant surgeon, is granted leave for one month on surgeon's certificate.

KEAN, Major JEFFERSON R., surgeon, will proceed to Panama for the purpose of conferring with Colonel William C. Gorgas, assistant surgeon-general, on business pertaining to the purchase of medical supplies for the Department of Health of the Government of the Canal Zone, and upon the completion of this duty will return to his proper station.

DE LOFFRE, First Lieutenant SAMUEL M., assistant surgeon, is relieved from duty at Fort Assinniboine, and will proceed to Fort Schuyler for duty.

The following-named assistant surgeons, recently appointed, will proceed from the places designated to San Francisco, Cal., and report to the commanding general, department of California, for assignment to duty at the Sequoia and Yosemite National Parks: First Lieutenant Earl H. Bruns, Brookville, Ind.; First Lieutenant Herbert C. Gibner, Bridgeport, Conn.

A board of medical officers to consist of Major Charles F. Mason, surgeon; First Lieutenant Thomas L. Rhoads, assistant surgeon; First Lieutenant George M. Ekwurzel, assistant surgeon, is appointed to meet at West Point, N. Y., on June 1, for the physical examination of the cadets of the graduating class and such candidates for admission to the academy as may be ordered to appear before it. The board will be governed in its examination by instructions from the Surgeon-General of the army, and will forward reports of its proceedings, through the superintendent of the academy, to the military secretary. Special reports will be made in the cases of any graduates or other cadets deemed physically unfit for the military service, and also in the cases of any candidates who may be admitted on probation or rejected.

DUNCAN, First Lieutenant WILLIAM A., assistant surgeon, recently appointed, will proceed from Franklin, Ky., to Fort Leavenworth, for temporary duty.

COFFEY, ALBION MCD., contract surgeon, is relieved from duty at Fort Worden and from temporary duty at Fort Lawton, to take effect upon the return to duty of First Lieutenant Walter C. Chidester, assistant surgeon, and will then proceed to Fort Davis for duty, relieving Contract Surgeon Harper Pedicord, who will proceed to Seattle, Wash., and report by telegraph to the military secretary of the army for further orders.

GERLACH, JOHN L., sergeant first class, now on furlough in Washington, D. C., from the Philippines Division, will report to the commanding officer, Fort Myer, to accompany the First Squadron of the Seventh Cavalry to Manila, P. I.

HAMMER, JAMES F., sergeant first class, Fort Snelling, will be sent to Boise Barracks to relieve Sergeant First Class Robert Marsden who will be sent to Fort Davis, Alaska, for duty.

GIRAUD, Colonel JOSEPH B., assistant surgeon-general, is relieved from duty in the Philippines Division, and will proceed to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders.

BYRNE, Colonel CHARLES B., assistant surgeon-general, is relieved from duty as chief surgeon, department of the Missouri, to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about May 31 for Manila, P. I., where he will report to the commanding general, Philippines Division, for duty as chief surgeon to that division.

SHIMER, Captain IRA A., assistant surgeon, upon his relief from duty at Fort Niagara by Captain Willard F. Truby, assistant surgeon, will repair to Washington, D. C., and report to the Secretary of War for further orders.

The following changes in the stations and duties of assistant surgeons are ordered:

TRUBY, Captain WILLARD F., is relieved from duty at Fort Preble and from duty with the troops assembled at Fort Monroe for the army and navy exercises, and will proceed to Fort Preble for the purpose of settling his returns of property, and upon the completion of this duty will proceed to Fort Niagara for duty, relieving Captain Ira A. Shimer.

JONES, First Lieutenant PERCY L., is relieved from duty at Fort Monroe, to take effect upon the conclusion of the army and navy exercises, and will then proceed to Fort Preble for duty.

PINKSTON, Omar W., contract surgeon, will proceed from Washington, D. C., to Fort Mansfield, for duty.

MEARNS, Major EDGAR A., surgeon, now in Washington, D. C., on sick leave, will proceed to Fort Sill, and will report to the commanding officer, First Squadron, Eighth Cavalry, in time to accompany that squadron to the Philippine Islands, and upon arrival in Manila will report to the commanding general, Philippines Division, for assignment to duty.

DADE, WALLER H., contract surgeon, is relieved from duty at Fort D. A. Russell, and will proceed to Fort Duchesne for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended May 20, 1905:

BERTOLETTE, D. N., medical director, commissioned medical director with rank of captain, from April 5, 1905—May 15.

BEYER, H. G., medical inspector, commissioned medical inspector with rank of commander, from April 5, 1905—May 15.

DEVALIN, C. M., surgeon, commissioned surgeon with rank of lieutenant-commander, from January 31, 1903—May 15.

GUEST, M. S., surgeon, commissioned surgeon with rank of lieutenant-commander, from March 3, 1903—May 15.

WARNER, R. A., STALNAKER, P. R., assistant surgeons, commissioned assistant surgeons with rank of lieutenant, junior grade, from May 3, 1905—May 15.

VICKERY, E. A., assistant surgeon, detached from the Southern and ordered to the Franklin—May 15.

HOEN, W. S., assistant surgeon, detached from the Oregon and ordered home—May 16.

WILSON, H. D., surgeon, commissioned surgeon with rank of lieutenant-commander, from March 31, 1903—May 17.

DUNN, H. A., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from June 7, 1904—May 17.

TOLFREE, H. M., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from June 14, 1904—May 17.

WEBB, U. R., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from October 11, 1904—May 17.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington, D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

[Continued from page 808.]

Discussion.—A. O. J. KELLY (Philadelphia) said that studying endocarditis from the broad standpoint of general principles readily explains the presence of fever. Endocarditis is simply septicemia, the valve lesions being accidental instead of essential. Hence irregular attacks of fever in endocarditis are not uncommon, and are to be expected. For the reason cited, small as well as large valve lesions produce fever. Recurrent attacks are due to recrudescence of the infective process. A. JACOBI (New York) said it is the custom to diagnose endocarditis because a murmur is present. Not all cases of murmur, even systolic mitral murmur, are endocarditis, many of them being due to myocarditis. Some of these may be traced for years; they may be better at times, even to the extent of the murmur disappearing, and then become worse. Cases of myocarditis are best diagnosed by the fact that hypertrophy is not present as a sequel of the murmur. In cases of long duration the diagnosis of endocarditis should not be made unless hypertrophy is present. JAMES TYSON (Philadelphia) spoke of the relation between chronic endocarditis and petechial eruptions. A girl of 25, now under treatment, has frequently recurring petechial eruptions and subnormal temperature. The eruptions appear suddenly, are particularly marked upon the legs, and are invited by the upright posture. They disappear more slowly than they appear. The patient has inveterate but slight anemia. V. C. VAUGHAN (Ann Arbor) said that all bacteria lower the temperature of the person infected, the exact effect depending upon the kind of germ and the rapidity with which it liberates toxins. This explains the usual difference between diphtheria and tonsillitis, the latter having the higher temperature. The lower the temperature in diphtheria the more dangerous is the case, because of the rapidity of toxin liberation. For this reason it is not surprising that the deathrate in the afebrile cases reported by Thacher was greater than in those with a higher temperature. WILLIAM OSLER said fever in endocarditis may be in the form of slight recurrent attacks, due to little vegetations on old diseased valves, with acute malignant cases that terminate fatally, or in severe cases, which end in recovery. One patient had several attacks during 14 years. Totally different are the cases of fever with chronic vegetative endocarditis, in which there is nothing but the fever. Some cases last a year. He exhibited a temperature chart of a case lasting a year, in which there was fever every day. No emboli were manifest. A mitral murmur was the same all the time. The heart showed chronic vegetative mitral endocarditis with but little erosion. He has had a series of cases, both mitral and aortic, the longest being 13 months in duration. In these the fever dominated the whole picture. They belong to a type different from the others; they cannot be called malignant. F. P. KINNICUTT (Boston) called attention to the fact that not all cases with symptoms as described by Osler terminate fatally. He has seen two patients recover; one lasted seven, the other five months. The murmur still persists.

A Case of Hemophilia, with Special Reference to Joint Symptoms.—F. P. KINNICUTT (Boston) furnished an exhaustive discussion of hemophilia, and reported a case possessing many points of interest. The case suggests the possibility of the *de novo* origin of the disease, as there was no family history of the affection. The case was otherwise typical. At the age of 5 began articular attacks, which were no doubt hemophilic in origin, as they were preceded by injury. Kinnicutt saw the patient during seven years, and there were recurring attacks of arthritis, due to effusion of blood into the joints. The knee-joints were particularly involved, but also the elbows. There was high temperature, but no redness of the skin over the involved joints. There were also hematomas in the abdominal wall. Finally the joints underwent pathologic changes and partial ankylosis of some of them resulted. The articular ends of the bones appeared to be enlarged. The patient finally died from what was undoubtedly intraabdominal hemorrhage. No autopsy was allowed. General consideration of arthropathy in hemophilia shows that it may occur in infancy; both hypertrophy and atrophy of bones occur in late stages. Hemorrhage into joints may be both spontaneous and traumatic in origin. Peritoneal hemorrhage is of rare occurrence.

Clinical Notes on Opium in Myocarditis.—J. H. MUSSEY (Philadelphia) said that opium exerts no influence on the morbid process in myocarditis, but in many cases is good for the patient. Its use falls into two groups: (1) The continued use; (2) its use at times during the course of the disease. In the dilation of myocarditis, in asystole, and angina pectoris its use is well known. In general heart weakness, and during convalescence from acute valvular disease, it is also valuable. Its continued use in some cases is demanded; in one cited, the only relief obtainable was derived from opium. The drug is of

value as a preventive of asystole and other grave accidents. Diuresis is increased for a time in certain cases. In cases of senile weak heart, especially when one wishes to prevent the results of p-ripheral impressions, the drug is an efficient aid. In cases of chronic myocarditis to prevent and mitigate insults to the weakened heart, the prolonged use of opium is advisable. The drug is not contraindicated in chronic myocarditis complicated by the presence of nephritis. It is valuable in cases of melancholia so often present in these cases, especially when the patient knows his lesion. In the not infrequent cases of hypochondriasis it is well to use opium in addition to the usual supporting treatment. Often it is better to rely on this than on the cardinal drugs usually prescribed.

Discussion.—M. H. FUSSELL (Philadelphia) cited a case of severe nephritis during the course of myocarditis in which small doses of morphin hypodermically gave very happy results. The patient improved rapidly and continued so for several weeks. BEVERLY ROBINSON (New York) decides on the administration by the condition of the pupils; if they are dilated he gives opium. A. JACOBI (New York) agreed with the statements of Musser. In many cases in which opium is useful, strychnin is to the same degree harmful.

[To be concluded.]

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, Held at Washington, D. C., May 18 and 19, 1905.

[Specially reported for *American Medicine*.]

General Meeting.

Officers for the ensuing year are: President, Hermann M. Biggs; first vice-president, Lawrence F. Flick; second vice-president, Vincent Y. Bowditch. William Osler was elected honorary vice-president.

Directors of the Association elected are: E. P. Bicknell, V. Y. Bowditch, J. S. Fulton, C. O. Probst, W. S. Carter and Mr. Henry Phipps.

Address of the President.—EDWARD L. TRUDEAU spoke of the pathologic, bacteriologic, and clinical advances in our knowledge of the disease, until it is now recognized that tuberculosis is transmissible, preventable, and, in the earlier stages and in certain types, curable. Against it, individual effort can accomplish little; the watchwords of the new society should be organization and cooperation. The first problem of the association is to combine and direct individual efforts, preferably by bringing each State into touch with the national organization. The first and greatest need in the work is education; if every man and woman in the United States was thoroughly familiar with the disease and with the simple means effective in its prevention, tuberculosis would soon disappear. The duties of States are in establishing higher standards of hygiene, segregating the tuberculous, erecting sanatoriums, dispensaries, and laboratories for research. Medical schools should give special instruction to their students, especially in the diagnosis of tuberculosis; too often they are presented the picture of advanced, instead of incipient cases. In this line, summer courses in sanatoriums could well be given. The dangers of tuberculin in diagnosis have been exaggerated, and Trudeau hopes the association will be a medium for disseminating exact knowledge regarding this agent and its employment. Conditions in the United States now point to increased research work, and for this are needed laboratories and endowments, as it is to this branch that we must look for the solution of many problems concerning the varieties of the tubercle bacillus, the chemistry of its toxins, and natural and artificial immunity.

Address of Vice-president Osler.—WILLIAM OSLER said the one important thing to accomplish is education. We possess a remarkable amount of knowledge regarding tuberculosis, but the association must make it effective. Three parties are to be educated: The public, the profession, the patient. The public is awake in this regard, but is still sitting on the edge of the bed, half-dressed. It has three things to do: (1) Enact good laws, synonymous with New York laws; (2) properly care for hopeful tuberculous cases; (3) make provision for hopeless cases, which, after all, are most important to the public. The education of the public includes three points: (1) They must know that early recognition is the first and most important thing; (2) they must recognize practically the efficiency of open-air treatment; (3) they must educate medical students; this is of paramount importance. For this purpose, general hospitals associated with medical schools should receive acute cases of tuberculosis, and also a few early cases for demonstration. A second most important function of general hospitals in this line is the maintenance of a tuberculosis dispensary. The education of the patient can be possible only when he knows the nature of his ailment; no greater mistake was ever made than to withhold from an early case the knowledge that he has tuberculosis. Osler closed by paying an eloquent tribute to Trudeau for his early recognition of the true method of treating tuberculosis and for his convictions in carrying it out.

[To be concluded.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

LOBAR PNEUMONIA IN CHILDREN.¹

BY

MARION McH. HULL, B.Sc., M.D.,

of Atlanta, Ga.

Attending Physician to the Sheltering Arms; Attending Physician to the Presbyterian Hospital, Atlanta, Ga.

That pneumonia is the most common disease of childhood, according to an eminent authority, is sufficient excuse for our consideration of it; and if we needed other, the wellknown fact, appalling as it is, that the disease is more prevalent today, if not more fatal, than a generation ago, would fully justify us in turning our thoughts to it again. We have chosen to deal especially with the fibrinous form in childhood, (a) because of the frequency with which it occurs, and (b) because of the peculiarities it presents.

When we think of pneumonia in a child we are apt to consider the catarrhal form; but while bronchopneumonia is more prevalent under 18 months of age, lobar pneumonia is far more so after that age, and is by no means unknown in the first few months of life. In a recent article in a foreign journal, 16 cases following measles were recorded, of these, 13 were of the lobar variety, and of the 13, 10 patients were under 3 years of age. This author's experience has been that this proportion holds good in cases with causation other than measles. Although this is undoubtedly too high for the relative proportion between the two varieties mentioned, it at least serves to impress the fact that the frequency of the lobar variety in childhood is greater than is ordinarily supposed. Jacobi probably has the proportion nearer right when he says that of all pneumonias in childhood about two-thirds are lobular, a third are lobar, while a few are interstitial. Lobar pneumonia is so prevalent in early years that one authority states it as his experience that 60% of all lobar pneumonias occur in childhood. My experience coincides with this, possibly for obvious reasons.

The disease presents in general the same symptoms and signs, and runs the same general course as in the adult; but in children it is less likely to be ushered in by a chill and is more apt to terminate by lysis. It is more liable to be followed by delayed resolution, abscess of the lung, or empyema; otitis is a more frequent complication, and the disease is much less fatal. As in adults, the disease is caused by *Bacillus lanceolatus* of Fränkel, or rather by the toxins of this germ, although in many cases other organisms, such as the streptococcus, staphylococcus, bacillus of Eberth, *Bacillus coli communis*, and Klebs-Löffler bacillus, are also found. It is more likely to follow infectious diseases in children than in adults; probably, because of the greater liability of children to these diseases, and also because of the lesser resistance of the child. Dr. Carnall has reported a case following septic tonsillitis. Cold and exposure predispose to an attack, but lobar pneumonia most frequently attacks those who have been previously strong and robust. It is contagious, and the child affected with it should be isolated.

An attack may be ushered in by a chill, as in the adult; but vomiting, with diarrhea, or a convulsion, is more probable, on account of the greater irritability of the child's digestive apparatus, and the lesser resistance of its central nervous system to afferent impulses. I have seen patients in which it was almost impossible to make a correct diagnosis for two or three days, as there were no definite physical signs until then. In a recent case, the attack was ushered in by a slight chill, followed by a rapid rise in temperature, nausea, vomiting. Diarrhea then began, and continued for 36 hours, in spite of all treatment. On the third day the cough began, and there were signs of consolidation of the lower lobe of the left lung; the disease ran a typical course, and the crisis occurred on the

¹ Read before the Georgia State Medical Association, April 20, 1905.

seventh day. This delay in the appearance of cough and physical signs is more or less characteristic of the childhood type. Auscultation and percussion are notably untrustworthy in children, with their puerile breathing and thin chest walls, which may account in some measure for the difficulty in detecting early signs. Frequently the only change noted for the first 24 to 36 hours is a diminished vesicular murmur on the affected side, although, of course, in many other cases crepitant rales may be heard earlier. An early symptom that sometimes causes confusion is intense abdominal pain located frequently in the region of the appendix. This can occur without any inflammation in the appendix. Udolfo (*Clinical Medicine*) accounts for it thus: From the branches of the intercostal nerves, the pain is carried to the abdominal nerves, or the twelfth spinal nerve, thence through the sensory branches to the subcutaneous tissues of the right lower quadrant of the abdomen. We must also take into account the anastomosis between the abdominal branches of the phrenic and the abdominal sympathetic.

The disease usually runs a typical course for from five to eight days and terminates by crisis. In children, however, the number of cases that terminate by lysis is very much greater than in adults. The younger the child the greater the probability of the termination by lysis. In these little patients, also, the tendency to delayed resolution is very great. Recently in two of my cases, resolution was delayed until the ninth and tenth weeks respectively; the temperature reaching normal on the twenty-eighth and thirty-fifth days respectively, but rising slightly in the afternoon for a longer period, and finally terminating in recovery. When resolution is delayed there is always danger of the formation of abscess, or gangrene, or of the beginning of a tuberculous infection. Empyema is not uncommon if the pleura has been much involved.

Otitis is a very frequent complication of pneumonia in children. The wide funnel-shaped aperture of the eustachian tube, its more or less horizontal direction, and its relatively short length in children offer easy access to organisms causing otitis or other infectious diseases. It may occur in as many as 50% of the cases. Jacobi has pointed out that otitis may exist without pain on account of the anatomic peculiarities just mentioned, the only evidence of its presence being a rise in temperature, until a discharge of pus from the ear confirms the diagnosis.

Recent studies of the blood in lobar pneumonia of childhood have developed some interesting facts which will be efficient aids in giving a prognosis, when sufficient experience has been accumulated. There is always some degree of leukocytosis, and this increases until the crisis. A lack of leukocytosis at this time is a serious omen. Dr. McCaskey has shown that a leukocytosis above 10,000 to 12,000 is an evidence of decided intoxication. If the neutrophils are in excess, it is an evidence of suppuration; if the eosinophiles are in excess, it is an evidence of an infection from cutaneous or intestinal parasites.

The prognosis in lobar pneumonia of children is as good as that of bronchopneumonia is bad. The mortality is about 5% in hospital practice and less in private practice. It is greater under three years of age, but one may have a long series of cases in children above that age without a death. This feature of the disease is in marked contrast to that in the adult, in which the mortality is from 18% to 25%.

The treatment in this disease in children differs but little from that in adults. I have seen a few cases that were apparently aborted by quick counterirritation and stimulation of the emunctories, but whether these would have developed further without this treatment I am unable to assert positively. Ordinarily, I do not believe the disease can be shortened. There is an intoxication from a toxin formed by the pneumococcus. Researches have demonstrated that the elimination of the toxin by the emunctories decreases until the crisis is reached, when it is markedly and suddenly increased. So far nothing has been found that will prevent the further formation of the toxin after it is in sufficient quantity to produce the symptoms of the disease or that will hasten its elimination. The rational treatment would therefore seem to resolve itself into (a) prophylactic—to prevent infection, and if infection has already

taken place, to limit it and the formation of more toxin by destroying as many of the infecting agents as possible. Creosote internally and by inhalation in vapor of steam, succeeds in some instances if used early and aided by counterirritation, catharsis, diuresis, and diaphoresis. (b) Supportive. When the disease has developed—that is, after the exudate has taken place, or during the stage of red hepatization—there is no hope of aborting it. It is then a question of the patient's powers of resistance, of sustaining the child until the crisis is past and convalescence is established. To aid in the fight, rest of mind and body, an abundance of fresh air and water, good nursing, proper food and stimulation, with proper care directed to the emunctories, are the requisites in every case. (c) Symptomatic. In carrying out the general line indicated, symptoms must be treated as they arise. The pain of the first few days is best relieved by hot or cold applications. A mustard and flaxseed meal poultice kept on until the skin is reddened thoroughly, followed by hot cloths or the hot-water bag, often gives great relief. In other cases the ice-bag or coil does better, while in some in which the cough is also very distressing and aggravates the pain, we must resort to small doses of codein.

An occasional dose of calomel will stimulate the secretions and often relieve a distressing tympany. Vomiting is best treated by rest, and diarrhea by diet. The chief danger to guard against is heart-failure, so-called. French observers have shown the toxin of pneumonia contains products that depress the arterial circulation. These ectasins produce vasomotor paralysis, and this gives the characteristic pulse of advanced pneumonia. When the heart muscle is affected, the rhythm of the pulse is disturbed, and there is marked dyspnea; but the rapid, thready pulse that we ordinarily meet, is due to dilation of the arterioles. This paralysis indirectly produces distention of the right heart, more than the obstruction to the circulation, by consolidation of the lung, does. This is illustrated by the fact that the latter obtains just as much immediately after the crisis; and yet the pulse is markedly improved. Those drugs which counteract vasomotor paralysis and stimulate the right heart, should be employed. Ergot, adrenalin, and strychnin have been of service. My preference is for the latter. Nitroglycerin should be preferred to digitalis in emergencies, when the right heart is overdistended, because of its more rapid action, and because digitalis acts more on the left heart, while nitroglycerin has its greatest effect on the right. So great an authority as Jacobi, advises the use of large doses of digitalis in these conditions, frequently repeated, and discontinued as soon as the desired effect is obtained; however, he uses nitroglycerin in conjunction with it. Continued use of either of these drugs is not recommended.

Alcohol in children should be used sparingly (not at all at first), but increased if need be toward the crisis. Many patients do better without it, while some require it in large quantity. Each individual case must be decided by the attendant. Dr. Cohen has given as one of the causes of heart failure a tendency to the formation of clots; the ammonium salts keep the blood alkaline and fluid, and are more useful for this purpose and as stimulants, than as expectorants. Expectorants are not needed until after the crisis. I have had no experience with the serums, so highly vaunted by some; but the consensus of opinion seems to be that none has yet been made that can be trusted.

The fever is best relieved by baths or packs. Cold should be used if the reaction is not too great; but if the feet and hands become chilly after a bath or are cold before the bath is given, hot sponge baths or packs will reduce the temperature and stimulate the circulation better than cold, and should be preferred. The coal-tar products benefit the druggist far more than the patient and should not be used. Ice to the head; heat to the feet and small doses of calomel best relieve the delirium. In convalescence, avoidance of sitting up too early, tonics and care in feeding will hasten recovery.

It is most important to avoid overdoing, in treatment of this disease in children. Their recuperative powers are enormous, and if given a fair chance they will recover. The physician's function is to foresee difficulty and avoid it if possible, and to stand by and extend aid when difficulty comes. Never do too much and avoid unnecessary interference.

ORIGINAL ARTICLES

OF AILUROPHOBIA AND THE POWER TO BE CONSCIOUS OF THE CAT AS NEAR, WHEN UNSEEN AND UNHEARD.

BY

S. WEIR MITCHELL, M.D.,
of Philadelphia.

Three years ago I was consulted in regard to the case of a hysterical young woman, in whom the fear of cats had become an obsession. She declared that she could always detect the presence of an unseen and unheard cat. Since, however, she was constantly announcing the presence of a cat, it was not surprising that like a clock that has stopped and tells the time correctly twice in the 24 hours, her occasional successes confirmed her belief. Her failures had, of course, no contradictory value.

I saw her three times, and on each occasion she said there was a cat in the room. It was true of her first visit, although she could not have seen it. It was untrue of two later visits; but each time she exhibited the same fear and the usual mild hysterical manifestations.

A second case was, I felt secure, an exhibition of real capacity to know when the unseen and unheard cat was present. It came to my knowledge later.

The two cases led me to inquire further into the matter. Except as regards asthma variously due to the presence of cats, dogs, rabbits, horses, or sheep, I found no available medical literature. When the power to know an unseen cat as nearby was mentioned, it was usually with entire scepticism, nor where it was believed to be true, was any explanation attempted.

In order to collect material for study, I asked, through a medical journal (*American Medicine*), answers to the following questions:

- A. 1. Have you any antipathy to cats?
2. Are you subject to unusual feelings or symptoms in the presence of a cat?
3. What are these?
4. Does the presence of a tiger in a menagerie affect you as do cats?
5. Can you account for your cat fear by anything obvious, as for example, any incident of childhood?
6. At what age did you first discover your peculiarity as to cats?
- B. 1. Are you surely aware of the presence of a cat when it is not in sight, or known to be near?
2. If yes, give the evidence, your own and that of others as to the fact.
3. What feelings or symptoms make you sure of the cat's presence?
4. Is it the cat odor?
5. How long have you had this peculiarity?

The request was widely copied, and I received 159 replies from persons in America, England, and Germany. Many were from wellknown persons, professors, army officers, physicians, and the like. About a third were valueless. A few were from men or women who were personally well known to me, and who, I am certain may be trusted. The general result was to give me a body of evidence of great interest, and to furnish me with some indicative hints as to the cause, not so much of cat fear as of the more curious question concerning the ability of certain people to be sure of the neighborhood of unseen cats.

Many of the cases I do not use. They are simply examples of cat asthma in confirmed asthmatic sufferers. This disorder is well known and is sufficiently dealt with in the books on asthma, especially Bramwell. B. cat asthma, clinical studies, Edinburgh, 1902-3 N. S. 1. p. 330. Camerari Felisantipathia. One of my answers is from Mr. S. whose case is well reported by Dr. Salter.¹ These cases are not always associated with dread or even dislike of cats as such and do not concern my present object any more than do the asthmas caused by roses, oranges, or apples.

My research brought to me indisputable evidence concerning the large number of people in whom the

presence of a cat gives rise to a variety of symptoms. In such persons the feeling caused by seeing a cat is instantaneous. In the asthma victims it is slower and cumulative and may not be felt at all for 20 minutes or more. Certain persons on seeing a cat, have other symptoms, with or without oppression of breathing. There may be only fear, terror, disgust. There may be added chilly sensations, horripilation, weakness, locked jaw, or, as in one case, fixed, open jaw, rigidity of arms, pallor, nausea, rarely vomiting, pronounced hysterical convulsions and even temporary blindness. These pass away with removal of the cat, but in a few examples leave the sufferer nervously disturbed for a day. Two report themselves as apt to have dreams of cats, what one of them calls "cat mares."

Five persons, three being women, are alarmed in the presence of the greater cats, caged tigers or lions. A soldier of distinction, much given when younger to tiger hunting, is undisturbed by these great felines, but terrified by the tame cat.

To Question 5, first series, "Can you account for the origin of your dread?" the general reply is negative. Three assign it to their having been scared by a cat in childhood, and one to a prenatal incident affecting the mother. Nothing of value was obtained.

Question 6. Everyone answered that the simple fear dated from early childhood but that the symptoms of weakness, nausea, chilliness, and the more distinct hysterical signals like rigidity, etc., came on later and increased after puberty. Three women and two men report the symptoms as lessening in middle age and several have resolutely overcome that which had grown to be a serious inconvenience.

At least a fourth of my cases of cat terror in grave forms speak of it as a family peculiarity. Five in a family of seven had it. In another case a maternal grandfather, two great-aunts, an uncle, and a sister were all thus troubled, and in other families where one had it, at least one other, a brother or sister, was more or less affected. Single cases in families were, however, the rule.

Sex appears to have no marked influence, but the extreme symptoms are more frequent in women.

Aversion to cats is well known to have disturbed many historical personages and is alluded to in a well-known passage of Shakespeare. The other matter with which this paper is concerned is of far more interest. It is dealt with in my second set of questions.

Question 1—B, asks, "Are you surely conscious of the presence of a cat when it is not in sight and not otherwise known to be near?" Very fortunately, my best and most trustworthy evidence has been as to this part of the investigation.

After careful study of the replies, much sequent inquiry, and rejection of all doubtful cases, I reached the conclusion that as concerns 31 persons I had evidence enough to make me sure that they could tell when a cat was near, although it was neither seen nor heard. Three of my most intelligent witnesses, two of them personally known to me, say that usually they possess this power and at other times they do not. One of them thinks that well-cared-for cats she more rarely detects, but always recognizes a stray invader from the street and gives instances in point.

On a study of those who at sight of cats have fear, horror, and in varying degrees emotional disturbances and distinct physical symptoms, and those whom unseen cats affect, we observe that the same symptomatic expressions attend both groups.

In the first set, sight of the cat informs. Then there are fear, horror, disgust, and more or less of the nervous symptoms already described. In the second set, those who are conscious of unseen cats, some sense other than sight or hearing gives the information, and then the symptoms are, as I have said, much the same as when the cat is seen.

¹ The Lancet, 1866, p. 384.

The most interesting question concerns the means by which assurance is given of the presence of the unseen animal. This examination must of need include all cases, the asthmatics and those in whom the resultant signals are not asthmatic, but merely what may be called nervous, or even hysterical. Asthmatic patients who suffer from animal emanations are not usually aware of the odor as present if the cause be a cat. Several declare, and one is an acute observer, that woolens on which an animal has been lying may occasion asthma, although the patient may perceive no smell.

Four of the 31 who recognize an unseen cat as near declare that they know it because of the odor of the animal. The remaining 27, some of them trained observers, physicians, engineers, a soldier of distinction, and certain very intelligent and healthy-minded women, are positive that they do not smell the cat and that they are absolutely ignorant in regard to the mode by which they become aware of the presence of the offending animal. Accepting their evidence as beyond doubt true, how shall we account for the facts?

We must admit that all animals and human beings emit emanations, which are recognizable by many animals and are in wild creatures protectively valuable.

This delicate recognition is commonly lost in mankind, but some abnormal beings like Laura Bridgeman, and a perfectly normal lad I once saw, possessed the power of distinguishing by smell the handkerchiefs of a family after they had been washed and ironed. In this lad I made personally a test of his power to pick out by their odor from a heap of clean handkerchiefs mine and those of others, the two belonging to his father and mother.

I have seen a woman well known to me distinguish by mere odor the gloves worn by relatives or friends. This lady who likes cats as pets, is able to detect by its odor the presence of a cat when I and others can not.

Two French observers believe that they have proved the sense of olfaction to be nine times more acute in women than in men. Toulouse et Vaschide.¹

So far as the present paper might serve in evidence I should be inclined to say that the sense of smell was keener in women than in men, but as to this there is extreme diversity of opinion and the whole subject awaits further investigation.

Mr. Havelock Ellis, after considering all the testimony attainable at present, reaches the conclusion that the sense of smell is keener in men than in women. This may be the case in general, but I am perfectly certain that the highest degrees of sensitiveness as to smell are to be found in certain women and not necessarily in women who are of a hysterical nature or otherwise than healthy. How this question stands as to the male and female of sporting dogs may be worth inquiry.

Much has been said in a vague way about the effect of odors on man, but although Beyer² has shown that in the rabbit certain odors increase and others retard the rate of respiratory movements, I am aware of no such experiments on man. It is, however, well known that no other of the senses is as capable of reviving memories pleasant or unpleasant as the sense of smell.

These remarks prepare us to consider the means by which certain persons are aware of the nearness of unseen cats and are thus thrown into a state of agitation and general nervousness. They are usually not conscious of the unseen cat as odorous.

It seems to me possible that either they smell the cat too slightly to be able to define the odor or else receive an olfactory impression of which they are not conscious as being an odor, but only in the form of such symptoms as the visible cat would also evoke.

To be influenced by an olfactory impression of which the subject rests unconscious may seem an hypothesis worthy of small respect and beyond power of

proof. Nevertheless, it seems to me reasonable. There are sounds beyond the hearing of certain persons. If they ever cause effects, we do not know. There are rays of which we are not conscious as light or heat except through the effects to which they give rise. There may be olfactory emanations distinguished by some as odors and by others felt not as odors but only in their influential results on nervous systems, unusually and abnormally susceptible. No other explanation seems to me available and it gains value from certain contributive facts.

One woman, a very trustworthy witness, writes to me that from childhood she has had fear of cats and with great general acuteness of the sense of smell had always been able when young to be sure an unseen cat was in the room because of the distinctive odor of the animal. When older, and long married, her olfactory sense became dull so that while sometimes certain that she could smell the unseen cat, at times she was uncertain. Occasionally she was very confident that a cat was near when there was no detectable odor and on these occasions was nearly always correct.

Either the odor in this case had nothing to do with recognition and we must seek an explanation elsewhere, or the odor was just sufficient to set in motion the mechanism of habitually associated emotion and was not distinct enough or lasting enough to be felt as an odor.

No matter what the primary form of impression, association and memory have their share in the ultimate train of symptoms. It is to be borne in mind that acute conjunctivitis is in a few victims caused by nearness of cats, that in rare examples the cat emanations cause cutaneous irritation, so that we may not be sure that it is only through emanations necessarily odorous that the train of symptoms is started, and still it is sure that in many cases not only is there no perceptible odor, but no consciously felt nasal irritation.

An interesting illustration is unconnected with animals. A young man who had little keenness of the olfactory sense went abroad in bad health on a sailing ship. He was seasick, homesick, melancholy. When in the Mersey he first smelled English coal smoke. For years the odor brought a slight return of depression and sometimes before he recognized the cause. On one occasion, when walking in Wales, he said to a friend that he had been feeling the melancholy impressions coal smoke occasioned, but had not smelled any smoke. His friend said that he himself had been conscious of it for some minutes, but that it was barely perceptible. This seems to me to assist in explaining some of the cases of the detection of unseen cats. I could readily supply other cases of like nature.

To conclude, I am of opinion that emanations from cats, odorous to some, may in others cause emotional disturbance without so impressing the olfactory nerves as to be recognized as odors.

When we seek an explanation of the terror inspired by cats in a few persons, we are forced to fall back upon the inherited remainders of animal instincts of protective nature. This view is, however, weakened by the fact that in most of the worst cases of cat fear there is no terror in the presence of the lion.

This paper would be incomplete without a statement of some of the evidence I accept as proof, that a limited number of those who have the fear of cats and suffer, are conscious of their presence when they neither see nor hear them.

In my own family, an uncle was the subject. My father, the late Professor John K. Mitchell, having placed a small cat in a closet, with a saucer of cream, asked Mr. H. to come into the room and look at some old books in which he would be interested. He sat down, but in a few minutes grew pale, shivered, and said, "There is a cat in the room." Dr. M. said, "Look about you. There is no cat in the room. Do you hear one outside?" He said, "No, but there is a cat." He became faint, and complaining of nausea, went out and promptly recovered.

¹ Soc. de Biologie, May, 1899.

² Arch. für Phys., 1901.

I quote the following from a physician of distinction as a case where the symptoms arise on seeing a cat, and where, at other times, they are evoked by the odor of an unseen cat:

My wife simply lives in horror of cats. It is more than fright and it makes no difference whether it be a tiny kitten or the most tiger-like tomcat. I have seen her absolutely prostrated by terror after an unexpected meeting with a cat, although she is not in the least hysterically inclined nor afraid of other animals.

She has never as a child been frightened by a cat, but has always had this fear. She can usually detect a cat's presence by its smell when it is unseen and when others cannot smell it, but this she cannot always do. Her father has the cat fear, and her maternal grandmother can also "smell out" a cat; also a brother and two sisters, the rest of a large family being indifferent to the animal.

A lady very well known to me sends me, with other instances, this: She was in her room preparing for bed when suddenly she felt her usual sensations of a cat being near. A servant was called and a vain search was made. At last, still suffering, she herself made a careful search and found a strange cat curled up under a lounge and well hidden. She has no knowledge of a cat from sense of smell.

Dr. J. C. W. writes me, "Some years ago I was present at a meeting of a scientific society. The secretary, while reading his report, stopped and said, 'I can't go on. There must be a cat in the room.' Search was made, and under the topmost seat in the amphitheater was found a cat."

Mrs. C. Intense horror of cats, flush, chills, gooseflesh, rigid jaws. It is an hereditary. When younger she could always know when a cat was near. This is, in later years, less certain. She no longer faints. She writes, "A striking instance of my sensitiveness occurred many years ago, but now my sensibility is far less acute, and I was never able to smell a cat. I did not know how I knew of the animal as near. Becoming disturbed, as usual, while seated on a low veranda, I declared there must be a cat under my chair. A little later a cat crawled out from under the veranda. This was only one of several such experiences."

Mrs. H. a lady long and well known to me, first told me and later wrote to me to this effect. "I was in a shop in Paris trying on gloves when I became sure of a cat near me. The woman in charge said she had no cat, but on my persisting and becoming faint, search was made and a stray cat found under the counter and driven into the street. A few minutes later my symptoms returned and the cat was found to have come back into the shop through the open door and was behind me. I could recall a number of like instances."

Mrs. C., her mother and her child and a grandmother were all able to detect the presence of unseen cats and the daughter declares that in her case it is unconnected with any odor.

Dr. S. reports a case to me of a lady who many times to her knowledge became faint, pale, and sick because of the presence of a cat, unseen at the time by her and by others and is entirely confident that this is the case.

Dr. T. writes as follows: "General Roberdeau had an unaccountable aversion to being anywhere in the vicinity of cats. It was no affectation but an inborn idiosyncrasy. He could not account for it and tried hard to overcome it, but without the least success. It affected him with a peculiar faintness, paleness and difficulty of breathing, increasing to such an extent that it was involuntary for him to leave the room. He was never mistaken when he said there was a cat in the room, an instance of which occurred once when invited to dine at Chief Justice McKean's. Knowing his antipathy, they made careful search and aired the room, but the moment General Roberdeau entered he said, 'There is a cat here.' They assured him there was not for they had taken proper precautions on his account. He replied that he knew there was a cat there and retired to another room, while a further search revealed a kitten behind the bookcase. The writer's father has often found his mother and aunts tell of their girlish tricks played on General Roberdeau, of secreting a cat in the room in which he was sitting and the General never failed to perceive it instantly.

"This peculiarity does not seem to be generally inherited among his descendants, except that in three or four cases it has appeared in a modified form. Mrs. Jane A. seemed in a limited degree to partake of her father's antipathy, as also her daughter, Mrs. M., who, although not affected to the same extent as her grandfather, has a great aversion to them without being able to describe her feelings.

"Another of the General's children, James, was affected somewhat like his father, but not so severely; he would appear about to have a spasm if he remained in the presence of a cat; and his friends were obliged to keep them from the room he was in. None of his children inherited this; but it has appeared among his grandchildren of the P. family, who are 'afraid of them.'

"Miss Mary E. Roberdeau, the eldest daughter of Isaac, partially inherited this antipathy, which here showed itself in another form, occasioning an eruption on the skin, passing off after the cause was removed."

My informant adds, "Very similarly affected was the

writer's sister. Although excessively fond of pets, and cats in particular, it has been noticed that after fondling one a most terrific cold in the head would suddenly ensue. She would sneeze time after time, her eyes water profusely, and her face become flushed. The violence would subside after putting the cat away, leaving no trace visible the next morning. It has always been considered a modified form of her great-grandfather's antipathy."

Dr. S., a physician of distinction, writes: "I am not now aware of the presence of a cat when it is not in sight or known to be near, but on some occasions of my life I have been so uncomfortable that I have feared a cat must be in the room, and on those occasions a cat has always been found. This slackening of my instinct is another reason for supposing that my cat fear is not so great as it used to be. I could never make a friend of a man or woman who loved fondling cats, and I have often had to get a patient to banish the cat from the room before I could give my mind to her symptoms.

"My wife reminds me of one occasion, about 1892, when she and I were visiting a stranger. I remarked during the absence of the hostess that I was certain there must be a cat in the room. Eventually a black cat appeared from under the sofa. I have dread, even to nausea. The whole subject seems to me disgusting, and I feel almost seasick as I dictate this. I know nothing about the cat odor except the penetrating and horrible smell belonging to all cat excrements, some of which causes stray homeless cats to smell in the same way. I doubt if this odor can be more disgusting to me than to other people."

Dr. W. writes, giving very remarkable instances of her power to detect the presence of cats. She does not smell them. She has at one instance fear, violent palpitations of the heart, flushes, nausea and pallor, panting respiration. She was, until ten years ago, unfailingly able to tell at once if an unseen cat was near. She has lost this power.

An absolutely trustworthy witness, Miss C., relates to me this incident: "I want to tell you of a cousin of mine, a woman as strong-minded and self-reliant as any one I have ever known and apparently afraid of nothing, but with an absolute antipathy to a cat. On one occasion we arrived in Montreal quite late at night, and on reaching the hotel were taken into a very long dining-room, with lights only on the table where we were seated. She suddenly turned ashy pale and exclaimed: 'There is a cat in this room,' and in spite of the waiter assuring her that he had not seen a cat since he had been there and was quite sure there was none, she got paler and paler, and trembling all over, continued to say, 'There is, there is a cat here,' and after much searching a cat was found up in the corner and at the extreme other end of the room. I have always thought this very strange, but I saw it myself."

A lady in good health and not at all nervous writes: "I dread cats. My bad dreams are always of cats crawling over me. I can, I say it without doubt, tell if a cat is in the room. I do not smell it, nor do I know how I know it. I do not become faint, only I fear and have a creepy sensation."

I should overload my paper if I were to relate in detail the cases in which cats were concealed in order to test the disbelieved capacity to detect them when not in sight and in which the hidden cat was at once known to be near. One or two permit of doubt, others are unsailable.

There are these classes of persons who suffer from cats:

1. Asthmatics—cat asthma.
2. Cat fear, with or without sequent, excessive, emotional manifestations, and only on sight.
3. Cat fear. Power to be sure an unseen cat is near. Symptoms same as in Class 2, and apt to be extreme.
4. Those of the last class can detect the cat by smell, or may sometimes and not always.
5. Cases occur in which the consciousness of a cat as present through its smell once existed, but does not now, and yet the ability to detect unseen cats remains.
6. It is therefore likely that the cat emanations may affect the nervous system through the nasal membrane, although unrecognized as odors.

Why these emanations should, if plainly perceived as due to cats, cause certain symptoms in those who dread cats, is readily understood.

The ultimate cause of unreasonable terror of cats, I cannot explain.

To be told that a cat is near when none is in the room, may occasion the same unpleasant consequences as when the cat is present.

It is, perhaps, worthy of note how many of the victims of cat fear declare that even strange cats seem to have an unusual desire to be near them, jump on their laps and follow them.

OBSERVATIONS UPON AMEBAS INFECTING THE HUMAN INTESTINE, WITH A DESCRIPTION OF TWO SPECIES, *ENTAMEBA COLI* AND *ENTAMEBA DYSENTERIÆ*.*

BY

CHARLES F. CRAIG, M.D.,

of San Francisco, Cal.

First Lieutenant, Assistant Surgeon, United States Army; Pathologist and Bacteriologist to the United States Army General Hospital, San Francisco, Cal.

I.—INTRODUCTION.

In a recent contribution on the amebas infecting the intestine of man, Schaudinn¹ describes very minutely two species, one harmless and found in health as well as in diseases other than dysentery, and the other pathogenic and found only in patients suffering from amebic dysentery. Coming from so eminent an authority, the conclusions arrived at from his study are deserving of the greatest consideration, especially as he bases his classification of the two forms not only upon morphologic differences, but also upon very marked differences in the method of reproduction. Prior to reading his contribution I had in my writings controverted the theory of the existence of pathogenic and nonpathogenic amebas, because the differences held by certain authorities as distinguishing them were based entirely upon slight morphologic variations which I did not consider of value in differentiating such organisms. A careful perusal of the observations of Schaudinn, however, convinced me that his classification was based upon scientific data. During the last six months I have studied amebas in the light of Schaudinn's researches, and am able to confirm many of his statements, especially as to the occurrence of a pathogenic and nonpathogenic ameba. The fact that both varieties occur together very frequently in the feces in amebic dysentery has in the past been the chief difficulty in separating and studying them. In my own observations I am satisfied that I have confused the two, regarding the harmless ameba as a stage in the evolution of the pathogenic form. When the two are studied separately, however, the differences in morphology, and especially in the method of reproduction, are so great that with a very little practice they can be easily distinguished. It is obvious that these two forms of amebas should be thoroughly studied, as it is undoubtedly a fact that cases have been supposed to be amebic dysentery which were in reality cases of diarrhea due to some other cause, but in which the harmless amebas were present in the feces and were mistaken for the amebas of dysentery.

In my investigations I have found after administering a saline cathartic, preferably magnesium sulfate, to normal individuals, over 65% have shown the harmless ameba in the feces, and nearly 50% of cases presenting symptoms of diarrhea or other diseases also show these amebas. From this it will be seen that the harmless ameba is a very common parasite in man, and that it is of special interest because of the liability of confusing it with the ameba causing dysentery.

II.—CLASSIFICATION AND NOMENCLATURE.

From his observations, Schaudinn believes that the parasitic amebas infecting the intestine of man should be classified under a new genus, to which he gives the name *Entameba*. This classification he bases upon the marked differences between these amebas and amebas found elsewhere in nature, and I agree thoroughly with him in this particular. Not only do the amebas infecting man differ so markedly from other amebas that the establishment of a new genus is justified, but the name *Entameba* identifies these amebas with man.

As the history of the classification of these organisms

is of considerable interest from a scientific standpoint, I shall consider somewhat briefly the chief contributions which have been made in this direction.

Losch² was the first investigator to describe minutely certain amebas found in the human intestine. The amebas studied were obtained from a case of dysentery (?) in St. Petersburg in 1875, and to these organisms he gave the name *Amœba coli*. His description of the ameba has been taken as the model of nearly every investigator since his time, but a careful perusal of his contributions will show that it is rather doubtful if he was dealing with the ameba causing dysentery. Considered in connection with the investigations of Schaudinn, it is almost certain that the amebas described by Losch were the harmless amebas. He made no effort to classify the amebas into pathogenic and nonpathogenic varieties, and while it may be possible that he observed the pathogenic form, his description applies more closely to the harmless variety.

The occurrence of amebas in intestinal conditions other than dysentery and in health soon attracted attention. Several authors investigated this subject and endeavored to establish a classification based upon morphologic differences, none of which, however, was of sufficient value to become generally adopted.

Kruse and Pasquale³ distinguished four varieties based entirely upon morphologic variations. The varieties described by them were as follows: (1) A form presenting a very refractive, homogeneous protoplasm and found in the normal feces; (2) a form showing irregular and small granules; (3) a form in which the entoplasm consisted largely of vacuoles; (4) a form in which the protoplasm was filled with foreign bodies.

The last two forms mentioned were found only in dysenteric feces. It will be at once seen that the differences in these forms are so slight as to be of no scientific value as a basis for classification, and the fact that these authors describe the form found in normal feces as being very refractive shows conclusively that they were unable to differentiate the pathogenic from the nonpathogenic variety, as the pathogenic variety is much more refractive than the nonpathogenic.

These authors concluded that there were two varieties of amebas, one pathogenic, which should be known as *Amœba dysenteriae*, adopting the name given by Councilman and Laffeur; the other, nonpathogenic, inhabiting the normal intestine, and which should be known as *Amœba coli*.

Quincke and Roos,⁴ from their investigations, divided the amebas of man into three classes, as follows:

1. *Amœba intestini vulgaris*, 40 microns in diameter, with large granules, which is pathogenic for neither man nor cats.

2. *Amœba coli mitis*, similar in size and appearance to the preceding, which is pathogenic for man but not for cats.

3. *Amœba coli* (Losch), or *Amœba coli felis*, about 25 microns in diameter, with a finely granular endosarc, which is capable of producing dysentery in both man and cats. This classification, which was based largely upon experimental evidence, is not conclusive, as these authors were undoubtedly dealing with material containing both forms of amebas, for their description of the amebas shows conclusively that this was the case.

Casagrandi and Barbagallo⁵ were the first investigators to describe accurately a form of ameba occurring in the feces of healthy individuals and in those suffering from diarrheal diseases other than dysentery, although Grassi⁶ first called attention to these amebas. Casagrandi and Barbagallo describe very accurately the morphology of this form and also the method of reproduction, which consists normally in simple division and in the formation of cysts with the production of eight daughter cells, which become the young amebas. It was mainly the observations of these authors which directed the attention of investigators of this class of organisms to the

*Published with permission of the Surgeon-General of the United States Army. From the Annual Report of the Pathologic Laboratory of the United States Army General Hospital, San Francisco, 1905.

existence of harmless and pathogenic varieties, but they were unable to differentiate the two forms accurately.

Councilman and Lafleur,⁷ who have contributed one of the most classic treatises upon amebic infection, object to the name *Amœba coli* given by Losch as not being distinctive, and express it as their opinion that under certain conditions a number of species may inhabit the intestine. These investigators do not undertake to differentiate varieties, but they were undoubtedly dealing with the ameba which causes dysentery.

Dock,⁸ one of the first American investigators to study the amebas associated with dysentery, found amebas in a few cases in health, but did not arrive at any definite conclusion regarding the existence of more than one variety. He says: "Our imperfect knowledge of amebas in general and the difficulties of distinguishing species or varieties make it highly probable that there are different kinds with different pathogenic characteristics."

Strong⁹ divides the amebas infecting man into two species, *Amœba dysenteriae* and *Amœba coli*, the first causing dysentery; the second, nonpathogenic. His description, however, shows that he has confused the two species and has failed to identify either accurately. For instance, he states that in *Amœba coli* "the nucleus is small and with considerable difficulty seen in live specimens."

As shown by Schaudinn,¹⁰ and confirmed by myself, this description applies to the ameba causing dysentery, instead of the harmless ameba, for in the latter form the nucleus is almost always very distinct and easily differentiated. A careful perusal of this author's researches makes it evident that his classification was not based upon sufficient differences in the forms described to establish it upon a scientific basis.

Jurgens,¹¹ according to Schaudinn, was the first investigator to identify accurately two varieties of ameba infecting man, one occurring in health and in diseases other than dysentery, and the other occurring only in dysentery; and much of Schaudinn's work is confirmatory of Jurgens' descriptions. In my opinion, however, Schaudinn is the first author to contribute a clear description of the amebas occurring in the human intestine both in health and disease, and to him we owe the establishment upon scientific ground of two distinct species of amebas. He considers that the amebas occurring in man should be classed under a new genus, *Entamœba*. To the ameba occurring in normal individuals or those not suffering from dysentery, he has given the name *Entamœba coli*, while to those occurring in dysentery he has given the name *Entamœba histolytica*. In his contribution he states that he is not convinced as to whether Losch actually observed the ameba of dysentery, but he is inclined to believe from his description that he was studying the harmless variety. For this reason he has given the specific name *coli* to the harmless variety as studied by himself.

As I have stated, after a careful reading of Losch's description, I am inclined to believe with Schaudinn that he did not see the actual ameba of dysentery, and that the name *Entamœba coli* is properly given to the ameba observed by Losch. The name *Entamœba histolytica*, however, should be changed to *Entamœba dysenteriae*, as Councilman and Lafleur accurately described the ameba which produces dysentery before the publication of Schaudinn's article. In fact, I believe that Schaudinn had never read the monograph by Councilman and Lafleur, or he would never have given the name *histolytica* to this variety of ameba. As Councilman and Lafleur published their researches prior to the article by Schaudinn, the name *dysenteriae* should stand, and the ameba causing amebic dysentery should be known as *Entamœba dysenteriae*, in place of *Entamœba histolytica*.

As I have said, until within a quite recent period I have not been prepared to accept the existence of a

harmless and pathogenic ameba, but since reading Schaudinn's very excellent article upon this subject, I have endeavored experimentally to prove or disprove his researches. I have examined the feces of over 200 individuals not suffering from dysentery, after the use of a saline cathartic, and have been able to demonstrate amebas in 65% of the patients examined. In addition to this, I have examined the feces of nearly 50 patients suffering from diarrheal diseases other than dysentery, and have found amebas in nearly 50% of those examined. I have compared these amebas with those occurring in the feces of those suffering from amebic dysentery, and find that there are wellmarked differences, easily recognized after a little study, and which are sufficient to demonstrate that they belong to a different species. Not only do these amebas differ in morphologic characteristics, but their method of reproduction is essentially diverse from the method of reproduction of the amebas occurring in dysentery. I have also experimented with both varieties of amebas upon cats, and have found that the amebas occurring in amebic dysentery are capable of producing lesions of this disease in these animals, while those occurring in health or other diseases do not. From my own observations, I am convinced that there do occur two distinct species of amebas, one pathogenic and one nonpathogenic. The pathogenic form should be known as *Entamœba dysenteriae* (Councilman and Lafleur), while the nonpathogenic should be known as *Entamœba coli* (Losch).

III.—DESCRIPTION OF ENTAMOEBA COLI (LOSCH).

(a) *Frequency of Occurrence.*—Comparatively little work has been done regarding the frequency of the occurrence of amebas in the feces of healthy individuals or in the feces of individuals suffering from diarrheal diseases other than dysentery. The examination of the feces in health results almost invariably negatively as regards the presence of amebas unless some drug be given which produces diarrhea. This accounts for the fact that a considerable number of investigators have reported that examination of the feces in health is negative, this being due to the fact that no drugs were given which produced a temporary diarrhea. I have examined a considerable number of feces from healthy individuals and have never found *Entamœba coli* present in such specimens. In these same individuals, however, following a saline cathartic, I have in a large proportion of the examinations been able to demonstrate the presence of this parasite. These experiments show that it is necessary that a diarrheal condition be produced in order that *Entamœba coli* should appear in the feces and negative results obtained by observers who have not followed this procedure, as showing the proportion of cases infected with this organism, are of no value. There have been a few observers who have investigated this subject, examining the feces after a saline cathartic has been given, and also the feces of patients suffering from diarrheal diseases other than dysentery. A brief notice of their work follows:

Cunningham,¹² from his observations, reports that he found amebas (undoubtedly *Entamœba coli*) in the feces of healthy persons, but I have been unable to obtain data as to the proportion of cases examined by him showing this infection.

Massiutin,¹³ working at Kiev, found amebas in the feces of five patients suffering from intestinal catarrh, typhoid fever, and diarrhea, which amebas, he states, were identical with those described by Kartulis. In the light of our present knowledge, it is probable that the amebas described by him were in reality *Entamœba coli*.

Grassi¹⁴ demonstrated amebas in the feces of patients suffering from diseases other than dysentery and also in healthy individuals. His results in the case of healthy individuals were obtained after the administration of magnesium sulfate, which produces copious watery stools. He was probably the first investigator to dem-

onstrate amebas in the stools of healthy individuals, and he gave a very full and accurate description of the organism now known as *Entamoeba coli*.

Kartulis¹⁵ examined the stools of several hundred healthy individuals and was able to demonstrate amebas in only three cases. This small negative result was probably due to the fact that he did not produce a diarrheal condition before examining the feces.

Schuberg¹⁶ was able to demonstrate amebas in the feces of healthy individuals and those suffering from diarrheal conditions other than dysentery in 10 out of 20 cases, or 50%. He states, however, that he found no essential difference between amebas from these and the cases of true amebic dysentery.

Gasser¹⁷ examined 20 healthy persons and found amebas in the feces of 20% of them.

Strong¹⁸ examined the feces in 200 cases after the administration of Rochelle salts, and found amebas in only eight.

Dock¹⁹ gave Carlsbad salts to over 200 persons, and was only able to demonstrate amebas in the feces of two. He concludes his contribution as follows: "From these observations I think it can be assumed that amebas are not present in 'about half' (Schuberg's statement) of all normal intestines in all parts of the world." He also says: "Even if a certain parasite occurs in every case in one locality, it would not follow that the same parasite would also be found as widespread elsewhere."

Schaudinn²⁰ found, at his home in West Prussia, that 50% of individuals examined among the farming population showed the presence in the feces of *Entamoeba coli*. In Berlin he found that only 20% of the patients examined was infected. Along the shores of the Adriatic, Schaudinn found that in 385 examinations of feces in as many individuals, no less than 256 showed the presence of *Entamoeba coli*. His observations showed that the locality had something to do with the number of individuals infected, and they also agree almost exactly with my own observations regarding the percentage of individuals infected.

From a consideration of the results obtained by the investigators mentioned, several facts are noted. First, the disagreement regarding the percentage of cases found infected. This undoubtedly depends upon certain local conditions, and also upon the carefulness with which the investigations were conducted. As Dock states, the finding of *Entamoeba coli* in 50% of cases in one locality does not prove that it will be found as widely distributed in others. In my own experience, I have found that it is oftentimes necessary to examine numerous specimens after the administration of salts before *Entamoeba coli* are demonstrated. Second, that only one or two authorities have given any accurate description of the amebas found in persons not suffering from amebic dysentery, and Schuberg's statement that he could find no essential difference between amebas found in health and those found in amebic dysentery, although made by a very experienced observer, is misleading, for anyone who has compared the two varieties cannot fail to be impressed with the vast difference in their appearance. It should be remembered that many observers who have worked along these lines have been supplied with very limited material in the way of true amebic dysentery. The experience of so careful an observer as Dock is worthy of the greatest consideration, as it proves to my mind that in the locality in which Dock's investigations were made the infection with *Entamoeba coli* must have been very limited.

Strong's²¹ investigations, carried out, as they were, in the Philippine Islands, a locality in which one would expect to find widespread infection with amebas, are of great interest in that he only found eight out of 200 individuals infected with *Amoeba coli*.

Such results are difficult to explain, in the light of my own experience with patients returning from the

Philippines, and with individuals from all portions of the United States. It is difficult to understand why so small a proportion of persons should be infected in a tropic locality such as Manila in the Philippine Islands, and why so large a proportion should be infected in an equable and rather cool region such as is found in San Francisco.

My own investigations have been carried on in individuals free from disease and in those suffering from diarrheal conditions other than amebic dysentery and other diseases. The results obtained in the examination of feces in healthy individuals will first be given. These experiments were conducted largely upon members of the hospital corps recruited from almost every portion of the United States, who were here on duty at the time. I made over 200 examinations in such cases, and have found that after administration of magnesium sulfate in ounce doses, the feces of 65% showed the presence of *Entamoeba coli*. Thinking that geographic distribution might have something to do with the proportion of cases infected, I inquired into the locality from which the individuals came and endeavored to construct a table showing, if possible, any such variation, but I was unable to prove that the proportion of cases varied to any marked extent with the locality. This negative result cannot be considered as conclusive, for in many cases I could only examine the feces of one man in each locality. This question, in order to be settled definitely, will have to be investigated in different localities where large numbers of individuals can be examined under similar conditions. All of the persons examined were in robust health and showed no evidence whatever of diarrhea or other intestinal disturbance. A large proportion of these individuals also presented mixed infections with *Trichomonas* and *Cercomonas intestinalis*. Many of them showed immense numbers of *Entamoeba coli* in the feces, while in others it required repeated examinations to demonstrate them.

An examination of my own feces, after the administration of an ounce of magnesium sulfate, resulted in the demonstration of large numbers of *Entamoeba coli*, as well as *Trichomonas intestinalis*.

The large percentage of individuals infected in health in this locality cannot be, I think, explained by the locality alone, as many of the men so infected had only arrived in San Francisco recently and came from localities scattered throughout the United States. I believe that the large positive result was due almost entirely to the production of a profuse watery diarrhea and the immediate examination of the feces as soon as passed, together with repeated examinations when the result was negative. These experiments prove that infection with *Entamoeba coli* is very common, and that it is not difficult to demonstrate the organism in the feces of healthy individuals after a saline cathartic has been administered.

As regards the occurrence of *Entamoeba coli* in the feces of patients suffering from diseases other than dysentery, most authorities agree in having demonstrated in isolated cases the presence of amebas, especially in diseases such as chronic enteritis and typhoid fever. In my investigations I have not confined myself to examinations of feces from patients suffering from diarrhea, but have examined the excreta in all cases, no matter what the diagnosis. In all I have examined 150 cases and have found a trifle over 50% infected with *Entamoeba coli*. The following table, giving the results in 25 cases, illustrates well the variations in disease from which the patients were suffering, and also the variations in locality from which the patient came. In all these cases in which diarrhea was not present, magnesium sulfate was given before the examination was made.

From a consideration of this table it will be noticed that only one or two cases showed symptoms of gastric or intestinal disturbance, and in my investigations I have found that *Entamoeba coli* occurs fully as fre-

quently in the fecal discharges of patients suffering from other diseases not diarrheal in character as it does in cases presenting profuse diarrhea, providing a saline cathartic is administered. To all of these patients was administered 30 cc. (1 oz.) of magnesium sulfate before the examination was made. It will also be noticed that many of the patients have been in the hospital but a short time, which points to the conclusion that they were infected with this parasite before arrival here. The occurrence of such a large number of cases of infection with *Entamoeba coli* in persons suffering from other diseases, is of considerable importance, especially in those localities where amebic dysentery is endemic. An examination of the feces in such cases, if diarrhea was present, would result in the finding of amebas which the inexperienced observer would probably regard as the amebas causing dysentery, and the case would, therefore, be diagnosed as one of amebic dysentery.

Since my attention has been attracted to the difference between *Entamoeba coli* and *Entamoeba dysenteriae*, I have become convinced that at least a small proportion of the cases, in those returning from the Philippine Islands, diagnosed as amebic dysentery, are in reality enteritis in which *Entamoeba coli* was found in the feces, and this statement is further borne out by the fact that

duction takes place in two ways, by simple division and by shizogony, with the formation of encysted forms containing eight daughter cells, which become the young amebas. The following detailed description is given after the study of hundreds of individual amebas of this species:

(c) *Size*.—*Entamoeba coli* never attains the size which many of the individual *Entamoeba dysenteriae* do. While this is so, it is not at all uncommon to find *Entamoeba coli* which approximate the size of the majority of *Entamoeba dysenteriae* which are usually observed. As a rule, *Entamoeba coli* measures from 10 microns to 20 microns in diameter. I am speaking now of the vegetative forms which are observed and not of the encysted forms. In most specimens the average diameter is from 10 microns to 15 microns, the smaller amebas predominating in number. I have never observed any *Entamoeba coli* measuring more than 25 microns in diameter. This difference in size between *Entamoeba coli* and *Entamoeba dysenteriae* is of diagnostic importance in distinguishing them, as it is not uncommon to observe that the majority of *Entamoeba dysenteriae* in a specimen measure from 25 microns to 35 microns. As a distinguishing feature, however, the mere difference in size cannot be depended upon, for, as I have stated, *Entamoeba coli* approximates

No.	Nationality.	Diagnosis.	Residence.	Residence in tropics or sub-tropics.	History of Dysentery.	History of Diarrhea.	Bowel movements daily.	Length of time in hospital.	<i>Entamoeba coli</i> .
1	American.	Diabetes insipidus.....	Georgia.	Philippines.	Negative.	No.	1	40 days.	Positive.
2	"	Chronic pemphigus.....	Arkansas.	Negative.	"	Negative.	1	5 months.	"
3	"	Chronic gastritis.....	"	"	"	"	2	"	"
4	"	Mitral regurgitation.....	Pennsylvania.	Philippines.	"	"	2	10 days.	"
5	English.	Anemia.....	England.	"	"	"	2	70 "	"
6	American.	Measles.....	Texas.	Negative.	"	"	1	40 "	"
7	"	Otitis media.....	"	"	"	"	1	3 months.	"
8	"	Abscess of leg.....	Illinois.	"	"	"	2	5 "	"
9	"	Measles.....	Texas.	"	"	"	2	4 "	"
10	"	Laryngitis, acute.....	"	Philippines.	"	Yes.	2	1 "	"
11	"	Otitis media.....	Georgia.	Negative.	"	Negative.	2	3 "	"
12	"	Axillary abscess.....	"	"	"	"	2	20 days.	"
13	"	Fracture.....	Alabama.	"	"	"	2	40 "	"
14	"	Chronic gonorrhea.....	Kentucky.	"	"	"	2	35 "	"
15	"	Gonorrheal rheumatism.....	Florida.	Philippines.	"	"	2	9 months.	"
16	"	Chronic gonorrhea.....	Pennsylvania.	"	"	"	2	1 "	"
17	"	Gonorrhea, acute.....	Tennessee.	Negative.	Yes.	"	2	1 "	"
18	Negro.	Gonorrhea, acute.....	Jamaica.	"	Negative.	"	2	10 days.	"
19	American.	Chronic gonorrhea.....	"	"	"	"	1	1 month.	"
20	"	Stricture.....	Alabama.	Philippines.	Yes.	Yes.	2	40 days.	"
21	"	Acute gonorrhea.....	Pennsylvania.	Negative.	Negative.	"	1	20 "	"
22	"	Varicocele.....	Ohio.	"	"	"	1	6 months.	"
23	"	Chronic sciatica.....	Missouri.	Philippines.	"	Negative.	1	3 "	"
24	"	Poliomyelitis.....	Mississippi.	"	"	"	2	4 "	"
25	"	Hemiplegia.....	California.	"	"	"	2	10 days.	"

amebas cannot be demonstrated in a considerable proportion of cases diagnosed unless a saline cathartic be given.

From my observations, I believe it is safe to conclude that in this locality at least, 50% of individuals, either in health or suffering from diseases other than amebic dysentery, are infected with *Entamoeba coli*, which can be demonstrated in the fecal discharges after the administration of a saline cathartic, and that at least 20% of patients suffering from chronic enteritis accompanied by a profuse diarrhea, are infected with this parasite, which can be demonstrated if the fecal discharges are examined promptly and repeatedly. The percentage will probably be found much larger than this in acute cases of enteritis.

(b) *General Description*.—*Entamoeba coli*, like other protozoan organisms, consists of a mass of protoplasm containing a nucleus. In rare instances, a vacuole, which is noncontractile, can be distinguished, but I have never seen more than one vacuole in this organism. The protoplasm is divided into two portions, an ectoplasm and entoplasm, but this differentiation cannot be made out in a majority of instances. The nucleus often presents one or more nucleoli. The organism possesses the power of motion, but this motility is limited and is not nearly as marked as in *Entamoeba dysenteriae*. Repro-

duction takes place in two ways, by simple division and by shizogony, with the formation of encysted forms containing eight daughter cells, which become the young amebas. The following detailed description is given after the study of hundreds of individual amebas of this species:

(c) *Size*.—*Entamoeba coli* never attains the size which many of the individual *Entamoeba dysenteriae* do. While this is so, it is not at all uncommon to find *Entamoeba coli* which approximate the size of the majority of *Entamoeba dysenteriae* which are usually observed. As a rule, *Entamoeba coli* measures from 10 microns to 20 microns in diameter. I am speaking now of the vegetative forms which are observed and not of the encysted forms. In most specimens the average diameter is from 10 microns to 15 microns, the smaller amebas predominating in number. I have never observed any *Entamoeba coli* measuring more than 25 microns in diameter. This difference in size between *Entamoeba coli* and *Entamoeba dysenteriae* is of diagnostic importance in distinguishing them, as it is not uncommon to observe that the majority of *Entamoeba dysenteriae* in a specimen measure from 25 microns to 35 microns. As a distinguishing feature, however, the mere difference in size cannot be depended upon, for, as I have stated, *Entamoeba coli* approximates

in diameter *Entamoeba dysenteriae*. Therefore, as I have contended before, a separation of amebas into species based upon size is altogether unscientific and erroneous. As I have stated, both large and small amebas may occur in the same specimen and a classification based entirely upon the size is impossible. Strong²² based his classification almost entirely upon the size of the organism, stating that the pathogenic amebas were always larger than the nonpathogenic. This statement, however, I cannot confirm, as I have repeatedly observed small *Entamoeba dysenteriae* predominating in specimens of feces from cases of very severe amebic dysentery, in which careful examination showed that *Entamoeba coli* was not present. Examination of the feces from cases of amebic dysentery will show that amebas of large size are not by any means always present, and while it may be true that in a certain number of cases the large amebas predominate, repeated examinations will demonstrate that both large and small are present, even when there is no coexistent infection with *Entamoeba coli*. The occurrence in many instances of a mixed infection, in which both *Entamoeba coli* and *Entamoeba dysenteriae* may be demonstrated in the feces, is not uncommon, and is, I believe, the greatest factor in the confusion which has heretofore existed regarding the differentiation of amebas into species.

Another important factor has been the tendency of investigators to regard all small amebas as nonpathogenic. It should be remembered that both *Entamoeba coli* and *Entamoeba dysenteriae* appear in the feces in different stages of growth, each stage being characterized by changes in size as well as in other morphologic phenomena. Both organisms grow after being demonstrable in the feces, and in growing increase in size, and certain stages of this growth probably occur at intervals of time, so that examinations of feces at varying intervals will probably demonstrate amebas of varying size corresponding with the different stages of growth. The fact that a greater number approximate each other in size only tends to prove that the reproduction of the parasite occurs at definite periods of time and is followed by uniform periods of growth. Many cases of pure infection with *Entamoeba coli*, and also with *Entamoeba dysenteriae*, show a preponderance of amebas of different size; and I have not yet observed a specimen in which all the organisms present were approximately of the same size.

Heretofore I have spoken only of the size of the vegetative forms of the amebas and not of the encysted forms. These forms, which are found as a rule in partly formed stools or in feces which have been voided from the intestine for some time, measure from 10 microns to 15 microns in diameter and are easily distinguished (as will be seen later from the description of the protoplasm) from any form of *Entamoeba dysenteriae* which occurs in the feces.

It will be seen, then, that while *Entamoeba coli* never reaches the largest size attained by *Entamoeba dysenteriae*, numerous individuals of this species do attain to the average size of *Entamoeba dysenteriae*, and that this factor cannot be used as a diagnostic measure in separating the two species. Classifications based upon the size of the organisms are erroneous and only tend to increase the confusion regarding them.

(d) *Shape*.—*Entamoeba coli* when resting is invariably perfectly spherical in shape, no matter what the size of the individual parasite may be. When in motion the shape varies, the variation being due to the extrusion of pseudopodia. I have never seen a resting *Entamoeba coli* assume any shape but a perfectly spheric one.

(e) *Color*.—One of the most characteristic features of *Entamoeba coli* which I have observed is the color of the organism. The protoplasm shows a peculiar opaque grayish color which alone easily distinguishes the organism from *Entamoeba dysenteriae*. It is extremely difficult to put into words the exact appearance of the protoplasm as regards color in this organism, but to one who has seen both varieties the difference in the coloring of *Entamoeba coli* is very characteristic and easily recognized. I have never seen the peculiar greenish color of the protoplasm which is often observed in *Entamoeba dysenteriae*, and which, as I have stated in a previous communication,²³ I am inclined to believe is due to the dissolving of red blood-corpuscles and the liberation of the hemoglobin.

In the younger forms the peculiar opaque grayish color is much more marked than in the larger and older forms.

(f) *Protoplasm*.—As pointed out by Schaudinn,²⁴ it is difficult to distinguish between the ectoplasm and entoplasm of *Entamoeba coli*, although, as in *Entamoeba dysenteriae*, the protoplasm is thus divided. In the perfectly quiescent organism it is not possible to differentiate the two portions, and this is often so in the moving organism, although at times a differentiation can be recognized. In contradistinction to *Entamoeba dysenteriae*, the pseudopodia, which are composed entirely of ectoplasm, are less refractive to light than is the entoplasm. My observations confirm Schaudinn's as regards this. It is also noticed in stained specimens that the ectoplasm stains much less intensely than does the entoplasm, whereas in *Entamoeba dysenteriae* the opposite is true.

When distinguishable, the ectoplasm of *Entamoeba*

coli presents a perfectly homogeneous appearance, it being impossible to demonstrate any structure whatever. The entoplasm presents a very finely granular structure upon careful examination with high powers, but never the very coarsely granular appearance which is so common in *Entamoeba dysenteriae*. In the smaller and probably younger forms of *Entamoeba coli* the whole protoplasm very often appears homogeneous, but in the older and larger organisms the finely granular nature of the entoplasm may often be demonstrated, and in those instances in which the ectoplasm may not be made out the entire ameba appears to be finely granular.

One of the sharpest distinguishing features between *Entamoeba coli* and *Entamoeba dysenteriae*, as pointed out by Schaudinn, is the much greater refraction to light of the ectoplasm of *Entamoeba dysenteriae*. In the examination of numerous specimens of *Entamoeba coli*, I have been able to confirm this statement of Schaudinn. In fact, I believe it is possible to differentiate the two species from this phenomenon alone. In *Entamoeba coli* the ectoplasm which forms the pseudopodia when the organism is in motion, is hardly to be distinguished from the entoplasm except that it is less refractive to light than is the entoplasm, and often appears like a dim-veiled membrane, hardly visible except upon careful focusing. In *Entamoeba dysenteriae* the pseudopodia are the most easily distinguished portions of the organism, being highly refractive to light, presenting an amyloid or ground-glass appearance, which is very characteristic. In *Entamoeba coli*, also, it is impossible, except in very rare instances, to demonstrate any structure whatever in the ectoplasm, whereas in *Entamoeba dysenteriae* it is easily demonstrated in the living organism that the ectoplasm consists of very fine granules. In stained specimens the ectoplasm is easily distinguished from the entoplasm in *Entamoeba coli* in many instances, as it takes the stain much less intensely and is seen as a dimly-stained area surrounding the entoplasm. In *Entamoeba dysenteriae* the ectoplasm stains much more intensely than does the entoplasm.

Another feature which is characteristic of *Entamoeba coli*, and which serves to distinguish it from *Entamoeba dysenteriae* is the absence in the protoplasm, in a majority of instances, of a vacuole. This subject will be considered later. The more coarsely granular entoplasm of *Entamoeba dysenteriae* also serves to distinguish it from *Entamoeba coli*, in which, while it is possible to recognize a granular structure, the granules are very minute and in many organisms invisible in the fresh specimen.

From the foregoing it will be seen, then, that the protoplasm of *Entamoeba coli* consists of two portions, an outer portion (ectoplasm), and inner portion (entoplasm); that these portions are indistinguishable in the resting organism, and in many cases even when the organism is moving; that the ectoplasm cannot, in the fresh specimen, be demonstrated to consist of any definite structure, and that the entoplasm consists of a finely granular material which is with difficulty demonstrated. The protoplasm differs from the protoplasm of *Entamoeba dysenteriae* in the following particulars: (1) The absence of the differentiation into ectoplasm and entoplasm in the resting organism, which is generally present in *Entamoeba dysenteriae*; (2) the lessened refractive index of the ectoplasm; (3) the absence of a demonstrable structure in the ectoplasm; (4) the more finely granular structure of the entoplasm; (5) the absence, in the great majority of instances, of a vacuole.

(g) *Nucleus*.—The nucleus, which generally presents nucleoli, can almost invariably be demonstrated in *Entamoeba coli* whether the organism is resting or in motion. It is situated, as a rule, a little to one side of the center of the organism and is very distinct. It consists of a well-defined nuclear membrane which appears highly refractive when focused upon in some lights. The interior of the nucleus consists of a hyaline grayish

appearing substance, embedded in which are several bright spots, together with one or more well-defined nucleoli. Schaudinn believes that these spots are the contained chromatin and plastin. In the nuclear membrane may be demonstrated very minute bright round particles which are probably chromatin, although with staining reagents I have not been able to stain them. Unlike the nucleus, when visible, in *Entamoeba dysenteriae*, the nucleus in this species is easily seen to consist of the definite structures which I have mentioned. When stained by suitable methods, the nucleus is seen to consist of a mass of chromatin in the form of fine dots and rods which seem to compose a very large portion of it. The size of the nucleus, in proportion to the size of the organism, is greater than in *Entamoeba dysenteriae* and it really is of considerable size when compared with the rest of the organism. In the moving organism the nucleus tends to retain its relative position, unlike the nucleus in *Entamoeba dysenteriae* which changes its position very markedly with the flowing of the protoplasm. The nucleolus is generally visible as a bright round or oval area situated within the nuclear membrane and surrounded by bright spots, probably marking the situation of chromatin. Sometimes within the nucleus may be seen dark granules which may possibly be pigment.

The chief differential points between the nucleus of *Entamoeba coli* and *Entamoeba dysenteriae* are as follows: 1. The presence, in *Entamoeba coli*, of an easily distinguished nucleus. 2. The definite and very refractive nuclear membrane which appears to be of considerable thickness, the nuclear membrane in *Entamoeba dysenteriae* being generally indistinguishable. 3. The definite structure of the nucleus, which is easily studied in *Entamoeba coli*, while in *Entamoeba dysenteriae* the structure of the nucleus is almost invariably hidden except in properly stained specimens.

(h) *Vacuoles and Contained Bodies*.—In describing the protoplasm of *Entamoeba coli*, I have already spoken of the almost constant absence of vacuoles which are so characteristic of *Entamoeba dysenteriae*. I have never, from the study of hundreds of specimens of *Entamoeba coli*, observed the presence of more than one vacuole, and, as a rule, even one cannot be distinguished. The absence of vacuoles is one of the characteristic features of *Entamoeba coli* which is of diagnostic importance. As regards other contained bodies, it is invariably the rule that they are not anywhere near as numerous in *Entamoeba coli* as in *Entamoeba dysenteriae*. I have seen numerous instances of the engulfing of red blood-corpuscles by *Entamoeba coli*, but I have never seen more than two in a single parasite, whereas in *Entamoeba dysenteriae* the protoplasm is often entirely filled with them. This is also true of other contained bodies, such as crystals, bacteria, etc., which never occur in great numbers.

When a vacuole is present in *Entamoeba coli* it is generally of small size, and may be situated anywhere within the entoplasm. It is generally dim in outline, and is never contractile. The forms which are so common in the feces in amebic dysentery, consisting of large amebas entirely filled with vacuoles, I have never observed in infections with *Entamoeba coli*. It is obvious that a vacuole is not essential then, from a functional standpoint in this species of amebas, as it occurs so seldom, and when present shows no relation to the functions of the organism.

As regards engulfed red blood-corpuscles, I have already stated that I have never seen more than two in a single organism, and I believe that this process is much less common in *Entamoeba coli* than in *Entamoeba dysenteriae*, although it should be remembered that in amebic dysentery the presence of blood in the feces in large quantity is very common, and this may account for the greater relative activity of *Entamoeba dysenteriae* as regards the engulfing of the corpuscles. The presence, however, in *Entamoeba coli* of red blood cells proves conclusively the truth of the opinions which I have hitherto

held as regards this process as a distinguishing feature between pathogenic and nonpathogenic amebas. Some authorities have endeavored to prove that the pathogenic amebas only were capable of engulfing red blood cells. As I have before stated, such a proposition is hardly worthy of extended consideration, as it is obvious that it is a common one to all amebas which are found in the intestinal canal. I am inclined to believe that the greater frequency with which red blood-corpuscles are seen in *Entamoeba dysenteriae* depends very largely upon the fact that in amebic dysentery the feces contain much blood, whereas in infections with *Entamoeba coli* there is very little, if any, blood in the feces.

The structure of the protoplasm in encysted forms will be described in considering the mode of reproduction of *Entamoeba coli*.

(i) *Motility*: In *Entamoeba dysenteriae* the most prominent phenomenon exhibited by the organism is its power of motility, but this is not so in the case of *Entamoeba coli*. In the pathogenic form, motility is almost constantly present if the feces are examined immediately after they are voided, and the motility is generally of an active character, whereas in *Entamoeba coli*, motility is very often absent, and when present is of slight duration, and very limited in character. Two forms of motion may be distinguished, the first consisting in the extrusion of pseudopodia, consisting of ectoplasm and the flowing into these pseudopodia of the entoplasm. In this way the organism is able to progress, but the motility is very sluggish even under the most favorable circumstances. There is never seen the rapid progressive motion which is often observed in vigorous specimens of *Entamoeba dysenteriae*. The second form of motility consists in the extrusion of pseudopodia from various portions of the organism at the same time, and therefore resulting in the loss of progressive motion, although the shape of the organism constantly changes. This form is apparently more frequent than is the progressive form, the opposite being true, however, with *Entamoeba dysenteriae*. When the progressive motion is present it is very slow, and often the organism has to be watched for a considerable time before it is detected.

The pseudopodia are much smaller than are the pseudopodia in *Entamoeba dysenteriae* and are generally more round in shape. They are always short and often so small as to be hardly visible. I have already described the appearance of the pseudopodia, which consist of the ectoplasm, the chief distinguishing feature being that it is less refractive than the entoplasm, the opposite being true in *Entamoeba dysenteriae*. Another difference is noticed, when progressive motion is present, between the pathogenic and nonpathogenic forms in the manner in which the entoplasm flows into the ectoplasmic pseudopodia. In *Entamoeba dysenteriae* this usually occurs very rapidly, it very often appearing that the division between the ectoplasm and entoplasm ruptures, allowing the entoplasm to flow swiftly into the pseudopodia. This does not occur in *Entamoeba coli*. The flowing into the entoplasm occurs very gradually and is seen with difficulty, not only because of the slowness of the process, but because of the difficulty in distinguishing between the two portions.

In *Entamoeba dysenteriae* there occurs a form of motion which I have repeatedly observed, consisting in a protoplasmic current flowing in a circular manner, and carrying with it any engulfed particles, and sometimes even the nucleus. This I have never observed in *Entamoeba coli*.

The motility of *Entamoeba coli* is greatest at the temperature of the human body in specimens of feces which have just been voided. It is much more rapidly lost than is the case with *Entamoeba dysenteriae*, and I have never observed motile organisms in specimens which have been voided for 15 or 20 minutes.

Entamoeba coli, then, differs markedly from *Enta-*

ameba dysenteriae in its slighter degree of motility, which is very noticeable when the two are compared, also in the morphology of the pseudopodia and the manner in which the entoplasm flows into the pseudopodia.

(j) *Staining*.—From a diagnostic standpoint, an examination of the feces in the fresh condition is altogether the most satisfactory in demonstrating amebas. For the preparation of permanent specimens, however, it is necessary that some staining method be employed, and also for the demonstration of certain morphologic characteristics which cannot be plainly seen in the fresh specimen. Methods of staining can be employed in both *Entamoeba coli* and *Entamoeba dysenteriae*, and are especially useful in demonstrating the method of reproduction. Like all protozoan parasites, the nucleus stains with more or less difficulty, but there is generally but little trouble in staining the protoplasm. I have tried a large number of different staining solutions, and have found that the organism stains well with carbol fuchsin, methylene-blue, thionin, and Wright's stain. Of these stains Wright's is the most valuable when it is desired to bring out the details of structure, especially in the study of the method of reproduction. Löffler's methylene-blue is a very rapid and good stain for general use. The thionin stain, as advocated by Mallory and Wright,²⁵ is very successful in staining the amebas in tissues, but in the feces as good results are not obtained, the chief fault being that other cells take the stain in so similar a manner that it is difficult to differentiate between them and the amebas.

The method of preparing specimens for staining is as follows:

Several cover-glasses are thoroughly cleaned and placed in a row upon the table. With a sterilized platinum loop a small flake of mucus, preferably mixed with blood, is picked out of the feces and placed upon a cover-glass. A clean cover-glass is dropped down upon the glass containing the mucus, and the two slid very carefully apart, using as little pressure as possible. By proceeding in this way a dozen or more even, thin smears can be made in a very few minutes. If any other method but Wright's is used the smears should be placed smeared side up in equal parts of absolute alcohol and ether, and allowed to harden for from 15 minutes to 20 minutes. If Wright's method is used, it is not necessary to harden the specimen. If the feces are warm many of the amebas will be hardened while undergoing ameboid motion. After hardening, the smears are ready to stain. When carbol fuchsin or methylene-blue is used for staining, the smears should be stained for about 15 minutes, washed in alcohol, and if it is desired to preserve them, mounted in Canada balsam.

I shall only describe the staining reactions of *Entamoeba coli* when Wright's modified method is used, as this method demonstrates the structure much more satisfactorily than any other. This staining method is a modification of the original Wright's stain, suggested to me by Dr. H. R. Oliver, of San Francisco, as being especially useful in staining the malarial parasites. The solution is prepared as follows:

Add .5 gm. of sodium bicarbonate to 100 cc. of distilled water, dissolving thoroughly, and then add 1 gm. of methylene-blue (Grubler's) and heat for an hour in an Arnold sterilizer after the steam is up. After heating, allow the solution to cool. Make a 1 to 1000 solution of yellow aqueous eosin (Grubler's) and add this, while stirring, to the cooled methylene-blue solution in the proportion of 500 cc. of the eosin solution to 75 cc. of the blue solution. This should be done in a large porcelain dish. After letting the mixture stand for a few minutes, filter through one small filter paper and save the residue. The residue should then be dried in a hot-air oven and preserved.

The staining solution, ready for use, is made as follows:

Take .3 gm. of the residue, which is a greenish crystalline powder, and add it to 100 cc. of pure methylic alcohol (Merck's reagent). This should then be filtered, and to 80 cc. of the filtrate add 20 cc. of methylic alcohol. The solution is now ready for use.

To stain, add a few drops of this solution to the preparation and let stand for two minutes, then add enough distilled water to cause a slight metallic scum to form on the surface of the preparation; then let stand for two to ten minutes, and then wash the preparation in running distilled water and mount in Canada balsam.

Entamoeba coli, when stained in this manner, is seen to consist of three very distinct portions: The ectoplasm, which stains a very dim blue and appears, as a rule, structureless; the entoplasm, which stains a dark blue and appears to be composed of minute deeply-stained granules; and the nucleus, which is stained a dark crimson, due to the large amount of chromatin which is present in it. In most specimens the differentiation between the ectoplasm and entoplasm may be distinguished, but it is not unusual to see amebas in which the ectoplasm cannot be seen. The nucleus, as demonstrated by this stain, consists largely of granules and short strands of chromatin, which stain a very intense red. Using a one-twelfth objective it will be seen that there exist spaces between the chromatin particles, which take the stain little, if at all. The nuclear membrane, which is so distinct in the fresh specimen, stains very intensely, and is of a much darker color than the remainder of the nucleus. I have not been able to demonstrate the existence of chromatin particles in this membrane, as claimed by Schaudinn.²⁶

The cystic forms, which are very easily demonstrable in the fresh feces, I have not been successful in staining. I have not been able in the literature to find any description of the staining reactions of the cystic forms of *Entamoeba coli*, so that I am unable to state whether or not my failure to stain them is due to faulty technic, or whether the cystic forms are unstainable.

In describing the staining reactions of *Entamoeba dysenteriae* by this method, I shall call attention to the great diagnostic value of the stained forms in differentiating between *Entamoeba coli* and *Entamoeba dysenteriae*.

(k) *Method of Reproduction*.—The literature regarding the growth and reproduction of the amebas infecting the human intestine is very limited, and until a recent date but little has been known regarding this subject. The data on hand are especially limited as regards the method of reproduction of *Entamoeba coli*, although a few authorities have evidently worked with this species without recognizing it, and have traced roughly its method of reproduction. Celli and Fiocca²⁷ claim to have been successful in obtaining the cultures of amebas, and from their description of the life-cycle of the organism studied, I believe that, without a doubt, they were working with the harmless variety. They found the life-cycle of the organism to be as follows: (1) An ameboid stage in which the organism measures from 10 microns to 30 microns in diameter, with a hyaline ectoplasm, finely granular entoplasm, and a vesicular nucleus sometimes containing a vacuole. This form is actively ameboid; (2) a resting stage in which the amebas measure from 1 micron to 25 microns in diameter, present a single contour and a uniform, finely granular protoplasm; (3) an encysted stage in which the organism shows a double contour, the cyst contents being finely granular.

These authors give the cycle of development as regards time as follows: In from 12 to 15 hours the organism passes from the encysted to the ameba stage. This usually lasts 48 hours, when the resting stage begins. After 65 hours the amebas again become encysted or degenerative.

From Schaudinn's observations, which I have confirmed in large part, it is evident that Celli and Fiocca were dealing, at least in part, with the harmless *Entamoeba coli*, especially as the encysted forms which they describe are peculiar to the harmless amebas.

Miller²⁸ was successful in cultivating amebas in combination with certain bacteria, but was not able to secure pure cultures. From his work it is impossible to conclude whether or not he was dealing with *Entamoeba coli*.

Strong²⁹ states that certain forms were observed by him which were apparently encysted. In making this statement he refers to the amebas occurring in dysentery, and it is now evident that the encysted forms

which he noticed must have been *Entamoeba coli*, probably occurring as a mixed infection in the feces of cases of amebic dysentery. There is no form of *Entamoeba dysenteriae* which resembles, in the least, an encysted organism, occurring in the feces.

Casagrandi and Barbagallo³⁰ were the first to describe accurately the method of reproduction of *Entamoeba coli*, this method consisting in simple division and under certain conditions in the formation of encysted organisms and the production of eight daughter cells within the cysts.

To Schaudinn³¹ we owe the clearest description of the reproduction of *Entamoeba coli*. He found that in the liquid stools simple division occurred frequently. In this form of reproduction the nucleus divides and two amebas are thus produced, which gradually separate. This form is easily demonstrated in the feces after the administration of a saline cathartic.

This vegetative stage, however, is apparently of short duration, especially when the feces are semiformed, or formed. In such instances reproduction by encystment is the most common method. He gives a description of very complicated changes taking place in the organism during this method of reproduction. The first stage described by him consists in the amebas becoming motionless, round or oval in shape, and the extrusion of all foreign particles and a considerable amount of fluid. The surface then becomes coated with a delicate membrane and complicated nuclear changes occur. He gives three different phases of nuclear division as occurring simultaneously in many specimens. This process consists, briefly, in the necrosis of a portion of the nucleus before division, after which it dissolves in the plasma, liberating the chromatin, which again collects into little aggregations, forming new nuclei, or it only partly dissolves, leaving a portion which takes up the small particles of chromatin.

Another method is by the new nucleus giving off particles of chromatin and from these small particles new nuclei are formed. Of these new nuclei, half die, and the others again divide and in this way eight new nuclei are formed within the cysts, each of which becomes the nucleus of a young ameba. Eventually the cyst dissolves and the young motile amebas are liberated.

BIBLIOGRAPHY.

- ¹ Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1903, xix, Heft. 3, p. 563.
- ² Virchow's Archiv, 1875, Bd. lxxv.
- ³ Zeitschrift f. Hygiene und Infektionskrankheiten, 1894, Bd. xvi.
- ⁴ Berliner klin. Woch., 1893, No. 45.
- ⁵ Annali d'Igiene sperimentale, V. vii, fasc. 1, 1897.
- ⁶ Atti Soc. it. sc. nat., Vol. xxiv, Milano, 1882.
- ⁷ The Johns Hopkins Hospital Reports, Vol. ii, 1891.
- ⁸ Journal of the American Medical Association, September 13, 1902.
- ⁹ Circulars on Tropical Diseases, No. 1, February, 1901, p. 10.
- ¹⁰ Manila, P. I.
- ¹¹ Loc. cit.
- ¹² Veröffentlichungen aus dem Gebiete des Militär Sanitätswesens, Heft. 20, p. 110, Berlin, 1902.
- ¹³ Quarterly Journal Microscopic Society, Vol. xxi, 1881.
- ¹⁴ Centralblatt f. Bakt., Bd. vi, 1887.
- ¹⁵ Rendiconti Accad. Linc. Roma, 1888.
- ¹⁶ Centralblatt für Bakteriologie, 1891.
- ¹⁷ Centralblatt f. Bakt., 1893, xxii, pp. 598, 654 and 701.
- ¹⁸ Arch. de med. Exp. et d'Anat. Path., 1895, No. 2, p. 198.
- ¹⁹ Loc. cit.
- ²⁰ Jour. Amer. Med. Assoc., September 13, 1902.
- ²¹ Loc. cit.
- ²² Loc. cit. Also Report of Surgeon-General of the Army, June 30, 1900.
- ²³ Loc. cit.
- ²⁴ International Clinics, December, 1904, Vol. iv, Fourteenth Series.
- ²⁵ Loc. cit.
- ²⁶ Pathologic Technique, p. 397.
- ²⁷ Loc. cit.
- ²⁸ Centralblatt f. Bakt., Bd. xv, 470. Ibid., xvi, 327.
- ²⁹ Contributions to Med. Sci. by Pupils of Wm. H. Welch, 1900, p. 211.
- ³⁰ Loc. cit.
- ³¹ Loc. cit.

[To be continued.]

Health in Guam.—The naval surgeon on duty at Guam has been formally proclaimed health officer, in charge of the department of health and charities, and to have general supervision of the public health and sanitary interests of Guam.

CHYLOUS ASCITES.*

BY

JAMES FINLEY BELL, M.D.,
of Englewood, N. J.

On October 1, 1904, E. A. T., a German cabinet-maker, aged 57, consulted me, complaining of severe dyspnea, abdominal distention and swelling of the scrotum and lower extremities.

Appearance.—He is erect, height 5 feet 8 inches, complexion and eyes, dark. The skin over the face, and particularly over the forehead, is somewhat deeply pigmented. There is a cyanotic hue about the lips. The abdomen is very much enlarged.

History.—He does not remember having had any of the diseases of childhood. Came to America when a young man. Lived 13 years in Hackensack and for the past 25 years in Englewood. During this period he has had attacks every 3 to 6 months, which he calls malaria, and for which he has never sought professional treatment. The attacks were characterized by chilliness and fever. For the past two or three years, when the attacks occurred, he has taken, with apparent benefit, Warburg's tincture with aloes.

He has always been temperate in the use of liquors, has taken beer moderately and used tobacco moderately. Denies venereal disease of any kind and had perfect health, with the exception of the attacks mentioned, until eleven years ago, when he experienced a sudden and unexpected suppression of urine, for which he was catheterized two or three times, after which the normal urinary function was established and so continues. His average weight up to ten years ago was 140 pounds, at which time he gained in weight until within the last three or four years the average has been about 200 pounds.

Five years ago, after jumping from a piazza, he was suddenly seized with pain in the middle third of the right leg anteriorly, followed by a local inflammatory process which continued for several days, leaving a discoloration and slight swelling of the ankle, which still remains, but has given no inconvenience. Three years ago he successfully passed a life insurance examination. Eight months ago he was thrown from a wagon and sustained a broken rib; at this examination no callus can be found. The last of August or the first of September he noticed a clumsiness and difficulty in stooping. About this time he also developed slight dyspnea, most noticeable on exertion. The dyspnea gradually increased in intensity until September 15, when it suddenly became severe and in a few moments he was in a condition of collapse, immediately followed by slight chills and probably fever, although the temperature was not taken. This attack occurred in a store, and after a few hours he was conveyed to his place of business, a few doors away. At this time a homeopathic physician, who happened to come in, made a diagnosis of obesity and put him on dietary and medicinal treatment for the same. The dietary treatment consisted of large quantities of water and very little food. Some hours after the attack passed he attempted to walk from his place of business to his home, a distance of about half a mile. He consumed almost an hour on the journey and reached home in a state of exhaustion from which he recovered after active stimulation and rest. He continued the treatment advised by the homeopathic physician until seeing me.

He gave no history of indigestion, constipation or inconvenience or discomfort of any kind, except the abdominal distention, dyspnea, and inability to satisfy his appetite on account of the augmentation of the abdominal distention incident to taking food or drink.

Physical Examination.—There is marked arcus senilis. Slight deafness. The upper air passages are normal. Tongue not coated. Pulse 84, increased after slight exertion. Respirations 28, shallow, much more rapid after slight exertion. Diaphragmatic breathing is practically abolished. Temperature normal. There is slight huskiness and suppression of the voice, and there is dulness with friction sounds, crepitant and mucous rales over the base of the lungs posteriorly, more marked on the left side, and but slightly on the right. The heart sounds are normal, the apex beat in the fourth interspace a little to the right of the nipple line, pushed up by the abdominal effusion. The area of cardiac dulness is somewhat changed from normal. There is clubbing of the fingers which he claims has occurred recently.

The abdomen is very much distended with an area of redness, tenderness, and slight swelling around and involving the umbilicus. In the right upper quadrant of the abdomen, close to the linea alba are masses of varicose veins, slightly tender on pressure. In both lower quadrants of the abdomen there are areas of enlarged bloodvessels, measuring about 5 cm. by 15 cm. and occupying an area parallel with the groin. The upper border of the liver is about a finger's breadth above the normal; the lower border of hepatic dulness could not be made out owing to the pronounced dulness and tension of the abdomen. The costal arches with the eleventh and twelfth ribs are bulged outward, owing to abdominal distention. The spleen can not be percussed nor palpated.

In the erect posture the fluid in the abdomen is two fingers' breadth above the umbilicus. After a short period in the recumbent posture there is a tympanitic area at the summit of the

* Read at the New York Academy of Medicine, before the Section on Medicine, December 20, 1904.

abdomen, measuring 38 cm. longitudinally and 28 cm. transversely, at the level of which distinct fluctuation can be elicited. The greatest circumference of the abdomen is 118 cm. There is a moderate-sized hydrocele a little more marked on the left side. The abdominal wall, prepuce, and lower extremities are edematous.

An examination of the urine passed at this consultation is as follows: Color, amber; reaction, acid; albumin, negative; sugar, negative; specific gravity, 1.016; slight cloudiness. Microscopically, nothing pathologic.

Blood-examination.—Erythrocytes, 2,895,750; leukocytes, 12,960. No parasites. Examination of hemoglobin not made.

As a result of the examination, the probable diagnosis of hepatic cirrhosis with accompanying ascites was made. He was directed to go home and a few hours later his abdomen was prepared for paracentesis which was done under aseptic precautions. There was removed 4,000 cc. of fluid after which the abdomen was not completely emptied but the fluid ceased to run.

The fluid presented a most striking appearance. It was of a milky white color, which after accumulating in considerable quantity in the vessel had a slight pinkish hue. The canula used was very small and the consistency such that it ran very slowly.

After removal of the fluid he was much relieved and breathed more comfortably but on account of the extensive tympany abdominal palpation was not satisfactory.

CHART A.

Sp. gr.	Reaction.	Solids	Proteid.	Fat.	Sugar	Salts.	
1.011	Alkaline.	2.5%	.275% Peptone. Serum albumin Serum globulin. Fibrin (trace).	.2%	Nega- tive.	.....	Urea, .1%. Bile, negative. Indican, negative.

Microscopic Examination.—Many fat globules, all small. Many mononuclear leukocytes of variable size. A large amount of finely granular, fatty material.

In estimating the albumin, partly for the sake of comparison, the following methods were employed: Ferrocyanid and acetic acid in the centrifuge; this threw down an ill-defined precipitate. An Esbach solution was substituted for the ferrocyanid and the precipitation was complete, demonstrating that a large amount of peptone was present. It also reacted positively to the biuret test. The gravimetric method was also employed.

I visited him October 2, and again on October 3, at which time a needle was introduced into the scrotum and 100 cc. of clear serum was withdrawn. Up to this time owing to abdominal distention both on account of fluid in the cavity and gas in the gut, it had been impossible to map out the lower border of hepatic dulness or the spleen or to exclude absolutely the presence of an abdominal growth.

A blood-examination was made October 2: Hemoglobin, 98%; erythrocytes, 2,895,750; leukocytes, 12,000. Differential count not made. The erythrocytes were larger than normal (megakocytes) and seemed to have no biconcavity and stained deeply with eosin. Color index 1.72.

Another examination made October 16 showed the following: Hemoglobin, 100%; erythrocytes, 3,311,000; leukocytes, 16,200. Differential count not made. The character of the red cells remained as before described. Color index 1.64.

An examination of urine made October 27, was as follows: Amount in 24 hours 650 cc.; specific gravity, 1.025; deep red; reaction, acid; sediment, reddish cloud; total solids, 37.85 gm.; albumin, negative; sugar, negative; urea, 20.8 gm.; uric acid, .6275 gm.; indican, negative; sulfates, 6.59 gm. (by centrifuge). Microscopic examination: There are a few leukocytes. A few bladder epithelial cells. An abundance of calcium oxalate. A few crystals of uric acid. A large number of yellowish crystals of irregular shape, probably sodium urate. One hyaline cast observed.

Another examination made November 5: Amount in 24 hours, 800 cc.; color, very dark amber; reaction, acid; specific gravity, 1.024; albumin and sugar, negative; urea, 28.8 gm.; total solids, 44.73 gm. The uric acid test was a failure. Sulfates, 9.8 gm.; phosphates, 3.96 gm. in terms of P_2O_5 . Microscopic examination: Crystals of oxalate of lime. A very large number of cuboid crystals, brownish in color, sometimes collected into a block of urine. Also some dumb-bell crystals of bluish color, probably oxalate of lime.

Another examination made November 13: Amount 750 cc.; specific gravity, 1.025; reaction, slightly acid; total solids, 42.45 gm.; albumin and sugar, negative; urea, 36 gm.; indican, negative; chlorids, 6.8 gm.; sulfates, 15 gm. Microscopic examination: A large amount of amorphous urates. A few bladder epithelial cells.

From October 1 until October 17 the abdominal distention increased, when he was again tapped and 7,370 cc. removed, the gross appearance being exactly similar to that formerly withdrawn.

The edema of the abdominal wall, prepuce, scrotum, and lower extremities was more marked than at any previous time. From around the canula during the tapping there exuded a clear serum. After this tapping the abdomen was flaccid and for the first time a satisfactory palpation could be made, which was done with negative results. The spleen could not be felt. The lower border of the liver could be made out a finger's breadth below the free border and the upper border had correspondingly resumed its normal position.

It became evident that the patient would have to be tapped at regular intervals and before the distention became too great. Accordingly, on October 21 he was again tapped and 6,250 cc. of fluid removed, the character remaining the same. It was

CHART B.

Sp. gr.	Reaction.	Solids.	Proteid.	Fat.	Sugar.	Salts.	
1.0071	Alkaline.	.....	.35%	.15%	Nega- tive.	.....	Urea, .1%. P_2O_5 , .005%. Chlorids, negative. Sulfate, negative.

determined that the patient lost from seven to nine pounds after the tapping. Nevertheless he maintained his regular average weight, and with the exception of the discomfort consequent upon the abdominal distention, he suffered no inconvenience, supervising the work at his shop and actually doing some light work, except the day before and after the tapping. The edema had substantially diminished and it was evident that regular and frequent evacuation of the fluid was the only course to pursue.

On October 31 he was again tapped and 7,500 cc. of fluid removed, and of this a liberal supply was taken by Beebe for analysis and the remaining portion reserved for analysis in my laboratory by Walter H. Kent, Ph.D., the analysis of which is given:

CHART C.—DR. KENT'S ANALYSIS.

Sp. gr.	Reaction.	Solids.	Proteid.	Fat.	Sugar.	Salts.	
1.0083	Alkaline.	2.283%	Kjeldahl .6641% Gravi- metric .565%	Soxh- let. .606%	Trace.	.554% Iron. Potas- sium.	Choles- terin, lecithin, soap, glycerin.

He was again tapped November 5, and 7,875 cc. of fluid obtained. Again, November 11, 8,125 cc., and November 16, 8,876 cc., November 21, 9,000 cc., November 26, 9,375 cc., December 2, 9,625 cc., December 10, 10,250 cc., December 12, 9,125 cc., and December 17, 9,000 cc.; the amount of fluid since October 1, aggregating 106,370 cc.

The patient has wasted very little, if any, his weight being less than five pounds under his normal average, although he complains of feeling weak and feeble. Quite recently he has developed a severe itching of the abdomen and lower extremities, more pronounced at night, interfering seriously with sleep. This is not accompanied by eruption or other visible cause. His appetite remains good, digestion normal and bowels regular.

Character of fluid: The macroscopic appearance of the fluid has remained fairly constant throughout, as has also the microscopic appearance. The fluid has been plated out several times in agar and in a mixture of agar and gelatin, three parts of the first to seven parts of the latter; growth has occurred only once in one plate out of six, and was evidently a contamination. The chemic composition has varied little, if any. See examination.

Up to the present time I have removed since October 1, 1904, 272,365 cc. of chyle in 37 tapplings. Patient has not lost much in weight and strength, but suffers considerable discomfort from the distention.

One of the most remarkable features of the foregoing case is that the patient is sustaining such an enormous loss of chyle with so little loss of weight and strength.

Kirk, in his *Handbook of Physiology*, last edition, states that the quantity of chyle which would pass into a cat's blood in 24 hours has been estimated to be about a sixth the whole body-weight, or that of the blood weight; in the case of a dog, about two-thirds the blood weight.

Landois, in his *Physiology*, last edition, asserts that the amount in 24 hours should be equal to the total volume of the blood, and of this, half would be contributed by the chyle.

Assuming these estimates to be correct and applicable

to man, and calculating the weight of the blood in man to be a twelfth the total weight of the body, my patient should produce in 24 hours about 5,000 cc. to 7,000 cc. of chyle. The average accumulation of chyle in his abdomen for five days has been 9,600 cc., equal to a little less than 2,000 cc. a day. This would indicate that either he is not producing the normal amount of chyle, or that a certain amount finds its way into the circulation, or that a considerable absorption is taking place from the peritoneum.

Twenty years ago we were taught that the property of bile was to emulsify fats, which constituted the chief change in the preparation of fats for absorption. We now know that this is merely a preliminary process, not even necessary to that other more important change, namely, saponification, for a simple emulsification of fats cannot be taken up, but saponification can go on without the previous emulsification, even in acid medium, although the emulsification very materially enhances saponification. The products of saponification, namely, glycerin and fatty acids, are both soluble and pass readily through the epithelial cells, when a synthetic process begins and they are again converted into neutral fats. Haliburton, in his Chemical Physiology and Pathology, states that the increased percentage of proteid in chyle as compared with lymph illustrates the fact that the lacteals are not merely concerned in the absorption of fat but probably of albuminous foods. He quotes Schmidt, "that for every kilogram of body weight .61 kilos of chyle are produced in the 24 hours, of which .34% comes from the alimentary canal and the remaining .27% consists of normal lymph."

Kirk also states, that after the chyle corpuscles have been formed in the lymph channels it acquires the property of coagulating spontaneously and that the higher in the thoracic duct the chyle advances, the greater the number of chyle corpuscles and the larger and firmer the clot formed when it is withdrawn and at rest.

The spontaneous formation of a clot has not been a feature in this case; only after standing at room temperature and exposed to the air for several days has there been any appearance of a clot, and even then no fibrin could be made out, the clot consisting mostly of fat. The case is undoubtedly one of true chylous ascites, as evidenced by the results of the examination of the ascitic

which has continued to discharge into the peritoneal cavity. The cause of the rupture is unaccounted for and no growth or neoplasm can be found in the abdomen. The dulness in the posterior chest would suggest a growth in the mediastinum, occluding the thoracic duct by pressure on or involvement of its wall, causing a rupture in the abdominal portion. A careful examination of the blood taken at various times has failed to demonstrate filaria; the absence of chyle from the urine and the failure to find filaria in the sediment, and the fact that he has resided in this vicinity for 36 years, would practically exclude filariasis. The sudden distention of the abdomen, abrupt onset of dyspnea, and evidence of heart failure, which occurred September 15 would suggest that the rupture took place at that time. A study of the literature elicits the somewhat surprising fact that very few cases of chylous ascites have been reported.

Busey, of Washington, D. C., in September, 1899, at the fourth annual session of the Associated American Physicians, read a paper on "The Effusion of Chyle into the Serous Cavities," and reported a case of chylous ascites. He accepted Quinke's classification, which recognizes two forms of ascites characterized by an opalescent fluid. Namely (a) pure chylous ascites, characterized by a fluid answering the analysis of chyle; (b) chyloform ascites or ascites adiposis, the fluid resembling chyle, but on chemic and microscopic examination is found to differ materially from it. In the true variety the fat cells are small, finely granular, and there is a marked absence of large fat cells, while in the latter variety the larger fat cells predominate, and in case of malignant growth, which might give rise to this condition, cancer cells may be found.

The presence or absence of sugar is not conclusive. Most careful observers believe that the sugar enters directly into the portal circulation. It is possible that the ingestion of large amounts of sugar or carbohydrates would cause some sugar to pass over into the lacteals. The summary of cases collected from literature by Busey begins with Poncy's case, in 1699, and terminates with a case of chylous cyst of the mesentery, by Carson,¹ of St. Louis; aggregating 33 cases, including doubtful ones, in 190 years, of which 19 terminated fatally, 9 ending in recovery, and the results in 5 not stated. He states "their infrequency relegates them to the category of pathologic curiosities."

The cases reported have been continually increasing. During the last century 23 cases of effusion of chyle and chyle-like fluid into the abdominal cavity have been observed; 15 since 1850, or during the last half of the century, and 13 during the last and present decades. It is possible that their increasing frequency is more apparent than real, and due to more accurate and careful pathologic observations.

Croom² brings the list up 10 years later than Busey. He was able to find 63 cases of chylous ascites, which would suggest that 30 cases were reported during the 10 years from 1890 to 1900.

Merklen classifies lactescent fluids as: (1) Milky fluid of the nature of chyle (a) chylous, (b) chyloferous; (2) milky fluids macroscopically like chyle. Bargebuhr claims that a fluid to be considered truly chylous must have been effused rapidly, and should contain some fat and sugar. Senator thought that the presence of sugar alone in a milky fluid was sufficient proof of its chylous nature. H. Batty Shaw³ claims that a large rent in a large lymph vessel or in the thoracic duct must be demonstrated in order to make an absolute diagnosis of chylous ascites. He evidently believes that fatty degeneration of malignant cells can take place to such an extent as to be mistaken for chyle. A writer whom he quotes believes that what appears to be chylous or chyloferous fluid in the peritoneal cavity is merely changed pus; the pus having undergone degeneration. Shaw gives all the hitherto described cases, with the causes, as follows:

CHART D.—HUMAN CHYLE.

Sp. gr.	Reaction.	Solids.	Proteid.	Fat.	Sugar.	Salts.	
1.024	4.10% 5.60% 9.52%	1.10% 1.30% 7.08%	.25% .27% .92%	.....	.44% .625%	Cholesterolin, lecithin.

CHYLIFORM ASCITES.

1.009	Alkaline.	2.44%	.32%	.18%	Present.	.59%	Urea, negative.
1.020	Neutral.	2.188%	.424% .955%	.45% .02% .01% .06%			Uric acid, negative.

LACTESCENT ASCITES.

.....	Alkaline.	Present.	Negative.	Acetic acid + heat; a cheesy clot.
-------	-----------	-------	----------	-----------	-------	-------	---

CHYLOUS ASCITES.

1.018	.....	3.38%	2.40%	.70%	None.	.70%	Urea, .11%.
1.014	Alkaline.	4.83%	1.77%	.55%	Trace.	.65%	

fluid, by the symptoms, physical signs, and course of the disease. The history of the case would suggest a rupture of a large lymph duct, the thoracic duct, the receptaculum chyli, or a chylous cyst of the mesentery,

1. Compression of the thoracic duct by glands, neoplasms, etc., 18 cases.
 2. Nontuberculous peritonitis, constricting lymph vessels, 9 cases.
 3. Blockage of the left subclavian vein, etc., 6 cases.
 4. Carcinoma of the peritoneum constricting lymph vessels, 5 cases.
 5. Parasites, 3 cases.
 6. Obstruction of the thoracic duct, 5 cases.
 7. Obstruction of lymph-glands, 3 cases.
 8. Obstruction of lymph vessels, 2 cases.
 9. Strains, coughs, etc., 5 cases.
 10. External violence, 3 cases.
 11. Malignant lymphoma, 3 cases.
 12. Diseases of the liver, 2 cases.
 13. Syphilis, 2 cases.
 14. Primary disease of lymph vessels (angioma), 1 case.
 15. Stone in the receptaculum chyli, 1 case.
- A total of 68 cases.

CHYLIFEROUS ASCITES.

1. Tuberculosis of the peritoneum and glands, 6 cases.
 2. Carcinoma of the peritoneum, lymph-glands and stomach, 3 cases.
 3. Cirrhosis of the liver, 3 cases.
 4. Cardia affection, 2 cases.
 5. Sarcoma of omentum, mesentery, etc., 3 cases.
 6. Chronic nontuberculous peritonitis, 1 case.
 7. Primary degeneration of peritoneal epithelium, 1 case.
 8. Lipemia, 1 case.
 9. Mixed forms of carcinoma of peritoneum, mesentery, etc., 3 cases.
 10. Tuberculous peritonitis, 1 case.
- Total, 27 cases.
Lactescent nonchylous ascites, 1 case.

There are 19 other cases reported, in which the real nature was not established, making a total of 114 cases from 1699 to the present time, a period of 204 years. Formerly the average age for the occurrence of chylous ascites was 28 years, but more

BUSEY'S CLASSIFICATIONS.

No.	Reporter.	Date.	Where published.	Sex.	Age.	Causative conditions.	Treatment.	Result.
1	Poncy, Jr.	1699	Saviard, Observations in Surgery, p. 247.	F.	.....	Obstruction of lymphatic glands and vessels.	Medicines and tapping.	Died.
2	R. Morton.	1705	Morton's Phthisiologia.	M.	2 yrs.	Compression of duct near subclavian vein by large tumor behind the trachea arteria, producing rupture of lacteals.	Tapping.	"
3	J. G. Scheel.	1729	Haller, Dissertatio Ab-morborum, iii, p. 237.	M.	39 "	Calculus in receptaculum chyli.	"	"
4	Donold Monro.	1765	Essay on Dropsy.	F.	.....	Effort to raise a burden.	"	Not stated.
5	Bossu.	1770	Jour. de Méd. Chir. Pharm., xxxiv, p. 283.	F.	.....	Metastasis of mammary secretion during first week of puerperium.	Tapping, purgatives and resolvent applications to the abdomen.	Recovery.
6	Martin.	1770	Jour. de Méd. Chir. Pharm., xxxiv, p. 283.	F.	.....	Metrorrhagia, miscarriage, unusual exercise.	Tapping.	"
7	Milleret.	1774	Jour. de Méd. Chir. Pharm., xlii, p. 237.	F.	39 yrs.	Arrest of secretion of milk from mammary gland and intestinal canal.	Spontaneous discharge at umbilicus and tonics.	"
8	Ed. Sandifort.	1781	Observ. Anat. Patholog. Lugd. Bat., iv, 1-21-3 pl.	F.	.....	Following birth of twins at seven months. Sandifort refers to another case of lacteal metastasis to abdominal cavity.	Effusion only discovered at autopsy.	Died.
9	Percival.	1788	Essays, Med. Physiol. and Exp., ii, p. 177.	F.	8 yrs.	Rupture of lacteal vessels.	Tapping.	Recovery.
10	Weaver.	1814	Med. Surg. and Pharm. Repos., ii, p. 377.	M.	.....	Protracted illness supposed to be liver disease.	Mercurials and other medicines.	Died.
11	Truman Abell.	1833	Bost. Med. and Surg. Jour., viii, p. 13.	F.	.....	Abdominal tumor following pregnancy with twins.	Spontaneous rupture at navel and discharge.	"
12	Hughes.	1841	Guy's Hosp. Reports, v, p. 297.	M.	20 yrs.	Tumor of agglomerated mesentery gland; numerous lacteals were large, tortuous, varicose and distended, with milky or clear fluid.	Not stated.	"
13	Van Camp.	1842	Ann. Soc. de Méd. d'Anvers, iii, 86.	M.	59 "	Chronic bronchitis, asthma, tuberculosis.	"	"
14	J. Popham.	1854	Dublin Quart. Jour. Med., xvii, p. 467.	F.	28 "	Chronic peritonitis with fat in the effusion; fatty degeneration of liver; fat free in blood; fatty contents of both ovaries, combined with hair and bony matter.	"	"
15	M. Loralin.	1859	Compt. Rend. Soc. de Biol. Par., 2s, v, 162.	F.	8 "	Symptoms analogous to those of tuberculous peritonitis; numerous tubercles in lungs.	"	"
16	T. Stevenson.	1860	Guys' Hospital Reports, 3s, xvii, p. 231.	.....	.....	The report refers only to the composition of two specimens of milky fluid obtained from the abdomen.	"	Not stated.
17	Rokitansky.	1861	Pathological Anatomy, Bd. ii, S. 388.	F.	62 yrs.	Dilation of heart; thickening and shortening of mitral valve; occlusion of thoracic duct with soapy material.	"	Died.
18	W. Cayley.	1866	Trans. Path. Soc. of London, xvii, p. 163.	M.	19 "	Fibrinous vegetation attached to intima of subclavian vein; partial obliteration of thoracic duct near termination; rupture of receptaculum chyli.	"	"
19	Ormerod.	1868	Trans. Path. Soc. of London, xix, p. 199.	M.	24 "	Left subclavian vein and its affluent branches plugged with a light-colored ragged clot.	Tapping.	"
20	Hoppe-Seyler.	1873	Arch. gesamte Phys., vii, p. 407.	.....	.....	Rupture of chyle vessels from pressure of tumor.	Not stated.	Not stated.
21	Bergeret.	1873	Jour. d'Anatomie, t. ix, p. 586.	F.	27 yrs.	Scrofula, pulmonary tubercle, oily ascites.	"	Died.
22	Wilhelm.	1875	Corresp.-Blat. der Aerztlichen Verein d. Rhein. prov., No. 14, S. 13.	.....	2 mos.	Abdominal tumor firmly attached to spinal column in umbilical region; rupture of thoracic duct.	Tapping first at two months.	"
23	Quincke.	1875	Archiv f. klin. Med., Bd. xvi, S. 128.	F.	30 yrs.	Flow of chyle obstructed by inflammatory thickening of folds of mesentery and transformation of interposed adipose into connective tissue.	Tapping.	"
24	"	1875	Ibid, S. 121.	M.	50 yrs.	Run over by wagon; rupture of thoracic duct: effusion into pleural and peritoneal cavities.	"	"
25	Pelletier.	1875	Jour. de Méd. Chir. Pharm., lxi, p. 496.	F.	.....	Chylous fluid vomited; also found in pleural and peritoneal cavities.	"	Recovery.
26	Ballman.	1876	Centralbl. f. d. med. Wissensch., xiv, S. 275.	F.	39 yrs.	Peritoneum closely studded with tubercles.	"	Died.
27	F. Winckel.	1876	Arch. f. klin. Med., Bd. xvii, S. 303.	F.	39 "	Puncture of chyle vessels by parasites.	Lived four years; tapping.	Not stated.
28	Winiwarter.	1877	Jahrbuch d. Kinderheilkunde, Vol. xi, Ncs. 2 and 3.	F.	Birth.	Rupture of congenital chylous cyst; probable occlusion of thoracic duct and dilation of lacteal vessels.	Careful alimentation and tapping.	Recovery.
29	Kein.	1881-2	Mém. Soc. de Méd. de Strasbourg, xix, 2, 52, 57.	F.	50 yrs.	Rupture of mesentery and intestinal lacteals.	Tapping each time obtained four gallons of milky fluid.	Not stated.
30	F. Nickerson.	1884	Mass. Med. Soc., June, 1884.	M.	55 "	Chylous cyst; probably continuous hard labor.	Tapping.	Recovery.
31	P. J. Murphy.	1886	Monograph.	F.	19 "	Violence, long walks and dancing.	Laparotomy.	"
32	N. B. Carson.	1888	Med. News, iv, p. 52.	M.	39 "	Chylous cyst of the mesentery.	Laparotomy and removal of cyst.	"
33	Weichselbaum.	.....	Virch. Archiv, lxi, p. 145.	M.	80 "	No extravasation, but stasis of chyle in the chyle vessels of the mesentery and hypertrophy of the interposed adipose tissue.	Discovered at autopsy.	Died.

recently it has been advanced to 43½ years. It occurred in males 38 times and in females 61 times.

Shaw attaches little importance to the analysis of the fluid, as such great variation is met in the character and amount of the constituents: The specific gravity may range from 1.005 to 1.026; the reaction, alkaline, neutral or acid (but one case has been reported acid); total solids may reach 11.95%; fat, 4.75%; sugar is supposed to be present in about the same amount as in the blood, namely, .5% to .9%. One case was reported with sugar as high as 8%, according to Fehling's test, but when a more accurate test was employed, the percentage was reduced. (Probably due to some other reducing agent.) Coomey and McKibbin, of Worcester, Mass., bring the literature up to the beginning of 1903, making a total of 47 cases. They fail to report Busey's case, as well as many others.

Referring to Coomey's and McKibbin's case, a writer in the *Lancet* for March 21, 1903, throws doubt on the diagnosis of chylous ascites, maintaining that there is no evidence that the effusion contained chyle, and that it should be regarded as a case of chyloferous ascites, the lactescent character of the fluid being due to the degeneration of extravasated cells.

Geo. A. Clarkson⁴ reports a case coming under his observation December 7, 1895. On December 26, the abdomen was so distended with fluid as to interfere seriously with breathing, and 10 pints of yellow, milk-like fluid was removed, but without relief, and the patient died six days later. The fluid had a specific gravity of 1.018; reaction, alkaline; large amount of fat (actual amount not given), and very many cells containing fat in their interior. At the autopsy a large amount of fluid was found in the peritoneal and pleural cavities. In the abdomen was also found a widely disseminated newgrowth, which the microscope showed to be a spheroidal cell sarcoma. This case was not included in Coomey and McKibbin's collection.

Arthur H. Burgess⁵ reported a case of scirrhus carcinoma which began in the head of the pancreas. He observed this case on March 24, 1903. On March 26 the abdomen was tapped and 7½ pints of milky fluid removed. No definite tumor could be made out during life. The fluid had a specific gravity of 1.015; reaction, alkaline; it was odorless and contained albumin but no sugar; it did not coagulate spontaneously. The microscope showed many finely-divided particles of fat; some fine granules probably of proteid nature; granular epithelium and some degenerated leukocytes. Patient died April 24.

In the *Lancet*, June 18, 1903, reference is made to the case of Burgess. The statement is made that chylous ascites appears to occur from blockage of the thoracic duct. The writer suggests if butyric acid can be found in the ascitic fluid it would certainly be a constituent of chyle, as this substance does not enter into human fat. He charges against a hasty diagnosis, because the ascitic fluid produced by the breaking down of cancer cells can easily be mistaken for true chyle.

The only cases not considered in the foregoing summary by Shaw is the case of Coomey and McKibbin,⁶ Croom's⁷ case and the cases of Clarkson and Burgess, thus adding four cases since 1900, making a total of 72 cases.

The American Textbook of Pathology gives the causes of the obstruction of the thoracic duct, as follows: "(a) Pressure on the duct from without by tumors, enlarged lymph-glands or aneurysms. (b) The growth of tumors in the wall of the duct. (c) Inflammatory stricture. (d) Impaction by adult filaria. (e) Thrombosis of the left innominate vein or the duct itself. (f) Backward pressure of blood in the subclavian vein due to tricuspid insufficiency." To these may be added calculi in the receptaculum chyli. Cooper, Morgan and Dupuytren state "that a complete arrest or interruption of fluid in the thoracic duct, at or near its terminal

extremity, where an anastomosis is not speedily established, results in distention and dilation sufficient to cause rupture. This most frequently takes place in the receptaculum or lacteals."

Shaw claims there is no way of determining or even of suspecting fluid of chylous character until subjected to an examination. When fluid is demonstrated in the abdominal cavity one scarcely thinks of chyle or even chyloferous fluid because of its rarity. However, the sudden onset of abdominal distention with dyspnea, shock and evidence of cardiac failure, perhaps followed by chills and increased temperature and later by malnutrition and debility would lead one to suspect a rupture, and in this connection rupture of the abdominal portion of the lymphatic system should certainly be considered. I wish to express my obligations to Dr. Walter Kent for his careful chemie analysis.

CHEMIC EXAMINATION OF THE FLUID FROM A CASE OF CHYLOUS ASCITES, BY DR. S. P. BEEBE.

For obvious reasons very few analyses of human chyle have been made. Nearly all our knowledge regarding the composition and flow of lymph and the absorption of food substances by the lacteals has been arrived at by animal experiment. In a few instances a very small quantity of human chyle has been obtained directly from the thoracic duct, but in nearly all of these instances the fluid could not be considered normal because of the diseased condition of the patient.

The most complete study which has yet been made of human chyle, the case of Munk and Rosenstein⁸ was upon a fluid obtained from a fistula resulting from elephantiasis of one leg, and which connected by the left lumbar lymphatic duct with some of the lacteals. It seems a fair criticism that in this case also the pathologic condition of the patient was such as to have no small influence upon the product collected.

A few analyses have been made of chylous fluids obtained from the thorax and abdomen, but these have shown such wide variations that a normal standard of comparison for human chyle is still lacking. Recent work has shown that the milky character of the fluid collected under such circumstances may be due to other substances than fats. Suspensions of proteids and cholesterol esters have been found responsible for such an appearance.⁹

It is impossible to say from the results of chemie analysis that the fluid in the present case is pure chyle. Granting that the rupture of a chylous cyst permits the entrance of pure chyle into the peritoneal cavity, the absorption that may take place would be sufficient to cause significant changes in its composition. It does not have the character of an inflammatory exudate. Von Holst¹⁰ has recently described a substance, "serosa mucin," which was precipitated from ascitic fluid in the cold by acetic acid. This behavior with acetic acid is diagnostic of inflammatory exudates, and has been studied by a number of investigators though the precipitate obtained seems in many cases to be a nucleoprotein rather than a mucin. It is not difficult to understand how the destruction of tissue which is likely to be coincident with the appearance of the inflammatory exudate may set free compounds found in greatest abundance in tissues rich in nuclear material. The behavior of our fluid toward acetic acid is precisely like that described by Salkowski¹¹ who analyzed the fluid escaping into the pleural cavity from a rupture of the thoracic duct. Added in the cold, acetic acid causes no change; if the fluid is then boiled, a very imperfect coagulation results, the filtrate being still milky. If the fluid is first heated to boiling, no coagulation occurs until acetic acid is added; then, however, a voluminous coagulum quickly forms and the filtrate is water clear. This fluid will therefore be considered as chyle modified by whatever absorption

has taken place in the peritoneal cavity, and by the possible admixture of transudate.

The specific gravity of 18° C., 1.0084, is lower than found in most samples of chyle. The total solids obtained by drying at 100° are 2.20%; the ash, 0.93%. The inorganic constituents are chlorids, sulfates, carbonates, and a trace of phosphates of sodium, potassium, calcium, with a trace of iron.

The total nitrogen considered as proteid	0.8125%
The coagulable nitrogen considered as proteid	0.4888%
The noncoagulable nitrogen considered as proteid	0.3237%
The nitrogen in the filtrate after saturation with ZnSO ₄	0.3035%

(Saturation with ZnSO₄ precipitates all the cleavage products of proteid higher than peptone.)

The filtrate from the coagulable nitrogen gave an excellent reaction of the peptone type. The fluid contains a trace of urea, but I have been unable to find any purin compounds, leucin, or tyrosin. For the purpose of identifying these substances, three liters of the fluid were heated to boiling, and after coagulating with acetic acid, the proteid and fat removed by filtration. The filtrate was evaporated to small bulk, but even then no purin bodies or amino acids could be found.

In those cases in which chyloform fluid has been recovered from the peritoneal or pleural cavity, the presence of sugar has been considered diagnostic of chyle unless the condition is complicated by diabetes. The absence of sugar is not equally conclusive, and there have been very nearly the same number of cases in which sugar was not found as those in which its presence was established. The single test of an alkaline copper solution cannot be relied on as conclusive.

In this fluid I was unable to find any sugar by the reduction tests, Molisch reaction, phenyl hydrazin, fermentation, or the polariscope. The fat cannot readily be separated by the ordinary methods of shaking out with ether or chloroform. The emulsion is a singularly permanent one. A portion of the fluid drawn sterile has been kept for more than two months without any perceptible separation of the fat. As soon as the fluid becomes infected the fat quickly separates. Fat forms 0.51% of the fluid. The fat constants are:

Melting-point	34
Acid number	9.4
Saponification number	225
Iodin number	43

These figures differ somewhat from those of human fat taken from the fat depots of the body. The iodine number measures the amount of olein, since this is the only constituent of human fat which absorbs iodine. The number usually found for this constant is 60. The low number found in this case agrees well with the high melting-point, 34; a larger percent of olein would lower the melting-point to a figure corresponding more nearly to that of normal human fat. The acid number is somewhat higher than the normal, and recent studies have shown that fat arising from fatty degeneration or processes of autolysis contains a higher percentage of fatty acid than normal fat.¹² It is impossible to say to what extent the fat coming into the chyle from the absorbing cells of the intestine has been changed by further absorption in the peritoneal cavity. Presumably such a change would be small, but we know that a large surface is offered, and some absorption of undigested proteids undoubtedly takes place.¹³ Granting that MacCallum¹⁴ is right in denying the existence of open communications between the peritoneum and lymphatics, the conditions are still as favorable as in absorption through the skin, and no inconsiderable change in this fluid may thereby arise.

The fat contains small quantities of cholesterin, lecithin and soap, but I have not separated these substances with enough accuracy to express the figures in percentages. The composition is not so near that of normal human fat, as Erben¹⁵ found in a case of nonfilarial chyluria. But at present we are justified in considering the fat of the chyle as identical in character and composition with the normal fat from the fat depots of the body and there have been too few analyses of the fat in human chyle to make a safe standard of comparison.

The present case offers a good opportunity for determining the extent of absorption of various medicinal substances. One such experiment has been tried; iron in two different forms being used. During one period of five days iron in the form of the glycerophosphate (25 cg. three times each day) was used. The fluid drawn at the end of the period showed no increase in iron over the period immediately preceding. During the next period of five days 10 drops of the tincture of ferric chlorid were taken three times each day. As a result of this treatment the iron in the fluid was found to have increased 100%. The period immediately following this showed the normal content of iron again. A vast deal has been said about the absorption of iron in different forms, but there is no doubt that ferric chlorid is better than glycerophosphate in this particular case at least.

REFERENCES.

- 1 Medical News, Vol. lv, p. 52.
- 2 The Lancet, March 31, 1900.
- 3 Jour. of Bacteriol. and Path., February, 1900.
- 4 The Lancet, April 4, 1903.
- 5 The Lancet, June 20, 1903.
- 6 Boston Medical and Surgical Journal, January 29, 1903.
- 7 The Lancet, June 30, 1903.
- 8 Munk and Rosenstein: Du Bois Raymond's Arch., 1890, p. 376-380.
- 9 H. Wolff: Hofmeister's Beiträge, Bd. v, 1904, p. 208-210.
- 10 Von Holst: Zeit. f. physiol. Chem., 1904, 43, 145-155.
- 11 Hahn: Deutsche med. Wochens., 1899, 401-403.
- 12 Waldvogel: Zeit. f. physiol. Chem., 40, 200-206.
- 13 Mendel and Rockwood: American Jour. of Physiol., Vol. xii, 348.
- 14 Cited in the article by Mendel and Rockwood.
- 15 Erben: Zeit. f. physiol. Chem., 30, 436-452.

SOME RESULTS OF ABDOMINAL OPERATIONS.¹

BY

GEO. ERETY SHOEMAKER, M.D.,
of Philadelphia.

Gynecologist to the Presbyterian Hospital, Philadelphia.

As a basis for remarks in connection with abdominal surgery under the conditions which obtain in a general hospital, I would comment on a series of cases at the Presbyterian Hospital, taking the last 100 unselected cases exactly as the patients presented themselves, either through consultation with their physicians, brought in by the ambulance, or through the dispensary. Private-room patients are included, which accounts for the variety of conditions treated. There were five deaths in all, two of them inevitable, two in bad chronic pus cases and one unexpected. Of the two inevitable deaths, one patient was actually dying of general purulent peritonitis, when application was made for her transfer from her home to the hospital by her attending physician. The history was obscure and almost wanting. Though she was almost unconscious, with cold and ecchymotic extremities, rapid incision was immediately made for drainage in the right loin, with the desperate hope that some chance might be given her. Her condition allowed of nothing further than drainage of pus which may have come from an ascending tubal infection. She died in a few hours without obtaining relief. Operation might wisely have been declined in this case, as she was moribund. The custom of individual surgeons varies as to such cases and many decline to operate.

The other inevitable death was that of a patient who had had a fibroma removed a year before at another hospital. She came to my hands after vomiting for two weeks, with intestinal obstruction, at first probably partial. She was in desperate condition from gangrene of several feet of the small intestine, which had already separated itself from the remainder of the bowel. She died in a few hours. Of the two deaths in chronic pelvic inflammation one patient was sent in by Dr. W. S. Newcomet, with a history of long-standing pelvic abscesses, and recurrent attacks of severe illness, the pus having escaped through the bowel at various times.

The operation, a very severe one, was for large ovarian and tubal abscesses associated with a pus collection

¹ Read before the Obstetrical Society of Philadelphia, April 6, 1905.

outside the tubes and ovaries with recurrent internal fistula of bowel. The uterus was inextricably involved and was removed with the tubal and ovarian pus sacs. After a hard fight, she died on the eighth day of septic toxemia. Brain functions were never restored after the operation, there being such toxic symptoms as spitting out of food, sharp cries as of meningitis, uncontrollable restlessness, involuntary evacuations, mental obscurity. Through the liberal management of the hospital she was accorded special nursing and a separate room. Quantities of salt solution were used under the skin and by the bowel. There was no trouble in obtaining free bowel movements and there was little vomiting at any time, but as food was refused she was fed by the bowel. The condition was not that of general peritonitis, but rather one of general toxemia. No autopsy was obtained. Vaginal gauze drain at operation.

The other death of a patient having a fair chance of operative recovery was due to chronic appendicitis, in the sixth week of an acute attack. The patient was sent by Dr. J. W. Fithian. There was a dram or two of bloody fecal-smelling pus outside the appendix and behind the cecum. The appendix was hard to find and harder to deal with, being deep down, pointed upward to the right of the cecum, there being no mesoappendix. Much of the mucous membrane was destroyed, and the small canal was lined by flat purplish granulations. The tip was approximately healthy for half an inch. The patient had been ailing for years, had been in bed six weeks with irregular sweating, temperature varying above 103°, emaciation, and great pain. The entire appendix was removed, the abscess cavity sponged, the entire field well walled off by gauze drain, tube drain also. The patient did fairly well for about four days, but finally died, exhausted, on the seventh day. Bowels moved well during this time. She took 6 oz. of nourishment at regular intervals the day before death occurred. There was some probable infection following the gradual removing of gauze packing.

The unexpected death occurred in a chronic salpingo-oophoritis case, with old catarrhal appendicitis, in a depressed and debilitated chronic sufferer. General infection followed the operation of removal of the diseased tube and ovary on left side and of the appendix, followed by suspension of the uterus. There was no assignable cause for the infection, which set in late. No drainage at operation, but the abdominal incision was opened on the seventh day without benefit, and the patient died the following night.

Of the 95 cases which terminated in recovery, hysterectomy was done 20 times, only one being done by the vaginal route alone, the others being either abdominal or combined. The method which I prefer is that of the supravaginal amputation without drainage, but when malignancy is present, as in nine of these hysterectomies, the entire uterus is removed. In malignant disease of the cervix, I cauterize freely several days before operation and again cauterize at the operation. In this way redundant sloughing tissue is got rid of, the remains of the cervix shrink, and better definition is obtained. I prefer to begin enucleation from below and finish above the pubis, as it is easier to determine the limits of the growth and to cut away healthy vaginal tissue around it from below. It is here that recurrence occurs first, and it is only when forced to do so that I conduct all of the enucleation from above. I have not found as satisfactory a removal of the vaginal portions accomplished in the latter procedure, though individual operators will use the methods each may prefer. In the combined method, after separating the vaginal tissue, I have applied clamps and finished the enucleation above by ligation in the usual manner. Iodoform gauze drain is used and the peritoneum closed over it if possible. Abdominal drainage through the suprapubic incision is avoided if possible, and it usually is.

Operation was done primarily for acute or chronic appendicitis 11 times. In the course of other operations upon the abdomen, the appendix was removed in addition 22 times, so that the appendix was removed altogether in a third of the cases in which operation was done. The plan followed was to examine the appendix in all cases in which the condition did not forbid it, as it would, for example, in ruptured extrauterine pregnancy or in a bad hysterectomy. If the organ were normal it was not disturbed, but if it showed signs of previous inflammation or its mesentery were adherent, it was removed. The method preferred is the stripping of a cuff if possible, ligation with fine silk, disinfection of mucous membrane of the stump (after a sharp squeeze in a sponge) by carbolic acid and camphor. Then the stump is buried by tightening a pursestring of silk introduced before cutting away the organ. These two silk threads probably find their way into the bowel, and are cast off in time. The mesentery is ligated with chromicized catgut only, as those ligatures not being adjacent to the bowel wall are less likely to be disposed of into the intestinal canal. Only in one appendiceal abscess case was the appendix left in because of the danger of removing it. Two of the deaths in the whole series occurred, as has been said, in cases in which the appendix was involved. One being a late case of appendiceal abscess may be accepted as belonging to the type which always will have a certain mortality risk. The other was in a case of catarrhal appendicitis in which a chronically diseased tube and ovary were removed and the uterus was suspended. The question arises whether the aseptic removal of the organ and burial of the stump adds appreciably to the risk of infection of the field. It probably does so in a very slight degree, and I hesitate to remove the organ in elective cases after very extensive raw surfaces have been opened, as in hysterectomy. In a pelvis already accustomed to the severer grades of chronic inflammation, where everything is adherent, I think, however, that some tolerance is acquired, and I do not hesitate to remove the appendix, which is so commonly involved in the general inflammation field.

While *suspension of the uterus* was added 13 times to other operations, the abdomen was only opened once for this procedure alone, and that was in a case of procidentia. When the uterus protrudes from the body, in addition to the operations of curetting, amputation of cervix, anterior wall excision, and perineorrhaphy, it is my custom to do uterine suspension or, in the aged, fixation.

There were six cases of *extrauterine pregnancy* in the 100. Of these, one patient was treated by vaginal drainage of the large infected hematocele with the expectation of later opening above, but no further treatment was required; five were treated by abdominal section. One of these cases showed a thick wall of lymph about the hematocele, and was drained by the vagina on account of troublesome oozing after removal of the tubes and one ovary. Another being infected possibly from having been curetted before admission, showed a well-defined wall of lymph about a large hematocele. The abdomen was therefore closed, and vaginal drainage of the infected hematocele was carried out. Still another infected incarcerated case, with high leukocytosis and constant vomiting, was first drained of fluid blood from the bulging mass in the vagina, and a week later the left tube, ovary, and appendix were removed. In a seventh case of acutely ruptured extrauterine pregnancy, the patient was operated upon in my hospital service by an assistant, but operations by assistants are not included in this report. All recovered.

Operation was abandoned as impracticable in three cases of extensive multiple sarcomatous growths, all verified by the microscope.

There were 12 cases of *fibroma of the uterus*, all treated by hysterectomy except one, in which there was myomectomy. There was no mortality.

An effort has been made to leave either one sound ovary in each case, or by resection a piece of one or both ovaries. Space will not admit of an analysis of these cases, but while some have proved disappointing, others have proved very satisfactory even when the tubes were removed for gonorrhea.

Irrigation by general flushing through a tube, while formerly much practised, has been largely abandoned in favor of dry sponging.

Drainage.—In clean cases or in pus cases not involving the intestine, drainage has been abandoned. Closing off the vagina with gauze after vaginal hysterectomy or combined vaginal and abdominal hysterectomy, is not a true drainage, but is practised.

The effort to restrict drainage has resulted favorably in regard to mortality, and the development of hernia is almost entirely prevented in this way and by the closing of all operative wounds in layers. I drain invariably when the bowel wall has been opened, or when its integrity is doubtful. A large Mikulicz pack has saved me some desperate pus cases with doubtful bowel, but it is rarely used. Gauze packing and tube drainage are, of course, essential after appendix operations with pus outside the organ, and after some gallbladder infections and all common duct operations.

A number of combined operations have been done, such as delivery and anchoring the kidney (three), nephrotomy (one), appendectomy, curetting, and plastic work with suspension. During the same period as that covered by this report, minor operations, either singly or combined, 114 in number, others not recorded, have been done without mortality, and with an almost unbroken record of aseptic results. The torn sphincter is repaired by separate suture of catgut, reinforced by wormgut. The separate suture I first did about 12 years ago.¹ The redundant part of the anterior vaginal wall is excised down to the bladder and the gap closed with layers of catgut suture.

In 68% of the cases requiring perineal repair, repair of the anterior vaginal wall was also done, without failure of union in any case and with great satisfaction in abolishing sacculation of the bladder, frequent urination or incontinence on coughing or laughing.² Irrigation during convalescence has been abandoned in plastic work, dry boric acid being used freely outside and water being poured over the parts after urination, before the boric acid is reapplied.

Within the abdomen, catgut has largely replaced silk, and the separate tie to vessels has replaced the mass ligature. In the application of these catgut ligatures, especially in soft organs or in vascular regions, as in the kidney, uterus, ovary or broad ligament, I have derived great satisfaction from the noncutting needle. When made flat in the after part, as the J. Ellwood Lee Company has done at my suggestion, it is readily held firm in the needle holder.³ As it makes a small hole without cutting neighboring unsecured vessels, it saves much time and contributes to a dry field.

Sanitary Agreement between France and Italy.—The French Government has invited the Italian Government to establish a sanitary agreement, based on the International Sanitary Convention of Paris, December 3, 1903, stipulating that both States shall recognize and admit the efficacy of sanitary measures taken in each other's country on board of ships coming from ports infected with plague and cholera. This measure will insure for a ship coming, for example, from India and having been subjected to the necessary sanitary measures in an Italian port, free pratique in a French port without further restrictions, and vice versa. The proposed agreement would constitute a noteworthy advantage to the commerce and navigation of both countries and the invitation has been willingly accepted by the Italian Government. The director general of public health in Italy (at present in Paris) has been authorized by the Italian Government to negotiate with the French authorities in regard to this matter.

¹ Medical News, September, 1894.

² Philadelphia Medical Journal, December 21, 1901.

³ American Medicine, Vol. v, No. 2, p. 50.

THE LLOYD REACTION FOR MORPHIN AND OTHER ALKALOIDS.*

BY

DANIEL W. FETTEROLF, PH.G., M.D.,
of Philadelphia.

(From the Robert Hare Laboratory of Chemistry, Department of Medicine, University of Pennsylvania.)

The blue-violet color produced in the play of colors when strychnin is treated with sulfuric acid and potassium dichromate, is also yielded by a mixture of the alkaloids, morphin, and hydrastin when acted upon by the same reagents. This fact was discovered by John Uri Lloyd and was used by him in his popular novel, "Stringtown on the Pike," published in the latter part of 1900.

According to the investigations of Seward W. Williams,¹ the blue-violet color is produced when a mixture of these two alkaloids is treated with sulfuric acid alone. He suggested that this reaction be added to the list of alkaloidal tests and be termed the Lloyd reaction. Professor Lloyd originally suggested a mixture composed of one part of hydrastin and four parts of morphin, as yielding the most striking resemblance to the color test for strychnin, but later found that one part of hydrastin to nine parts of morphin produced better results.² He says: "An amount even so small as 12 mgm. gives violet vividly and from 1 mgm. or less it can be seen." However, from the experiments I have made, I have determined that the delicacy of the test is much greater. Indeed, so small an amount as 0.02 mgm. of the mixture, composed of 0.01 mg. of each of the alkaloids, yielded, under certain conditions, a pale blue-violet in the play of colors.

Lloyd employed in his experiments the white, crystalline alkaloid hydrastin, and morphin sulfate, as is shown by a personal communication received by me from him, in which he says: "I used the white alkaloid hydrastin and morphin sulfate, recognizing the fact that in common language morphin sulfate is called 'morphin.'"

In the experiments detailed in this paper, Merck's pure, white, crystalline alkaloid hydrastin, having a melting-point of 126° C., and Merck's pure alkaloid morphin, having a melting-point of 236° C., were employed.

Separate solutions of the two alkaloids in purified alcohol,† specific gravity of 0.820 at 15° C. representing 94% of alcohol by volume, in which 1 cc. contained 0.001 gm. of hydrastin and 0.003 gm. of morphin respectively, were employed in making the various mixtures. The smaller proportions were obtained by appropriately diluting the original solutions so that 0.1 cc. to 0.9 cc. would contain the desired quantity of the alkaloids.

In a series of experiments with dry mixtures containing respectively 0.005 gm. of hydrastin to 0.001, 0.002, 0.004, 0.006, 0.009, 0.012 and 0.015 gm. of morphin, sulfuric acid alone yielded a play of colors beginning with yellow, then brownish-yellow to blue-violet of more or less intensity in 10 to 15 seconds, changing to a red-violet or violet-red color in 2 to 5 minutes, slowly changing to a dirty olive-green on standing a half to two hours or longer. Mixtures composed of the same proportions of morphin as stated with 0.002 gm. and 0.001 gm. of hydrastin respectively yielded similar results. Mixtures composed of the same proportions, viz., 0.005, 0.002 and 0.001 gm. of hydrastin, with the quantities mentioned of morphin, treated with sulfuric acid and potassium

* Read before the Philadelphia Section of the American Chemical Society, October 20, 1904, and also, with the results of further investigation, before the Society of Normal and Pathological Physiology of the University of Pennsylvania, November 21, 1904.

†The alcohol employed was purified by distillation in a partial vacuum at a temperature between 35° C. and 48° C.

dichromate, yielded a pink-brown then blue-violet of more or less intensity in 10 to 15 seconds, with pink-brown streaks, in the smaller proportions and dark violet-blue streaks in the larger proportions following the fragment of potassium dichromate as drawn through

ucceeding ones, the mixtures were made by placing the amount of alcoholic solution containing the desired weight of the alkaloid in small, white, porcelain dishes, and allowing spontaneous evaporation to occur in an ice chest at 15° C. to 20° C. In this manner the thoroughly

TABLE I.

Ratio. Hydrastin; morphin.	Quantity of alkaloids in parts of a gram.		Sulfuric acid 4 drops (0.1 cc.) brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 4 drops (0.1 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Morphin.		
5 to 1	0.005	0.001	Yellow, brownish-yellow to pale blue-violet in 10 seconds, becoming deep blue violet in 3 minutes, and on standing 45 minutes changing to dirty olive-green.	Pink-brown to pale blue-violet with pink-brown streaks following the fragment when drawn through the mixture in 10 to 15 seconds; becoming darker blue-violet in 3 minutes, changing to dark red-violet with blue-violet margin in 5 minutes, and on standing 15 to 20 minutes becoming dark brown.
to 2	0.005	0.002	Yellow, brownish-yellow to pale blue-violet in 15 seconds, changing to reddish-violet with blue-violet margin in 5 minutes, and on standing 30 minutes becoming dirty olive-green.	Same as in the one preceding except that the colors were darker, and the red-violet with the blue-violet margin occurred in 8 minutes.
5 to 4	0.005	0.004	Yellow, brownish-yellow to decided blue-violet, changing to bright red-violet with blue-violet margin in 2 minutes, and on standing an hour becoming dirty olive-green.	Same as in the one immediately preceding.
5 to 6	0.005	0.006	Same as in the one immediately preceding except that the olive-green color was not produced until the expiration of 2 hours.	Pink-brown to dark blue-violet in 10 to 15 seconds, changing to dark red-violet with dark violet-blue streaks following the fragment as drawn through the mixture in 2 minutes, the violet-blue streaks disappearing and being replaced by a blue-violet margin to the dark red-violet center in 5 minutes, and on standing several hours becoming dark brown.
5 to 9	0.005	0.009	Same as in the one immediately preceding.	Same as in the one immediately preceding.
5 to 12	0.005	0.012	Same as in the one immediately preceding.	Same as in the one immediately preceding.
5 to 15	0.005	0.015	Same as in the one immediately preceding.	Same as in the one preceding except the red-violet, which was very dark violet-red in 3 minutes.

TABLE II.

2 to 1	0.002	0.001	Yellow, brownish-yellow to blue-violet in 10 seconds, changing to dark blue-violet in 3 minutes, and on standing 45 to 60 minutes becoming dirty olive-green.	Pink brown to very dark blue-violet in 5 to 10 seconds, changing to dark red-violet with dark violet-blue streaks following the fragment when drawn through the mixture in 1 minute, becoming darker red-violet with blue-violet margin in 3 to 5 minutes, and on standing 30 minutes changing to dark brown.
2 to 2	0.002	0.002	Yellow, brownish-yellow with blue-violet streaks in 15 seconds, changing to bright red-violet with blue-violet margin in 2 minutes, and on standing 2 hours to dirty olive-green.	Same as in the one preceding except the final brown color was darker, and was not produced until the expiration of several hours.
2 to 4	0.002	0.004	Same as in the one preceding.	Same as in the one immediately preceding.
2 to 6	0.002	0.006	Yellow, brownish-yellow to dark blue-violet in 10 seconds, to bright red-violet with blue-violet margin in 2 minutes, and on standing several hours changing to dirty olive-green.	Same as in the one preceding except the red-violet with the blue-violet margin was produced in 2 minutes.
2 to 9	0.002	0.009	Same as in the one immediately preceding.	Same as in the one immediately preceding.
2 to 12	0.002	0.012	Same as in the one immediately preceding except the red-violet with blue-violet margin occurred in 4 minutes.	Same as in the one preceding.
2 to 15	0.002	0.015	Same as in the one immediately preceding.	Same as in the one preceding.

TABLE III.

1 to 1	0.001	0.001	Yellow, with brownish-yellow streaks following the fragment as drawn through the mixture to blue-violet in 10 seconds, changing to red-violet in 5 to 10 minutes, and on standing several hours becoming pale brown.	Pink-brown to red-violet in 15 seconds, becoming darker red-violet in 5 minutes, and on standing 30 minutes changing to brown.
1 to 2	0.001	0.002	Same as in the one preceding.	Pink-brown to blue-violet in 10 seconds, to red-violet in 3 minutes, becoming darker red-violet in 5 minutes, and on standing 30 to 45 minutes changing to brown.
1 to 4	0.001	0.004	Same as in the one preceding.	Same as in the one preceding.
1 to 6	0.001	0.006	Yellow, brownish-yellow to blue-violet in 10 seconds, to red-violet in 1 minute, and on standing several hours becoming pale brown.	Same as in the one preceding except the red-violet was produced in 2 minutes.
1 to 9	0.001	0.009	Same as in the one immediately preceding except the red-violet was produced in 3 minutes.	Same as in the one immediately preceding.
1 to 12	0.001	0.012	Yellow, brownish-yellow to red-violet with blue-violet streaks in 10 seconds, to red-violet in 3 to 5 minutes, and on standing an hour or more changing to pale brown.	Pink-brown with blue-violet streaks following the fragment as drawn through the mixture in 10 seconds, to dark red-violet with blue-violet streaks in 2 minutes, and on standing 45 minutes changing to brown.
1 to 15	0.001	0.015	Same as in the one immediately preceding.	Same as in the one immediately preceding.

the solution, changing (in 5 minutes) to a red-violet or violet-red colored center, with a blue-violet margin, and finally to brown on standing 15 minutes to several hours.

The results are given in Tables I, II and III.

In the foregoing experiments, as well as in all of the

mixed alkaloids were deposited in a small area, except in those cases in which the volume of the mixture measured over 1 cc.

To obtain the greatest delicacy of reaction, the alkaloidal residue should be included in an area much smaller than that of a residue resulting from a single

evaporation of 1 cc. of solution, as stated by Haines,³ a fact which is generally recognized.

According to the investigations of Wangerin,⁴ mixtures of 0.001 gm. of hydrastin with 0.001, 0.002, 0.005, and 0.010 gm. of morphin, yield, with the Lloyd reaction, only a pale, dull pink, to bluish-pink or dull violet color; and 0.002 gm. of hydrastin with the quantities mentioned of morphin, from dirty, pale vio-

except with mixtures composed of 0.005 gm. to 0.010 gm. of morphin, with 0.002 gm. to 0.005 gm., or even 0.015 gm. of hydrastin. The proper color tone with these quantities is from pale reddish-violet to a bright violet-red, with more or less bluish-violet at the margin of the liquid.

In a series of experiments with mixtures composed respectively of 0.0005, 0.0002 and 0.0001 gm. of hydras-

TABLE IV.

Ratio. Hydrastin: morphin.	Quantity of alkaloids in parts of a gram.		Sulfuric acid, 4 drops (0.1 cc.), brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 4 drops (0.1 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Morphin.		
5 to 1	0.0005	0.0001	Yellow, brownish-yellow, pink-brown with blue-violet streaks in 10 seconds, to blue-violet in 3 minutes, and on standing an hour or more changing to pale brown.	Pink-brown with violet streaks following the fragment when drawn through the mixture in 5 to 10 seconds, to blue-violet in 1 minute, changing to dark brown in 5 to 10 minutes.
5 to 2	0.0005	0.0002	Same as the one preceding, except the brown was produced in less than an hour.	Same as in the one preceding.
5 to 4	0.0005	0.0004	Yellow, brownish-yellow, pink-brown to blue-violet in 10 seconds, slowly changing to pale brown.	Same as in the one preceding, except the colors were darker.
5 to 6	0.0005	0.0006	Same as in the one immediately preceding, except the blue-violet changed in 3 minutes to red-violet, which, when collected in a mass, was dark violet-red.	Same as in the one immediately preceding.
5 to 9	0.0005	0.0009	Same as in the one immediately preceding, except the colors were not so decided.	Same as in the one immediately preceding.
5 to 12	0.0005	0.0012	Same as in the one immediately preceding.	Same as in the one preceding.
5 to 15	0.0005	0.0015	Same as in the one immediately preceding.	Same as in the one preceding.

TABLE V.

2 to 1	0.0002	0.0001	Yellow, yellowish-brown with blue-violet appearing at the margin in 20 to 30 seconds, to pale blue-violet in 3 minutes, becoming slightly darker blue-violet in 5 minutes, changing to brown with a pink tint in 10 to 15 minutes.	Pink-brown to blue-violet with brown particles in 30 seconds, changing to dark brown in 5 minutes.
2 to 2	0.0002	0.0002	Yellow, yellowish-brown, pink-brown with brown particles in 3 to 5 minutes, to pale blue-violet in 5 to 10 minutes, changing to brown with a faint pink tint in 10 to 15 minutes.	Same as in the one preceding, except the colors were darker, especially the brown, which was almost black when collected in a mass.
2 to 4	0.0002	0.0004	Yellow, yellowish-brown, pink-brown, pink with brown particles and blue-violet streaks in 1 minute, becoming pale blue-violet in 5 minutes, changing to brown with a faint pink tint in 10 to 15 minutes.	Same as in the one immediately preceding.
2 to 6	0.0002	0.0006	Same as in the one immediately preceding, except the blue-violet streaks appeared in 10 seconds and changed to red-violet in 5 minutes.	Same as in the one immediately preceding, except the blue-violet was produced in 10 seconds.
2 to 9	0.0002	0.0009	Yellow, yellowish-brown, pale pink-brown with blue-violet streaks in 20 seconds, to pale red-violet in 5 minutes, changing to pale brown with pink tint in 10 to 15 minutes.	Same as in the one immediately preceding, except the brown was produced in 10 minutes.
2 to 12	0.0002	0.0012	Same as in the one immediately preceding.	Same as in the one immediately preceding.
2 to 15	0.0002	0.0015	Same as in the one preceding.	Same as in the one preceding, except the colors were not so decided.

TABLE VI.

1 to 1	0.0001	0.0001	Pale yellow, pale yellowish-brown to pale blue-violet in 1 minute, changing to reddish-violet in 5 minutes, and on standing 15 to 30 minutes becoming pinkish-brown.	Pink-brown with blue-violet streaks following the fragment when drawn through the mixture in 10 seconds, changing to violet of various shades in 2 to 3 minutes, and becoming pinkish-brown in 5 minutes.
1 to 2	0.0001	0.0002	Same as in the one preceding, except the reddish-violet was not produced until after the expiration of 8 to 10 minutes.	Same as in the one preceding, except all the colors were darker.
1 to 4	0.0001	0.0004	Same as in the one immediately preceding, except the blue-violet was darker and appeared in 10 seconds.	Same as in the one immediately preceding, except the blue-violet was darker and was produced in 1 to 2 minutes.
1 to 6	0.0001	0.0006	Same as in the one immediately preceding.	Same as in the one immediately preceding, except the pink-brown was not produced until after the expiration of 8 minutes.
1 to 9	0.0001	0.0009	Same as in the one immediately preceding, except all the colors were darker, especially the red-violet; and the pink-brown was not produced until after the expiration of 10 to 15 minutes.	Same as in the one immediately preceding, except all the colors were darker and the pink-brown was not produced until after the expiration of 10 to 15 minutes.
1 to 12	0.0001	0.0012	Same as in the one immediately preceding, except the colors were not so marked.	Same as in the one immediately preceding.
1 to 15	0.0001	0.0015	Same as in the one immediately preceding, except the red-violet was not produced until after the expiration of 30 seconds, and the pink-brown after 20 to 30 minutes.	Same as in the one immediately preceding, except the red-violet appeared after 5 to 10 minutes, and the dark brown after 15 minutes.

let to reddish-violet, with a bluish-violet margin; and 0.005 gm. of hydrastin with the same quantities of morphin, from olive or brownish-violet to reddish-violet, with blue-violet or amethyst margin; and 0.010 gm. of hydrastin with the similar quantities of morphin, from olive or violet to reddish-violet, with blue-violet or amethyst. His observations led him to the conclusion that the reaction is not really characteristic for morphin,

tin, with 0.0001, 0.0002, 0.0004, 0.0006, 0.0009, 0.0012 and 0.0015 gm. of morphin, treated with sulfuric acid alone, yielded a yellowish-brown color, quickly changing to pink-brown, to blue-violet in 10 seconds, to red-violet in 3 to 5 minutes.

Mixtures of the same content of alkaloids as stated, treated with sulfuric acid and potassium dichromate, yielded a pink-brown color, with blue-violet streaks

appearing in 5 to 10 seconds, changing to deep blue-violet in 1 minute, and finally to dark brown in 5 to 10 minutes, except in the series containing 0.0001 gm. of hydrastin, the final color being pinkish-brown in 5 to 15 minutes.

The results are given in Tables IV, V and VI.

BIBLIOGRAPHY.

- ¹ Williams: Druggist Circular, April, 1901, p. 73.
- ² Lloyd: "Stringtown on the Pike," 1901, p. 406.
- ³ Peterson and Haines: Legal Medicine and Toxicology, p. 519.
- ⁴ Wangerin: American Druggist and Pharmaceutical Record, February, 1903, p. 66; Pharmaceutische Zeitung von Berlin, January, 1903.

[To be continued.]

ACUTE CARBON BISULFID POISONING.*

BY

ALBERT PHILIP FRANCINE, A.M., M.D.,

of Philadelphia.

Instructor in Medicine, University of Pennsylvania; Staff of Phipps Institute, etc.

Carbon bisulfid poisoning is not common in this country, though a few cases have been reported.¹ It occurs not infrequently, however, in England and Continental Europe in connection with certain manufacturing industries in which carbon bisulfid is used in the technical process, and it is from foreign sources that most of our information upon this subject comes. CS₂ is used to dissolve phosphorus in the manufacture of sulfur matches; for vulcanizing caoutchouc in the manufacture of rubber goods; for extracting fats from bone, wool, and seeds; and in this country it has lately been applied to the making of artificial silk. It is a liquid which vaporizes at ordinary temperatures. In the pure state it has the appearance of water and an odor which is not unpleasant. The commercial variety is yellowish from the admixture of sulfur. The specific gravity is 1.272, and its boiling point 46° C. It is very slightly soluble in water, but readily so in alcohol, ether, chloroform and the fatty oils.

The vapor of carbon bisulfid mixed with air in certain proportions produces an explosive mixture. While air containing 5% per volume of the vapor will kill animals in a few minutes through paralyzing the respiratory centers, 1 gm. (15 gr.) of carbon bisulfid has produced death in a man in three hours.²

In the industries in which carbon bisulfid is used, the vapor is inhaled by the workmen and produces a characteristic syndrome on account of its highly poisonous qualities.

A. Delpech³ (1856) was the first to describe the symptoms of carbon bisulfid poisoning, and to his article the reader is referred for a detailed description. Drs. Jump and Cruice, in a paper read before this section, quote him and go at some length into the symptomatology.

The following case occurred in the medical dispensary of the University Hospital.

O. W., a German by birth, aged 37, was brought into the dispensary, March 4, 1904, quite evidently under the influence of some intoxication. He was accompanied by a fellow workman. His face was suffused and cyanosed, his eyes were dull and stuporous, his respirations were deep, slow and noisy, and his gait and station were unsteady. He spoke no English, but replied in German to questions by an evident effort at concentration. His mental condition was not unlike that of a man half drunk.

It was difficult to obtain any family history, or history of previous illnesses. Such as we were able to elicit was generally negative. He had had typhoid fever in 1888 and denied venereal disease. He smoked a pipe and drank a little beer.

He had been employed for three weeks in the Artificial Silk Works at Lansdowne, cleaning out cases and boxes after they had been used in the process of preparing the wood fiber. He began to suffer with symptoms almost from the first day. At first he felt fine when at work; better even than usual, but soon began to suffer with slight dizziness and headache. These symptoms increased and he began to sleep poorly and to lose

his appetite. He says he also suffered with weakness and mental depression after leaving the works, though while there he was often exhilarated.

After working, the day previous to his application to the dispensary, he suffered during the night with a peculiar attack which he was unable to describe. He was suddenly seized, while asleep, with what seems to have been an attack of transient delirium. His friend says that he talked violently and was wildly excited. This lasted several hours, toward morning he quieted down, though he was unable to talk coherently and intelligently till later in the day.

He now complains of great shortness of breath, of splitting pains in his head, of vague gastric distress and of dizziness. He also complains of frequent micturition. There is no hematuria nor vomiting.

Physical Examination.—In appearance the patient is a stout German, aged about 35. His face is flushed and his lips are markedly cyanosed. Perhaps the most striking feature in this case is the breathing. His respirations are very slow, not more than 12 per minute, and are accompanied by a deep inspiratory effort in which the chest is raised and the auxiliary muscles of respiration brought into play. Expiration is deep, prolonged and blowing. His dyspnea increases on exertion, even on walking. The heart is normal, the pulse 80 and weak.

His gait is noticeably affected and is somewhat ataxic, though it would perhaps be more accurately described as being a modified steppage gait. He shows loss of coordination; and Romberg's symptom is marked. When his eyes are closed he sways like a drunken man and would fall unless supported. His knee-jerks are normal and there is no Argyll-Robertson pupil. His hearing is somewhat impaired. His muscular power in hands and arms seems good, though he complains of feeling a loss there and of general weakness. Examination of blood shows red cells 4,200,000; hemoglobin 40%. The urine contains no albumin, sugar, nor blood.

Unfortunately the patient did not return after the first visit for further examination, so that I am unable to report more definitely on the nervous symptoms or the eyes.

The diagnosis, however, in connection with the history, offers no difficulties, and the case is in a general way typical of the symptom-complex presented in acute poisoning by carbon bisulfid.

REFERENCES.

- ¹ Peterson: Boston Med. and Surg. Jour., 1892, Vol. xxvii. Bard: California Practitioner, 1892, Vol. vii. Jump and Cruice: University of Pennsylvania Medical Bulletin, July-August, 1904.
- ² Kunkel: Handbuch der Toxikologie, Jena, 1899. Dissertation of S. Rosenblatt, Würzburg, 1890.
- ³ Mémoires de l'Académie de Médecine, 1856. F. Delpech: Nouvelles recherches sur l'intoxication, Paris, 1863.
- Maas: Inaugural Dissertation, Berlin, 1889.
- MacGregor: Australian Medical Journal, 1892, Vol. xiv.
- James Ross: Manchester Medical Chronicle, 1886-7, Vol. v.
- Pierre Marie: Bull. de Méd. Soc. de hôp. de Paris, 1889, Vol. v.
- Frost, Gunn, and Nettleship: Lancet, 1885, Vol. i.

Patent Medicine Her Fad.—When Mrs. Louis Zucker, who is 45, and lives in Hoboken, appeared recently in court against her husband, whom she charged with assault and battery, the defendant, who is a tailor, set up a remarkable defense. He told the recorder that when he married the complainant, she represented that she had \$800, and it was understood that he was to have whatever was left of this sum after the wedding expenses had been paid. This had not been done. His wife, he declared, read all the patent medicine advertisements in the newspapers, and whenever she came across a new one she would say that it was just what her system required, and would buy a bottle. There were now, Zucker alleged, some 300 bottles of patent medicines at his home.

The Health of the Philippines.—The monthly report of the Commissioner of Public Health for January shows: Of quarantinable diseases, a case of bubonic plague was registered, the victim being a Chinaman; and 2 cases of smallpox, both in Tondo, which were sent to the smallpox hospital for isolation and treatment. The municipal physicians attended in their houses 446 patients and made 1,364 visits; 266 patients called at the clinics established in the sanitary stations, and they were attended by the medical inspectors and municipal physicians in 773 consultations; 2,996 prescriptions were filled at the municipal dispensaries. There were 24,418 vaccinations and revaccinations performed in Manila, and 10,032 inspections were made, from which it is ascertained that 2,901 resulted successfully and 7,231 unsuccessfully. The sanitary inspectors inspected 2,572 houses and reinspected 848 to verify whether the work which had been ordered to place the same in a sanitary condition had been carried out. The assistant sanitary inspectors inspected 22,307 houses and reinspected 8,837; 2,802 yards were ordered to be cleaned, and 2,602 were cleaned; 15,801 rats were caught. The disinfecting brigade made 121 disinfections of houses where cases of infectious diseases have occurred, of stables where cases of infectious diseases among large animals were registered, and of insanitary places. The veterinarians of this bureau examined 7,626 cattle of all classes and 38 animals of other species before their admittance into the city, 40 cattle for their shipment to the provinces, and 6,426 before being slaughtered at the abattoir for the supply of the city.

* Read before the Section on Medicine of the College of Physicians, March 13, 1905.

SPECIAL ARTICLES

THE PHYSICIAN AS A CITIZEN.¹

BY

EDWARD N. BRUSH, M.D.,

of Towson, Md.

Physician-in-Chief and Superintendent, Sheppard and Enoch Pratt Hospital, Towson, Md.

Fellow Members of the Medical and Chirurgical Faculty:— The written law of the Faculty, as well as "tyrant custom," makes it incumbent upon the retiring president to deliver an annual address.

This duty stares the occupant of the high office to which your partiality has called me, in the face during the entire period of his official life. The knowledge of it sits down beside him at his morning, midday, and evening meals, and follows him through all the hours of the day, be they busy or not, and as his brain courts the slumber that is sometimes tardy in coming, he starts from his pillow, thoroughly aroused by the recollection of that still unwritten address.

There are betwixt his induction into office and the delivery of that dread address, "more pangs and fears than war or women have."

Some weeks since I listened with delight to a most eloquent speech at the dinner of the New England Society of Pennsylvania, and, as the speaker let fall the remark that to prepare himself for the occasion he had read all the after-dinner speeches before the Society for a series of years, having my duty ever before my mind, I thought: There at last is an idea. I shall follow his example and possibly gain, as he seems to have done, an inspiration. I will read the annual addresses of my predecessors.

Inspiration I did gain. Suggestive ideas in trooping multitude passed before me as I read on and on, but, alas! how could I use them and present again to you in my feeble way what has been so well and so eloquently said to you by the illustrious men who have filled this chair.

What am I that I should presume to give assent to their views or repeat their words but one "crying in the night and with no language but a cry?"

Permit me primarily to welcome you to the deliberations of the one hundred and seventh annual session of this ancient and honorable Faculty. The year that closes with this session has been an eventful one in its history. We have been working under a new organic law or constitution, with enlarged views of the character of our organization and the scope and purpose of its work.

The attempt has been made, with a fair degree of success, to interest every qualified regular practitioner in the State in the local medical society of his county or district, and through it in the central or parent society, the Medical and Chirurgical Faculty.

Local societies have been formed or were, at the time of the adoption of the amended constitution, in existence in Baltimore and in every county, and many of them are doing active and valuable work for the profession and the community.

One of your most honored presiding officers, addressing you as I do this evening said, "No class needs friction so much as physicians; no class gets less."

The busy practitioner absorbed in his daily round of duties, or the young man just from his school and hospital tutelage, is too apt to be so thoroughly absorbed in his own cares or the ills and worries of his patients, or in better preparing himself to share or alleviate their burdens, that he becomes unconsciously narrow and self-centered. To cure this, to tone down some of the egotism which all of us possess to a greater or less degree, there is nothing of greater value than frequent meetings with fellow physicians and the free and unrestrained discussion of each other's views. Moreover, too great isolation begets brooding and suspiciousness, and out of these grow

jealousies and bickerings which too often, alas! have marred the relations of professional men with each other. Not only do these unfortunate conditions result, but the physician who becomes thus self-centered loses sight of those broader interests in the advancement of which there is no man in his community, be it some simple country hamlet or populous city, who should and could wield a greater influence and one more intelligently directed for the good of the people.

The value which will flow from these organized associations of physicians all over the State cannot be estimated.

It will take some patience, much forbearance, and self-sacrifice on the part of the members, particularly in the less thickly populated parts of the State, to maintain these organizations and give them vitality and force.

The selection of an active, persistent man as secretary will go far toward accomplishing the task. He should be supported by an active committee to arrange for places of meeting, papers and topics for discussion, and he and this committee should see to it that for every meeting an attractive and instructive program is prepared, and that those on the program are on hand. Nothing more quickly kills a medical society than meetings with no definite work to do.

The Council of the State Faculty has prepared a list of names of several gentlemen, accustomed to didactic or clinical instruction by reason of holding college or hospital appointments, who will gladly attend meetings of county societies and present papers or open discussions upon topics connected with medicine or surgery. The secretaries of county organizations can always obtain speakers from the list by applying to the secretary of the Faculty.

Too much dependence should not, however, be placed upon outside aid. The problems of the local practitioner and of the community in which he lives are the ones which need discussion and upon which the interchange of views is of most value to the members of local organizations. Moreover, the very habit of talking before one's fellows upon scientific or social topics serves to clarify one's ideas, and is of itself, therefore, of no mean value. The makeshifts and expedients to which a country practitioner must resort, far removed from the convenient accident or emergency ward of a hospital or from some fellow physician for whose aid he sorely longs, deprived of access to the corner drug store or the instrument maker's shop, are many and ingenious, and the city doctor who attends the meetings of the county society, hoping to instruct his fellows in some new therapeutic or surgical procedure, will often come home with a broadened medical horizon.

I have seen the femoral artery skilfully taken up and tied, the patient lying on some boards taken from a nearby fence, with instruments from a very poorly-supplied pocket case, and, lacking a better instrument, the thread drawn under the artery by a looped and bent hairpin, the whole operation performed by the light of two or three railroad lanterns and in the open air. The surgical technic would shock a modern surgeon, but we had fresh country air, plenty of clear spring water, and our patient lives, or did a few years ago, a tribute to the skill, coolness, and ready adaptability to circumstances of the country doctor.

Not only will these county organizations be of value to the local doctors and the communities in which they live, but to the whole body of practitioners throughout the State, because they will knit together for public and professional good all the physicians of the State. I predict that the time will come, and come soon I believe, when no qualified and registered physician can afford to be outside his local medical society, when the public will look upon such a man with suspicion, doubting his progressiveness and his interest in professional and civic advancement.

Among doctors it has too often been said with truth, as I have intimated, that jealousies and disagreements are rife, and this is especially true, and I say it with no reflection upon them, but with the highest appreciation of their personal and professional worth among rural practitioners. The city doctors who meet each other frequently, either socially, in consultation or in the halls of their city society, show less of this. Opportunity for explanation of misunderstanding is afforded by social and professional contact. Better acquaintance begets truer appre-

¹President's annual address at the one hundred and seventh annual meeting of the Medical and Chirurgical Faculty of Maryland, Baltimore, Md., April 25, 1905, published synchronously with Maryland Medical Journal.

ciation of each other's good points, and so it will be among the members of the county societies. Dr. A will see that Dr. B is not what some local gossip has painted him, and getting to know him for what he really is, will realize that the deeds or words which have been ascribed to him could not justly have been laid at his door.

Not only will this occur, but the society performing its other, and by no means less important mission, the education of the public, will do more to stamp out irregular and quackish practitioners than all the repressive laws upon the statute books ever have done or ever will do.

The unqualified and unregistered advertising quack will find a barren and unproductive field to cultivate, and the man who follows, or pretends to follow—for in most cases it is mere pretense—some exclusive medical dogma will in time learn, if he has had anything approaching a proper medical training, that he is handicapped in a manner wholly unknown to the regular physician. By his profession, if he is honest, he is limited to certain drugs or certain dosage based upon a theory, while his neighbor, avowedly seeking the truth, persistently searching for that which shall satisfy the requirements of his patients and the demands of advancing science, can and does take advantage of any remedy or procedure which wisdom and experience approve.

In time, therefore, the honest practitioners of exclusive methods in medicine will drop their exclusive title and apply for admission to the ranks of regular medicine. When such applications are made, if the evidence goes to show that the applicants propose in the future to practise in accordance with the best teachings of science and experience, and to drop all claim to exclusive knowledge or success, the applicants should be received and given a helping hand and cordial support and sympathy.

The benefits which will accrue to the members of the county societies are not, however, by any means confined to those resulting from an opportunity to exchange views or to meet in social intercourse. If the plans which are now under consideration are adopted, and I do not see anything to stand in the way, each member will receive a monthly medical periodical published by the parent or central organization, the Medical and Chirurgical Faculty, containing the papers read at its annual and semiannual meetings, and the proceedings of the various component societies, the Baltimore City Medical Society and the county medical societies. Not only is it expected that this can be done without additional cost to the members, but other arrangements are in contemplation which will be greatly to the advantage of every member of the component societies.

The work of the year just closing at the home of the Faculty on Eutaw street has more than ever before demonstrated, if additional demonstration were necessary, the absolute need of enlarged quarters, of better accommodation for the large number of readers, annually increasing, who seek the use of our library, and of better, more commodious, and safer housing for our valuable and growing collection of books and periodicals.

In 1896 our library numbered 7,500 bound volumes, to say nothing of pamphlets and unbound periodicals; at present we have on our shelves 14,690 bound volumes, with a large increase in pamphlets and periodicals. In 1903 the readers consulting the library numbered 4,501; in 1904 they numbered 5,113. The collection of books owned by the Faculty is of great value, and under the direction of efficient and active library committees and the care of a trained librarian has been arranged and cataloged so as to make it available to the members of the Faculty in the best manner possible under present conditions.

The recent infusion of vigor into the library, its development, and its growing usefulness to the profession of Baltimore and the State is largely, however due to one man. In season and out of season, at home and abroad, his thoughts and his work have been for our library and its development into a center of medical thought and medical work.

Few outside of the library committees of the past 15 years have known how much in time, in energy, in valuable books, and in resources to purchase others have been contributed for our benefit, fellow members of the Faculty, by this one member, your former honored President, Dr. Osler. I doubt, indeed, if anyone knows or will ever know the debt this

Faculty owes to him in this respect alone. This debt, however, is not one which the Faculty alone owes. Every new book, every periodical, home or foreign, added to that library has been in some way, directly or indirectly, a benefit, and a benefit whose value cannot be measured by money values to the citizens of this community and State. The annually increasing number of readers visiting the library shows the growing appreciation in which it is held by the members of the Faculty. Books and periodicals are there found which many practitioners find it impossible to own, and yet every member of this ancient medical body has, by reason of its library, opportunity to consult them. What results? The most recent teachings of scientific men the world over are placed at the disposal, citizens of Baltimore and Maryland, of your family physicians. Not a laboratory, not a clinic, not a hospital but contributes in research or in the practical application of newly-devised methods, in the prevention or cure of disease or the alleviation of suffering, to your preservation from the "pestilence that walketh in darkness" and from "the destruction that wasteth at noonday."

The purposes for which this Faculty is organized, as stated in its constitution, are:

"To federate and bring into one compact organization the entire medical profession of the State of Maryland; * * * to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; * * * and to enlighten and direct public opinion so that the profession shall become more capable and honorable within itself and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life."

Such a statement of purposes involves on the part of those subscribing to the constitution, by reason of membership in the organization of which it is the organic law, the exercise of some of the highest duties of citizenship. To seek "to enlighten and direct public opinion" to the end that disease may be prevented and life prolonged and made more comfortable implies a scheme of public philanthropy which embraces everything in the daily lives of our fellow citizens, and has relation to everything which influences those lives for good or evil.

It has occurred to me that some remarks, therefore, upon the duties of the members of this Faculty as citizens, or upon "The Physician as a Citizen," as appears upon your printed program, might in some small degree, if they did not enlighten, at least direct the thoughts of the profession and the public toward matters of more or less importance in our civic life.

If in attempting what I confess, as I approach it, appears a stupendous task, by reason of the many and intricate matters in our laws and political organization and methods, which should appeal to the thoughtful physician and upon which his advice might, with advantage, be sought by those who make and execute our laws, I sometimes wander from my subject as it has been announced and dwell more upon the matters of which the physician as a citizen should take cognizance, than upon the manner in which he can make his influence and knowledge felt, you will, I trust, excuse the digression. It is often much easier to point out heights to be scaled than to either lead the way or even make a map of the most direct or feasible path.

Some time ago, reading at random a page here and there of the "Laws of Plato," the subject of my address was suggested to me, and those in this audience who have found not only delight and relaxation, but instruction as well, in following Jowett's most excellent translation, will, I am sure, recognize in more instances than I shall perhaps be just and careful enough to acknowledge in my manuscript, my debt to the Greek philosopher.

We are citizens of no mean State or city, but there are few of us I imagine who have not seen, who do not daily see, conditions or know of methods in public affairs, in the making or administration of our laws, which do not tend either to prolong life or make it more comfortable.

Physicians, as a rule, governed in some instances by a fear that in attempting to "enlighten and direct public opinion" they may lay themselves open to the suspicion of attempting

self-advertising, or by a distrust of their abilities to guide public opinion, are not inclined to mix in public affairs. Matters upon which they, and they of all men should speak, are ignored to the detriment of the body politic, to the disgrace of the profession.

In the system of laws to which I have referred, one reads: "Worthy of honor is he who does no injustice, and of more than twofold honor, if he not only does no injustice himself, but hinders others from doing any. The first may count as one man; the second is worth many men, because he informs the rulers of the injustice of others. And yet more highly to be esteemed is he who cooperates with the rulers in correcting the citizens as far as he can."¹ In the lines quoted, injustice may be taken to mean any act or method of living which may be harmful to the other citizens, either directly or by reason of the influence of the act upon the person himself. The Athenian in these dialogs would "regulate our cities and houses according to law, meaning," he says, "by the very term law, the distribution of mind," and asserts that these statutes "fulfill the object of laws, which is to make those who use them happy." The "best existence" from which happiness naturally flows, is declared to be the greatest political good of individuals and States. This best existence does not consist for the city or State in great power or wealth or extensive trade, but in the conservation, by wise laws, well executed, of the best interests of the citizens.

The laws of Plato's republic, seeking to accomplish these objects naturally, sought not only the welfare of those already in existence, but, looking to the future, proposed to so regulate marriage that future generations should suffer as little as possible from transmission of the evil traits and tendencies of their progenitors; should inherit as much as possible of the good.

The rules laid down were of necessity Utopian, but are none the less suggestive. Few physicians in my audience of any length of practice but have been asked to advise in some doubtful case as to the wisdom of a contemplated marriage; few when their advice was against the proposed union have seen their advice followed. In how many more instances have they known of marriages which were, viewed from the medical standpoint, crimes against the race, and yet the doctor, with all the aspirations of a good citizen, with his country's good in view and having the welfare and happiness of her citizens at heart, must, more often than is realized by the nonprofessional, stand idly by while such crimes are being committed. I know the delicacy of the subject; I realize the difficulty of approaching it with an unbiased mind, and the exceedingly great difficulty of laying down any hard and fast rules. Nevertheless I am firmly of the opinion that the question is one which should receive thoughtful consideration rather than the careless, sometimes flippant, treatment now accorded it. Laws regulating marriage are upon the statute books of all of our States. The age at which, and the degrees of consanguinity within which the marriage contract may be made are stated with more or less definiteness, and one may ask: Why not state what diseases or tendencies to disease present in one or both parties shall be a bar to the contract?

It is extremely doubtful whether such legislation could be enforced for many reasons, some of which will immediately occur to my hearers, but something possibly can be accomplished by the strong force of professional opinion and by the influence, unseen, but nevertheless potent, of the family physician upon those under his professional care. The tendencies of heredity are not "always to the better," and "benign nature" is very untrustworthy.

'Tis a happy optimism, perhaps, which can blindly trust

That somehow good

Will be the final goal of ill,

To pangs of nature, sins of will,

Defects of doubt and taints of blood,

but an optimism which no thoughtful physician, in the face of every-day experience can long entertain when questions of heredity are considered. Nature,

So careful of the type,

So careless of the single life,

needs sometimes wiser guides than lovelorn maids or lovesick swains.

If there be any doubt as to the practical application of Plato's laws in the matters to which I have just referred, there can be little question that in the matter of education of the youth, he was in many respects far in advance of many of the theories and practices of our own time.

Well-devised rules were laid down concerning the training of the young. The most careful attention was paid to good surroundings; nothing mean or vile was to meet the eye or strike the ear of the young scholar; music, literature, and gymnastics were first taught; gentleness was to be united with manliness; beauty of form and activity of mind were to be mingled in perfect and harmonious accord.

The object of education was to fit the growing child and youth to become a good citizen. The primary object was not the good of the individual as an individual, but the good of the State or the whole by making the units thereof best fitted to assume either the duties of citizens, teachers, or legislators. The object of learning is the good of mankind.

Bacon somewhere says: "Men have entered into a desire of learning and knowledge sometimes upon a natural curiosity and inquisitive appetite, sometimes to entertain their minds with variety and delight, sometimes for ornament and reputation, and sometimes to enable them to victory of wit and contradiction, and most times for lucre and profession, and seldom sincerely to give a true account of their gift of reason for the benefit and use of man, as if there were sought in knowledge a couch whereon to rest a searching and restless spirit, or a terrace for a wandering and variable mind to walk up and down with a fair prospect, or a tower of state for a proud mind to raise itself upon, or a fort or commanding ground for strife and contention, or a shop for profit or sale, and not a rich storehouse for the glory of the Creator and the relief of man's estate."

The Athenian youth was taught that his duty and the object of his training and education were the advancement of his country's good, not his personal benefit. In his oath on being admitted to citizenship he swore to endeavor to leave his country, as the result of his life, in a "better, not a worse condition."

How many of the youth of the present day or of the day when you and I, my hearers, were school boys and girls are or were taught such high ideals either by precept or example?

What effect upon the growing generation does the present-day strife for power and pelf have in enlarging its appreciation of the true value of learning, of the real power or influence of ideas?

I have, as I know you have for yours, a living and ever-present reverence for the teachers of my youth, but I cannot help realizing how low and mean were some of the incentives to work and study which were held up before the school boys of my day.

We heard much of the use and value of education, in getting on in the world, of the importance of economy and frugality, but little of ethical value of these to the individual or the State. Honesty as the "best policy" was taught; the true significance and importance of honesty in the character of the individual was too frequently overlooked.

Montaigne in one of his admirable essays thus speaks of education: "I willingly fall again into the discourse of the vanity of our education, the end of which is not to render us good and wise, but learned, and she has attained it. She has not taught us to follow and embrace virtue and prudence, but she has imprinted in us their derivation and etymology. We know how to decline virtue; we know not how to love it. If we do not know what prudence is really and in effect by any experience, we have it by heart."

And thus it is with much of the education of our times. There seems to be not only an unfortunate ignorance of the real object of education on the part of many who pose as teachers, but an equally, nay, more unfortunate lack of appreciation of the nature and capacity of those who are to be educated. The same course and the same methods are applied to all scholars and the same results are expected. In many instances the teachers recognize the hopelessness of the task, but are ignorant of the origin of the difficulty, and so the fruit-

¹ "Dialogs of Plato," Jowett's Translation, Vol. v, Laws V, p. 112.

less experiment is tried over and over again of making all children conform to a fixed and arbitrary standard. The matter is one which comes wholly within the purview of medical science.

In some instances the difficulties in the way of progress by the apparently backward pupil are not far to seek. Remembering that all the impressions which reach the brain must come to it through some of the sensory pathways, it is often a simple thing to demonstrate that an unrecognized or neglected defect in sight or hearing has obstructed the channel for incoming impressions. In many cases, however, the defect lies deeper and is of more serious import. There are all grades of cerebral development, or, to put it another way, many varieties of cerebral defect, and in more instances than parent or teacher know the backwardness or apparent stubbornness of the unfortunate pupil is due to such innate defect that the capacity to receive impressions is either seriously impaired or practically lacking.

Recently in New York City,¹ a superficial examination by Dr. Luther H. Gulick, director of physical training in the city's educational institutions, has demonstrated that there are thousands of children admitted to the public schools every year who are absolutely mentally unfit to cope with the conditions which they meet. He says that fully 10% of the pupils of the public schools should have special attention. From 5,000 to 10,000 are so deficient that they should have special instruction in small classes to fit them for any part in life.

I have not the least doubt that the same conditions exist here in Baltimore and in all of the schools of the State. I am told that an inquiry made some time ago, confined to a limited number of schools, showed that there were many pupils who remained term after term in the same grade, to the chagrin of the teachers, to the mystification and annoyance of their parents.

The laws of the republic of Plato lay down many regulations concerning teachers, both as to their duties and their selection. No hesitancy is shown in going abroad in search of the best that can be found, and no surprise is evinced by any of the participants in the dialogs when the statement is made that teachers shall be "brought from foreign parts by pay."

The methods pursued in some of our communities in the choice of those who shall instruct the youth of the land would seem to indicate that those charged with their selection were wholly oblivious to the responsibilities of their position or its importance to the community. The baneful influence of favoritism or practical politics plays an altogether too powerful role in our educational system in many instances.

In the surroundings of the pupil, in the ideal republic, you will remember that nothing mean or vile was to meet the eye or strike the ear of the young scholar.

How careless are we in this respect! Our very schoolhouses in many instances are lacking in architectural grace, and are too often placed in the most unfortunate surroundings. Happily, there is being aroused and cultivated in this country a taste for good architecture, both constructive and landscape, and those who control the erection of our schoolhouses are, I am happy to say, commencing to appreciate the importance of surroundings which shall cultivate a taste for the beautiful while the mind is being trained to an appreciation of the good and the true.

How few appreciate the influence which our material environment has upon the lives and mental development of the growing generation! How fully ought the medical profession to realize from daily experience the importance of these things!

If I may be permitted a reference to a personal experience, I would like to tell you how, years ago, in a large public hospital for the insane, I saw the character of the patients, in a portion of the institution devoted to the most excited and turbulent, changed by the addition to the formerly restricted limits of the long and narrow corridors, of large day-rooms, with frescoed walls, pictures hung within not only the view, but the reach of all, flowers and singing birds. The same class of patients remained in the enlarged and brightened apartments,

and to them the same class of new admissions was sent, but a reasonable degree of contentment and quiet took the place of noise and excitement. We had at first a few pictures broken, but they were easily replaced, and soon came to be respected, and, in short, the patients responded in a marked degree to, and appeared to appreciate, the esthetics of their surroundings.

Not the "magic numbers and persuasive sound" of music alone have power to "move the living soul," but beauty keeps

A bower quiet for us, and a sleep
Full of sweet dreams, and health and quiet breathing.

[To be continued.]

MISCELLANY

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS.

In the treatment of pulmonary tuberculosis, there is absolute unanimity that fresh air is the chief condition of success. To obtain it at the least expense, becomes the second demand. In New York, it is estimated that there are 30,000 tuberculous patients in the city alone, for which there was public provision for beds for only 1,962, or one bed for every 15 patients. In the State, there is but one bed for every 244 patients. The housing of these patients, therefore, becomes the most pressing of all problems. Throughout the country there are sanatoriums so-called, hotels and quack institutions of many kinds, all designed to cheat the poor tuberculous patient in the name of philanthropy



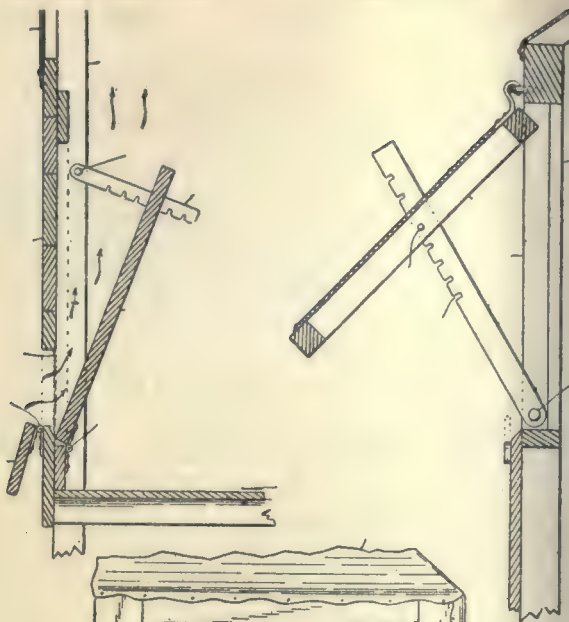
and science. There is a very simple device which, if utilized would enable these patients to carry out the fresh-air treatment, at far less expense than is now necessary. This is the tent, or tent-like structure. It is cheap, easily transported and erected; it is cleanly, secures privacy and separation from others, and it may be sold to others at any time when cure or circumstances demand. In our issue of April 1, 1905, we published an article descriptive of an excellent style devised by Dr. Mary Lapham. The Committee on the Prevention of Tuberculosis of the Charity Organization Society of the city of New York, has issued a pamphlet on "Some Methods of Housing," which gives illustrations and explanations of other ways of meeting the problem. By the courtesy of the society we are able to reproduce a number of cuts which may suggest to our subscribers an application to the society (105 E. Twenty-second street, New York City) for further details and explanations.

The Tucker Tent is an individual tent used at the Association Health Farms of the Denver Young Men's Christian Association. It has:

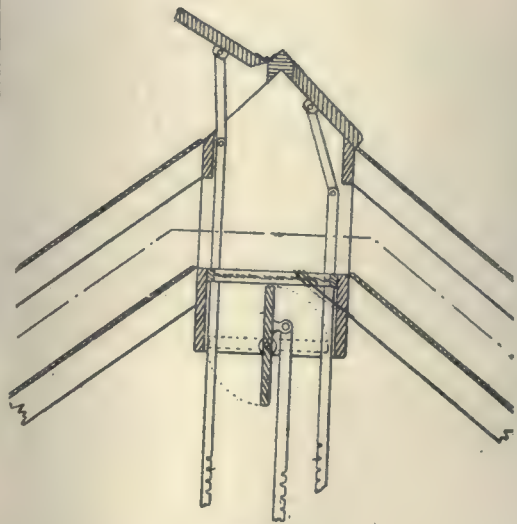
1. A combination roof and fly ventilator with regulator attachments placed in the center of the top of the tent.
2. Two awning frames making up the front wall of the tent,

AIR INLET NEAR FLOOR.

FRONT AWNINGS OPEN.

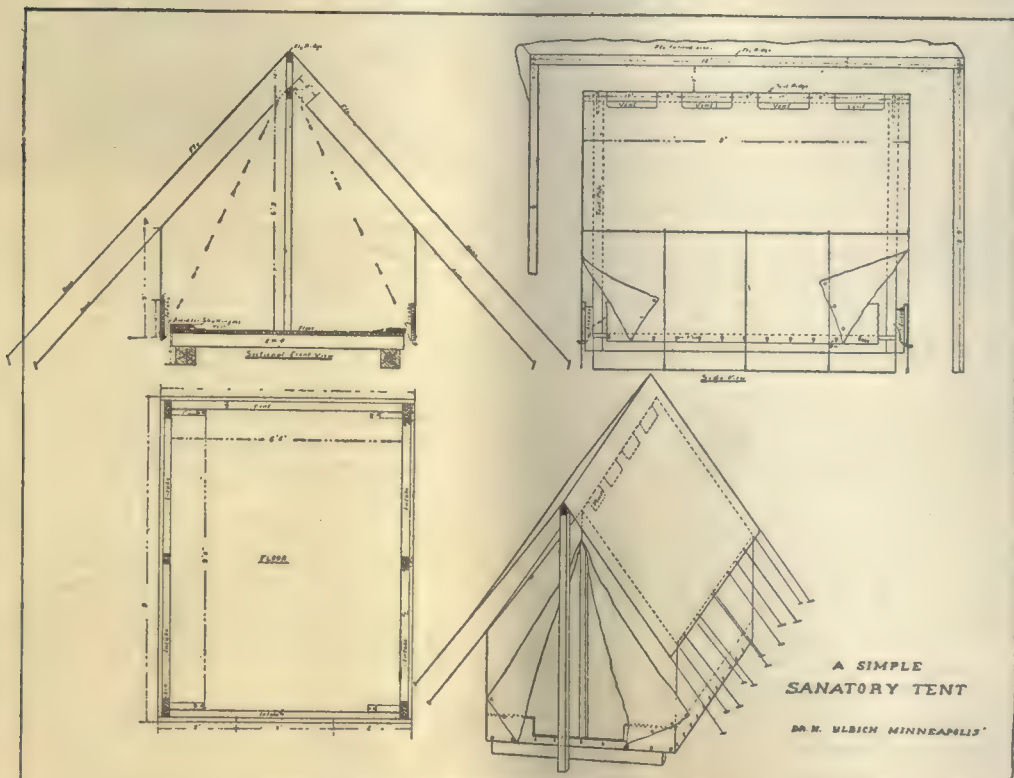


FRONT AWNINGS CLOSED.



ROOF VENTILATORS.

DETAIL OF THE TUCKER TENT.



A SIMPLE TENT FOR TUBERCULOUS PATIENTS.

These may be raised at various angles as awnings, or removed entirely so as to admit the free entrance of sunlight.

3. A side wall ventilation compartment consisting of a hinged width of drop-siding opening downward on the outside wall and having in a corresponding position on the inside wall



another wider board hinged at the bottom and capable of being opened at any desired angle. The method of controlling the inlet of fresh air is designed to keep the floors of the tent free from any draught.

4. A fly extending a foot over the edge of the tent and 10 inches above and parallel to the roof, allowing a free circulation of the air over the entire roof of the tent.

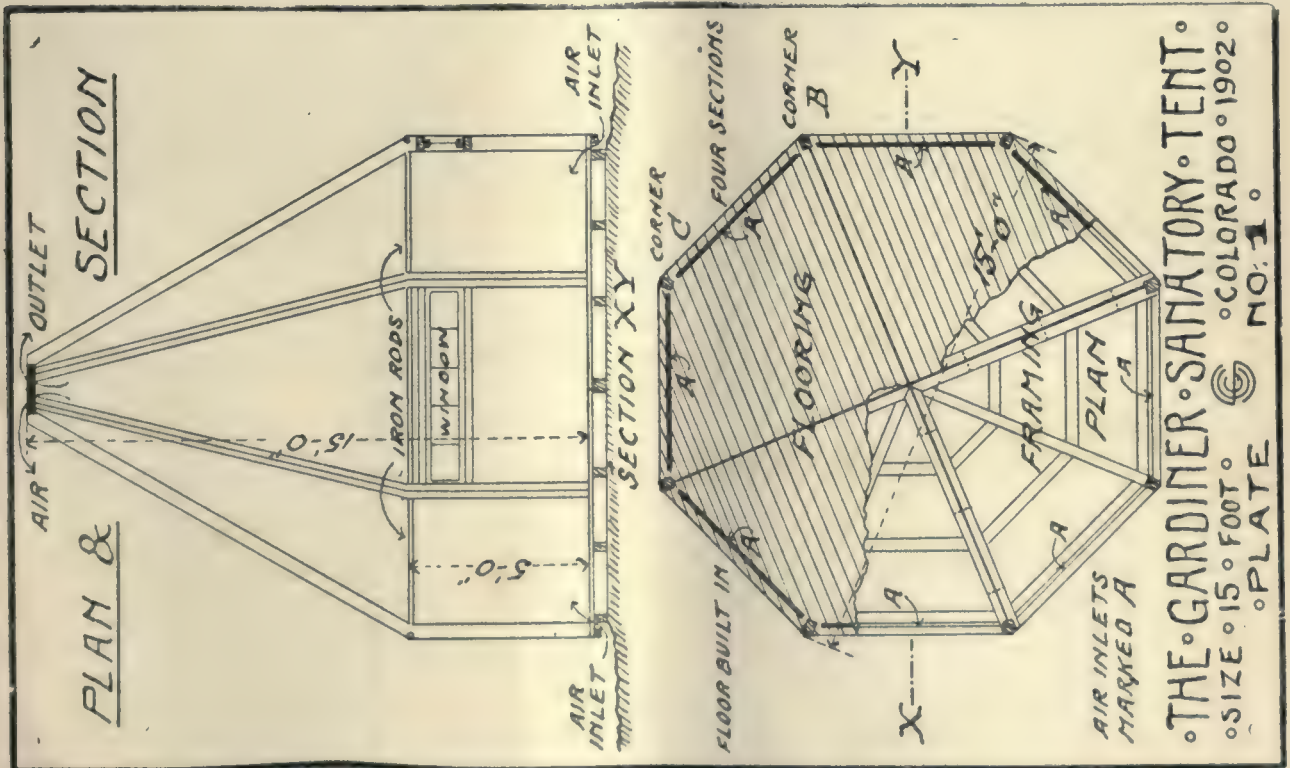
A four-panel, hand-made, screen door, wire screen cloth for

all openings, two six-light windows, lumber for frame, floor and sides, all finished, cut to measure and ready for assembling, together with 12-ounce, double-filled Monarch Army duck, cut in proper sizes for roof, fly, and walls of tent, complete the outfit, which is sold f. o. b. Denver at \$75 for size 8 ft. by 10 ft., and at \$100 for size 12 ft. by 14 ft. Details of the construction are shown herewith.

The simple sanatory tent of Dr. Ulrich is illustrated in the annexed cut. It has the great merit of cheapness, and it may be of any size. The 10x12 ft. is perhaps best for a single person. It permits a stove in cold weather, and costs in the Minneapolis market \$22.50.

The floor is raised a foot from the ground. A framework of boarding 1x12 in. is built around the border set 1 in. to 2 in. away from the edge and at right angles to the floor plane. This frame is rigid and extends at least 2 in. below the under floor surface. This arrangement gives the air intake or floor vent. The frame extends below the floor in order to make an angular entrance for the air, thereby avoiding direct draught. The floor and its framework are built to fit the inside of the dependent walls of the tent. In tent making there is always a play of several inches owing to the variations in widths of canvas and to technic. It is wise to instruct the maker to measure the base of the tent ordered and append the results to the delivery slip. The floor and its frame can then be built to fit snugly. The walls are attached to the outside and low down on the frame overlapping liberally at the corners. All four walls can be rolled up and reef loops are attached under the eaves to hold the rolled sides. The movable walls permit one to make a canopy or simulate the three, two or one-walled shack.

The Gardiner sanatory tent has now been in use about seven years. Its main feature is the automatic supply of outdoor air with a proper degree of warmth to insure comfort in cold weather. It is 16 feet wide and in lots of 25, costs about \$90 each. Improvements have been devised since these cuts were made, and it now has a wall 6 ft. high, so as to allow proper height for a wooden door. Many tents are also made with a vestibule some 8 ft. or 10 ft. long, which allows space for a trunk, closet to hang clothes, etc.; also, in some instances, a wainscoting has been built of wood inside the tent, 2 in. or 3 in. from the wall, extending to within 3 ft. or 4 ft. in height from

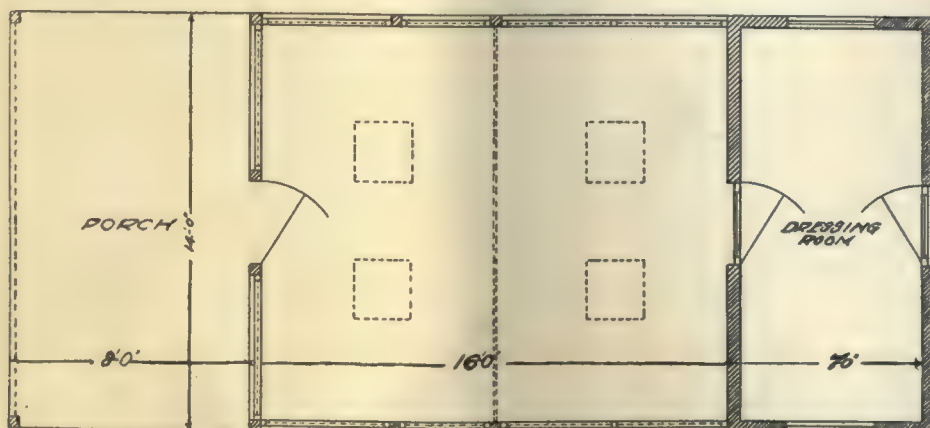
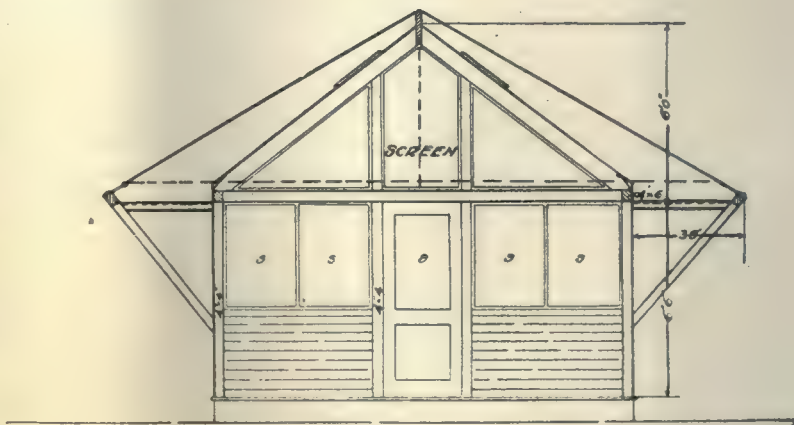




the floor. The air then enters the tent as usual, passes up the wainscoting, and flows over the top of the same, instead of entering at the floor level.

The flooring is made of 4-inch tongued and grooved pine boards, supported by joists of 2 x 4 timber bolted together, the intermediate shorter timbers on the outside being also 2 x 4. The uprights are made of 2 x 3 joists, the rafters also measuring 2 x 3, the wood being reinforced by angle irons or plates, as shown.

The Adirondack Tenthouse of Dr. Biggs can be used eight or nine months of the year and may be warmed in moderately cold weather. It will accommodate three or four beds. It can be erected anywhere at a cost of \$150 or \$200. The details of construction are set forth in the Charity Organization's pamphlet.



THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 20, 1905. [Vol. XLIV, No. 20.]

1. Ankylosis: Arthroplasty—Clinical and Experimental. JOHN B. MURPHY.
2. The Treatment of Bone Cavities. JAMES E. MOORE.
3. Modern Treatment of Tuberculosis. C. O. PROBST.
4. The Importance of an Early Diagnosis in Cancer of the Uterus. JOHN A. SAMPSON.
5. Cesarean Section for Placenta Prævia an Improper Procedure: The Statistical Study of 25 Reported Cases, with the Comparative Mortalities of 1,257 Cases of Cesarean Section and 4,731 Cases of Placenta Prævia Treated Obstetrically. RUDOLPH WIESER HOLMES.
6. The Universal Method of Clinical Writing by Means of Clinography. PROF. V. PENSUTI.
7. Tuberculous Meningitis: Report of Three Cases. WILLIAM FITCH CHENEY.
8. Physicians in Fiction: Physicians as Seen by Henry Fielding. C. D. SPIVAK.

1.—See *American Medicine*, Vol. VIII, No. 3, p. 100.

2.—**The Treatment of Bone Cavities.**—The difficulties of properly producing obliteration are noticed by Moore; the dangers of infection, the slowness of healing, etc. He has had the best results with von Mosetig's mixture of 60 parts iodoform, 40 parts spermaceti, and 40 parts of oleum sesami. This, uniformly mixed at a temperature of 50° C., can be poured into the cavity, where it immediately solidifies. It does not act as a foreign body or a culture medium, nor does it cause iodoform intoxication, but it is gradually absorbed and replaced by new tissue. The cavity, of course, should be dry and sterile. The periosteum is closed with catgut after the mixture has been put in and the integument with fine silk. While it cannot be used in acute osteomyelitis, in other conditions he finds it better than any other method.

4.—See *American Medicine*, Vol. VIII, No. 17, p. 708.

5.—**Cesarean Section for Placenta Prævia.**—R. W. Holmes, as the result of an extensive statistical study of the comparative mortality of cesarean section and of placenta prævia treated obstetrically, decides that cesarean section for placenta prævia lowers the fetal mortality 30%, but increases the maternal deathrate nearly threefold. Approximately, the mother is sacrificed for the uncertain chance of life of the child. He questions the statistics somewhat, holding that some maternal mortality is unrepresented. A rigid os is one of the rarest complications of placenta prævia; most cases so diagnosed are, he holds, wrongly so considered. A true cicatricial cervix or rigid cervices of old primiparas may afford an indication for cesarean section in placenta prævia. Pelvic contractions are indications for cesarean section in the presence of præval hemorrhage, the deformity, not the prævia, being the determining indication. The earlier the interruption of gestation, other things being equal, the more may the pelvic deformity be disregarded. Usually the condition is not recognized until hemorrhages appear. Cesarean section for placenta prævia will never have so low a maternal mortality as when done for a pelvic indication.

6.—**Clinography.**—V. Pensuti describes under this name a method of recording clinical findings which he has devised and which has been largely adopted in the Italian hospitals. It consists of a system of lines and arbitrary characters indicating the principal symptoms and the topography of the disease in diagrams. The topograms and semiograms must be memorized in order to utilize the system.

7.—**Tuberculous Meningitis.**—W. F. Cheney reports and comments on three cases, with special reference to diagnosis. We should always be suspicious of tuberculous meningitis in a child in illness with associated digestive disturbances, slight fever and irritability of temper. Stupor is more significant, but it may also be due to intestinal toxemia or some acute infection, but in such case there is usually a higher fever. Evidences of intracranial pressure, such as pupillary abnormalities, local paralyses, irregularities, etc., are still more definite indications, but these, like the mental condition, may vary from day to day, thus giving rise to false hopes of recovery. Rigidity of the neck muscles is a very valuable sign, only likely to be simulated by disease of the cervical vertebrae or rheumatic torticollis, and in these, other symptoms of meningitis are apt to be wanting. The Kernig sign, so valuable in the

adult, is, according to Cheney's experience, difficult to elicit in children, owing to their fear of manipulation. The white blood count is of value, a moderate leukocytosis pointing to tuberculous rather than to other forms. Lumbar puncture furnishes negative evidence of value, with the other symptoms present, a clear fluid, free from microorganisms is characteristic of tuberculous meningitis.

Boston Medical and Surgical Journal.

May 18, 1905. [Vol. CLII, No. 20.]

1. The Satisfactory Prostatectomy. BENJAMIN TENNEY.
2. The Paramount Value of Localized Rales as a Sign of Incipient Pulmonary Tuberculosis. H. B. WHITNEY.
3. The Therapeutic Value of Some Digestive Preparations, and the Indications for the Use of Pepsin, in Diseases of the Stomach. RICHARD F. CHASE.
4. Infections of the Respiratory Tract with Influenza Bacilli and Other Organisms, Their Clinical and Pathologic Similarity, and Confusion with Tuberculosis. (Concluded.) FREDERICK T. LORD.

1.—**The Satisfactory Prostatectomy.**—B. Tenney considers that perfection depends on removal without damage to the urinary or sexual functions. The muscular fibers of the ureters pass along the trigone into the urethra, their tension opening the urethral orifice. These should be preserved. Unless the glandular tissue behind the urethra and above the ejaculatory ducts is greatly hypertrophied, it can be pulled either way without damage. If pulled upward, the above described muscular fibers will be ruptured, and if pulled straight down, the ejaculatory ducts may be injured. It is important to find the point of cleavage between the mass and the surrounding bloodvessels. Suprapubic operation gives the best results in those who survive. The great mortality, which is due to shock and pulmonary complications, can be reduced by operating in two stages, the first under local anesthesia, a drainage-tube being inserted after cystotomy, with a permanent catheter in the urethra. Several days later enucleation under ether can be done carefully in from two to five minutes. The bladder opening should be very small and high, after stripping back the peritoneum. The resulting adhesions form a sort of suspensory apparatus. This operation is least satisfactory on those having a fibrous prostate. Drainage can be conducted through tubes into bottles, thus enabling the patient to sit up from the first. [H.M.]

2.—**Localized Rales in Incipient Pulmonary Tuberculosis.**—H. B. Whitney states that while tuberculosis cannot be excluded because rales are not discovered, they usually appear at a very early stage. Most cases begin at one apex as a mild bronchopneumonia. The consolidations are too small and scattered to be recognized as such. Diminution of respiratory movement is imperceptible in very early cases. Generally the pitch is only a little above normal and very slightly prolonged. Localized rales are nearly pathognomonic. Moist rales, or perhaps dryish clicks, are, on the whole, most significant. Sonorous and sibilant rales occasionally originate outside the lung. Rales are to be sought everywhere, but occur oftenest in the suprascapular fossa. To elicit these there should be a rather rapid and forcible inspiration with open mouth and an expiration as quiet and natural as conditions permit. Another method is to have the patient give a short, quick cough, followed after a very brief interval by the same deep, quick inspiration. No amount of coughing or deep inspiration will produce rales in a healthy individual. [H.M.]

3.—**Some Digestive Preparations.**—R. F. Chase reports experiments in digestion with (1) an essence pepsin, (2) an essence pepsine, (3) a scale pepsin, (4) an elixir and tablets lactopeptine, (5) liquor diastosis, (6) tablets pepsin and pancreatin, (7) tablets panzyme, (8) tablets peptenzyme, (9) an elixir digestive ferments, and (10) papain. Tests showed that all these were acid due to lactic or hydrochloric acid. On adding albumen to these in solution no digestion whatever occurred because none was acid enough to render the pepsin active. The addition of gastric juice from a case of gastritis failed for the same reason. We have no preparations depending upon pepsin for their activity which aid the digestive power of any gastric juice deprived of its HCl. Pancreatin is rendered inert by the gastric juice. Ferments antagonistic to each other are combined in the same solution. In the majority of cases in which HCl is absent from the gastric juice, pepsin is not indicated be-

cause the juice becomes active as soon as it is acidulated. In atrophic gastritis, achylia gastrica and some cases of cancer both HCl and pepsin are lacking. [H.M.]

4.—Infections of the Respiratory Tract.—F. T. Lord states that in 186 nontuberculous infections of the respiratory tract, observed clinically, for the most part bronchitis, (1) a mixed infection with various organisms was found in 120 (64%); (2) a comparatively pure infection with one group of organisms was found in 66 cases (36%), the influenza bacilli comprising the largest group. The pure infections tend to become mixed as the case progresses and the observer is in doubt as to the relative importance of the various infecting agents. There is nothing distinctive in the clinical picture of the different pure infections. The exudates are similar in character and in tendency to permanently damage the pulmonary substance. These results of pulmonary invasion are frequently mistaken for pulmonary tuberculosis. Of 85 cases of pneumonia, associated with various organisms, wellmarked localized pulmonary abscesses or induration or both were found in 8. No tuberculosis could be demonstrated at autopsy. From the clinical resemblance to tuberculosis, tubercle bacilli in the sputum are the only infallible means of differentiation. [H.M.]

Medical Record.

May 20, 1905. [Vol. 67, No. 20.]

1. Cystoscopy and Renal Lavage. FRANK M. JOHNSON.
2. The Disorders of the Nervous System Arising in the Course of Chronic Nephritis. WILLIAM M. LESZYNSKY.
3. The Treatment of Eczema and Impetigo in Children. CHARLES W. ALLEN.
4. The Relation of the Medical Profession to the Restriction of Tuberculosis. S. P. WISE.
5. A Case of Hodgkin's Disease with But Slight Enlargement of the Superficial Lymph-glands. HENRY FARNUM STOLL.
6. Ventral Decubitus as an Aid to Drainage for Diffuse Purulent Peritonitis. R. M. HARBIN.
7. Sanitation of the Summer Camp. HARVEY B. BASHORE.

1.—Cystoscopy and Renal Lavage.—F. M. Johnson describes and illustrates the technic of these manipulations and cites four illustrative cases to show the effects of lavage of the kidney in curing or greatly benefiting pyelonephritis. The author says it is wiser to use bladder lavage a few times, or if the urethra is small or sensitive, at least to pass a sound before employing the cystoscope. After a preliminary washing, as much fluid is allowed to remain in the bladder as the patient can retain, the cystoscope is introduced and the ureters are catheterized. Lavage of the kidneys consists in the direct application of some preparation, such as boracic acid solution containing silver nitrate, one of the organic silver salts, a healing oil, an astringent, or a hemostatic. There are no standard solutions; experience is the teacher, and conditions found, the guide. Only a small amount (15 m. to 30 m.) should be injected at any one time; a total of from 1 oz. to 4 oz. can be used at each lavage of both kidneys. Each catheter is then removed in turn, a good plan being constantly to inject some of the fluid during withdrawal, as then the whole urinary tract is influenced and receives a thorough washing out. The care of the catheters, difficulties that may be encountered, etc., are all discussed in detail.

2.—The Disorders of the Nervous System Arising in the Course of Chronic Nephritis.—W. M. Leszynsky says that aside from the various neurasthenic manifestations occurring in patients with chronic nephritis, many of the transitory subjective nervous phenomena arising during the course of the disease are the result of uremic (or possibly other) intoxication in varying degree, while nearly all of the transitory objective nervous phenomena, and the more permanent and incapacitating or fatal complications are primarily due to the concomitant arterial disease. Hence palpable evidence of arteriosclerosis and high blood-pressure is usually of the greatest significance.

3.—The Treatment of Eczema and Impetigo in Children.—C. W. Allen says that although many cases of infantile eczema depend on improper feeding, and faulty digestion or assimilation, the majority are susceptible of cure by local measures alone. In general it may be said that symmetry of lesion speaks for constitutional origin, asymmetry for local cause. Among general local measures to fulfil the objects of disinfection, protection, soothing, and favoring the growth of new epidermis, the use of methylene-blue solution is especially

advocated. A 3% to 5% watery solution is allowed to dry in well and a thin layer of collodion is quickly applied. Nitrate of silver in 5% to 20% strength, salicylic acid, resorcin, sulfur, ichthyol, etc., are also recommended and the indications for their use in different cases described. Impetigo contagiosa, according to the author, is frequently associated with pediculosis capitis and in treating it the parasites should be sought for. Crusts are to be removed with potato flour poultices and 10% ammoniated mercury ointment applied, or green soap solution, followed by 1 to 1,000 mercuric chlorid. Ichthyol, salol, beta naphthol, sulfur, and red sulfid of mercury are also useful in some cases.

5.—A Case of Hodgkin's Disease with but Slight Enlargement of the Superficial Lymph-glands.—H. F. Stoll says of this case that the following points seem of special interest: 1. The development of acute symptoms associated with an eruption nearly four years after the beginning of the disease. 2. The slight involvement of the superficial glands. 3. The occurrence of periodic abdominal distention and tenderness. 4. The alternating periods of pyrexia and apyrexia. 5. The unusually severe anemia. 6. The disappearance of the glands before death. The general characteristics of the disease are discussed at length, and in regard to treatment, it is stated that improvement of the nutrition by the rest cure and an abundance of fresh air is very important. Arsenic, either in Fowler's solution or as the sodium salt of cacodylic acid, should be given in relatively large doses. The glands should be exposed to the röntgen rays for a long period, and the earlier such treatment is begun the better will be the results. Removal of the glands is to be resorted to only when pressure symptoms are marked.

6.—Ventral Decubitus as an Aid to Drainage for Diffuse Purulent Peritonitis.—R. M. Harbin says that the great desideratum in drainage of peritoneal infections is not merely to give exit to the exudative products, but also to establish a reverse irrigation current of serum from the blood, thus washing away the toxins, and this is facilitated by the mechanical presence of gauze together with the effects of gravity. In the ventral position the intestines with their gaseous contents occupy the highest portion of the abdominal cavity and the fluid exudates make their way to the abdominal parietes, so that an occasional resort to this posture keeps the drainage channels open toward the wound and prevents pocketing.

New York Medical Journal.

May 13, 1905. [Vol. LXXXI, No. 19.]

1. The Influence of Cobra Venom on the Proteid Metabolism. JAMES SCOTT.
2. Some of the Principles of Manual Therapy: Its Application by the Physician. JOHN P. ARNOLD.
3. Urethroplastic Dislocation. CARL BECK.
4. The Skiagraphy of the Future. J. RUDIS-ICINSKY.
5. When and How Should the Tuberculous Patient Be Treated? F. M. POTTENGER.
6. The Addition of Calcium Salts to Nutrient Broth—A Reliable and Convenient Method for Growing the Pneumococcus, Meningococcus, and Certain Other Bacteria. CHARLES BOLDUAN.
7. A Case of Digitalis Poisoning with Very Low Temperature without Collapse: Recovery. WILLIAM N. JOHNSON.
8. Immediate Abdominal Section. (Concluded.) DENSLOW LEWIS.

Medical News.

May 20, 1905. [Vol. 86, No. 20.]

1. Recent Advances in Our Knowledge of the Chemic Processes of Digestion. LAFAYETTE B. MENDEL.
2. Laennec and His Stethoscope. C. N. B. CAMAC.
3. Recent Advances in the Knowledge of the Movements and Innervation of the Alimentary Canal. WALTER B. CANNON.
4. A Case of Pneumococcus Infection of the Hip. LEONARD W. ELY.
5. Pneumonia: Etiology and Epidemiology. EDWARD F. WELLS.
6. A Few Remarks on the Proper Cleansing of a Running Ear. H. A. ALDERTON.

1.—Chemic Processes of Digestion.—L. Mendel calls attention to the growing tendency to regard enzymes as special types of catalytic agents, and to their reversible action, throwing new light on synthetic and assimilative activities. He notes the evidence of a zymogen of the stomach lipase (or steapsin). Since fatty foods hinder the motor and secretory function of the stomach and regurgitation of bile, intestinal and pancreatic juices have been observed in animals with a gastric fistula; under such circumstances it may be that gastric digestion of fats occurs in this manner. Erepsin, abundant in the intestinal mucosa,

present in the secretion in small quantity only, is capable of further splitting the primary cleavage products of proteids with crystalline nitrogenous derivatives. Vernon reports that it is present in all animal tissues, and that the various tissue erepsins are to some extent specific. Intestinal parasites are supposed to elaborate antienzymes which inhibit the action of pepsin and trypsin. The mechanism and chemic regulation of secretion is largely under the influence of a psychic factor. The pancreatic juice is excited by a body isolated only from the duodenum and jejunum called secretion, which is formed there under the influence of acid. Secretion also stimulates the action of bile. The discovery of enterokinase which converts into trypsin the zymogen of the pancreatic juice introduces us to a new class of enzymes. The modification of the pancreatic juice according to the digestive demands of the diet used is a subject still under discussion. [H.M.]

3.—Movements and Innervation of the Alimentary Canal.—W. B. Cannon presents the various theories as to how the food is carried down the esophagus, whether by peristalsis or by the initial force of the mylohyoid muscles, supplemented by successive sectional contractions, not peristaltic in nature. He describes the rhythmic relaxations of the cardia allowing fluid food to stream back to the esophagus, and the deep diving of the cardia as if pressing down the contents of a filled bag. The cardiac portion of the stomach is without peristalsis, the muscles by tonic contraction squeezing the contents into the pyloric end as the food passes progressively from the latter into the intestine. Carbohydrate food at the cardiac end contains after two hours 80% more sugar than that at the pyloric end. The signal for relaxation of the pylorus is probably free HCl on the stomach side. Carbohydrates leave the stomach 10 minutes after ingestion reaching the maximum in the intestine in two hours. Fats remain a long time. The "rhythmic segmentation" movements of the small intestine mix the food and expose it to the mucosa without advancing it appreciatively. Peristaltic activity is infrequent. In the proximal portion of the large intestine the waves of constriction run backward toward the cecum, while in the distal portion the material is slowly advanced. The question of the neurogenic or myogenic origin of the rhythmic movements of the small intestine is an open one. The peristaltic activity of the alimentary tract shows different degrees of dependence on nervous influence. The control of the sphincters is not settled. They are markedly affected by their connection with the central nervous system. The writer discusses the influence of the vagus and sympathetic and the inhibition of peristalsis by emotion. [H.M.]

5.—Pneumonia: Etiology and Epidemiology.—E. F. Wells believes that while the pneumococcus may enter the lung through the circulation, it generally takes the respiratory path in conditions which render the laryngeal and bronchial reflexes paretic. In making smears from tonsillar surfaces he has found it in some families present in every member, while in others in none. No person who previously had pneumonia was free. We may believe these are the most vigorous of the pneumococci, the most likely to survive and become most widely disseminated, especially by coughing and sneezing. This accounts for crowd infection and epidemics. The peculiar susceptibility at certain times to infectious diseases may be due to atmospheric influences. The writer gives a table of the various epidemics since 1873, and notes the features peculiar to some of them. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Fatal Anemia in Old Age.—O. Kurpjuweit¹ reports two cases of anemia occurring in men past 60 and presenting features of special interest. In both cases the illness had lasted for several months and was characterized by gradually developing weakness, pallor, and emaciation. Fever was present, being intermittent in one case and continuous in the other. Other

symptoms were anemic murmurs, enlarged spleen, hemorrhages into the connective tissues. The blood showed moderate anemia with corresponding hemoglobin percentage and excessive leukopenia. Slight poikilocytosis occurred in one case. Autopsy showed pallor of the internal organs, subserous ecchymoses, cloudy swelling of the heart and other organs, hemosiderosis of various organs. In one case the bone marrow was almost completely atrophied, and in the other case showed marked degenerative changes. These symptoms and pathologic findings differ materially from those of typical pernicious anemia, and likewise from those of splenic anemia. He believes that these cases of anemia form a special class of their own. The role played by the bone marrow changes is in doubt. The etiology, as in pernicious anemia, is still obscure. [B.K.]

Diagnostic Significance of the Bactericidal Action of the Blood-serum in Typhoid Fever.—The experiments of K. Laubenheimer¹ embraced 19 cases, of which 12 were typhoid fever, 3 paratyphoid fever (of type B), 2 were septic cases, and 2 tuberculous. In the 12 cases of true typhoid, only 8 gave a bactericidal reaction with typhoid bacilli. In the 3 paratyphoid cases, the blood-serum was bactericidal only for the paratyphoid B organism. None of the patients with sepsis or tuberculosis gave the bactericidal reaction with typhoid or paratyphoid bacilli. The agglutination reaction was found to be more valuable as a diagnostic aid, since it was absent only in one case. The earliest appearance of bactericidal action in the blood was on the eighth day of the disease. The full bactericidal power is attained only in high dilutions; it is greatest at a certain dilution (variable for each case), and then diminishes as the dilution is further increased. The inconstancy of the reaction and the complicated and laborious technic render it unfit for practical use in diagnosis. [B.K.]

The Clinical Use of Antistreptococcus Serum.—F. Meyer,² in an exhaustive article on the practical employment of antistreptococcal serum, calls attention to the importance of securing a serum which has been properly standardized. It should be tested by an expert with a streptococcal culture from human infection in an unchanged state. This culture must not be the same as was used by the manufacturer of the serum. It is the duty of the practitioner who employs this serum to be able to recognize its indications and contraindications for its use when any of the organs are seriously involved, they cause much harm. This is especially true of acute rheumatism, and the malignant form of endocarditis. [W.E.R.]

The Distribution of Blood in the Body under the Influence of Thermic Stimulation.—O. Müller's³ results were obtained by a combination of plethysmography and partial weighing. He found that the whole peripheral circulation reacted in the same manner to thermic stimulation, cold producing a contraction and heat a dilation of the peripheral vessels. The vessels of the viscera and brain reacted in an opposite manner to those of the periphery, so that the blood, when driven from one set of vessels, could find refuge in the other set. The application of thermic stimulation to the gastrointestinal tract produced vascular reaction opposite to that resulting from like stimulation of the skin. In all cases the extent of vascular reaction was in direct relation to the temperature of the stimulus applied. The estimation of blood-pressure, together with plethysmography and partial weighing, showed variations in the antagonism between the external and internal vessels. The compensatory reaction of the one set to changes in the other was not always complete, thus producing a rise or fall in the blood-pressure. These variations in reaction must be ascribed to changes in the vascular tone. [B.K.]

Epileptic Convulsions in Diabetic Coma.—J. Lössen⁴ reports a case of diabetes in which nervous symptoms suddenly set in, consisting of complete amaurosis, psychic unrest, followed by typical epileptiform convulsions, without any signs of acidosis or of dyspneic coma. The convulsions gradually lessened in severity, and the coma deepened into death. The author believes that the convulsions must be explained by a special predisposition of the central nervous system, but the

¹ Zeitschrift für klinische Medizin, Bd. lvi, p. 170.

² Berliner klinische Wochenschrift, February 20, 1905.

³ Deutsche Archiv für klinische Medizin, Bd. lxxii, p. 547.

⁴ Zeitschrift für klinische Medizin, Bd. lvi, p. 81.

¹ Deutsche Archiv für klinische Medizin, Bd. lxxii, p. 428.

absence of the dyspnea typical of diabetic coma is inexplicable. A second case is also reported in which the terminal coma was more like that described by Kussmaul, but differing in the occurrence of convulsions, much less pronounced than in the first case. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Recurring Torsion of the Spermatie Cord.—J. W. Dowden¹ reports five cases of this condition. The main predisposing factor in the causation of recurring torsion seems to be an abnormal manner in which the testicle hangs free in the tunica vaginalis, without proper attachment at its lower end. The exciting cause is indefinite, being usually ascribed to a strain. The symptoms are a sudden onset of sickening pain in the testicle, extending upward, with vomiting and signs of more or less collapse. The testicle is extremely tender, and swelling may occur in the course of the attack, which usually lasts a few hours. The attacks may be repeated at varying intervals. On examination, during an attack, fluid is usually found in the tunica vaginalis, and there may be some rise of temperature. If seen during the interval, the diagnosis may be made by endeavoring to produce torsion. During the attack, the diagnosis must be made from strangulated hernia, epididymoorchitis, and other more rare conditions. Unless operation is done for its relief, more or less atrophy will result from recurrence of this condition. The operation consists in attaching the testicle to its coverings, the details being described. [B.K.]

The Value of Jejunostomy.—H. Lempp's² paper is based on 68 cases of jejunostomy, performed in cancer of the stomach, gastric ulcer, and corrosion from poisons. The operation is indicated in stenosing cancer when resection and gastroenterostomy cannot be performed, and in cancer of the cardia when gastrostomy is impossible. It is also to be performed in cases of simultaneous tumors of the cardia and pylorus, in perforation of a carcinomatous ulcer, in case of a breaking of the cancer into the abdominal wall or intestines, and in cases of intense pain on taking food. In all cases, especially the latter, it is advisable first to try the effects of rectal feeding on the symptoms. The fistula should be kept open to the end, so that this method of nourishing the patient may be kept up continuously or resumed when necessary. Jejunostomy is not to be performed if there exist complications of other organs, especially the respiratory system, or if rectal feeding does not ameliorate the symptoms; also in cases of extensive metastases, or disintegration of the tumor toward the abdominal cavity. In gastric ulcer jejunostomy may be performed where the weakened condition of the patient will not permit of any other operation. It is the best operation in simple ulcer without prospect of stenosis, also in stenosing ulcers near the cardia and in advanced contraction of the stomach. As a palliative operation it may be performed where resection or gastroenterostomy is indicated, but cannot be done on account of weakness of the patient or other reason. Later the more radical operation may be done in these cases. Jejunostomy may be done where these operations have already failed. A combination of jejunostomy and gastroenterostomy may be indicated in some cases. In perforation of an ulcer, jejunostomy should be done after the ulcer has been cared for. In all cases the fistula is a temporary one, and should be kept open a short time after it has been shown that normal nourishment produces no symptoms. In severe corrosion of the esophagus and stomach, jejunostomy is the simplest and most satisfactory operation. The extent of the corrosion and not the character of the poison should be the indication for the operation. The fistula is a temporary one, the esophagus being later dilated by bougies, and stenosis of the pylorus, if present, being remedied by a secondary operation. [B.K.]

Skin-grafting in Cicatricial Contractures.—R. Kennedy¹ advocates the use of the entire thickness of skin in preference to Thiersch's epidermal grafts. He claims that the latter merely hastens cicatrization and still leaves a scar, while in the former method the normal structures of the skin are retained. He has used this method for various purposes, and finds it almost invariably successful. A case is reported in which these grafts were employed to relieve a cicatricial contraction on the dorsum of the thumb. [B.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Diet in Rheumatoid Arthritis.—N. S. Davis² says that although a patient who has suffered long from chronic rheumatism, whose joints have become much enlarged and almost immobile, and whose muscles consequently have greatly atrophied, presents to the careless observer almost precisely the same appearance as one suffering from rheumatoid arthritis, the two maladies are distinct, and require very different dietetic and medicinal treatment. Those who are suffering from rheumatoid arthritis should be fed as generously as possible. Digestion and appetite being usually good during the earlier stages of the disease, patients should be allowed to eat generously of all simple foods. Later, when the appetite diminishes, although digestion may remain good, foods should be crowded upon them, especially such foods as contribute to maintain a good degree of flesh. Farinaceous cereal foods, fats, and oils are particularly to be commended. When it is well tolerated, codliver oil is of considerable value. When, as happens sooner or later in most cases, digestion is disturbed because of lack of exercise, and because of generous feeding, foods must be carefully adapted to the capacity of the digestive organs. Water should be given freely. As much exercise, either passive or active, as the patient can take without great pain and discomfort, should be prescribed. Every endeavor should be made to maintain the strength of the muscles that are inclined to atrophy. If at all possible, these patients should be treated in climates where they are not exposed to dampness, and where they will have a maximum amount of sunshine. Certain spas, especially those possessing thermal and sulfurous waters, have acquired considerable reputation as resorts for patients with rheumatoid arthritis.

Cloetta's Soluble Digitoxin (Digalen).—This new preparation of digitalis was devised by Cloetta in 1904, with the hope of finding a preparation that would admit of exact dosage with the same action as the digitalis leaves, and a minimum of local irritation, especially when given hypodermically. K. Kottmann,³ in this paper, gives his clinical experience with the drug. The chemie composition of digalen is found to be identical with that of Schmiedeberg's crystalline digitoxin. The author found that when given hypodermically two to four times in doses of 0.25 mg., this drug rapidly gives the physiologic effect of digitalis, namely, increased blood-pressure, marked diuresis, and at times slowing of the pulse. These effects were produced within 24 hours, which is much more rapid than the effect of internal administration of the digitalis infusion. Moderate pain and infiltration were usually experienced at the site of injection, but rapidly subside. A much more rapid action of the digalen can be obtained by injecting it directly into a vein. This is best done into one of the veins at the elbow, distention being first produced by ligation of the arm. When the needle enters the vein, the ligature is loosened and the injection made. The blood-pressure begins to rise usually within five minutes, but the frequency of the pulse is little influenced. These intravenous injections can be of the greatest importance in cases of acute cardiac failure, i. e., in cardiac asthma, in the cardiac collapse of typhoid fever, pneumonia, and other infections, etc. [B.K.]

¹ British Medical Journal, April 29, 1905.

² Archiv für klinische Chirurgie, Bd. lxxvi, p. 323.

¹ British Medical Journal, April 29, 1905.

² Dietotherapy. Blakiston, Philadelphia.

³ Zeitschrift für klinische Medizin, Bd. lvi, p. 128.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 22.

JUNE 3, 1905.

\$5.00 YEARLY.

The premature death of physicians has long been known, but it receives too little comment, as a study of the causes must suggest a remedy or two. A wise editorial on this subject in the last number of the *Hahnemannian Monthly* is therefore timely and bound to be productive of good results. It is based upon the Fifty-fifth Annual Report of the Registrar-General, and shows that the diseases which claim the most victims among physicians relatively to all males, are gout and diabetes, and that there is a high relative mortality from diseases of the nervous system, circulatory system and kidneys. From the nature of his habits the physician is not subject to accidents, and though he is brought into contact with infection to a greater extent than other men, his preventive means are successful and his mortality from infection is very low. Freedom from prolonged muscular strains and high blood tension apparently saves him from arteriosclerosis, but suicide claims many and so do the drug habits acquired by the nervously exhausted. It has been said that three-fourths of French morphin users are physicians.

The cause of the physician's early death is evidently the excessive nervous expenditure, insufficient rest and defective nutrition inseparable from his calling with its broken and restricted sleep, irregular hours of work, rest, and meals, the worry when lives depend upon his judgment and the lack of a day of complete relaxation in each week. No race can survive unless its customs provide for numerous holidays when care is thrown to the winds; for no nervous system is capable of constant strain. The physician who sees his patients every day in the week, month after month, and cannot learn to forget them when he goes home, merely burns the candle at both ends. He violates the law obeyed by every other animal, that there shall be short periods of moderate exertion interrupted by longer periods of rest when repairs are made. It is not too much work as a rule, but scattered work which prevents rests.

Regulation of the hours of work and rest is the main remedy, of course, and though it is not possible to attain to an ideal habit of life, some improvement is possible. Parturient women will always persist in their curious habit of needing the physician when he ought to be in bed, and generally, too, it is after a hard day's

work. In the daylight, sick men are brave, and stoutly deny the necessity of sending for the doctor, but as darkness comes, courage oozes from the finger-tips, and they finally send for him just after he has retired for the night. The baby of our most influential family disdains colic, except in the wee small hours. No one ever heard of a physician giving a dinner party that an hysteric patient did not select that hour for some new dido. Success, then, and bread and butter, depend upon defiance of the simplest laws of health. Even the great Harvey had to exclaim when a sick call came at the wrong time for other work: "I suppose I must go and get that damned guinea." In spite of all this, every physician can regulate his work if he tries. He can arrange a judicious system of hours for office and visits outside, so that meals will be regular and uninterrupted. Early hours for retiring will generally give a proper amount of sleep, even if it is interrupted, and he has a grand chance for early rising, if he is not called out. The best habit to cultivate is forgetfulness. After leaving his patients, he can assure himself that he has done all that is possible, and that no amount of worry can do them any good—indeed it will harm them by warping his judgment at the next visit. But the best rule of all is to have a holiday once a week like other men. It may cost a little, to be sure, and occasionally be impracticable, but it might be arranged by cooperation with other physicians to exchange calls. Every month there should be two holidays in succession, every winter a week or two, and every summer more still. The increased vigor from these periods of recuperation will result in more work in the course of the year, more years of healthy activity, more guineas, if we are after them, and more of us will reach a green old age to raise the longevity of the profession.

Liquid sunshine is the quackish name given by the lay press to the solution of fluorescent substances used as "sensitizers" to enhance the therapeutic action of the röntgen ray. They are administered in nonpoisonous doses, and it is claimed that the röntgen rays will thus produce fluorescence in the tissues of a deep-seated malignant growth whose destruction is thus hastened. The fallacy is in the failure to understand that fluorescent rays are from the yellow and green area of the spectrum, and are comparatively inert actinically. It is supposed

that they are produced in nature chiefly, if not solely, for their light, as they are in the part of the spectrum which gives the most light to the human retina. As far as known, they have no actinic effect upon the tissues of the animals producing them. Therapeutic rays are the short ones—the violet, ultraviolet, röntgen, and gamma rays, and if strong enough they all destroy protoplasm. A fluorescent substance is a reducer which changes these short actinic rays into longer light rays of no therapeutic value. The mistake arose from blindly copying the similar method of sensitizing a certain kind of photographic plate which is made so as to react to the yellow rays, and the fluorescent substance merely converts shorter rays to longer effective ones. Protoplasm, on the other hand is but slightly affected by rays longer than the blue. To be sure chlorophyll reacts to red rays, but merely to change them to some other form of energy for the deoxidation of carbonic oxid. Recent experiments of Dr. H. G. Piffard, of New York, are said to show that these alleged sensitizers do not fluoresce to röntgen or radium rays at all, but to some other wave length to which they are tuned. The process has aptly been called "moonshine."

A way to meet quackery is pointed out by Minneapolis, which now commands all kinds of irresponsibles—the entire brood of eddyites, chiropractics, faith-curers, osteopaths, vibrationists, etc.—to report all infectious diseases. The wording of the ordinance is as follows:

Every person who shall treat, attend, or visit, for the purpose of treating with or without physical agencies any other person who is sick or affected with any contagious or infectious disease, such as Asiatic cholera, whoopingcough, yellow fever, smallpox, scarlet fever, measles, tuberculosis, diphtheria, membranous croup, typhus or typhoid fever, within said city, there being no regularly licensed physician in attendance, shall, within 24 hours after the first treatment, attendance, or visit, as aforesaid, report in writing to the Department of Health of said city the existence of such disease, the date of its appearance, and the name and address of the person affected therewith, and every person who shall so treat, attend or visit as aforesaid any other person who is sick with any such disease shall be presumed to have and possess such knowledge of the characteristic symptoms of said contagious or infectious diseases as is commonly possessed by physicians regularly licensed to the practice of medicine under the laws of the State of Minnesota.

This capital plan will appeal even to the politicians, and the common people must see that it is to their interest that any one who pretends to treat disease must either treat these infectious ones, or must refer them to those who can. Of course, the ignoramuses do not have the knowledge necessary to diagnose or treat infectious diseases. There is nothing unjust either to the quack, the physician, or certainly to the community, in demanding such knowledge of medical practitioners of whatever stamp, and surely it is clearly necessary that these cases should be reported. Not having the knowledge, the quack should be fined and punished for his ignorance and crimes against the people. Every city and town should pass such a law.

Uniformity of Requirements in Medical Education.—In our issue of May 13 we had occasion to comment favorably upon the adoption of a standard of

minimum requirements for entrance and graduation by the Association of American Medical Colleges, and it is gratifying to learn that the American Confederation of Reciprocating, Examining, and Licensing Medical Boards at the meeting held at Indianapolis, April 27, has adopted the same standards. When it is remembered that this confederation includes the States of Indiana, Illinois, Iowa, Kansas, Kentucky, Michigan, Nebraska, Wisconsin, and other important western States, and that the delegates are representatives of all schools, regardless of practice, the significance of this action cannot be overestimated. In the interest of uniformity it is hoped that the National Confederation of Medical Examining and Licensing Boards will, at its next annual meeting, to be held at Portland, Ore., round out the labors of Dr. George W. Webster, of Chicago, by the adoption of these same standards. Until this is accomplished it cannot be said that we have a uniform standard, and as the ultimate object of this entire movement is to standardize and equalize all State Examining Boards and medical colleges, the wisdom and desirability of such action cannot be questioned. If, after a fair trial, it should be found that these standards are too low or can be improved upon, it should be done in the interest of higher medical education; but in the meantime it is idle to talk about raising standards until a real standard has been established and tried. The question naturally arises, who will see that these standards, when adopted, are enforced? Until a better plan is suggested, it would appear that it is entirely within the power of the State Examining Boards to insist upon the enforcement of their rules, and as they regulate the practice from all schools, and not only of the regular medical schools, their power is perhaps greater than can ever be exercised by the council on medical education of the American Medical Association. It seems, therefore, very fitting that the actual and efficient inspection of medical colleges be conducted under the auspices and by the authority of the State Licensing, Examining, and Reciprocating Boards, and that the results be published for the information of all concerned.

Effective Disposal of Sewage.—Hand in hand with increased efforts to prevent pollution of the water-supply of our cities must go attempts properly to dispose of sewage. Statistics recently presented to the International Engineering Congress show that 73% of the 28,000,000 urban population in the United States discharge their sewage into inland waters, 23% into the sea or tidal estuaries and only 4% maintain sewage purification. The Ohio Sanitary Bulletin asserts that Ohio ranks fifth among the states in the amount of sewage treated yet only a forty-sixth of her urban population is tributary to purification plants. Engineer Johnson furnishes, in connection with a review of sewage disposal methods, an account of the sewage testing station at Columbus. The commendable enterprise of the city was shown a year ago when out of the \$1,200,000 authorized for the extension and improvement of the sewerage system, including a purification works, \$46,000 was set aside for the construction and maintenance for a year of a testing station to determine the best

method of purification to adopt. The methods being tested are mainly those used elsewhere, the point emphasized being that the sewage of each city is characteristic and the method best suited for each one can be found only by a test of all. This preliminary test will surely be of the greatest value to the people of Columbus and may well be imitated by many other cities now considering the problem of sewage disposal.

Foreign Training-schools for Nurses.—Missionaries, religious, medical, and otherwise, are steadily overcoming the opposition of peoples who through ignorance or prejudice or both have prevented the adoption of humane and scientific methods of caring for their sick. Hospitals are not unknown in many of these countries, but as in some instances they are maintained in spite of marked indifference by many classes of people, their existence does not so much indicate a change in public opinion as does the demand for trained nurses. This surely means the recognition of modern methods of combating disease and its importance to the inhabitants, especially the women, can hardly be estimated. It is with satisfaction we note that efforts are being made to establish a training-school in Asia Minor and another in Turkey. The former is assured, being in connection with the Syrian Protestant College at Beirut where there has been a medical school since 1867; Miss Van Zandt of New York, has sailed to take charge of the new school. The other is to be part of the American hospital and training-school for nurses which will be established in Constantinople by Dr. T. S. Carrington, who for some years has maintained a small hospital at Marsovan. Dr. Carrington is now in this country to raise funds for the institution. The demand for nurses, even in Turkey, appears to ensure the success of the school if it be started. The need for medical enlightenment in these countries scarcely needs mention, a recent instance of Arabian native practice being the dosing of patients with American newspapers soaked in oil. Were emesis alone required, we are constrained to believe the guileless Arab obtains wonderful results from the judicious employment of certain of our noted dailies.

Child Labor in Pennsylvania.—The child labor law recently enacted in Pennsylvania, while not all that is desirable, is nevertheless a very decided advance over previous regulations. The mine clause alone will take from work and send to school some 3,000 or 4,000 boys. The age limits are now 16 for inside workers and 14 for outside workers, an increase of two years for each. The factory bill apparently raises the limit only a year, from 13 to 14, but a very important clause makes the real raise from two to five years in many instances. Heretofore numerous children whose ages ranged from 9 to 13 were put to work by means of fraudulent certificates, swearing them to be 13. This matter is now placed under the jurisdiction of officers interested in children instead of notaries, who are prone to look only on the pecuniary side of the question. Proof of age must now be furnished in the form of birth records. Recognizing the impossibility of this proof in some instances, the law provides that in such cases a statement of school attain-

ments of the child by the principal of the school last attended shall be the determining point. In this way the school age at least is determined and the child will be assured of a proper education. This effort to prevent fraudulent registration is easily the feature of the bill. Another gratifying fact is that the bill extends protection to all, except those employed in domestic or farm labor, thus greatly increasing the number benefited. For the provisions and passage of the bill, in which it was largely influential, the Pennsylvania Child Labor Committee deserves the thanks of all those interested in the welfare of the children of Pennsylvania. We trust the work will be prosecuted until this State will be second to none in the efficiency of its child labor laws.

The Suppression of Tetanus Neonatorum in Cuba.—Dr. Carlos J. Finlay, president of the Superior Board of Health of Cuba, has published a supplement to the biennial report for the years 1902 and 1903. In this supplement he has made the vital statistics of the Island more complete and satisfactory by the inclusion of additional information obtained in the Province of Santiago de Cuba since the original report was published. A note by Dr. Finlay on tetanus neonatorum is of unusual interest. It has long been known that tetanus as a cause of mortality in the newborn is not uncommon in tropic and subtropic countries. The experience of physicians in the southern United States indicates a very considerable incidence of tetanus on infants born to ignorant parents and without medical attendance. The Southern States, do not, however, practise registration of births or deaths, so that definite information is lacking on this, as on the more important causes of mortality. Cuba began her sanitary work as all such work should begin, with systematic mortality registration, and in the first two years registered 2,902 deaths from tetanus. Of this number, 2,430 occurred in the first year of life. The information in the original records did not suffice to show the incidence of the disease in the first few weeks of life. A special investigation in the district of Havana showed, however, that of 141 deaths of infants charged to tetanus, 131 occurred in the first, and 10 in the second fortnight of life. One is, therefore, warranted in believing that practically all the deaths of infants from tetanus are due to infection through the umbilicus.

As to the vehicle of infection, Dr. Finlay has found that the material commonly used for tying the funis, a cheap cotton wick called *cabilo*, often carries the tetanus bacillus. Out of six balls of *cabilo* bought in the shops, five were found infected. The Board of Health proposes to distribute sterile ligature material to the poor throughout the Island, and to inform all the population concerning the danger of using the ligature material of doubtful quality. A distribution of sterile ligatures in the city of Havana has indicated the probable results of a general distribution. In 1902, Havana recorded 64 deaths from tetanus neonatorum; in 1903, 38 deaths; in 1904, 33 deaths. All of these deaths occurred in cases which were not reached by the distribution of ligatures. Probably the number of deaths actually caused by this disease is larger than the figures show, for such cases

usually occur among the very poor who are without medical attention, and the deaths are often recorded without medical certification. Under such circumstances, the deaths are very likely to be attributed to some vague cause, as convulsions. Other vehicles than the ligature may be concerned in these infections. In the Southern States, it is said that the negro midwives sometimes apply a dressing of earth, or even of ordure, after severing the cord.

School Children's Eyes.—The examination of 7,166 school children in New York City in 1904 showed that 1,273, or more than 17%, were suffering from defective eyesight of the worst or most evident kinds. A much larger proportion had lesser defects, and these added to the more manifest ones, make a total of over 33½%, which have defects interfering with the pursuit of their studies. When we remember that these examinations took note only of the manifest errors of refraction or disease, and that the kinds of eyestrain which have the worst reflex effects upon the general health are those caused by the low errors not manifest and which may be temporarily overcome by morbid effort, it is abundantly demonstrated that almost everything urged by refractionists as to the pernicious influence of eyestrain is more than true. This is also suggested by further items of the report, which states that of the 7,166, there were also the following cases:

Bad nutrition	632
Nervous diseases	85
Cardiac diseases	133
Pulmonary diseases	127
Skin diseases	126
Deformity of spine	63
Deformity of chest	100
Bad mentality	650

The total cases requiring medical attention were 3,132, almost a half of the number examined.

Village and Town Hospitals.—A correspondent who does not allow his name to be published, thus writes:

One of the most prominent surgeons of your city made the statement a year or two ago that the mortality from abdominal operations in this country is as large now as it was 25 or 30 years ago. The reason which he assigned was that in every town small hospitals are springing up, the "surgeons" to which feeling that, owing to their official positions, they must operate on all patients that come to them, do so with a mortality that is frightful. My own observations fully coincide with his. These small hospitals are developing a lot of inexperienced "specialists" (if that is the proper word to use), who, while merely general practitioners, aspire to do the work of genuine specialists, while the latter limit themselves to their own work and have no general practice whatever. I have before me the annual report of one of these small hospitals whose territory was formerly covered by specialists from a large western city. In this report the trustees (at least they *sign* the report, though it was doubtless *written* by the members of the staff), congratulate the public that they have not been obliged to send abroad for any surgical skill during the year, but that the work has all been "successfully" accomplished by members of their own staff. In looking over their report I find that in abdominal surgery their mortality was over 25%. These small hospitals, with practically no exceptions, are poorly provided with facilities. They cannot afford first-class nurses. The "surgeons" connected with them are simply general practitioners.

The anesthetist is usually a medical student or the junior man on the staff. The hospital itself is usually an old residence. The amount of work which can possibly come to one of these little hospitals is so small that the members of the staff cannot by any possibility become experts, even if they have had the preliminary training. While, therefore, the establishment of these small hospitals will undoubtedly give the local brethren more surgery to do, this work will be done most distinctly at the expense of the innocent invalids who ignorantly confide their cases to these inexperienced "specialists." And not only is the mortality four times too large, and the morbidity equally out of proportion, but hundreds of cases are pronounced inoperable and turned back to helpless despair—perhaps after a stupid "exploratory incision"—which could be saved in the hands of real surgeons. I think every surgeon in the country understands the condition of affairs, but if he objects his motives are misconstrued, and so he keeps still, and the sad operative mortality continues.

We doubt our correspondent's contention and, stated as a general proposition, we can by no means approve his logic. Even if in part and sometimes true, there yet remains no reason against and many for the small, and the village hospital. However tolerant we may be of monopoly in commercial life—and that may also be queried—in art and science individualism is altogether praiseworthy. It may be possible that one man in Switzerland, another in London, and one each in a few larger cities have exceptional ability and experience in operating each in a peculiar kind of disease. That does not imply that every patient in the world with the special complaint should be taken a journey of thousands, or even of hundreds of miles. It argues rather that local specialists should be encouraged. This is in the long run as much in the interest of patients as of physicians.

War in Quarantine Case.—The town of Shellrock, Iowa, may be placed in control of armed deputies by order of the State authorities in order to enforce the quarantine laws. The State Board of Health insists that there is an epidemic of scarlet fever there, while the local health authorities, school board, and citizens say not. F. W. Powers of Waterloo, and A. M. Linn, of Des Moines, who were sent by the State Board of Health to investigate, pronounced the disease scarlet fever, which incensed the citizens, and as a result of threats the physicians left town during the night, fearing violence. C. P. Thompson, a local physician who agreed with them was hanged in effigy. W. H. Smith, who placed quarantine signs on several houses, was threatened with violence, and the signs were torn down within ten minutes after they were put up. The school board asserts that it will prevent the fumigation of the school building by physical force if necessary. There are a number of cases of the disease. A difference of opinion between doctors as to what it is has resulted in the town being divided into factions, the majority standing by a pioneer physician, who insists it is not scarlet fever. The State authorities have notified Supt. Sharpe to close the schools, and trouble may result when the order goes into effect.

Surgery and Japan.—Sir Frederick Treves in a speech at the dinner of the Japan Society in London, spoke enthusiastically of the medical and surgical skill of the Japanese. He said that anybody desirous of seeing the last thing, the most ingenious thing, and yet the simplest thing in the equipment for war, must go to Japan. Many of the problems which concern European armies, and have been, to a large extent, a terror of war in European countries, the Japanese were solving or had solved. British troops, he said, enter a war with many determinations. One is 10% of sick. It is what they are accustomed to expect to get, and they get it. The Japanese are quite content with 1% of sick, and they get it. It was a question of ambition, perhaps, he said, but one which might well be imitated. He was convinced that Japan not many years hence would provide one of the most remarkable schools of surgery that the world has ever seen. "You will understand why," he continued; "there is the infinite patience of the people, their infinite tenderness. Kinder, more sympathetic people do not exist. Then comes one very important factor, at least in the making of a surgeon; they have no nervous system. Nerves is an untranslatable term in the Japanese language. I am confident that we shall find in the islands of Japan, not many years hence, one of the most curious, interesting, and progressive schools of medicine that this world has seen."

AMERICAN NEWS AND NOTES

GENERAL.

The Cuban Medical Congress, at its meeting in Havana last week, favorably discussed a resolution suggesting the creation of a branch of the health department, devoted wholly to the extinction of infection-carrying insects.

Fraternity Orders and Tuberculosis.—The question of giving financial assistance to the Fraternal Congress for the establishing of a tuberculosis sanatorium at New Mexico was taken up by the Royal Arcanum at its annual meeting last week. H. A. Warner made an appeal to the body for funds, submitting statistics as evidence that pulmonary tuberculosis was a potent factor for loss to the fraternal associations. Final action on the matter was not taken, but the council voted to continue its membership in both the Fraternal Congress and the Canadian Fraternal Association.

College and Hospital News.—**Philadelphia:** Edith Warner Cadwallader has resigned from the chair of obstetrics in the Woman's Medical College of Pennsylvania, the resignation to take effect upon the election of a successor.—**Baltimore, Md.:** The resignation of Richard H. Follis as resident surgeon in the Johns Hopkins Hospital has been accepted. His successor is William F. Sowers. S. H. Watts has been made first assistant and R. T. Miller second assistant resident surgeon.—**Richmond, Va.:** John F. Winn has been elected by its board of trustees, professor of clinical obstetrics in the University College of Medicine. He was formerly lecturer on obstetrics in the same institution.—**Gallipolis, O.:** At the May meeting of the board of trustees of the Ohio Hospital for Epileptics it was decided to extend the term of the temporary superintendent, W. H. Pritchard, from July 1 to January 1.—**Montreal:** The negotiations for the amalgamation of the medical faculties of McGill University and Bishop's College have been brought to a successful conclusion. The scheme now only awaits the endorsement of the governing bodies of the two institutions.—**Kingston, Ont.:** The trustees of Queen's University will endow a chair of anatomy in the medical college with \$40,000. This will be the first medical chair to be endowed, and the fund will be a part of Queen's endowment now being raised. The professorship of clinical medicine, held by the late John Herald, will be divided among the staff. D. C. McBean, tunnel engineer of New York, who recently received an honorary degree from Queen's has given \$6,000 for a special purpose in the faculty of science, and intimates that he will sustain the purpose by other gifts.

EASTERN STATES.

Passing of Diphtheria in Boston.—For two weeks there have been no deaths from diphtheria in Boston, among a population of nearly 600,000. If it ever happened before that two weeks passed without a death from this disease, it has not been determined, but it has not happened in the last 12 years, according to the Boston Board of Health record of those years. Earlier records have not been examined for such statistics, but prior to 1903 or 1904 there was no effective cure of diphtheria, and deaths were numerous. Cases continued to develop, but the deathrate began to diminish with the discovery and introduction of antitoxin; so that in more recent years only a small portion of patients died, and now there are two weeks in which no deaths have occurred.

NEW YORK AND VICINITY.

Antirace Suicide Tenement.—Brooklyn, in a few months, will have a 20-story tenement house, the largest in the city, and it will occupy a whole block. Children not only will be welcome, but no apartment will be rented to a family unless they have at least one child. Oliver H. P. Belmont is the originator of the project.

Distribution of Medicine Samples to be Limited.—An ordinance has been passed in the city of Elmira which provides that "No person nor persons shall distribute, or cause to be distributed in any private grounds or residences in the city, any free sample of a medicine; nor shall such sample be handed to any person under the age of 14."

Object to Sanatorium.—Much opposition among residents of Middletown has developed on the question of permitting New York City to establish a sanatorium for tuberculosis patients at Bloomingburg, Sullivan county. Dr. Darlington, president of the New York Board of Health, and Dr. Biggs, general medical officer at New York, spoke in favor of the project. The Bloomingburg board reserved decision.

\$20,000 for Nurses' Training-school.—Announcement of a gift of \$20,000 by Murry Guggenheim for the establishment of a fund to provide 12 scholarships of \$100 each annually, was made at the graduation exercises of the Mount Sinai Training-school for Nurses, in the Mount Sinai Hospital, New York. Six of the scholarships will be assigned to the junior pupils, 3 to seniors, and 3 to the graduating class. Any nurse may win 3 of the scholarships, 1 in her junior year, 1 as a senior, and 1 at graduating, and will thus get her tuition free.

Insanity Increasing in New York State.—The number of insane persons in New York State hospitals and licensed private asylums increased nearly 1,000 during the past year, according to a report which has just been submitted to the State Commission of Lunacy by the State Charities Aid Association. While this increase is smaller than that of the previous year, still it is in excess of other years, the total average yearly increase being 738. The total number of insane persons in State hospitals and licensed private asylums on October 1, 1904, was 26,861, an increase of 927 over the previous year. Of this total number, 25,019 patients were in the 14 State hospitals, not including Matteawan and Dannemora, being 832 more than on October 1, 1903. Recommendation is again made, as in the report for 1903, for the establishment of a system of boarding out quiet insane patients in private families, after the plan adopted in several European countries. Recommendation that improvement be made in the methods of deporting insane aliens, and that in the cases of such persons there be more cooperation between the State hospitals and the United States immigration authorities, is an important feature of the report. It is asserted that the State Charities Aid Association has found that insane aliens deported by the Government have not always reached their homes as promptly as they should, and sometimes not at all.

The Harvey Society consisting of laboratory workers in New York City has recently been established under the patronage of the New York Academy of Medicine. Its purpose is the diffusion of scientific knowledge in selected chapters of anatomy, physiology, bacteriology, pathology, pharmacology, and physiologic and pathologic chemistry, by the means of public lectures by men who are workers in the subjects presented. Each lecture is intended to represent the state of modern knowledge concerning the topic treated, and at the same time will be adapted for presentation before an audience consisting of that portion of the general medical profession who are interested in the scientific side of medicine. It is hoped through these lectures the common interests of research workers and the medical profession may be profitably cultivated. The fulfillment of the purposes of the society has been entrusted to the hands of the following committee: Graham Lusk, president; Simon Flexner, vice-president; George B. Wallace, secretary; Frederic S. Lee, treasurer; Christian A. Herter, S. J. Meltzer, E. K. Dunham. The members of the society consist of two classes, active and associate members. Active members are laboratory workers in the medical sciences residing in New York. Associate members are such persons as may be in sympathy with the objects of the society and reside in New York. The first course of lectures will be given on Saturday evenings during the winter of the years 1905 to 1906, at the Academy of Medicine.

PHILADELPHIA, PENNSYLVANIA, ETC.

Doctors in Joint Session.—Physicians of Chester, Delaware and Philadelphia counties held a joint meeting last week, Dr. J. N. McCormack, of the Organization Committee of the American Medical Association, addressing the meeting on the social, political, scientific and financial standing of the medical profession.

Research Fellowship Founded.—William W. Keen, professor of surgery at Jefferson Medical College, has presented to that institution \$5,000 to found as a memorial to his wife the Corinna Borden Keen Research Fellowship. The conditions of the fellowship are that whenever there is accumulated from the income the sum of \$500 it shall be awarded to a graduate of the college, who shall spend at least a year in Europe, America or wherever the best facilities exist in connection with the line of research that he may select after a conference with the faculty. The winner will also be expected to furnish a paper embodying the results of his investigations.

Hospital Buildings Opened.—Four buildings, erected at a cost exceeding \$120,000, were dedicated at the Methodist Episcopal Hospital last week. They comprise the Mary T. Hunter Memorial Home for Nurses, the Mary Burton Dispensary Building, a new ambulance stable and a power plant. More than a thousand persons attended the exercises. The staff of physicians at the hospital was changed. C. W. Strickland succeeded John B. Kaufman, resigned, as chief resident physician and George M. Settle, L. L. Powell, H. S. Crouse, H. M. Metcalf, all of the University of Pennsylvania, and F. J. Hall, of Johns Hopkins of Baltimore as resident physicians.

Pure Food Law found Defective.—The Supreme Court has declared to be unconstitutional so much of the act of June 26, 1895, which provides against the adulteration of foods as applies to drinks when described as foods. This was done in reversing the conviction of one Kebort, a Crawford county saloonkeeper, for selling adulterated blackberry wine. The reversal was made on the ground that the constitutional requirement that the subject of an act shall be clearly expressed in the title was not fulfilled. The term "drinks," says the opinion, was not used in the act according to the common understanding, and no liquor dealer would suppose he was to be affected by a new act indicating food as its only subject.

Registrar of State Vital Statistics.—Dr. Wilmer R. Batt, of Philadelphia, has been appointed registrar of State vital statistics by the State Board of Health. The salary is \$2,500 a year. The bill creating the office was signed by the governor on May 1. Dr. Batt for several years has been identified with the State quarantine service, and active in movements designed to safeguard the public health and to prevent serious epidemics. The board will pass out of existence as soon as the governor appoints a commissioner of the State health department, which was created by the recent Legislature, and this was probably the board's final meeting. It is reported that Dr. B. H. Warren, of West Chester, dairy and food commissioner, will be appointed health commissioner, and that James Foust, of Altoona, an agent of the dairy and food bureau, will take Dr. Warren's present place.

Tribute to Professor W. S. Forbes.—At the commencement exercises of Jefferson College held on June 2 there was presented by Addinell Hewson in behalf of the students in the classes of the college during the session of 1904-05, a life-sized portrait of William S. Forbes, professor of anatomy. This portrait is presented to the trustees because the students wish to acknowledge Dr. Forbes' benefit to medicine in his effort in obtaining legislation for the anatomy act. This act has been the model for many others in the United States. There was also presented by George A. Piersol, professor of anatomy, representing the alumni of the medical department of the University of Pennsylvania, a set of resolutions and a loving cup in acknowledgment from this and all other schools of medicine in this Commonwealth for the benefits they have derived from this anatomy act.

Doctors' Fees Cut Off.—A source of income which for two years has provided 34 police surgeons of Philadelphia with a supply of spending money has been cut off by Director Potter. This income was from fees paid by the city for vaccinating prisoners at the police stations. It is estimated that some of the surgeons received no less than \$1,500 a year. Every morning the prisoners, before being taken away in the vans or before they were discharged, were turned over to the doctors for vaccination. Some of the station houses have no less than 25 prisoners to be vaccinated every day, and there are often 50 prisoners or more. A fee of 40 cents per head was allowed by the city for the physicians doing the work. During the winter months the number of prisoners is much greater than at other times. Hundreds of men in the cold weather seek lodgings in the police stations, and all of these "lodgers" had to meet the police surgeon in the morning.

SOUTHERN STATES.

The Tourist and Homeseeker. published at Jacksonville, Fla., announces that "no tainted medicine or whisky ads. are admitted for publication."

WESTERN STATES.

Uniform Insurance Law Void.—The Supreme Court of Michigan has declared unconstitutional the law of 1888 creating a commission to draft a standard form of life insurance policy. The court held that the Legislature erred in delegating such power to a commission. Insurance Commissioner Barry will ask the Legislature to pass a new law embodying the standard policy.

Woman Cocain Seller Held.—Charged with selling cocain to boys, Annabel Ray, aged 25, was arrested last week in Chicago. In the last three weeks several boys, aged 15 to 18, have been arraigned, accused of using the drug. They refused to tell the police where they purchased their cocain, but said a woman sold it to them. Others accused a man. The information on which the woman was arrested was given to the police by the mother of one of the boy victims.

Wants Jury of Drinkers.—Experience in drunkenness as a qualification for jury service was urged as necessary in the Minnesota Supreme Court in the case of Hans Olsen, who appealed from the decision of the jury convicting him of selling "tonto," which the jury held was an intoxicant. In the appeal Olsen urges that none of the jurors who tried him ever was intoxicated, and so were incompetent to state whether "tonto" was an intoxicating drink, although they sampled it at the trial. If Olsen's contention for a new trial is upheld it will be necessary that members of the next jury qualify by swearing that they have been drunk at some time or another.

Decrease in Enteric Fever and Infant Mortality in Chicago.—It is officially reported that during the week ending May 20 there was but one death from enteric fever in Chicago. This diminution is attributed to the opening of the drainage channel, which, when complete in all its adjuncts, including intercepting sewers and the Evanston and Calumet subsidiary sewers, will have a flow of 600,000 cubic feet per minute, according to the bulletin of the Chicago Health Department. A bulletin prepared by the Bureau of Vital Statistics, health department of the city of Chicago, gives a table of mortality in that city of children under five, the figures collected covering the period from 1885 to 1894, inclusive. A division is made into two periods of 10 years each. The tables for the first decade show an aggregate of 94,052 deaths for the age group, and for the sec-

ond decade, 84,853 deaths, the reduction in mortality taking place, notwithstanding the fact that the average population increased from 987,614 during the first decennial period to 1,656,600 during the second. The figures for population are according to the United States Census.

FOREIGN NEWS AND NOTES

GENERAL.

Yellow Fever in Rio de Janeiro.—The recrudescence continues, and each week shows an increase in the number of cases. During the week ended April 9, 27 cases and 12 deaths were reported; during the following week, ended April 16, 15 cases and 13 deaths, and the week ended April 23, showed 34 cases and 11 deaths; in all, a total of 76 cases and 36 deaths during this portion of the month. Since January 1 there have been 198 cases and 76 deaths from yellow fever. By far the greater portion of deaths have been among foreigners; for instance, of all the deaths from yellow fever occurring in April, in number 36, 31 have been among other than natives of Brazil.

Will Fast 21 Days in Public.—Sacco, the "Hunger Artist," has begun a 21-day fast at Vienna. He is confined in a small cabinet with cemented glass sides. He depends for sustenance upon a small flask filled with some secret preparation, which he breathes. He will be watched night and day by relays of firemen, besides some doctors and the public. Sacco was last heard of in Berlin in September, when he had himself bricked in, and could be seen only through a small grated window. But the students conceived the idea that Sacco was a fraud and stoned him through his window till the police interfered, arrested some of his persecutors, dug Sacco out and forbade further public exhibitions of starvation.

Plague Still Rages in India.—The *Lancet* prints advices from its correspondent in India to the effect that the plague epidemic there continues with unabated virulence. For the week ending April 22 there were 54,602 deaths, compared with 51,786 the preceding week. The mortality in the present year promises to exceed the records, which stand as follows: Total deaths for 1901, 273,679; 1902, 577,427; 1903, 851,263; 1904, 1,022,299; and 1905, up to April 22, 630,968. It is doubtful if the figures tell the whole truth. Detailed figures show that the disease has spread throughout the country. The Pasteur antiplague serum has been extensively used in the present outbreak. Although it is impossible yet to give a definite opinion as to its efficacy, many reports show that it is valuable.

Radiology and Ionization Congress.—The first international congress for the study of radiology and ionization will be held at Liege from September 12 to 14, under the patronage of the Belgian Government. The following is a summary of the program: 1. Physicochemic section—(a) Properties of the electrons and accompanying radiations; röntgen rays, cathode rays, ionization; (b) radioactivity and corresponding transformations; (c) meteorologic and terrestrial phenomena connected with ionization and radioactivity; (d) n-rays. 2. Biologic section—Physiologic properties and medical applications of the various radiations and of radioactivity. Letters (a) and (b) include as particularly interesting points, the examination of terminology relative to the electrons, ions, etc., as well as of the theories concerning the matter and character of the energy.

Mosquito Control in California.—The California State Board of Health, in its monthly leaflet for April, 1905, calls attention to the utility of a crusade against mosquitos in certain parts of the State for the purpose of minimizing malarial infection. It is stated that in the bay region the predominating species are forms that have become adapted to living in salt water in their early stages and of migrating, when they become adult, in the direction of the prevailing winds. Last year the marshes about San Rafael were inspected by representatives of the entomologic department of the University of California, and those found infested with mosquitos were treated with crude oil, giving the most satisfactory results, until late in the year, when lack of funds caused a suspension of work and a consequent increase of mosquitos. A large marsh area, extending from south San Francisco nearly to San Mateo, is the seat of operations this year. Fresh-water areas, which abound in the region under treatment, are either filled up with earth, drained, or treated with oil.

Plague Conditions.—One of the latest places announced to be infected with plague is Amoy, China, a treaty port trading principally with the island of Formosa, where bubonic plague has prevailed extensively. Amoy, an unsanitary city situated on an island opposite the center of Formosa, is also in commercial relations with Bombay, Bengal, Shanghai, and Formosa. The inhabitants are principally engaged in the coasting trade. The export trade of Amoy, once extensive, has diminished in late years owing to the decreased popularity of China tea. The only other plague-infected Chinese port is Hongkong, where, from January 1 to April 15, 25 cases and 24 deaths were recorded. East London and King William's Town, Cape Colony, furnished cases of plague for the week ending April 15,

the former a solitary case, the latter three cases and one death. From Newcastle, New South Wales, two fresh cases, one fatal, were reported in the first half of April. Reports from Mauritius (Isle of France) state that a case of plague occurred there during the week ending March 16, a significant fact when it is considered that in December there was reported the last of a series of about 700 cases, extending over nearly two years. The climate of Mauritius, a British colony situated in the Indian Ocean to the east of Madagascar, is depressing, and it is said that the natives are feebly resistant against disease.

OBITUARIES.

Alexander A. Faris, aged 65, May 12, from neurasthenia, at his home in Hickman, Ky. He was a graduate of the University of Nashville, medical department, in 1868. During an epidemic of smallpox in Hickman, in 1878, Dr. Faris was the only physician who remained in the town. He served in the Confederate service during the Civil war, wherein he lost his right arm. He was a member of the American Medical Association for more than thirty years.

Adolph Hoffman, aged 46, May 18, from a complication of grip and gastritis, at his home in Oak Park, Ill. He was a graduate of Jenner Medical College (Chicago), in 1896. He was a member of the Masonic order, the Odd Fellows and the Royal Arcanum. His life was that of the good Samaritan, having devoted the best part of his life to the care of the poor and needy. For a number of years he served as professor of Jenner Medical College.

James H. Hysell, aged 67, May 10, from chronic malaria, at his home in Pomeroy, Ohio. He was a graduate of the University of Buffalo, medical department, in 1861. He served as surgeon of the Ninth Virginia Volunteer Infantry, and surgeon of the First West Virginia Veteran Infantry during the Civil war, and in the Spanish-American war was chief surgeon of Cienfuegos province and medical disbursing officer at Santiago.

Julius J. Boyle, aged 53, May 12, at his home in Susquehanna, Pa. He was a graduate of the University of Buffalo (N. Y.), medical department, in 1869; a member of the American Medical Association, censor for his district of the Medical Society of the State of Pennsylvania, member of the Susquehanna County Medical Society.

Hannah C. Rous, aged 51, May 12, from cerebrospinal meningitis, at her home in Vevay, Ind. She was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1886. She was a member of the American Medical Association.

Sarah G. Jones, May 11, at her home in Richmond, Va. She was a graduate of Howard University, medical department, Washington, D. C., in 1893. She is said to be the only colored woman holding a license issued by the Virginia State Medical Examiners.

Louis B. Milliken, aged 28, formerly of Morrisville, Pa., recently, at the home of his brother in Silver City, New Mexico. He was a graduate of the Medico-Chirurgical College, Philadelphia; also a graduate in the arts at Princeton University.

Robert Emory Stobart, aged 38, May 4, from tuberculosis, at his home in Pomeroy, Ohio. He was a graduate of Starling Medical College, Columbus, Ohio, in 1891; for several years he was health officer of Pomeroy.

Charlotte E. Mastin, aged 31, of Wellsboro, Pa., suddenly, May 21, at Buffalo, N. Y., from malignant disease. She was a graduate of the University of Buffalo in 1897 and the Woman's Medical College, Philadelphia.

William H. White, aged 66, May 13, from heart disease following influenza, at his home in Cleveland, Ohio. He was a graduate of the University of Wooster, medical department, Cleveland, in 1886.

John C. Batchelder, aged 71, of Rockland, Mass., May 11, in a hospital in Boston, after an operation for appendicitis. He was a graduate of the Boston University School of Medicine, in 1837.

William H. Longsdorf, aged 71, May 22, at his home in Camp Hill, Pa. He was a graduate of the Jefferson Medical College in 1856. At one time he served as treasurer of Cumberland county.

Ira P. Smith, aged 69, May 26, at his home in Bath, N. Y. He was a graduate of the Albany (N. Y.) Medical College in 1859. He served as regimental surgeon during the Civil war.

Albert H. Dickinson, aged 74, committed suicide by taking laudanum, May 23, at his home in Trappe, Md. He was a graduate of the University of Maryland in 1848.

Jacob W. Thompson, aged 69, May 15, from nephritis, at his home in St. Paul, Minn. He was a graduate of Starling Medical College, Columbus, Ohio, in 1865.

James M. Fickle, aged 58, May 12, from uremia, at his home in Stockwell, Ind. He was a graduate of the Eclectic Medical Institute, Cincinnati, Ohio, in 1878.

Charles M. Koler, May 15, from diabetes, at his home in Chicago. He was a graduate of the Chicago Homeopathic Medical College, Chicago, in 1883.

William O. S. Piper, aged 34, May 13, at his home in Bellaire, Ohio. He was a graduate of the Baltimore Medical College, in 1898.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 26, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington.....	May 13-20.....	2	
Florida:	Jacksonville.....	May 13-20.....	2	
Illinois:	Chicago.....	May 13-20.....	6	2
	Galesburg.....	May 13-20.....	1	
Kentucky:	Covington.....	May 13-20.....	9	
Louisiana:	New Orleans.....	May 13-20.....	3	
Four cases imported				
Massachusetts:	Lowell.....	May 13-20.....	2	
Michigan:	Ann Arbor.....	Apr. 29-May 13.....	1	
Missouri:	St. Joseph.....	May 6-20.....	40	
	St. Louis.....	May 13-20.....	5	
New Hampshire:	Nashua.....	May 13-20.....	2	
New York:	Kingston.....	May 13-20.....	1	
	New York.....	May 13-20.....	1	1
Ohio:	Cincinnati.....	May 5-19.....	7	
	Toledo.....	May 6-13.....	1	
Pennsylvania:	Altoona.....	May 13-20.....	1	
	York.....	May 13-20.....	12	
South Carolina:	Greenville.....	May 13-20.....	4	2
Tennessee:	Memphis.....	May 13-20.....	1	
	Nashville.....	May 13-20.....	4	
Wisconsin:	La Crosse.....	May 13-20.....	1	
	Milwaukee.....	May 13-20.....	2	

SMALLPOX—FOREIGN.			Cases	Deaths
China:	Hongkong.....	Apr. 1-8.....	7	1
France:	Paris.....	Apr. 29-May 6.....	21	
Great Britain:	Bradford.....	Apr. 22-May 6.....	12	
	London.....	Apr. 29-May 6.....	4	
	Toledo.....	May 6-13.....	1	
India:	Bombay.....	Apr. 18-25.....	76	
Italy:	Catania.....	May 6-11.....	8	
	Palermo.....	Apr. 22-29.....	8	
Malta:	.....	Apr. 22-29.....	1	
Russia:	Moscow.....	Apr. 15-29.....	10	5
Spain:	Barcelona.....	Apr. 20-30.....	1	6
West Indies:	Barbados.....	May 9.....	1	
Among laborers for canal zone, probably imported				
	Grenada.....	Apr. 20-May 4.....	2	

YELLOW FEVER.			Cases	Deaths
British Honduras:	Belize.....	May 24.....	2	1
Honduras:	Puerto Cortez.....	May 25.....	4	1
Mexico:	Tierra Blanca.....	May 7-13.....	1	1
Panama:	Panama.....	Jan. 1-May 13.....	61	22

PLAGUE.			Cases	Deaths
Arabia:	Aden.....	Apr. 14-23.....	19	8
Australia:	New Castle.....	Apr. 13.....	4	1
Chile:	Santiago.....	Apr. 16-23.....	2	
China:	Hongkong.....	Apr. 1-8.....	3	3
India:	General.....	Apr. 18.....	59227	52841
	Bombay.....	Apr. 18-25.....		1918
Japan:	Formosa.....	Mar. 1-Apr. 20.....		556
Straits Settlements:	Singapore.....	Apr. 1-15.....		5

Changes in the Medical Corps of the U. S. Army for the week ended May 27, 1905:

LAGRINDER, ROMANUS A., sergeant first class, is relieved from further duty at the Presidio of Monterey, and will report for duty on board the Army transport Warren during the next trip of that transport to Manila and return.

HALL, Colonel JOHN D., assistant surgeon-general, is granted leave for one month from about May 15.

COMEGYS, Lieutenant-Colonel EDWARD T., deputy surgeon-general, will retire from active service at his own request, on account of thirty years' service, under the provisions of Section 1243, R. S., to take effect July 1, 1905. Lieutenant-Colonel Comegys will proceed to his home.

COLLINS, Captain CHRISTOPHER C., assistant surgeon, is granted leave for three months, to take effect when he shall be relieved from duty in the Philippine Islands, with permission to return to the United States via the Suez Canal.

BROOKE, First Lieutenant ROGER, Jr., assistant surgeon, is granted leave for three months, to take effect about August 1.

BUSHNELL, Major GEORGE E., surgeon, is granted leave for fifteen days.

KELLY, JOHN P., contract surgeon, is granted leave for four months, to take effect July 7.

WEBB, Captain WALTER D., is granted leave for three months, from about June 10.

BROOKS, First Lieutenant WILLIAM H., assistant surgeon, is granted leave for two months and fifteen days, from about July 1, or as soon thereafter as a medical officer can be provided to replace him, with permission to go beyond the sea.

HUTTON, First Lieutenant PAUL C., assistant surgeon, extension of leave granted April 25, is further extended fourteen days.

RICHARDS, First Lieutenant ROBERT L., assistant surgeon, now at San Francisco, Cal., is relieved from further duty in the Philippines Division, and will proceed to Vancouver Barracks for duty.

COLE, First Lieutenant CLARENCE L., assistant surgeon, recently appointed, will proceed from Blue Rapids, Kan., to Washington, D. C., and report to the surgeon-general of the Army for temporary duty in the bacteriologic laboratory at the Army Medical Museum Building.

WAGNER, FRANK, sergeant first class, now at the Army General Hospital, the Presidio of San Francisco, having relinquished the unexpired portion of his furlough, when fit for duty will be sent to Jefferson Barracks for duty.

MURRAY, First Lieutenant ALEXANDER, assistant surgeon, leave granted May 13, is extended ten days.

SMELSKY, SAMUEL, sergeant first class, now at the depot of recruits and casuals, Fort McDowell, will be sent to Fort Riley to relieve Sergeant First Class Joseph C. Kamp. Sergeant Kamp will be sent to Fort Douglass for duty.

VASS, GEORGE E., sergeant first class, Fort Riley, will be sent to Fort Terry for duty.

JONES, First Lieutenant PERCY L., assistant surgeon, will report June 12 to Major Wm. H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement.

Boards Convened.

A board of officers is appointed to meet at Fort Crook for the examination of officers for promotion. Detail for the board: Major Richard W. Johnson, surgeon; Contract Surgeon Merton A. Probert.

A board of officers is appointed to meet at Fort Sheridan for the examination of officers for promotion. Detail for the board: First Lieutenant Wm. K. Davis, assistant surgeon; Contract Surgeon Wm. H. Richardson.

Changes in the Medical Corps of the U. S. Navy for the week ended May 27, 1905:

ANDERSON, F., medical inspector, ordered to report to the commanding officer, marine barracks, Washington, D. C., for duty at those barracks—May 19.

CORDERO, F. J. B., surgeon, ordered to the Yankee, sailing from New York, N. Y., about June 7—May 19.

WIEBER, F. W. E., surgeon, detached from the Prairie when put out of commission, and ordered home to wait orders—May 19.

GATEWOOD, J. D., surgeon, detached from the Yankee, and ordered home to wait orders—May 19.

STOKES, C. F., surgeon, ordered to additional duty as a member of the Anatomic Board of the District of Columbia—May 19.

WARNER, R. A., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—May 19.

STALMAKER, P. R., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—May 19.

PUGH, JR., W. S., assistant surgeon, detached from the Prairie, and ordered to the Naval Station, Guantanamo, Cuba, with additional duty on the Monongahela, sailing from New York about June 2—May 19.

GRAYSON, C. T., assistant surgeon, detached from the marine barracks, Washington, D. C., and ordered to the Maryland—May 19.

HOYT, R. E., assistant surgeon, detached from the Texas, and ordered home to wait orders—May 19.

BROWN, H. L., assistant surgeon, detached from the Naval Station, Guantanamo, Cuba, and ordered to the Texas—May 19.

SHAW, N., assistant surgeon, detached from the Yankee, and ordered home to wait orders—May 19.

ZALESKY, W. J., assistant surgeon, detached from the Naval Academy, and ordered to the Yankee, sailing from New York, N. Y., June 7—May 19.

Changes in the Public Health and Marine-Hospital Service for two weeks ended May 24, 1905:

GASSAWAY, J. M., surgeon, granted leave of absence for four days from May 23—May 15, 1905.

LIGHT, S. D. W., acting assistant surgeon, granted leave of absence for six days from May 2—May 2, 1905.

MALONY, J., acting assistant surgeon, granted leave of absence for thirty days from July 1—May 11, 1905.

GIBSON, F. L., pharmacist, department letter granting leave of absence for twelve days from May 6, 1905, revoked—May 13, 1905.

STONE, G. W., surgeon, three days leave of absence from May 17, 1905, under paragraph 189 of the regulations.

MATHEWSON, H. S., passed assistant surgeon, granted leave of absence for two months from June 16, 1905—May 22, 1905.

MCCLINTIC, T. B., passed assistant surgeon, to proceed to Berkeley Springs, and other points in West Virginia, for special temporary duty—May 17, 1905.

SPRATT, R. D., assistant surgeon, to proceed to Cleveland, Ohio, and assume temporary charge of the station during the absence on leave of Passed Assistant Surgeon H. S. Mathewson—May 19, 1905.

LONG, H. D., assistant surgeon, to proceed to Ellis Island, New York, and report to Surgeon G. W. Stoner for duty—May 20, 1905.

OLSEN, E. T., assistant surgeon, to proceed to Ellis Island, New York, and report to Surgeon G. W. Stoner for duty—May 20, 1905.

MIRANDA, R. U. L., acting assistant surgeon, granted leave of absence for thirty days from June 1—May 24, 1905.

WAKEFIELD, H. C., acting assistant surgeon, granted leave of absence for ten days from May 27—May 17, 1905.

ROEHRIG, A. M., pharmacist, granted leave of absence for five days from May 19, 1905, under paragraph 191 of the regulations.

Boards Convened.

Board convened to meet at Baltimore, Maryland, May 12, 1905, for the physical examination of cadets, Revenue Cutter Service. Detail for the board: Surgeon L. L. Williams, chairman; Assistant Surgeon W. H. Frost, recorder.

Board convened to meet at San Francisco, Cal., May 19, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon G. M. Magruder, chairman; Passed Assistant Surgeon D. H. Currie, recorder.

Appointments.

Simon P. Brooks appointed acting assistant surgeon for duty at Memphis, Tenn.—April 29, 1905.

Henry D. Long, of Pennsylvania, and Egil T. Olsen, of Illinois, commissioned (recess) as assistant surgeons in the Public Health and Marine-Hospital Service—May 19, 1905.

Charles E. Fisher appointed acting assistant surgeon in the Public Health and Marine-Hospital Service, for duty at Toledo, Ohio—May 19, 1905.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington, D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

[Continued from page 819.]

Some Phases of the Neurotic Heart.—BEVERLY ROBINSON (New York) makes four groups of these cases: 1. Those accompanied by general evidences of neurasthenia. 2. Cases of organic change in the heart. 3. Cases of involvement of the stomach, bowels, or other organs, the heart condition being secondary. 4. Cases in which various concomitant troubles are as much the effect as the cause of the cardiac lesion. Nervous disorders of the heart are not well understood, and the diagnosis is difficult and often is not made at all. Cardiac dilation and hypertrophy may be of neurotic origin, and murmurs may be produced in such condition. Organic lesion must be carefully excluded before this diagnosis is made. Treatment is apt to be uncertain and yield only temporary results. The utility of salicin, coca, iron, massage, etc., was discussed. In cases of predominant neural element, the Nauheim treatment is often beneficial. In conclusion, Robinson emphasized the following points: 1. Slight enlargement of the heart may be due to nervous disorders of that organ. 2. There develops a secondary anemia which remains stationary despite treatment directed toward its cure. 3. The absolute or relative uselessness of digitalis in this condition is an important point. 4. The heart muscle, which at times becomes involved to such an extent as to permit of slight dilation, may be improved in nutrition in some cases until functional recovery is attained.

SECOND SESSION.

Report of a Case of Pneumococcus Sepsis.—J. S. THACHER (New York) reported a case notable for the intensity and rapidity of onset of endocarditis and meningitis. The patient was ill only 19 days. He passed through a rather typical course of croupous pneumonia, on the twelfth day the lung being almost entirely clear. On the fourteenth day signs of fluid in the right chest developed, and three days later, two days before death, the first evidence of cardiac trouble became manifest, a diastolic murmur appearing at the apex. The temperature was then 100°. Multiple murmurs afterward developed. On the day preceding death the neck became stiffened, headache was prominent, and Kernig's sign was present. Lumbar puncture obtained turbid fluid from which a pure culture of the pneumococcus was isolated; similar cultures were obtained from the pus in the pleura and from the blood.

A Report of Six Cases of Perforation in Typhoid Fever in Children.—J. P. CROZER GRIFFITH (Philadelphia) gave two reasons for reporting these cases: 1. The occurrence of typhoid fever and perforation in childhood is unusual. 2. The symptoms of perforation in children offer difficulties in diagnosis greater even than in the case of adults. In children there is less apt to be collapse, severe abdominal pain, uncontrollable vomiting, abdominal tenderness and abdominal distention. Very brief notes of the cases were given, the presence or absence of the cardinal symptoms being noted: Case I.—A girl of 12; severe abdominal pain began on the twenty-third day. There was no vomiting, collapse, or fall of temperature. Twelve hours later she began feeling ill and 24 hours later vomiting and distention appeared; the diagnosis of perforation was then made. Case II.—A boy of 11; had pleurisy as a complication of unsuspected walking typhoid. After eating ice cream, abdominal symptoms appeared and the diagnosis of gastric indigestion was made. Two days afterward rose spots appeared and the diagnosis of typhoid and perforation was made. This case was completely misleading. Case III.—Symptoms of perforation were perfectly characteristic at the onset but later disappeared. Operation was not performed until 40 hours after, when symptoms had again appeared. Case IV.—Vomiting was the first symptom; there was no fall in temperature, pain, or collapse. Operation was refused. Case V.—A girl of 4 was convalescing from a mild attack of typhoid and developed some abdominal pain, unlocalized, and vomiting. There was no change in temperature, the pain ceased, there was no distention nor abdominal tenderness. The patient was sitting up in bed and apparently doing well. The temperature then gradually rose, the patient became ill, and died the next day. Perforation was not suspected. Case VI.—A girl of 6 gave a vague history of abdominal pain and vomiting, but no fall in temperature. She was in good condition six hours later, though perforation was suspected. Twelve hours later she was still better, but in two hours became worse. Operation was finally performed, but death occurred. Most of the patients were seen in consultation and some would have been operated upon if possible, but still the report is a record of failures. Griffith in reviewing the cases feels that the best was done under the circumstances which surrounded each case and the symptoms that were present.

Discussion.—A. JACOBI (New York) said the difficulty in diagnosing perforation in children was rendered greater by the

fact that now and then perforation occurs without diarrhea having been present at any time during the course of the disease. Diagnosis of perforation is not easy in any case and in some is impossible.

Hematemesis from Gastric Ulcer: Notes on 200 Cases.—W. G. THOMPSON (New York) gave data based upon the study of cases recorded in the Presbyterian and Bellevue hospitals. One patient in 4.8 cases died, but this may not be accurate, as patients who leave the hospital as cured or improved may later die of hemorrhage, though not traced. Regarding operation for this symptom, Thompson believes it should be resorted to oftener than it is. Three indications call for operative intervention: (1) Dangerous hemorrhage; (2) recurring hemorrhage not yielding to medical treatment; (3) adhesions to neighboring viscera, whether from the bleeding or other ulcer. The difficulties of accurate diagnosis are proved by the findings of operation and by examination of the stomach contents. Of the 20 patients transferred to the surgical side for operation, 5 were found to have conditions entirely different from gastric ulcer; several personal cases have presented hematemesis but had no ulcer. The analysis of the gastric contents is essentially no aid in diagnosis; a single examination is absolutely worthless and repeated passage of the tube is dangerous. In several cases unexpected lesions have been found at operation, another indication for early operation, even for diagnosis in some cases. As to the etiology of gastric ulcer, an interesting point is the much greater age of males in which it occurs; few males below 35 have ulcers, while the larger number of affected females are between 20 and 30. Whether of great significance or not, a large proportion of males suffering from gastric ulcer, a fourth, were workers with metals, as brass founders, lead workers, etc. Thompson particularly emphasized the point that early surgical intervention is desirable much oftener than it is now employed.

Discussion.—F. P. KINNICUTT (New York) said that in advising operative procedure one must bear in mind how frequently it is difficult to locate the lesions in the stomach, even at autopsy. They may be small and found only after the most diligent search; with the ordinary surgical incision they may easily be overlooked. A second point is the frequency of cases in which death from hemorrhage appears imminent, but in which the bleeding finally ceases and the patient lives many years. S. SOLIS COHEN (Philadelphia) said that relative to the recurrence of gastric ulcer we have as yet no positive data of cases in which operation has been performed to show how often new ulcers occur thereafter. He cited the case of an old man who, without symptoms referable to ulcer, suddenly had profuse gastric hemorrhage. Surgeons called in consultation considered him too weak for operation. When strength was regained there appeared to be no need for operation. Hemorrhage again occurred and the man died. Autopsy showed 40 or more small ulcers, 20 or 30 of which were healed. These multiple ulcers had been forming for years without causing symptoms. A second instance was that of a young lady seen by Cohen 17 years ago. She then had severe gastric hemorrhage and recovered. She now has symptoms of ulcer, but no hemorrhage, and refuses operation. There is still a great deal to be said on both sides of the question of operating for ulcer. In one patient, with gallbladder symptoms, operation revealed an ulcer of the stomach just on the point of perforation. The pain which led to operation appeared due to adhesions between the gallbladder and an old gastric ulcer. We are not yet in a position to draw dogmatic conclusions regarding the merits of surgical and medical treatment of gastric ulcer. In general, Cohen coincides with the views of Thompson. BERTRAM SIPPY (Chicago), in speaking of the hesitation of surgeons to operate after hemorrhage if the hemoglobin is below 40%, mentioned the case of a girl who had repeated hemorrhages, the hemoglobin being 20%. Surgeons hesitated and she finally recovered without operation. The danger of operation in such cases is probably not so great as in anemics of slow development, but nearly all operated patients die. It is difficult to say if operation is justified. J. H. MUSSEY (Philadelphia) said it is important to remember cirrhosis of the liver as a cause of hematemesis. In cases simulating gastric ulcer, but in which perigastric or periduodenal adhesions to the gallbladder are a possibility, a previous history of typhoid fever is an important aid in diagnosis, particularly the type of typhoid as to a long duration and imperfect convalescence. In closing, THOMPSON called attention to the fact that operation often relieves patients with small punctate lesions of the stomach. When 1 patient of 4.5 cases dies under medical treatment, operation is not lightly to be dismissed.

The Relations of Certain Stomach Disorders to Diabetes Mellitus.—JOHN S. SAWYER (Cleveland) has for the past five years been treating cases of diabetes mellitus from the standpoint of the stomach rather than the glycemia; his results are quite satisfactory. Of the 19 patients treated, 17 gave a history of previous dyspepsia and had a definite catarrhal condition of the stomach. Lavage of the stomach with solutions of resorcin or with chloroform water gave almost immediate relief from excessive thirst, hunger and polyuria. In several, cessation of glycosuria also followed improvement in the stomach condition. In a few cases similar results were obtained without lavage, but that expedient was most successful, especially in cases of motor insufficiency and hyperchlorhydria. The known duration of glycosuria was from six weeks to five years.

The cases reported show that hunger, thirst, and polyuria are not so dependent upon hyperglycemia as commonly supposed, and that stomach disorders possess a far greater importance than is usually attributed to them. Sawyer says lavage can be properly carried out only when the patient is in the reclining posture, and means other than gravity are used to cause return of the fluid; constant manipulation of the gastric region should be kept up while the fluid is in the stomach to secure thorough application to the organ and removal of the contents.

Discussion.—JAMES TYSON (Philadelphia) has not noticed in diabetics particular symptoms referable to the stomach. It is possible, however, that the efficiency of Fowler's solution in diabetes may be due to its effect upon the stomach functions. It is also possible that the formation of acetone and diacetic acid is due to gastric catarrh. S. SOLIS COHEN (Philadelphia) has noticed in a number of cases of chronic glycosuria an increase of excretion of sugar accompany septic condition of the intestines, the increase disappearing when the intestines are made antiseptic. In closing, SAWYER said intestinal antiseptics is an important point in the treatment of these patients. He also added that the use of lavage did not interfere with any other treatment desired.

Clinical Notes on the Use of Nux Vomica, Especially in Certain Forms of Hyperchlorhydria.—J. H. MUSSEY (Philadelphia) finds that cases of hyperchlorhydria, especially those secondary to gastric neurasthenia, which do not yield to ordinary treatment, often do remarkably well on nux vomica. The points in its administration are that it must be given in ascending doses and in large quantities. In most cases 60 or more drops three times daily are used, but each individual regulates the point of tolerance. It must be given for long periods of time, usually four or five months. In young subjects the drug can be given in much larger doses than in older patients. Nux vomica and not strychnin must be employed.

Discussion.—JAMES TYSON (Philadelphia) has in his practice confirmed the statements of Mussey in this regard. His cases are not especially subjects of hyperchlorhydria, but many obstinate cases yield to this treatment. Mussey, in closing, said in reply to questions that the drug was given before meals and in ascending doses until tolerance was reached.

An Umbilical Hernia as a Little Recognized Source of Abdominal Pain.—D. D. STEWART (Philadelphia) calls attention to hernia in the linea alba above the umbilicus as a cause of recurring abdominal pain and various dyspeptic symptoms, the cause of which is otherwise regarded as obscure. He has observed a number in hospital patients and has seen five cases in private practice. The hernia is commonly not much larger than a split pea, but may be the size of half a walnut.

[To be continued.]

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, Held at Washington, D. C., May 18 and 19, 1905.

[Specially reported for *American Medicine*.]

[Continued from page 849.]

General Meeting.

Address of Vice-president Biggs.—HERMANN M. BIGGS spoke on the reporting and registration of cases of tuberculosis as exemplified in New York City. Though the need of enforced registration is now very generally admitted, it practically does not exist outside of New York, except in a few small cities in this country and in Great Britain. The point most emphasized by Biggs is the need for constant pressure upon physicians and authorities who do not believe in compulsory registration. It is true that overenthusiasm on the part of younger men for too radical measures may do more harm than the conservatism of others who antagonize such advances, but the golden mean can be obtained only by judicious and insistent pressure in the direction shown by experience to yield the best results. This antagonism has been met in New York, until now there is no serious opposition by the profession or the public. In fact there is less difficulty than in enforcing measures of protection against scarlet fever or diphtheria. Biggs is thoroughly convinced that systematic work against tuberculosis can never be done without enforced registration as a basis.

Responsibilities of the Layman in the Prevention of Tuberculosis.—MR. TALCOTT WILLIAMS (Philadelphia) delivered the address at the evening session. Attention was directed to individual responsibilities in this regard and the great possibilities of philanthropic aid in the movement against the disease. With this, the speaker emphasized the danger of fostering pauperism. No profession gives so much to mankind as do physicians, and no other people give so indiscriminately. Hospitals in the various cities should unite in maintaining a central bureau for investigating persons applying for free treatment, this being particularly needed for the tuberculous.

Resolutions passed at this session included one asking the

President to institute inquiry regarding the conditions under which employes in government workshops and offices are compelled to labor; one calling attention of municipal authorities to the need for legislation and the appropriation of funds to aid in the work against tuberculosis; and one asking the officers of insurance associations to consider means of combating tuberculosis among their policy holders, and also asking them to attend the future meetings of the association.

Section on Sociology.

Health as an Investment.—MR. HOMER FOLKS (New York), in his address as chairman of the section, said they had two important facts to consider: 1. Tuberculosis is the leading cause of death in this country. 2. In the past two or three decades we have learned much regarding the disease and how to control it, particularly in the way of prevention. From this the question inevitably occurring to a layman is, if tuberculosis is a preventable disease, why is it not prevented? All the reasons given in answer to this question Folks condenses into one, namely, we do not realize the value of public health as an investment; we are not yet ready to devote sufficient means to the saving of human life, even when the opportunity is placed squarely before us. Health authorities are given woefully inadequate sums of money to carry on the work they should do. The postage alone of a communication sent to every voter in Greater New York costs \$60,000, and this is repeated several times in some campaigns. This particular method might not be the best in campaigning against tuberculosis, but the work to be effective must be carried on with something of this magnitude. After comparing the value of freedom from tuberculosis with the so-called "permanent" improvements of cities, Folks concluded that municipalities would be justified in using their credit for funds for the former just as they now do for the latter purpose.

A Working Program for Associations for the Prevention of Tuberculosis, National, State, and Local.—MR. EDWARD T. DEVINE (New York). See *American Medicine*, issue for May 20, 1905.

Progress of the Sanatorium Movement in America.—WILLIAM H. BALDWIN (Washington) traced at length the progress of this movement from Trudeau's Saranac venture 20 years ago to the present widespread adoption of this plan of treatment. Now there are 135 institutions of various kinds, new and old, in 35 of the States and provinces in the United States and Canada, caring for the tuberculous. A third of the number is in New York and Pennsylvania. The total capacity is 8,400 persons, 30% of these being in New York. The first sanatorium to be established by a State or provincial association was the Muskoka Cottage Sanatorium, at Gravenhurst, Ont., in 1897. The first State sanatorium was erected by Massachusetts, at Rutland, in 1898. The first municipal sanatorium was established by Cincinnati, in 1897. Sanatorium treatment has demonstrated three things: (1) Climate is not an essential or even the most important feature; (2) necessities are fresh air, rest, nourishing food, and regular habits; (3) in a sanatorium medical superintendence is the most essential factor.

Discussion of these papers was participated in by many of the most prominent workers in the cause of the tuberculous, the subjects being treated in all their various phases.

Infection in Transportation.—H. M. BRACKEN (St. Paul) spoke of the methods which were used in railway car sanitation and of efforts to bring about their betterment. The paper will appear in a future issue of *American Medicine*.

Section on Pathology and Bacteriology.

Channels of Infection in Tuberculosis.—WILLIAM H. WELCH, at the solicitation of Chairman M. P. Ravenel, delivered the introductory address on this topic. He first drew attention to the many conflicting statements and theories regarding questions concerning tuberculosis, but asserted his belief that they do not materially influence measures of protection against the disease, which must be carried out on broad lines, in which there is more unanimity of opinion. Regarding the statement of some writers that 98% of all persons of more than 20 years possess tuberculous lesions, and hence the practical ubiquity of the tubercle bacillus, Welch is sceptical. The small specks seen in organs and called by some tuberculosis are doubtful; that they are due to attenuated bacilli, as has been suggested, is a question for study. On the whole, it is not best so to regard them. Welch agrees with Cornet as to the fallacy of giving the frequency of tuberculosis in terms of those dead; it should rather be based on the living. If every person that died was by law subjected to postmortem, such high figures would not be obtained. Again, the conclusion that one person is resistant and another is susceptible, because the first escapes lesions and the second does not, is not justified; the virulence of bacilli in the two instances may be the reason. Welch does not wish to be understood, however, that he does not believe in predisposition to tuberculosis; he does, but does not like the term ubiquitous as applied to the bacillus. This indicates that it is widespread and aggressive, as are the common pyogenic organisms, a view that cannot be endorsed. As to the origin of tuberculosis from bovine and from human sources, the transmissibility of human bacilli to cattle has been demonstrated beyond a doubt. In this connection two points are yet to be determined: (1) The frequency in human beings of tubercle bacilli virulent to

cattle; and (2) what percentage of these organisms came originally from cattle. The transmissibility of bovine bacilli to human beings cannot be demonstrated experimentally and must be judged from inferences. One method is careful clinical study, but conclusions therefrom are open to such fallacies that they rarely or never can be considered positive. Another method is to study the localization of the disease, principally as to whether there is primary intestinal tuberculosis. Here we are met by the fact that many of these intestinal lesions are not bovine in origin. Regarding the question of primary intestinal tuberculosis, there is the most remarkable variation in statistics. Welch can explain them in no other way than by supposing the incidence is greater in some localities than in others; the irregularity remains a mystery. The whole determining point is the character of the bacilli found in the lesions. This will prove an exceedingly laborious task to perform and it will be a long time before there are sufficient data to settle the question. There is now enough evidence to indicate that the majority of cases are due to the human bacillus, but cases of undoubted bovine origin have been found and render infection from this source a by no means negligible factor. The view of Behring that infection occurs in early childhood and that nearly all cases are bovine in origin, cannot be maintained. His assertion, however, is likely to lead to as important investigations as did the famous statement of Koch, and hence is of value. A sufficient number of cases of congenital tuberculosis have now been demonstrated to show this is not a pathologic curiosity; Schmorl's studies indicate that the entrance of tubercle bacilli into the fetus of a tuberculous mother is not uncommon and the possibility of infection thereby is not to be disregarded by physicians. Regarding the relative frequency of respiratory and alimentary infection in tuberculosis, Welch says that though the latter is far more frequent than was formerly supposed, cases of respiratory infection are still the more numerous.

The Value of Serums in Protection, Diagnosis, Prognosis, and Treatment of Tuberculosis.—Several brief papers dealing with these phases of tuberculosis were read. A. J. RICHER (Montreal) has obtained surprisingly good results from the use of Marmorek's antituberculous serum in seven advanced and nine incipient cases. The action appears to have been truly specific, as it did not fail in any instance. His method of employing the serum is to give 10 cc. during the first 3 days; 2, 4, and 4 cc. respectively; then rest 10 or 15 days. The 3 doses are then repeated, with the same resting period alternating, until 50 cc. have been given. Finally, 5 cc. is given monthly for 4 or 5 months. G. FIGARI (Genoa) reported on the **Natural and Artificial Protection of Man against Tuberculosis**. He has obtained the most hopeful results from the use by the mouth of substances found in the blood, milk, and flesh of animals in which the production of immunity has been attempted. By administering the serum of such animals, a certain degree of immunity in human beings may be attained. The results have been sufficiently encouraging to warrant the trial of this method of protection in the children of tuberculous parents, and in others specially predisposed to the disease.

The Serum Diagnosis of Tuberculosis was considered by H. M. KINGHORN (Saranac Lake) and M. P. RAVENEL and H. R. M. LANDIS (Philadelphia). Lack of correspondence in certain features of the two reports appears due to differences in the cultures employed, standardization of which is the greatest difficulty to overcome in this work. Kinghorn, in an experience with 62 cases, found reaction usually absent in far advanced cases, and most often present in favorable cases. His results do not lead him to rely on the method as a sure or reliable test of tuberculosis. Landis also concludes that the agglutination test is not available for diagnosis. A low agglutinating power is unfavorable in prognosis. His experiments indicate that the resisting powers of individuals are increased by sanatorium life. **Studies in Immunity** by BALDWIN, KINGHORN, ALLEN and NICHOLS (Saranac Lake) dealt with the serum and tissues of immunized rabbits. The results were largely negative in character, one point being there is no marked difference in opsonic power of immunized and control animals.

Papers were also read on the Blood in Tuberculosis, by J. ULLOM and F. A. CRAIG; Tuberculosis of the Thoracic Duct and Acute Miliary Tuberculosis, by W. T. LONGCOPE; Studies in Mixed Infection in Tuberculosis, by M. P. RAVENEL and J. W. IRWIN; The Thyroid Gland in Tuberculosis, by W. B. STANTON; and Landry's Paralysis Complicating Tuberculosis, by D. J. MCCARTHY, all of Philadelphia; and on the Vitality of The Tubercle Bacillus in Sputum, by D. C. TWICHELL (Saranac Lake).

[To be concluded.]

New Tax on Immigrants.—The practical certainty that more than 1,000,000 immigrants will come into this country during the fiscal year ending with June, thus breaking all records, and the revelations made by agents of the Immigration Bureau in Europe concerning the methods employed by foreign governments to promote emigration of the criminal and unfit, have decided the President to urge Congress to make further restrictions. A heavy proportion of the newcomers are not desirable immigrants for political, economic and moral reasons. One of the amendments that will probably be recommended is the raising of the head tax on immigrants to \$25. This would bar thousands who are now admitted.

ORIGINAL ARTICLES

FURTHER REMARKS ON ISCHOCYHMYA AND ITS TREATMENT.¹

BY

MAX EINHORN, M.D.,

of New York.

Professor of Medicine at the New York Postgraduate Medical School, New York.

Ischochymia or "clinical dilation of the stomach" of the older authors is an important disease, to the recognition and treatment of which modern stomach pathology has made many contributions. In two previous papers² I have already touched upon the symptomatology of ischochymia of benign, as well as of malignant origin, and in a general way sketched its treatment. In the present paper, I would like first, to discuss the statistics of this affection, and second, to describe a few new points in the clinical course of ischochymia, as well as its treatment.

1. *Statistics.*—As to the frequency of ischochymia, I looked over my journal of 1904 and found the following figures: Total number of patients 3,243, of whom 1,793 were men and 1,450 women. Among these there were found 47 cases of ischochymia of benign or malignant nature, which were distributed as follows:

TABLE OF CASES OF ISCHOCYHMYA.

Variety.	Total number.	Men.	Women.
Benign.....	23	17	6
Malignant.....	21	13	8
Undetermined.....	3	2	1
Total.....	47	32	15

Estimated in percentages we get the following figures:

ISCHOCYHMYA OF BENIGN AND MALIGNANT NATURE.

Total number.	Men.	Women.
1.46%	1%	0.45%

ISCHOCYHMYA OF BENIGN NATURE.

Total number.	Men.	Women.
0.71%	0.52%	0.19%

ISCHOCYHMYA OF MALIGNANT NATURE.

Total number.	Men.	Women.
0.65%	0.41%	0.25%

The figures given would in reality probably be somewhat higher. As is customary, I examined the stomach by means of a tube only, whenever there was a suspicion of some graver lesion. Under these conditions it is naturally unavoidable that some cases of benign ischochymia should remain unrecognized.

2. *Benign Ischochymia, Associated with Severe Peristaltic Restlessness of the Stomach, Cured by Medical Means.*—It is generally well known that cases of benign ischochymia, which are caused by a moderate stenosis of the pylorus, may be improved or cured by medical treatment. In these cases the dilation of the stomach is not very great and the peristaltic restlessness of the organ is absent or only slightly present. There are, however, exceptions to these general rules, and occasionally cases of tremendous gastric dilation (filling the entire left side of the abdomen down to the symphysis) with marked peristaltic restlessness and ischochymia are cured by palliative treatment.

As examples we may cite the following two cases:

CASE I.—December, 1903. Harry H., aged 32, developed pleuropneumonia in September, 1903. Since then he has been suffering from severe stomach trouble. He had intense pains in the epigastrium, accompanied by nausea and vomiting as

well as constipation. He lost in weight rapidly and his troubles became worse; the vomiting occurred several times daily and he brought up large quantities of fluid (over a quart of gastric juice mixed with food). When I saw him for the first time in December, 1903, he was very much emaciated. His stomach was much dilated, reaching down to the symphysis, and showed great peristaltic restlessness. In the left chest was still found the evidence of the inflammatory process of the lung (rales and dulness).

Besides the process in the lung, ulcer of the stomach with stenosis of the pylorus was diagnosed. As the patient was much run down, medical treatment alone could be considered.

He was therefore placed upon a strictly fluid diet and received internally magnesia usta, 10 gm.; bismuth subnitrate, 20 gm.; water sufficient to make 200 gm.; a tablespoonful three times daily a half hour before meals.

The patient then entered the German Hospital and was under my care from January 14 to March 30, 1904. I mention here the following extracts from the hospital records:

Diet: Milk or oatmeal with milk, 8 oz. every 2 hours; 3 raw eggs daily. Medication as above. Oil enemas. Heroin. Every other day lavage of the stomach in the fasting condition.

Lungs: In front on the left side above, some rales; on the left, behind in the middle of the scapula and the lobe, rales and dulness.

January 15, 1904. Aspiration under the left scapula produces a somewhat purulent fluid, containing microscopically many white blood cells, but no bacilli.

January 18. Thiccol 0.3 gm. three times daily. January 21. Patient was up for a half hour; weight, 102 pounds.

The diet is somewhat increased, two teaspoonfuls of farina being added to eight ounces of milk.

January 23, 12 ounces of milk every two hours; six eggs. February 5, diet as before, seven eggs; weight 104 pounds. February 9, respiratory exercises with James' bottle. February 11, weight, 104 pounds. February 15, diet as before; eight eggs. February 22, test-meal of rice in the evening; three soda crackers, raw oysters, and lamb chops. February 23, lavage of stomach in the fasting condition shows the presence of rice kernels. February 29, diet again increased by the addition of mashed potatoes, toast, butter, and two soft-boiled eggs.

Weight, February 25, 108½ pounds. March 3, 113 pounds. March 17, 124½ pounds. March 24, 127½ pounds.

After the patient had left the hospital he continued to gain, and weighed 153 pounds in November, 1904. He was able to eat everything, and looked splendid. Examination revealed that the stomach did not reach below the navel.

CASE II.—April, 1904. Mrs. G., aged about 30, had been complaining for the last five to six years of severe attacks of gastralgia and vomiting, which usually occurred periodically about every five to six months, and lasted from four to five weeks. The patient consulted me for the first time about three years ago. She was, at that time, much emaciated, and suffered intensely every time she took food. Examination revealed normal conditions in the thorax. In the abdomen, however, the stomach was found to extend from the left costal margin to the symphysis, as determined by the presence of capotement. Slight tenderness on pressure was found over the entire stomach, but no circumscribed area of localized pain. On inspection, prominences could be plainly perceived, traveling in an undulatory manner from left to right. Peristaltic restlessness of the stomach was evidently present. Examination of the stomach contents one morning when she had had only milk revealed a chyme that was very much decomposed, and had an odor of H₂S. It contained muscle fiber, pieces of cellulose and bread particles. Chemically, the stomach contents showed the presence of free HCl, increased acidity and hydrogen sulfid. The patient was placed on a strictly liquid diet and received magnesia usta, and bismuth.

Gradually her condition improved, and she began to gain in weight. During the first six weeks of treatment after taking a test-supper of rice and milk the rice was found on washing the stomach in the fasting condition the following morning. Later the amount of residue became less and less. She could now eat mushy food and some white bread.

In the course of the following year she gained about 40 pounds. Later she became pregnant, had a healthy child, and remained well for two full years.

In 1903 the patient made a visit to Russia. On board of the ship she ate corned beef and other heavy food. She again began to suffer from gastralgia and vomiting. She was treated in a hospital in Warsaw without her condition improving.

In the fall of 1903 she returned to New York and came to my office. She was again very much emaciated, weighed 90 pounds, had severe pain, and vomited daily large quantities of foul-smelling food.

Examination revealed a condition similar to the one of 1901: Stomach reaching down to the symphysis, showing strong peristaltic movement. The contents had the odor of H₂S, showed the presence of food from the previous day, the presence of HCl, and an increased acidity. Under the same treatment as that of 1901, the condition of the patient improved gradually. In the course of nine to ten months, the patient has gained over 50 lbs. At present the stomach, washed out in the morning in the fasting condition after a test-supper of rice, is always empty. The patient can readily digest all ordinary articles of diet. She must therefore be looked upon as cured.

¹ Read before the American Gastroenterological Association, April 24, 1905, New York.

² Max Einhorn: Diagnosis and Treatment of Stenosis of the Pylorus. Medical Record, January 19, 1895. A Further Contribution to Our Knowledge of Ischochymia. Medical Record, June 18, 1897.

The cessation of the symptoms due to the stenosis may best be explained as follows: Let us assume that the pylorus is only slightly narrowed (relative stenosis of the pylorus), so that the usual food passes readily. Through some grave dietetic error an inflammation of the pyloric part takes place, which causes a hyperemia, perhaps an edematous swelling of this part of the stomach, and the result is that the canal is nearly impassable. The whole process may best be compared to an angina of the throat. If now, by means of rest and suitable treatment, the acute swelling is made to disappear, the former lumen of the canal will be reestablished.

3. *Cases of Benign Ischochymia with a History of Short Duration.*—Usually in cases of benign ischochymia the patients give a long history of suffering, with periods of euphoria interspersed, whereas cases of malignant ischochymia show a short history of illness (three to eight months) with constant suffering. There are, however, exceptions to this rule, and I would like to describe two cases of benign ischochymia with a relatively short period of illness:

CASE I.—December 24, 1902. Rev. Ch. McK., aged 63, complained for the last three to four months of digestive disturbances. He has pains in the upper epigastric region one to two hours after meals, vomits large quantities of food at times, is constipated, and is steadily losing weight. In all, he has lost 25 pounds in the last three months.

Examination reveals nothing abnormal in the thorax. In the abdomen we find a markedly dilated stomach with a doubtful resistance; the contour of the colon, which is tender on pressure, can also be made out. Examination with the stomach-tube shows the presence of food remnants from previous days, presence of free HCl, and an acidity of 72.

For two weeks remnants of food from the previous day could be detected on emptying the stomach in the morning in the fasting condition.

On liquid diet the condition of the patient gradually improved. Soon he was able to consume semisolid, and later solid food, and felt perfectly well. Later he regained his original weight and has been well since.

CASE II.—April 3, 1904. Joseph P., aged 32, wood-carver, has always been well. Two years ago he complained for a short while of vertigo, belching, and loss of weight. He was better again, and felt well up to half a year ago, when he again began to complain of vertigo, belching, and loss of weight. He lost over 30 pounds in the last few months. Appetite and bowels are good. He has no pain nor does he vomit, but feels so weak he can hardly walk.

Present state: Patient looks pale. Nothing abnormal can be detected in the thoracic organs. In the abdomen there is no sign of a tumor nor any localized tenderness. The stomach reaches two fingers' width below the navel. Examination with the stomach-tube shows food remnants from the day previous. Free HCl is present, blood and lactic acid are absent.

The patient was placed upon a liquid diet, and the stomach washed in the fasting condition every other day. During the first week of treatment, food remnants were constantly found, later the stomach was always empty in the fasting condition.

He was then told to eat semisolid, and later solid food. He recovered completely.

4. *Cases Appearing Clinically as Malignant, at times Reveal Themselves as Benign.*—We have just referred to a category of cases of ischochymia which, in spite of a history of short duration, usually pointing to malignancy, are of a benign nature. There is one more characteristic, making the diagnosis of malignancy a positive one, and that is the occurrence of a distinct tumor in the stomach or pylorus. Considerable gastric disturbances of a few months' duration, associated with ischochymia and the presence of a tumor, are universally considered as diagnostic of cancer of the stomach. I have, however, observed in my practice two cases in which we had to deal with these conditions, and in which the tumors were seen and palpated during operations and were clinically recognized as certainly cancerous, which, according to their future course were certainly not malignant. These two cases I shall describe:

CASE I.—October 24, 1896. Samuel K., aged 36, has always been well until six months ago, when he began to suffer from stomach trouble. He had pains almost after every meal, used to belch a great deal, and later vomited. Obstinate constipation was present. He continued to lose steadily in weight (in all 40 pounds) and strength.

Examination showed a markedly dilated stomach, with visible peristaltic restlessness of this organ. The stomach-tube showed the presence of food from the day before; HCl was present, but no lactic acid.

In view of the presence of ischochymia, the peristaltic restlessness of the stomach, and the relatively short duration (half a year), the diagnosis of pyloric obstruction due to cancer was made, and an operation was advised. He was operated upon by Dr. Willy Meyer, on November 6, 1896, at the German Hospital. After exposing the stomach, a tumor involving the pylorus and extending toward the duodenum, was found. There were also small whitish infiltrations of the size of a pea in various places in the upper part of the jejunum. It did not seem advisable to resect the entire portion of the stomach and bowel involved, and gastroenterostomy was therefore performed. The diagnosis made during the operation was cancer of the pylorus and secondary deposits in the bowel. The patient, however, got well, and is still (eight to nine years later) in the best of health.

The tumor could, therefore, not have been a cancer. Perhaps we here had to deal with a tuberculous neoplasm and diffuse tubercles in the bowel, which probably disappeared after the laparotomy.

CASE II.—August, 1901. Thomas G., aged 45, was always well until six months ago, when he began to suffer from dyspepsia. He lost his appetite, felt heavy after meals, and occasionally had severe pains in the epigastrium. Later, constipation and vomiting appeared. He lost steadily in weight and became much weaker.

Examination revealed a tumor the size of an egg in the region of the pylorus, and a much dilated stomach, presenting signs of ischochymia. HCl and an increased amount of acidity were found in the stomach, as well as food remnants from the previous day. Sodium iodid was tried for two weeks, but without success. The diagnosis of cancer of the pylorus having been made, an operation was suggested and performed on September 10, 1901, by Dr. S. Lloyd, in my presence, at the New York Postgraduate Hospital. Inspection of the stomach revealed marked enlargement of this organ and a tumor, the size of a fist, at the pylorus, which was adherent to the surrounding organs. It seemed impossible to extirpate the tumor, and gastroenterostomy, by means of McGraw's elastic ligature, was done.

We all were of the opinion that the patient would soon succumb to the disease. This, however, did not happen. The patient got well, and has remained so up till now, having gained considerably in weight. As four years have elapsed since the operation, we must assume that the tumor, which clinically and macroscopically showed all evidences of cancer, was not a cancer, but something else.

5. *Cases of Benign Ischochymia, with Ulcer at the Pylorus and Continuous Hypersecretion.*—We occasionally encounter cases of benign ischochymia, in which the following three stages of the disease may be observed: At first there is for years hyperacidity, resembling the ordinary form, being, however, more difficult to treat and showing a tendency to recur. We then notice that a condition of continuous hypersecretion of the stomach has taken place. The pains are now more intense, vomiting may be present or absent. After the stage of continuous hypersecretion has lasted some time (a year or more), a new factor, that of ischochymia, is added. This forms the third and gravest stage of the disease. In these cases we usually have an ulcer near the pylorus (either in the stomach or in the duodenum). It is often clinically observed that shortly previous to or after the appearance of the ischochymia, hemorrhages of the stomach occur.

These cases of benign ischochymia, with stenosis of the pylorus and ulceration, represent, according to my experience, a severe type of the disease, *i. e.*, medical treatment is usually of no avail, and an operation (gastroenterostomy) is usually indicated.

In the last few years I have observed six pronounced cases of this type. In all of them an operation was urgently advised, as the ischochymia continued even after rectal feeding and liquid diet.

Three of the patients gave their consent (Charles L., Otis P., and Samuel L.) and were operated upon. Of these, one (Charles L.) died five days after the operation with comatose symptoms, whereas the other two (Otis P. and Samuel L.) recovered and were entirely free from all symptoms. Three of the six patients (S. S., Theodore L., and Sigm. H.) were decidedly against any operative interference. Of these latter two died, S. S., from a perforation of the stomach and Theodore L. from a duodenal

hemorrhage, the third (Sigm. H.) slowly improved and regained his health almost entirely. The history of the last case I would like to give in detail.

October, 1902.—Sigm. H., aged 36, merchant, had been suffering for five to six years from periodic attacks of severe hyperchlorhydria (pains two to three hours after meals; relief after partaking of food and drink). A course of treatment at Carlsbad brought him only partial relief. These attacks were worse at the time when he was overwhelmed with work. On examination a greatly dilated stomach was found which reached a hand's width below the navel. There was marked hyperacidity, but no disturbance of motor function. The stomach at that time was completely empty in the fasting condition. Patient was treated with the customary alkalies and improved.

In January, 1903, the patient reappeared. He said that for the last four to five weeks he had severe pains in the stomach and frequently woke up at night and after having considerable paroxysms of pain had to vomit. The ejected matter usually consisted of a rather clear fluid, in which only rarely particles of food were found, and which was strongly acid.

Examination with the stomach-tube in the fasting condition produced about 100 cc. of pure gastric juice without any food particles. On February 3, 1903, food remnants were found for the first time in the fasting stomach, besides a larger quantity (150 cc.) of gastric juice. At the time there was also peristaltic restlessness of the stomach.

Patient was placed upon a strictly fluid diet and was treated with large doses of magnesia usta and subnitrate of bismuth. He felt somewhat better, and on February 22 the stomach washings in the morning were free from food remnants. There was always, however, a large quantity of pure gastric juice (100 cc. and more). Its acidity was not very high, oscillating between 60 and 80, the total acidity on March 30, 1903, being 60.

In the night of April 3 and 4, 1903, a severe gastric hemorrhage suddenly occurred. He vomited large quantities of blood and fainted in the toilet. Later bloody stools were passed and another hematemesis occurred. Patient was treated with adrenal and nutritive enemata and his condition again improved.

The diagnosis of ulcer involving the pylorus was made, and in view of his long-standing trouble, an operation (gastroenterostomy) was advised. Patient did not, however, consent to this and was, therefore, treated further in a palliative manner, his condition improving visibly.

On April 29, 1903, the stomach was found empty in the fasting condition. The diet now was carefully increased and he was sent to the country. In October, 1903, I again saw the patient. He felt perfectly well, had gained 25 pounds, and was able to eat ordinary food without any difficulty. He has since remained well.

6. *Treatment.*—There are two ways of treating isochymia: (1) Dietetic and medicinal measures (rectal alimentation, fluid diet, lavage of the stomach, bismuth, etc.); (2) operative procedures (gastroenterostomy, pyloroplasty).

These two methods of treatment do not antagonize but supplement one another. The indications for both are fairly well determined, where one ceases the other begins.

Since in by far the larger number of cases of isochymia a stenosis of the pylorus is present, the ideal method of treatment would consist in forming a new passage for the exit of the chyme from the stomach. Yet surgical intervention ought not to be recommended immediately in every case, as a certain element of risk is still attached to this procedure. The mortality of gastroenterostomy and pyloroplasty is rather high. It varies among different surgeons and in different countries between 5% and 20%. If we assume 10% as the average (among my own patients the mortality was much higher), we see that we have a mortality percentage that ought to be taken into consideration in advising an operation.

The indications for medical and surgical treatment of isochymia may be placed as follows:

1. Benign isochymia requires first medical treatment; if this be unsuccessful, *i. e.*, if after a longer period of treatment, the fasting stomach, on a fluid diet, is not empty, but contains food remnants, an operation is advisable.

2. Surgical intervention is also indicated in benign isochymia which has developed subsequent to a condition of continuous hypersecretion of gastric juice (preceded by hemorrhage or not).

3. Malignant isochymia or one of dubious nature in which, however, a thickening of the pylorus is found, should also be treated surgically (gastroenterostomy, and if possible, resection of the pylorus).

The reasons for the first two postulates are clear from the preceding article. Benign isochymia should first be treated by dietetic and medicinal measures, because many patients with apparently grave cases of this kind frequently get well in this way; and second, because an operation is a procedure connected with a considerable amount of danger, and should be suggested only when absolutely necessary.

Those cases of isochymia with preceding gastro-succorhea form an exception, and require operation sooner, because they are generally complicated with active ulcerated processes in the pyloric region, and because they are frequently accompanied by severe complications (perforations and severe hemorrhages). The danger from operation in this variety of isochymia is less than that from possible complications, therefore an operation is indicated.

As regards the third class of cases, referring to malignant isochymia, operative procedures must be recommended, first, because, these cases grow progressively worse, and second, because a possibility of a radical cure (either by extirpation of the tumor or in consequence of the disappearance of the same after gastroenterostomy), even if remote, is given.

At the close of this article I would again like to emphasize that both the medical and dietetic treatment as well as the surgical treatment, are of great value in overcoming isochymia; they are not antagonistic to each other, but work hand in hand—where one ceases the other commences.

BRIGHT'S DISEASE IN HIGH OFFICIAL CIRCLES AT THE NATION'S CAPITOL.

BY

T. L. MACDONALD, M.D.,
of Washington, D. C.

"Official life in Washington, with its social side features is a hotbed for Bright's disease and early graves." The genial Senator Dolliver, impressed by the number of prominent men who die from this malady, made the foregoing statement to me a few days after the untimely death of Thomas B. Reed, reference to which will be breathed sadly "to the last syllable of recorded time."

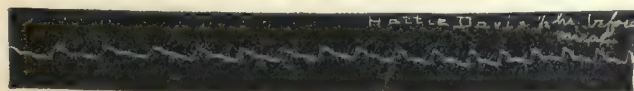
At the first glance the senator's remark may appear unwarrantably startling, but a brief consideration only is required to show that it has some foundation. To begin with, the class of men referred to suffer from the aggregated disadvantages of a sedentary life with its wellknown dietetic sins. Some there are who have sounded all the depths and shoals of palatal pleasures, and who have an unbounded contempt for dietetic restrictions. Some of them are heavy eaters, light sleepers, and worn workers. The causal relationship between chronic nephritis and a generous diet rich in albuminoids is a well-recognized fact.

The inevitable and continuous round of official and social dining leads to the ingestion of greater quantities of rich food than is required, and neither sufficient exercise nor oxygen is obtained to promote the combustion of such food products. I recently heard a cabinet officer say: "A good digestion and modern statesmanship should go together, in the order named." It is not always so much a matter of overeating as it is under-capacity to take care properly of what is eaten. In other words there is a peculiar inhibition of the oxidative processes. This often results in the formation of uric acid, of which we hear so much at the present time. It is regarded by some as an intermediary product evolved during the conversion of food into tissue and

thence into waste matter, and is a constant refuge in times of diagnostic difficulty.

The incentives to disease are the excesses and indulgences beyond the physiologic limitations of function. The danger associated with the presence of nitrogenized waste and high blood-pressure in the arteries is not fully appreciated.

The arbitrary manner in which food and stimulants are sometimes differentiated is amusing. As a matter of fact, all foods, and especially the rich varieties, are stimulating, particularly to the circulatory apparatus. To show that this is not a mere echo, the following pulse tracings were taken before and after a simple ward breakfast in one of our hospitals.



Before meal



After meal

It will be readily perceived, even by those unfamiliar with the use of the sphygmograph, that the upstroke of the needle, which represents the beat or filling of the artery, is much higher in the tracing taken after the meal than in that taken before, and the general level of the needle track is considerably more elevated. It is, perhaps, needless to observe that since this degree of circulatory stimulation occurs after such a breakfast as is received in the charity wards of a hospital, the degree of over-stimulation reached after the rich and sumptuous feasts so common in high official life can easily be imagined.

Certain varieties and degrees of nephritis may be compatible with more than the usual amount of mental, and perhaps, bodily activity for a long period, the subject being utterly oblivious to its existence. This explains its insidiousness. Officials who were entirely unaware of the existence of any deep-seated disease have worked unceasingly for years and closed their desks in the evening only to die before morning of the so-called "uremia" of chronic nephritis. Of course, such conditions are readily discoverable if investigation is permitted. In many instances this is far from difficult, for the color, skin, arteries, heart sounds, etc., often tell the secrets of the renal structures. Few people understand the multiplicity and variations of the manifestations of this malady. Some of the most common are dropsy, heart disease, "uremia," coma, apoplexy, paralysis, convulsions, gangrene, cerebral softening, the blurred vision of retinitis, and arterial degeneration. The involvement of so many structures situated so remotely from the original disease illustrates the truth of the statement that a man seldom dies from the disease with which he is affected. A common example of this is the gangrene of the extremities, due to arterial degeneration, so frequently the accompaniment of chronic nephritis. The late Senator C. K. Davis, of Minnesota, was a notable example of this phase of the disease. When the report goes out that a great man has Bright's disease there is often much confusion in the lay mind, because of the prominence of one or more of the foregoing manifestations which are only secondary.

In some instances and at some stages nephritis may manifest itself by paroxysmal nervous phenomena, or even a mood, as apathy or irritability, for like gout, it often leaves its impress on the temper and tissue alike. Man is an organism built around an eliminative system, and when that is wrong he cannot be right. The

deficiency of exercise and outdoor air and the excess of nutrition result in the accumulation of unemployed food and waste products, which become the flails of the sensitive brain cells and produce the gravest psychic, toxic, and physical phenomena. It is appalling to realize that a poison more deadly than the proverbial mad dog's tooth may be generated within ourselves. Even to those who are wont to be present during the most tragic scenes in human life, the convulsions of Bright's disease are extremely nerve-racking to witness. The reverse of this phase is the deadly *coma vigil*, or open-eyed sleep, of other cases. James G. Blaine was such an example. While Secretary of State under President Harrison, and while feebly endeavoring to discuss some question of importance, he would lapse into unconsciousness, with eyes wide open and staring. Many will remember that at this time he was being pushed for the Presidential nomination. And the pity of it is that this disease and its destructive accessories are directly traceable to conditions which are amenable to treatment if it is undertaken sufficiently early. Sir Henry Acland gave the following definition of an invalid: "He is one who is obliged to conform to certain rules, and because he does so, is able silently and unobserved to do more than most people in health, who are less observant in method." Concerning more trivial matters, for instance the teeth, we are lynx-eyed, but how indifferent we are to some deep-seated, far-reaching, and insidious disease, which the eye does not perceive.

When the kidney structures are already damaged it is not enough to modify diet; nerve-strain as well must be guarded against. But it is usually impossible "in these most brisk and giddy-paced times," to induce a man to abandon the pursuit of tottering fame and the continuance of a life which cannot fail to shorten his years. Instances of self-sacrifice and devotion to official duties are common, and beautiful to behold, but unfortunately they are not always devoid of the tragic. A much-loved senator, who was fond of King John, was told that he must remain in bed because of an injured spine. He promptly exclaimed:

"Zounds! how have I the leisure to be sick
In such a juggling time?"

The fever of over-exertion, of tasks unfinished, and of ambitions unfulfilled, was upon him. And after all, to use the paraphrase of a friend, "what does it profit a man to gain the whole world and lose his own—body?" Tissue change and tissue repair are not extensive during sedentary life, and the accumulation of earthy salts in the walls of the arteries and valves of the heart is a frequent menace to life. This is what the people speak of as hardening of the arteries. It is due to the precipitation of mineral substances such as soda, potash, lime, and magnesia. Of course, the damage thus done to the circulatory structures is irreparable, and hence the saying that "a man is as old as his arteries," and that "lime is the germ of old age." Such arteries frequently rupture, especially in the brain, and allow the blood to escape, producing cerebral hemorrhage and paralysis, more commonly called an apoplectic stroke. This is a common sequence in Bright's disease. The presence of mineral deposits may often be seen as a broad, whitish chalky line about the cornea, known by the older writers as the *arcus senilis*. Its outline is quite as frequently circular, and forms a ring instead of an arc. The use of alcohol is said to contribute to such deposits by first actively increasing the blood flow through and into the vessel walls, and by a secondary slowing influence causing the blood to flow so sluggishly that the mineral substances are precipitated. There is no doubt that alcohol in excess also aids in the production of Bright's disease, but the strenuous life, excessive mental activity, and a corresponding degree of physical quiescence, and years of over-indulgence in rich foods, with the associated high blood-pressure, are the essential causes.

It was a wise old writer who said that with many people the amount of food eaten may well be divided into thirds; one for nutriment, one for gluttony, and one to lay foundation for future diseases. Time never fails to bring every overcharged system to a strict account. "The glutton digs his grave with his teeth." The disagreeableness of a fact cannot in any way be regarded as disproof of it, nor is it well to thrust a subject out of sight because it is unpleasant. In general terms it may be said that nutritional excess is the germ of nephritis, and the sooner this is recognized the better. It is quite common to discover the impairment of the kidneys while the subject is being treated for some other condition. In our surgical work it is one of the complications with which we are constantly obliged to battle. In a moderate degree renal insufficiency has probably existed for years, to be detected only when some severe mental or bodily strain, a surgical operation or an accident, puts an additional burden on the eliminative system. A sad example of this kind was Lord Hershal. A few evenings prior to his accident he made a delightfully witty speech at an annual dinner of the Gridiron Club. A little later, he fell, breaking his thigh, and when visited at his hotel the evidence of nephritis was only too plain in the dropsy of both ankles. In a few days he was dead.

Thomas B. Reed's death from nephritis was also ushered in by a surgical affection, an acute attack of appendicitis. Of this the *New York Herald*, in an editorial, stated the case most sensibly as follows: "The appendicitis was a mere causative incident in the train of symptoms, and by no means a primary factor. Had his medical attendants been too eager and precipitant in advising a surgical operation, instead of being so wisely conservative, it is easy to believe that such a venture might have been immediately fatal by putting an additional strain on an already badly-damaged organism."

Few who are not on the scene can understand the mental strain and nerve wear and tear attending the distribution of official spoils to the oftentimes unreasoning exactions of constituents who so commonly speak of "my senator" or "my congressman." And verily it would appear that many of these officials have spent "the pith and greenness of their lives in obtaining a distinguished slavery." In fact, it is known that the doctor has been sent for and asked to stand between an eminent official and some of his clamoring constituents outside. Nothing, at times, appears too great, nothing too trivial to demand; nor is there an hour or place of escape from them. For such vehement petitions, "all place a temple and all seasons summer," as Richelieu said of justice. During the Gridiron Club dinner, now made famous by being the last that Marcus A. Hanna attended, reference was made to the worries and anxieties necessarily associated with public life. Fagged and worn, and showing the stress and strain which he had undergone, his white, waxy face became prophetically solemn as he exclaimed: "Doctor, official life in Washington is nothing short of political vivisection." Repose and seclusion are mental will-o'-the-wisps which many of our wearied and eminent public officials long for, but few obtain.

A well-known senator suffered from a tumor of the leg, and underwent an operation for its removal. During his convalescence, I gave him the specimen in a glass jar. He kept it within convenient reach, and as his constituents appeared demanding places and promotions, he would present this formidable exhibit and exclaim: "I have recently undergone a severe operation to have this removed from my leg, which was over-worked by my zeal in scurrying about to obtain positions and promotions for you. Surely you cannot ask me to persist in the practice."

Most of our eminent men are over-worked, over-fed, under-exercised, and sometimes understood. This latter means much. Emerson said: "To be great is to be

misunderstood." Politics is harassing and exciting, and involves a life of unrest; and the corrosive influence of strife, nerve wear, heart-burning, misunderstanding, and recrimination is not fully appreciated. "Censure," as Addison remarked, "is the tax man pays to the public for being eminent." A member of Thomas B. Reed's family informed me that after one of those stormy scenes so characteristic of his early speakership in the House, which he apparently ruled with sphinx-like immobility, he would go home and to bed prostrated with a nervous chill. And how little are such men understood. Because of this they make enemies; but that must be expected—"the man who never made an enemy needs a tonic."

SUMMARY.

A subject of so much vital interest justifies emphasis of the following:

Unemployed food products become toxic irritants and menace the structural integrity of the kidneys.

Man is an organism built around an eliminative system; when that is abnormal he cannot be normal.

When the balance between ingestion, metabolism, and elimination is absent, danger is present.

Apparently nutritional excess is the germ of nephritis.

Mental activity and physical quiescence aid in its production.

Carking care and the corrosive influence of worry and mental strain render prominent aid in producing it.

It is prone to attack the intellectual and the anxious.

Alcohol, while affording it encouragement, has been given a too conspicuous place as a causative agent.

It is an extremely insidious disease, and is often well advanced when discovered.

It is so far-reaching that its first noticeable effects may be visited upon organs and tissues remote from the original disease.

The conditions which lead to it are quite amenable to correction if efforts are made sufficiently early.

It occurs somewhat frequently at the nation's capital because the congregation of eminent public men means a concentration of worries, wealth, and official feasting.

OBSERVATIONS UPON AMEBAS INFECTING THE HUMAN INTESTINE, WITH A DESCRIPTION OF TWO SPECIES, ENTAMOEBA COLI AND ENTAMOEBA DYSENTERIÆ.*

BY

CHARLES F. CRAIG, M.D.,
of San Francisco, Cal.

First Lieutenant, Assistant Surgeon, United States Army; Pathologist and Bacteriologist to the United States Army General Hospital, San Francisco, Cal.

[Continued from page 861.]

From my own observations, I have not been able as yet to confirm the complicated changes which occur in the nucleus during the formation of the cysts, but in very many specimens of feces I have observed the cystic forms which are easily demonstrated in the fresh specimen. If such a form is studied the structure can be easily determined. The membrane surrounding the cyst is usually single in outline and appears to be dense in structure. In the young cysts no definite structure can be made out within them, the protoplasm appearing perfectly homogeneous. In the mature cysts the protoplasm is colorless and there are embedded in it small refractive spheric bodies which are the young amebas. These bodies are sharply outlined, in many instances, and are very refractive. I have not been so fortunate as Schaudinn in observing the liberation of these young

* Published with permission of the Surgeon-General of the United States Army. From the Annual Report of the Pathologic Laboratory of the United States Army General Hospital, San Francisco, 1905.

amebas, but this undoubtedly occurs by the breaking up of the cyst. In many specimens both the cystic and vegetative forms occur together and can be easily differentiated.

Division by simple fission I have observed several times, the process being essentially as follows: The nucleus becomes elongated, the nuclear membrane appearing to become thinner and less refractive, while the minute granular contents of the nucleus appear to concentrate at each pole as the nucleus elongates. In stained specimens I have been able to demonstrate that these granular particles are chromatin and that they collect at each pole of the nucleus. After the nucleus has become considerably elongated a constriction occurs near the center and eventually two new nuclei are formed by division. Coincident with the elongation and division of the nucleus, it will be noticed that the protoplasm of the ameba becomes slightly less granular, appearing almost homogeneous, and a constriction appears, which gradually increases. As reproduction continues, the two nuclei separate and the constriction in the protoplasm deepens and finally becomes complete, the two amebas thus being liberated. Each consists of a portion of the protoplasm of the parent organism, and a nucleus formed by the division of the original nucleus. Simple division can be observed, as I have stated, both in the fresh specimen and in stained preparations but it often requires a long and patient examination to find an organism undergoing reproduction in this manner.

The great differences existing between *Entamoeba coli* and *Entamoeba dysenteriae* as regards the method of reproduction will be discussed fully in the portion of this report treating of the method of reproduction of *Entamoeba dysenteriae*.

(l) *Degenerative Changes*.—The chief degenerative changes occurring in *Entamoeba coli* are fragmentation and what appears to be fatty degeneration. In many specimens amebas will be noticed, which are undergoing fragmentation into many small particles, and this process is undoubtedly degenerative in character. Some specimens of amebas appear to be filled with oil or fat droplets, and these amebas invariably are swollen or distorted in shape, exhibiting no ameboid movement and no definite structure, so that I believe it is safe to say that the process is degenerative. The form of degeneration by vacuolization, which is so common in *Entamoeba dysenteriae*, I have never been able to observe in *Entamoeba coli*.

(m) *Association with Other Parasites*.—As might be supposed, *Entamoeba coli* occurs very frequently in association with other intestinal parasites, the most common organisms associated with it being *Cercomonas intestinalis* and *Trichomonas intestinalis*. It may also be associated with any of the intestinal worms, and in several instances I have found it associated with *Uncinaria duodenalis*.

The most important parasite with which it is frequently associated is *Entamoeba dysenteriae*. I have found that it is very common to find both species of amebas present in cases of amebic dysentery, and this fact has led to great confusion in the differentiation of the two species. After each has been studied separately, however, it is easy to distinguish them when combined, and I believe it is very important to make this differentiation, as it will no doubt save many mistakes in diagnosis. From my observations, I believe I am safe in asserting that in nearly 50% of amebic dysentery cases careful examination will show the presence in the feces of both *Entamoeba coli* and *Entamoeba dysenteriae*.

(n) *Distribution in Body*.—So far as I am aware, *Entamoeba coli* has only been found in the large intestine, although some of the reports of finding the ameba of dysentery in other portions of the body may be explained by the supposition that they were in reality the harmless species. Schaudinn, in his contribution, states that *Entamoeba coli* is only found in the upper part of the large intestine and that he has demonstrated this fact at

autopsy. As yet I have not made any investigations as to the exact location of *Entamoeba coli* in the intestine.

(o) *Relation to Disease*.—Comparatively little has been written regarding the relation of *Entamoeba coli* to disease, although a few of the older authorities have, without just reason, claimed that these amebas are not of any pathogenic importance. For a long time various workers have concluded that there must be more than one species of amebas in order to explain the appearance of these organisms in the feces in health. Sodre says: "Even now, everything leads us to believe either that there are various species of amebas, one of them being pathogenic, or that these parasites live normally as saprophytes acquiring occasionally pathogenic qualities, owing to the concurrence of accessory causes."

Kartulis³² claimed that he could not produce any pathologic lesions when the amebas found in healthy feces were injected into the intestinal canal of animals, especially cats.

Kruse and Pasquale,³³ working with amebas obtained from the feces in healthy individuals, were not able to produce any of the pathologic lesions of dysentery in cats.

Celli and Fiocca³⁴ used as one of their strongest arguments against the pathogenic action of amebas, the fact that they were found in conditions other than dysentery and in health, and that the amebas so found were not able to induce pathologic lesions in animals experimented upon. It should be remembered, however, that these authorities were undoubtedly experimenting with the harmless *Entamoeba coli*, and it is probable they did no work whatever with *Entamoeba dysenteriae*.

Kovacs³⁵ was unsuccessful in producing lesions of dysentery in animals with the amebas found in normal individuals.

It is to the recent work, however, of Jurgens and Schaudinn that we owe our exact knowledge regarding the etiologic relationship of *Entamoeba coli* to disease. Jurgens³⁶ found that the amebas occurring in health, or in diseases other than dysentery, were not able to penetrate the normal mucous membrane of the intestine, and had no pathogenic action upon this membrane. He considered that this was due to the very slight strength of the ectoplasmic pseudopodia. In *Entamoeba dysenteriae*, however, the pseudopodia are composed of much denser material, which is capable of considerable resistance, and this enables this species to penetrate the epithelial cells of the intestine, and thus produce pathologic lesions. Jurgens' conclusions have been confirmed by Schaudinn,³⁷ who was also unable to produce any lesions by the inoculation of animals with *Entamoeba coli*.

My own observations in this direction comprise the data gained by the introduction into the large intestine of cats, of fecal material containing *Entamoeba coli*, and feeding experiments in which milk, previously mixed with feces containing these organisms, has been used as the infective agent. I have injected into the rectum of young cats, fecal material containing numerous cystic forms of *Entamoeba coli*, as well as vegetative forms, and have never been able to produce any symptoms of diarrhea or dysentery by such injections. These injections have been repeated upon the same cat from five to ten times, and in no case has there been a diarrhea produced or any evidence of intestinal inflammation. Kittens have been fed repeatedly with milk containing large amounts of fecal material infected with the cystic forms, as well as the vegetative forms, of *Entamoeba coli*, and in not a single instance were there produced any symptoms of diarrhea or dysentery. These feedings have been repeated at frequent intervals. The same was true when the cats were fed with cultures containing the bacteria which were found in the feces in conjunction with *Entamoeba coli*.

From these repeated observations I am convinced that *Entamoeba coli* has no pathogenic action whatever upon the intestinal mucous membrane, and that it is a

harmless parasite which is present in a large majority of individuals, only appearing when a diarrheal condition is present, either produced artificially or through some disease process.

IV.—DESCRIPTION OF ENTAMOEBA DYSENTERIÆ.

(a) *Frequency of Occurrence:* *Entamoeba dysenteriae* occurs only in the feces of patients suffering from amebic dysentery, or of those who have been previously infected. The frequency of the occurrence of this organism, then, depends upon the number of cases of amebic dysentery which are observed. From a considerable experience in the examination of feces in this disease, I believe that I am justified in asserting that every case of amebic dysentery presents at some time or other the infecting organism—that is, *Entamoeba dysenteriae*—in the stools. My observations regarding this organism are based upon the examination of the feces in nearly 1,500 cases of amebic dysentery in which the amebas could be demonstrated by a microscopic examination of the fecal material. The organism occurs in many instances in enormous numbers, and one field of the microscope sometimes shows hundreds. In other cases, repeated examinations have to be made before the organism can be demonstrated.

(b) *General Description:* *Entamoeba dysenteriae*, like other amebas, consists of a mass of protoplasm containing a nucleus, and generally one or more vacuoles. The shape varies with its movements, but it is always spherical when motionless. The protoplasm consists of two very distinct portions, an outer portion, the ectoplasm and an inner portion, the entoplasm. Embedded in the entoplasm lies the nucleus, often containing a nucleolus, which, in a majority of instances, cannot be distinguished in the fresh specimen. One, and very often several vacuoles are contained within the entoplasm, as well as red blood-corpuscles, bacteria, and other material. A detailed description of this organism follows:

(c) *Size.*—This species of ameba is much larger, as a rule, than *Entamoeba coli*. Various authorities have given very diverse measurements, not due to inaccuracy on the part of the observer, but to the fact that amebas of various size occur in the feces of the same individual, and also that in many instances *Entamoeba coli* has been mistaken for *Entamoeba dysenteriae*, as they often occur in conjunction. Kartulis³⁸ gives the size of this ameba as from 12 microns to 30 microns in diameter; Quince and Roos,³⁹ from 15 microns to 25 microns; Councilman and Laffeur,⁴⁰ 6 microns to 35 microns; Kruse and Pasquale,⁴¹ 10 microns to 50 microns; Osler, 10 microns to 20 microns, and Sodre,⁴² 15 microns to 35 microns.

I believe that the size of *Entamoeba dysenteriae* given by these observers is often less than the actual diameter. If we consider that the normal red blood-corpuscle measures about 7.5 microns in diameter, it will be at once seen that an ameba as small as this is of comparatively rare occurrence. This applies not only to *Entamoeba dysenteriae*, but to *Entamoeba coli*. From my observations, I believe that *Entamoeba dysenteriae* very seldom measures less than 10 microns in diameter, and that the majority of them measure at least 35 microns in diameter. I have seen numerous *Entamoeba dysenteriae* which contained within them from 20 to 30 red blood-corpuscles, which would make their diameter at least 50 microns, and such amebas are not so very uncommon. As stated in the description of *Entamoeba coli*, the size attained by that organism is never so great as that attained by the largest *Entamoeba dysenteriae*, and, in fact, the majority of *Entamoeba dysenteriae* are larger than *Entamoeba coli*. The young *Entamoeba dysenteriae*, which are liberated by a process of sporulation from the parent body, very often measure less than 5 microns in diameter, but to these I do not refer in giving the average diameter of this organism.

As I have before pointed out,⁴³ the size of the amebas is of importance from a practical standpoint as partially

explaining at least the pathologic effects of the organism. It is also of considerable importance in differentiating it from *Entamoeba coli*. If the large size of the organism be kept in mind, it is not hard to understand how areas of necrosis will be produced by the lodgment of several of these organisms in small capillaries and the consequent loss of nutrition to the surrounding tissues. In this way we can partially explain the occurrence of liver abscess, the amebas being carried to the liver through the portal circulation, becoming lodged in the smaller capillaries and producing necrosis from the shutting off of the blood supply to limited areas. This factor is also undoubtedly of importance in considering the etiology of the intestinal lesions, the amebas getting into the smaller capillaries and mechanically preventing the normal supply of blood to the part infected.

From a diagnostic standpoint, the size of the organism is of importance, especially in differentiating it from epithelial cells and leukocytes which may present ameboid movement. It should also be taken into consideration in differentiating between *Entamoeba dysenteriae* and *Entamoeba coli*; for while it is not unusual to see *Entamoeba coli* which are as large as many *Entamoeba dysenteriae*, it is undoubtedly a fact that a majority of *Entamoeba dysenteriae* exceed in size the other species, and if this be remembered, as well as the marked differences in the morphology of the organism, there is little chance of mistaking the two species.

(d) *Shape.*—When resting, *Entamoeba dysenteriae* is generally perfectly spherical in shape. I have observed several times amebas which were oval, but this, I believe, can be explained by the pressure from the surrounding material in which they were embedded. When in motion the organism presents the most extreme variations in shape owing to the extension of the pseudopodia.

(e) *Color.*—As a rule *Entamoeba dysenteriae* is almost colorless, this being especially true of the ectoplasm. In many instances, however, a slight greenish tinge is noticed, this tinge being especially marked in the ectoplasm. I am inclined to believe that the peculiar greenish tinge is due to digested red blood-corpuscles, the liberated hemoglobin imparting a greenish tint to the protoplasm of the organism. This greenish color is undoubtedly most prominent in amebas containing red blood-corpuscles. In the very young amebas the protoplasm is often of a slightly grayish color which is not so marked, however, as in *Entamoeba coli*.

(f) *Protoplasm.*—The appearance of the protoplasm, which constitutes a greater portion of the body of *Entamoeba dysenteriae*, varies considerably with the size of the organism. In the very young amebas the protoplasm is of a finely granular appearance and the nucleus is not visible, nor can a difference be made between the ectoplasm and entoplasm. In young amebas which are nearly half-grown, the protoplasm can be seen to be divided into two portions, an outer and very refractive clear portion (ectoplasm), and an inner and less refractive granular portion (entoplasm). As the organism grows, the differentiation between the ectoplasm and entoplasm becomes more distinct, and when full grown there is no difficulty in making out the boundary between the two portions, even in the resting organism in most instances. The ectoplasm comprises, in the full-grown forms, about a third of the substance of the protoplasm, and is homogeneous in appearance and very refractive, resembling glass. A careful examination with a high-power objective, such as a one-twelfth, will show that this portion of the ameba is composed of finely granular material. In stained specimens the structure of the ectoplasm can be very easily distinguished. It appears to consist of a deeply staining reticulum enclosing in its meshes more dimly staining granules. In many instances the border of the ectoplasm stains very intensely and uniformly, and it is not unlikely that this appearance is due to an

enveloping membrane. The ectoplasm in *Entamoeba dysenteriae* is always much more refractive to light than is the entoplasm. The opposite is true in *Entamoeba coli*. In this species, also, the ectoplasm is undoubtedly of firmer consistence, as is evidenced by the power it possesses of penetrating the mucous membrane of the intestine.

The entoplasm, which comprises two-thirds of the body of the full-grown organism, is seen to consist of granular material, the granules being highly refractive and spherical in shape and arranged in the form of an alveolar structure, very similar to that of the ectoplasm, but staining very much less intensely. Beside these granules, which comprise the greater portion of the entoplasm, there is generally one or more vacuoles present which are not contractile, and which often contain within them small particles undergoing rapid vibratory motion. I have already called attention to the nonexistence of a vacuole in a majority of specimens of *Entamoeba coli*. In very many of the larger *Entamoeba dysenteriae*, the entoplasm is often entirely replaced by these vacuoles, which have also encroached upon the ectoplasm, and when this excessive vacuolization is present, I have regarded such amebas as degenerative bodies. Beside the vacuoles, the entoplasm may contain red blood-corpuscles, crystals, particles of pigment, bacteria and other material.

It has been stated by many authorities that the distinction between the ectoplasm and entoplasm in *Entamoeba dysenteriae* cannot be made unless the organism is in motion. While such differentiation cannot be made in many instances, it will be found that a careful examination will, in a majority of cases, show a distinct division between the two portions of the protoplasm, even in the resting organism.

In those amebas which are undergoing reproduction by the peculiar process which will be later described, there occur in the entoplasm small oval or round bodies, which may be confused with vacuoles, but which are in reality the nuclei of the young spores.

When stained, the entoplasm is easily differentiated from the ectoplasm, as it stains very much less deeply, and the vacuoles do not stain at all. It will be remembered that in *Entamoeba coli*, the entoplasm stains more deeply than does the ectoplasm. This one fact is sufficient to differentiate these two organisms in stained specimens. There is considerable difference in the staining properties of the granules, some taking the stain intensely, while others stain very dimly, or not at all.

(g) *Nucleus*.—A nucleus, often presenting a nucleolus, is visible in a certain proportion of these organisms. This proportion is very small, however, compared with *Entamoeba coli*, in which nearly every organism shows a distinct and easily studied nucleus. In *Entamoeba dysenteriae* the nucleus is situated to one side of the center of the organism, and is always circular in contour. It does not present the strong nuclear membrane which is present in the nucleus of *Entamoeba coli*, nor does it, even on careful examination, show any distinct structure when examined in the fresh state. The large amount of chromatin which is present in the nucleus in *Entamoeba coli* is markedly reduced in that of *Entamoeba dysenteriae*. When stained, however, by special methods, the nucleus is found to be composed of a mass of chromatin arranged in dots or strands, but this chromatin is reduced in amount as compared with *Entamoeba coli*.

In the fresh specimen the nucleus changes its position with the entoplasm, sometimes being situated near the center of the ameba, but generally near one edge. It is generally perfectly colorless and transparent, but sometimes has a very light yellow tint, and is not nearly so refractive as is the nucleus of *Entamoeba coli*. When present the nucleolus generally appears a little darker than the nucleus, due to its less refractive character. The size of the nucleus is variously given by different observers. Thus Losch⁴⁴ states that it measures 4.8

microns to 6.9 microns, but he was probably describing the nucleus of *Entamoeba coli*; Scheube,⁴⁵ 5 microns to 7 microns, and Fletcher,⁴⁶ 6 microns. From my own observations, I believe that the general measurement of the nucleus is about 5 microns. The same confusion exists here regarding the dimensions of the nucleus as exists regarding the size of the ameba, and is due to the same factors.

(h) *Vacuoles and Contained Bodies*.—The number of vacuoles which may be present in *Entamoeba dysenteriae* varies greatly. In the smaller organisms it is very common to see but one of medium size, while in the very smallest there is none. In the fullgrown organism the vacuoles vary in number, from one to ten or more. In those amebas showing a large number of vacuoles the process is evidently one of degeneration, as in these amebas no nucleus can be made out even with the best staining methods. Such amebas are always motionless, and upon staining, the protoplasm is seen to be undergoing marked degeneration.

The vacuoles do not present, as a rule, any distinct color, but now and then a slight greenish tint can be observed, probably due to the presence within the vacuole of fluid containing the coloring matter of the red blood-corpuscles. The size of the vacuoles varies, some being so small as to be just visible, others being so large that they will fill up nearly the whole body of the ameba.

As regards the significance of the vacuoles in *Entamoeba dysenteriae*, I believe that the presence of one vacuole is, perhaps, of some importance in the life-history of the organism, but when we consider the large number of amebas which do not show any vacuoles, it is hard to believe that it can be of any great importance from a functional standpoint. When more than one vacuole is present, and especially when amebas are filled with them, I believe that only one interpretation can be placed upon their occurrence, and that is that they are degenerative in character. The fact that they are not contractile is further evidence that they are of little functional importance, as in those amebas in which the vacuole is necessary from a functional standpoint, it is always a contractile one.

The shape of the vacuoles is generally spherical, or slightly oval, but now and then amebas may be seen in which the vacuoles are elongated, due, however, to pressure upon the organism by surrounding material. When this pressure is removed the vacuoles will be seen to regain their spheric contour. Vacuoles change position within the amebas with the movement of the entoplasm, never keeping the same position long at a time when the organism is motile. The absence of vacuoles in *Entamoeba coli* serves as one of the distinguishing features between it and *Entamoeba dysenteriae*.

Among the most common bodies engulfed by *Entamoeba dysenteriae* may be mentioned red blood-corpuscles, bacteria, and crystals. Red blood-corpuscles are very commonly seen within this organism, due largely to the fact that in cases of amebic dysentery the feces contain a considerable amount of blood. The number which may be engulfed by a single ameba varies greatly. Some organisms show only one or two, while some contain 20 or more. I have often observed specimens of this species of ameba which were so filled with red blood-corpuscles that very little of the structure of the organism could be demonstrated. The red blood cells appear somewhat paler than normal, due, probably, to some action of the amebas in abstracting the coloring matter of the blood, and it is in such instances that the entoplasm of the ameba often presents a greenish tinge. When decolorization of the red blood-corpuscles has become complete the red cells may be mistaken for vacuoles.

Bacteria of various kinds, especially bacilli and cocci, are very commonly seen within this species of ameba. With proper staining methods these organisms show

very distinctly and can be easily differentiated from other contained bodies. It is quite common to observe within the entoplasm various crystals, which can be demonstrated at the same time in the feces. Some observers have claimed to have demonstrated within these amebas leukocytes and epithelial cells, but I have never been able to satisfy myself as to their occurrence.

Beside the bodies which have been described as being engulfed by *Entamoeba dysenteriae*, there occur within the entoplasm small oval bodies which stain distinctively, and which will be described in considering the method of reproduction of this organism.

(i) *Motility*.—The most prominent phenomenon observed in the study of *Entamoeba dysenteriae* is its motility. This has always been used as a diagnostic feature, as it renders recognition of the organism comparatively easy. In his contribution, Schaudinn⁴⁷ does not mention the motility of *Entamoeba dysenteriae* as a diagnostic feature in the differentiation between it and *Entamoeba coli*, although it is one of the most prominent means which we possess of separating the two organisms. I have already described the forms of motility in *Entamoeba coli*, but would again call attention to the fact that in this organism motility is very limited. In *Entamoeba dysenteriae*, on the other hand, the motility is very often marked, and in fresh specimens of feces numerous amebas may be seen, which are capable of progressing more or less rapidly in any direction. In *Entamoeba coli* progression is always very slow and sometimes almost imperceptible, and never for any distance in one direction.

In his original communication, Losch⁴⁸ describes two forms of motility, a progressive motion and the protrusion and withdrawal of pseudopodia without change of position. These two forms of motility correspond exactly with this phenomenon as observed in *Entamoeba coli*, and it is probable that he was then observing the harmless variety, instead of *Entamoeba dysenteriae*. In the latter organism, besides the two forms of motion described by Losch, there is often observed a protoplasmic motion which consists in a change of position of the contents of the protoplasm of the organism without the protrusion of pseudopodia or change in the position of the entire organism.

The progressive motion of *Entamoeba dysenteriae* varies greatly, but it is generally slow, although in fresh specimens a rather rapid motion will often be observed. The organism advances by throwing out a blunt, or more or less spinose, process composed entirely of the ectoplasm, into which flows the entoplasm. This process being repeated, the ameba is able to move slowly or rapidly in any direction. Often this change in position is so gradual that it requires careful watching to detect it; but while this is so, specimens of *Entamoeba coli* are never observed to possess as rapid a progressive motion.

There is considerable difference in the shape of the ectoplasmic processes, or pseudopodia, some being very short and blunt, while others are longer and more slender. The latter form is especially prominent in amebas which are moving rapidly. The pseudopodia when first projected are always perfectly hyaline in appearance and composed entirely of ectoplasm, but soon become granular, due to the flowing into the pseudopodia of the entoplasm. Rarely, amebas of this species are observed in which the movement is continuous and progressive, but in which no distinction into ectoplasm and entoplasm can be demonstrated.

The flowing in of the entoplasm generally occurs rapidly, it often appearing that the division between the ectoplasm and entoplasm ruptures, the protoplasm composing the entoplasm immediately rushing into the clear hyaline ectoplasm. Sometimes a constriction occurs at that portion of the ectoplasm which connects it with the entoplasm and a slow movement of the entoplasm takes place through this narrow portion. In such instances

it will be seen that the nucleus, if visible, the vacuoles, and other contained bodies in the entoplasm, are compressed as they flow through the narrow portion of the ectoplasm, resuming their shape after reaching the enlarged portion. I have never detected the entire separation of the pseudopodia from the parent body. Sometimes the motion is very rapid, the pseudopodia being thrown out quickly and the whole organism moving in an eccentric, jerky manner.

In the second form of motion mentioned, the organism does not change its position but merely its shape, the ectoplasmic processes being projected or retracted, either slowly or rapidly, but in such instances the entoplasm does not flow into them as a rule. Sometimes, however, the entoplasm may be seen to flow into the pseudopodium, but immediately a new pseudopodium is extended at the opposite diameter of the organism and a portion of the entoplasm flows into this, thus neutralizing what would otherwise be a progressive motion. This form of movement is especially noticeable in organisms from feces which have stood at room temperature for some time and is undoubtedly an abnormal form of motility.

The third variety of motility which I have mentioned is produced by a current present within the protoplasm, which is capable of carrying with it the nucleus, vacuoles, and other contained bodies. It is rarely observed, but the current is sometimes so rapid that it is almost impossible to distinguish the component parts of the protoplasm. Generally, however, the motion of the current is very slow and appears to be circular, being most rapid toward the periphery of the organism. It is rare, in such amebas, that a distinction between the ectoplasm and entoplasm can be made.

A peculiar undulatory motion of the border of the organism is often present along with this movement of the protoplasm, but it is sometimes observed when no motion within the organism can be demonstrated.

The motility of *Entamoeba dysenteriae* is greatest at the temperature of the human body and gradually becomes slower and slower as the temperature falls. A temperature below 60° F., if long continued, renders them immotile, but the motion can often be restored by gently warming the slide containing the feces over an alcohol lamp.

(j) *Staining*.—In describing *Entamoeba coli* I have already mentioned various methods of staining which can be employed in demonstrating this class of organisms. In staining *Entamoeba dysenteriae* I have used Oliver's modification of Wright's method entirely in studying the structure and method of reproduction. The appearances presented by this parasite in specimens thus stained will be described under the next heading, Method of Reproduction.

(k) *Method of Reproduction*.—To Schaudinn we owe the first accurate description of the method of reproduction in *Entamoeba dysenteriae*, and it is largely upon this method, which differs markedly from *Entamoeba coli*, that Schaudinn bases his classification of *Entamoeba dysenteriae* as a distinct species. I have already reviewed briefly the various experiments of different observers regarding the method of reproduction in amebas, and have shown that in *Entamoeba coli* reproduction takes place in two ways, by direct division or fission, and by the formation of cysts in which are developed eight small amebas. Schaudinn, from his observations, has demonstrated that reproduction in *Entamoeba dysenteriae* takes place, also, in two ways: (1) By direct division or fission; (2) by sporulation, which occurs in a peculiar manner. In describing *Entamoeba coli* I have given the phenomenon observed during reproduction by fission, and the process in *Entamoeba dysenteriae* is identical in all important respects. Organisms undergoing reproduction in this manner are frequently observed in the feces from dysentery cases.

Previous to his observations, I described⁴⁹ certain

appearances in amebas which I stated were, in all probability, spores. At that time, in specimens stained with methylene-blue and fuchsin, I noticed in the full-grown organisms numerous small, oval, or round, dimly stained areas scattered throughout the entoplasm, these areas being entirely distinct from the vacuoles, differing in being smaller, possessing a dim outline, and taking the stain evenly. In concluding this contribution, I said:

There occur in all but the degenerative forms of amebas small, round, or oval, dimly stained areas, uniform in appearance, and most numerous in the large, full-grown forms, being entirely absent in the vacuolated shells of amebas. These areas resemble similar areas observed in stained segmenting malarial plasmodiums which are in them, due to the young spores. Reasoning from analogy, it may be that these areas in the ameba are also spores.

Schaudinn confirmed these observations, finding that in the ameba of dysentery, or *Entamoeba dysenteriae*, nuclear division of regular character did not occur, but that a fragmentation of the chromatin takes place, the remnant of the nucleus being expelled from the parasite. The division of the chromatin results in the formation of small spheric bodies which presumably contain some of the chromatin. These bodies eventually become arranged around the periphery of the organism in the ectoplasm and are separated from the parent body by a process of budding or germination. He showed experimentally that these spores were capable of causing serious intestinal symptoms and lesions.

In a more recent contribution⁵⁰ I have given the results obtained by staining *Entamoeba dysenteriae* with Oliver's modification of Wright's method. With this method I have been able to demonstrate within the amebas, bodies which can only be explained by regarding them as spores. In the large number of examinations of feces from cases of amebic infection which I have made at this hospital, I have often noticed in the fresh specimens the small, oval, refractive areas which I originally described, and I have repeatedly seen large, round amebas filled with these oval bodies arranged in rows in a perfectly symmetric manner, the organism being crowded with them, or else they were arranged irregularly around the periphery in the ectoplasm. Such organisms are generally nonmotile, but occasionally a motile one is observed in which these areas are seen to move with the movement of the entoplasm. Neither in the observations made and recorded in this communication, nor in later observations, have I been able to confirm the entire cycle of reproduction which is described by Schaudinn, although I have confirmed it in large part. From the results arrived at from my own observations, I accept without hesitation Schaudinn's cycle of reproduction.

The following observations concerning the most important method of reproduction in *Entamoeba dysenteriae*, I have been able to demonstrate, and I believe that they confirm very largely Schaudinn's conclusions. In specimens stained by the modified Wright method, the structure of *Entamoeba* is colored as follows:

The ectoplasm is stained a dark blue, or nearly purple, differentiating it from the ectoplasm of *Entamoeba coli*, which stains very dimly; the entoplasm is stained a light and very delicate blue, whereas in *Entamoeba coli* it stains very intensely, and the chromatin of the nucleus, which is present in small amount, stains a dark red. Upon careful examination, both the ectoplasm and entoplasm are seen to be granular in structure, this being especially true of the entoplasm. In specimens stained in this manner, the following differences in the staining of the organisms are noticed.

1. There are seen small amebas having a deeply stained ectoplasm and dimly stained entoplasm, and a large-sized collection of chromatin, generally situated at one side of the parasite within the entoplasm.

2. Slightly larger amebas colored in the same man-

ner, but showing a reduction in the amount of chromatin and a division of it into two nearly equal portions.

The chromatin in both these forms is seen to consist, upon careful examination, of very delicate fibrils, or dots, arranged in a more or less definite manner. A nucleus is often observed staining a dark purple, but it is not divided, and the chromatin is often seen situated outside of the nucleus.

3. Larger amebas, colored in the same manner, but showing a further division of the chromatin into numerous minute clumps, varying in number from 6 to 12 or 14. These clumps are arranged irregularly throughout the entoplasm and the chromatin is collected in a more compact deeply-staining mass.

4. Amebas of the same size, showing apparently the same number of chromatin collections, but the chromatin surrounded by an unstained interval in the entoplasm and arranged somewhat regularly. The chromatin collections are minute and compact and stain rather deeply, are oval in form and are exactly of the same size. They correspond very closely, as regards size, to the liberated spores first described by Schaudinn.

So far, I believe, I have traced the method of reproduction of this organism, according to Schaudinn, and have confirmed his observations. I have not been able, however, to see regular collections of the chromatin masses at the periphery of the organism and the separation of them from the parent body by the process of budding. I have occasionally seen organisms in which three or four masses of chromatin were situated in the ectoplasm and appeared to be separating from the parent organism, and I believe I am justified in assuming that this is the termination of the process of reproduction which I have partially traced.

That the amebas containing these bodies are not encysted, I believe to be true, for I have been unable to detect any cyst wall, the border of the organism appearing as it does under ordinary circumstances.

In interpreting these appearances I believe there can be only one explanation, and that is that this division of the chromatin, which afterward becomes arranged more or less regularly throughout the organism, constitutes a method of reproduction, and that the chromatin masses form a portion of the nucleus of the forming spores. In several instances I have been able to differentiate a narrow zone of pale blue protoplasm surrounding each clump of chromatin, thus demonstrating the outline of the young spore. In other words, these spores consist of a clump of chromatin lying probably in an unstained nucleus and surrounded by a small amount of protoplasm. At first the clumps of chromatin are present throughout the protoplasm but tend to collect peripherally in the ectoplasm. I have also occasionally seen organisms surrounded by clumps of chromatin apparently identical with those enclosed by other amebas. These I believe to be the young amebas which have been separated from the parent organism by the process described by Schaudinn.

In a very important contribution, Musgrave and Clegg⁵¹ describe their results obtained in the cultivation of amebas from various sources, and especially those found in dysentery. While these authors have not been able as yet to separate the harmless from the pathogenic amebas infecting the human being, they incline to the belief that such varieties exist. In their cultivation experiments they found the amebas which are present in dysentery, or *Entamoeba dysenteriae*, encysted in old cultures, and that the inoculation of these cultures into monkeys by feeding experiments produced lesions of the intestine, identical with those of amebic dysentery. From the large number of experiments which these investigators have performed I believe that the conclusion is inevitable that *Entamoeba dysenteriae* becomes encysted under certain conditions, and that these encysted forms are capable of producing the infection.

This encystment, however, does not occur in the intestine of man, for encysted *Entamoeba dysenteriae* is never observed in the feces. It is probable that encystment only occurs under unfavorable external conditions, which are not met in the human intestine, and that the process is entirely distinct from the method of reproduction which has been described.

Schaudinn describes the young spores, which develop in the manner described, as possessing a yellowish-brown membrane and a highly refractive semiopaque protoplasm. That these forms are resting forms is, I believe, more than likely, but they do not in fresh specimens of feces from amebic cases resemble in the least the encysted forms of *Entamoeba coli*. They are about the size of a red blood-corpuscle (75 microns), have a perfectly homogeneous protoplasm, with a wellmarked membrane surrounding them, and it is with considerable difficulty that they can be distinguished from other material occurring in the feces.

From my observations as well as those of Schaudinn, I conclude that reproduction in *Entamoeba dysenteriae* takes place in two ways, by simple fission and by a process of sporulation characterized as follows: The extrusion of chromatin from the nucleus which is destroyed or disappears; the collection of the chromatin into small masses, which form a portion of the nucleus of the young spore; the arrangement of these small masses in a more or less regular manner in the entoplasm of the organism; and finally, the arrangement of the same masses in the ectoplasm and the development of them in that situation into free spores, which are separated from the parent organism by a process of budding. I have been able to demonstrate conclusively all these phenomena except the actual separation of the young spores, and have seen certain appearances which leave no doubt in my own mind that this is the way in which the young amebas are reproduced.

Whether or not *Entamoeba dysenteriae* becomes encysted under certain conditions, is still an open question, but from the researches of Musgrave and Clegg,⁵² I am inclined to believe that they do.

This method of reproduction is somewhat analogous to that of *Arcella*, *Diffugia*, and especially the genus *Acanthocystis* in which a mitotic division of the nucleus occurs, the daughter nucleoli collecting at the periphery of the organism and budding off with a portion of the cytoplasm.

In closing the discussion of this portion of the subject, I will call attention to the possibility that conjugation may play an important part in maintaining an infection with *Entamoeba dysenteriae*. As is well known, among many of the protozoa conjugation is common, although it is undoubtedly rare among *Sarcodina*, so far as we at present know. In amebas in general, conjugation has probably but little to do directly in reproduction, but there can be little doubt that, as in many other organisms of this class, conjugation is of the greatest importance in maintaining the capability of reproduction, especially by simple division or fission. It is a wellknown fact that many of the protozoa which reproduce in this way would soon become exhausted, and rejuvenescence takes place through conjugation. By this process the vital forces of the cell are renewed and continuous division is rendered possible.

I am satisfied that this process of conjugation is of importance in maintaining an infection with *Entamoeba dysenteriae*, because it is not by any means rare to observe two individuals of this species united more or less intimately, and I have observed the almost entire merging of one individual into the other in several instances. I believe that such appearances can only be interpreted as indicating conjugation, and further study may show that this process is of the greatest importance in the life-history of *Entamoeba dysenteriae* and probably also in that of *Entamoeba coli*.

As regards the cultivation of either *Entamoeba coli* or *Entamoeba dysenteriae*, there exists the greatest confusion. It is safe to assert that no one as yet has been

able to cultivate either of these organisms in pure culture; that is, without bacteria. Numerous authorities have been able to cultivate amebas in conjunction with bacteria, and for a thorough review of the literature on this subject, I would refer the reader to the excellent article by Musgrave and Clegg.⁵³ These investigators have been able to cultivate numerous specimens of amebas obtained from various sources, in a special culture medium, but always in conjunction with bacteria. They demonstrate that a symbiosis exists between these amebas and certain species of bacteria, and that cultures of amebas will not grow unless bacteria are present. They have also been able to produce dysentery by introduction, by feeding experiments, of these cultures into monkeys, and their work forms one of the most important contributions to the study of these protozoa. From their work, as I have stated, they have been unable to state definitely the existence of pathogenic and nonpathogenic forms, although they are inclined to believe that such exist. Their results regarding the presence of harmless amebas in the intestine, in health or in other diseases, are at variance with those of Schaudinn and myself, as they believe that such amebas do not occur very frequently. I am convinced, however, that further research will only prove to any investigator that *Entamoeba coli* may be demonstrated in the feces of a large proportion of healthy individuals after the use of a saline cathartic.

Musgrave and Clegg recommended the use of a saline cathartic in cases of dysentery, in order to secure cultures more easily, and as I have shown that the employment of such a cathartic results in the appearance in the feces of *Entamoeba coli* in a very large proportion of cases, I believe that the employment of the cathartic by these investigators has led them to draw erroneous conclusions regarding the species of amebas with which they were working, and that they have often mistaken the harmless *Entamoeba coli* for *Entamoeba dysenteriae*. Negative results which they obtained in some of their feeding experiments may be explained, I think, in this way. All of their most successful feeding experiments, as recorded in their report, were done with cultures of amebas from cases of amebic dysentery, which proves that they were dealing with *Entamoeba dysenteriae*, and the successful experiments with amebas from water and lettuce were probably also due to this organism.

BIBLIOGRAPHY.

- ⁵² Loc. cit.
- ⁵³ Giornale medicale del Regio Esercito e della Regia Marina, 1893.
- ⁵⁴ Loc. cit.
- ⁵⁵ Zeitschrift f. Heilkunde, February, 1893.
- ⁵⁶ Loc. cit.
- ⁵⁷ Loc. cit.
- ⁵⁸ Virchow's Archiv, 1885.
- ⁵⁹ Loc. cit.
- ⁶⁰ Loc. cit.
- ⁶¹ Loc. cit.
- ⁶² Loc. cit.
- ⁶³ International Clinics, December, 1904.
- ⁶⁴ Loc. cit.
- ⁶⁵ Diseases of Warm Countries, 1903.
- ⁶⁶ Journal of American Medical Association, August 22, 1903.
- ⁶⁷ Loc. cit.
- ⁶⁸ Loc. cit.
- ⁶⁹ Medical News, March 16, 1901.
- ⁷⁰ American Medicine, February 20, 1904.
- ⁷¹ Bulletin, No. 18, Bureau of Government Laboratories, Biologic Laboratory, Manila, P. I.
- ⁷² Loc. cit.
- ⁷³ Loc. cit.

[To be concluded.]

Old Buildings Spread Fever.—The government officials intimate that the yellow fever epidemic among Panama Canal employes would not have gained headway if better time had been made in constructing quarters for the unacclimated Americans. The lumber was slow in arriving, and the quarters have not yet been finished. The employes have been using old, unsanitary buildings, the only ones available. The epidemic broke out in the main government building, occupied by Governor Davis, and the victims have been the clerks in the offices there and near by. The building has been fumigated and the epidemic is believed to be under control. No new cases have been reported since May 3. The authorities say that within four months yellow fever will be stamped out of the canal zone for all time. There has been a panic among the employes. Some lives have been lost, and 30 of the men have fled from the zone.

THE OFFICE OF THE SPLEEN: AN ESSAY IN COMPARATIVE PHYSIOLOGY.

BY

EDWARD T. WILLIAMS, M.D.,

of Boston, Mass.

The spleen is an organ peculiar to the red-blooded vertebrates. There is no analogous organ in any of the invertebrates. Moreover, the amphioxus (lancelet), the connecting link between the vertebrate and invertebrate animals, whose blood is white—not red—has no spleen. These facts naturally suggest some connection between the spleen and the red blood.

Bizzozero and Torre¹ found that in the lowest order of vertebrates, the fishes, all the red blood cells were made in the spleen. Their method of investigation was a little crude. They used only fresh specimens treated with a watery solution of methylene-blue to color the nuclei. They found fishes' spleens filled with nucleated red blood-corpuscles, many of them with dividing nuclei. The presence of these dividing nuclei they regarded as positive proof that the red cells originated in the spleen, and were not simply deposited there by the blood current. The inference is, of course, unassailable. Furthermore, since the bones of fishes contain no marrow, it is obvious that in this class of animals the spleen is the sole organ for the production of the red blood cells.

In the lower reptiles, the tailed amphibia, our authors obtained the same results. The scanty amount of bone marrow found in these animals is simply fat. It contains no red cells whatever, while the spleens are full of them, and abound in dividing nuclei, like those of fishes.

In the higher reptiles, like turtles, frogs, and snakes, the bone marrow begins to share with the spleen the function of making red blood cells.

In birds the function is divided between the spleen and marrow.

The unfortunate discrepancy between Hewson² and Kölliker³ regarding the functions of the mammalian spleen has been referred to elsewhere. This discrepancy could never have existed had either of them been able to command the proper means of settling the question. The imperfection of the compound microscope in Hewson's day restricted him to the use of simple globular lenses of $\frac{1}{25}$ in. to $\frac{1}{50}$ in. focus. This led him to mistake the central depression of the mammalian blood disc for a nucleus, or, as he termed it, a "central vesicle," like that of the lower vertebrates. Kölliker, on the other hand, was unacquainted with the art of histologic staining and the use of immersion lenses. Without these aids the solution of the problem was impossible.

So far as I can learn, I was myself the first to attempt its solution by modern methods.⁴ By fixing common spleen smears with a dilute solution of sublimate-salt and staining with hematoxylin-eosin, I found that the spleens of cattle and hogs invariably contained nucleated red blood cells, many of them in the state of nuclear division. Arteaga,⁵ of Havana, following the same method, made similar observations on cats and dogs. Proper observations on human spleens are still wanting. Yet the evidence already accumulated falls little short of a positive demonstration that the vertebrate spleen is the true organ for the making of red blood-corpuscles.

It is quite true that the red bone marrow in the higher vertebrates also possesses the power of making red blood cells. This was conclusively proved by Bizzozero⁶ and Neumann.⁷ But the marrow is a tissue, not an organ, deriving its blood-making properties from the embryonic mesoderm of which it forms a remnant. In the young embryo prior to the formation of the spleen, the primitive mesoderm possesses the property of making blood cells.⁸ In late embryonic life this property is restricted to special organs and tissues. In adult life it is limited to the spleen in cold-blooded animals (fishes

and amphibians), while in the warm-blooded animals the red marrow continues throughout life to officiate as a subsidiary spleen. In this way nature makes provision for the added number of red corpuscles required by the higher animals for their increased respiratory activity and the maintenance of their bodily heat.

BIBLIOGRAPHY

- ¹ Bizzozero und Torre: Ueber die Entstehung der rothen Blutkörperchen bei den verschiedenen Wirbelthierklassen, Virchow's Archiv. Bd. xciv, S. 1 to 25. Berlin, 1884.
- ² Hewson Works: Sydenham Society, London, 1846.
- ³ Kölliker: Mikroskopische Anatomie, Leipzig, 1850 to 1854.
- ⁴ Williams: *American Medicine*, November 28, 1903.
- ⁵ Arteaga: *American Medicine*, May 14, 1904.
- ⁶ Bizzozero: Sulla funzione ematopoetica dell midollo delle osse, Gaz. Med. Ital. Lombard., 1868.
- ⁷ Neumann: Ueber die Bedeutung des Knochenmarkes für die Blutbildung, Archiv der Heilkunde, Jahrg. x, S. 83. Leipzig, 1869.
- ⁸ Heister: Embryology, Saunders, Phil., 1901.

MALARIAL INFECTION PRESENTING SYMPTOMS OF MULTIPLE NEURITIS.

BY

GEORGE E. PRICE, M.D.,

of Philadelphia.

Instructor in Nervous Diseases, Jefferson Medical College; Neurologist, Outpatient Department, St. Christopher Hospital.

Nervous phenomena resulting from malarial infection are sufficiently infrequent to warrant the report of a single case. Spiller¹ has reported a case of malaria with symptoms of sclerosis, giving the findings at autopsy.

He reviews the literature upon malaria of the nervous system, from a thesis by Ouradon, in 1851, to the time of his own monograph, in 1900. The various symptoms referable to the nervous system, that had been observed, were paralysis (monoplegia, hemiplegia and paraplegia), aphasia, convulsions, and various forms of tremor. Unfortunately, in many of the cases reported, the diagnosis was based upon the results of quinin alone. In Dr. Spiller's case, he not only found the malarial parasite in the capillaries in the central nervous system, but also slightly thickened bands of neuroglial tissue in the pyramidal tract.

Gower, in discussing malarial neuritis, says: "Various forms result from the untypic varieties of malarial disorder, and their occurrence, causation and relation are still only imperfectly discerned. The characteristic form involves chiefly the motor nerves, usually of the legs. The arms suffer only in severe and prolonged cases. It is usually subacute in course."

The report of my case follows:

M. D., a girl, aged 8. The family history and previous personal history have no bearing on the case. She came to the dispensary of St. Christopher Hospital in April, 1904, with the history of having had malarial fever 18 months prior to admission. Her parents stated that ever since the fever she would "drag her feet" in walking, especially the right foot; also, that at various times she complained of severe pain in her right leg and arm, and sometimes of a numbness or sensation as of "pins and needles," in the same extremities. About a month before admission she developed a tremor in both hands. The patient's general condition was poor. She was thin, and her mucous membranes pale. Upon examination, there was noticed a tremor of both hands upon movement, especially marked on the right side. The grip of both hands was weak, the left being the stronger. Her knee-jerks were feeble, but could be brought out by reinforcement.

There was marked weakness in the flexors of both ankles, most marked on the right side. The extensors were normal. There was no muscular atrophy, no Babinski or ankle-clonus. There was no pain nor tenderness upon pressure over the nerve trunks.

In walking, she dragged her feet, seeming unable to raise her toes well off the floor. Pupillary reflexes were normal. There was no incoordination nor nystagmus. Sensation was unaffected. There were no hysteric stigmata. Her temperature, taken in the dispensary, was at times normal; at other times between 99° and 100°.

A blood-examination was made by Dr. Philip Norris, who reported the presence of the malarial parasite of the estivo-autumnal type.

Following the administration of quinin, the symptoms rapidly disappeared, an examination made recently failing to disclose any symptoms.

¹ American Journal of the Medical Sciences, December, 1900.

THE LLOYD REACTION FOR MORPHIN AND OTHER ALKALOIDS.*

BY

DANIEL W. FETTEROLF, Ph.G., M.D.,
of Philadelphia.

(From the Robert Hare Laboratory of Chemistry, Department of Medicine, University of Pennsylvania.)

[Continued from page 871.]

Another series of mixtures composed respectively of 0.00005, 0.00002 and 0.00001 gm. of hydrastin, with 0.00001, 0.00002, 0.00004, 0.00006, 0.00009, 0.00012, 0.00015 gm. of morphin, treated with sulfuric acid alone, yielded a pale yellow or brownish-yellow color, becom-

ing pale blue-violet in 10 to 30 seconds, or pale blue-violet streaks at the margin of the liquid, changing to red-violet or pinkish-violet in 3 to 5 minutes.

Mixtures of the same content of alkaloids as stated, treated with sulfuric acid and potassium dichromate, yielded a pink-brown color, with pale blue-violet streaks appearing in 5 to 30 seconds, with a final pink-brown or yellowish-brown color, in 3 to 5 minutes.

The results are given in Tables VII, VIII and IX.

Mixtures composed respectively of 0.000001 gm. of hydrastin with 0.000001, 0.000005, and 0.000009 gm. of morphin, when treated with just sufficient sulfuric acid to moisten the dry mixture (2 drops, 0.05 cc. of the acid yielded very indefinite or no results) yielded

TABLE VII.

Ratio. Hydrastin; morphin.	Quantity of alkaloids in parts of a gram.		Sulfuric acid 2 drops (0.05 cc.) brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 2 drops (0.05 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Morphin.		
5 to 1	0.00005	0.00001	Pale yellow, brownish-yellow with pale blue-violet streaks in 5 to 10 seconds rapidly disappearing, changing to pale pink with brown particles in 5 minutes, becoming pink-brown in 10 to 15 minutes.	Pink-brown with streaks of pale blue-violet following the fragment when drawn through the mixture in 5 to 10 seconds, rapidly disappearing and becoming yellowish-brown in 5 minutes.
5 to 2	0.00005	0.00002	Same as in the one preceding, except instead of pink, reddish-violet was produced in 5 minutes, becoming more intense in another 5 minutes, changing to pink-brown in 15 to 20 minutes.	Same as in the one preceding, except the yellowish-brown was produced in 3 minutes.
5 to 4	0.00005	0.00004	Same as in the one immediately preceding, except the whole mass became pale blue-violet in 10 to 20 seconds, changing to red-violet in 3 to 5 minutes, and on standing 30 to 45 minutes becoming pinkish-brown.	Same as in the one immediately preceding, except the yellowish-brown was preceded by pink-brown, and the blue-violet passed through various shades.
5 to 6	0.00005	0.00006	Same as in the one immediately preceding.	Same as in the one immediately preceding.
5 to 9	0.00005	0.00009	Same as in the one immediately preceding, except all the colors were darker.	Same as in the one immediately preceding, except no yellowish-brown was produced and the final color in 5 minutes was pink-brown.
5 to 12	0.00005	0.00012	Same as in the one immediately preceding.	Same as in the one immediately preceding.
5 to 15	0.00005	0.00015	Same as in the one immediately preceding, except the colors were not so dark.	Same as in the one immediately preceding.

TABLE VIII.

Ratio. Hydrastin; morphin.	Quantity of alkaloids in parts of a gram.		Sulfuric acid 2 drops (0.05 cc.) brought in contact with the dry mixture of the alkaloids and allowed to stand undisturbed for 10 to 20 seconds, then slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 2 drops (0.05 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Morphin.		
2 to 1	0.00002	0.00001	Pale yellow to pale blue-violet streaks in 10 to 20 seconds, rapidly disappearing on being stirred and becoming reddish-violet in 5 minutes, and on standing 15 to 20 minutes becoming pale pinkish-brown.	Pink-brown, very pale blue-violet streaks following the fragment when drawn through the mixture in 10 seconds, becoming yellow (yellow of acid and fragment) in 1 minute.
2 to 2	0.00002	0.00002	Same as in the one preceding.	Same as in the one preceding.
2 to 4	0.00002	0.00004	Same as in the one preceding, except the reddish-violet was produced in 3 minutes.	Same as in the one preceding, except a pale pink-brown preceded the final yellow.
2 to 6	0.00002	0.00006	Same as in the one immediately preceding.	Same as in the one immediately preceding, except the final yellow color was produced in 2 minutes.
2 to 9	0.00002	0.00009	Same as in the one immediately preceding, except all the colors were a little darker, the blue-violet did not disappear so rapidly, and the reddish-violet was produced in 5 minutes.	Same as in the one immediately preceding, except the blue-violet was produced in 5 seconds.
2 to 12	0.00002	0.00012	Same as in the one immediately preceding.	Same as in the one immediately preceding, except the pink-brown was produced in 3 minutes, changing to pale yellowish-brown in 5 minutes.
2 to 15	0.00002	0.00015	Same as in the one immediately preceding.	Same as in the one immediately preceding.

TABLE IX.

1 to 1	0.00001	0.00001	Very pale yellow with very pale blue-violet streaks at the margin of the fluid in 10 to 20 seconds when not disturbed, immediately disappearing on being stirred, slowly assuming a very pale pink with brown particles in 15 to 20 minutes.	Pale pink-brown with very pale blue-violet streaks following the fragment when drawn through the mixture in 10 to 15 seconds, changing to yellow (yellow of acid and fragment) in 30 seconds.
1 to 2	0.00001	0.00002	Same as in the one preceding.	Same as in the one preceding.
1 to 4	0.00001	0.00004	Same as in the one preceding, except the pale pink was produced in 10 minutes.	Same as in the one preceding, except the yellow was not produced until after the expiration of 2 minutes.
1 to 6	0.00001	0.00006	Same as in the one immediately preceding.	Pink-brown to pale blue-violet in 5 to 10 seconds, changing to yellow with brown particles in 2 to 3 minutes.
1 to 9	0.00001	0.00009	Same as in the one immediately preceding, except all the colors were a little more decided.	Same as in the one immediately preceding, except no yellow was produced, but instead a pink-brown color.
1 to 12	0.00001	0.00012	Same as in the one immediately preceding, except the pale blue-violet was succeeded by pale reddish-violet streaks in 1 minute.	Same as in the one immediately preceding.
1 to 15	0.00001	0.00015	Same as in the one immediately preceding.	Same as in the one immediately preceding.

* Read before the Philadelphia Section of the American Chemical Society, October 20, 1904, and also, with the results of further investigation, before the Society of Normal and Pathological Physiology of the University of Pennsylvania, November 21, 1904.

in 5 to 10 seconds a very pale yellow color, which was just discernible in the one containing the 0.000001 gm. proportion, and which immediately disappeared on stirring. No other colorations were produced after stirring 5 to 15 minutes.

When mixtures composed of identically the same quantities of the alkaloids as stated, were brought in contact with a fragment of potassium dichromate just moistened with sulfuric acid and then slowly stirred, yielded a momentary pale-pink color. When larger quantities of sulfuric acid were employed no coloration other than the yellow produced by the fragment of potassium dichromate and the acid was produced.

From these results it appears that the visible limit of

When, respectively, 0.0001, 0.00009, 0.00006, 0.00004, 0.00002, and 0.00001 gm. of hydrastin was stirred with sulfuric acid alone, a pale yellow color forming a pale yellow solution was yielded, which faded away in a half to an hour, in the larger quantities and a pale yellow color rapidly disappearing in the smaller quantities.

Quantities of hydrastin identical with the proportions stated stirred with sulfuric acid and potassium dichromate yielded a pink-brown color, disappearing in ten seconds in the smaller quantities, and changing to yellowish-brown in 3 to 5 minutes in the larger quantities.

As small a quantity as 0.000001 gm. of hydrastin gave a momentary pale yellow color when treated with

TABLE X.

Quantity of hydrastin in parts of a gram.	Sulfuric acid 4 drops (0.1 cc.) brought in contact with the dry alkaloid and stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 4 drops (0.1 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid, with the fragment brought in contact with the dry alkaloid and stirred, with a pointed glass rod, for 5 minutes.
0.005	Residue colored yellow, quickly forming a yellow solution permanent for several hours.	Reddish-brown to strawberry-red with reddish-brown streaks following the fragment when drawn through the residue, in 15 seconds, changing to pink-brown with yellow margin in 15 minutes.
0.002	Same as in the one preceding.	Same as in the one preceding.
0.001	Same as in the one preceding.	Same as in the one preceding, except the colors were not so dark.
0.0004	Residue colored pale yellow, forming a pale yellow solution in 5 seconds, permanent for a long period of time.	Pink-brown to pink in 1 minute, changing to yellowish-brown in 5 minutes.
0.0002	Same as in the one immediately preceding.	Same as in the one immediately preceding.
0.0001	Same as in the one immediately preceding.	Same as in the one immediately preceding.
	Two drops (0.05 cc.) of acid employed in the succeeding experiments.	Two drops (0.05 cc.) of acid employed in the succeeding experiments.
0.00009	Residue colored pale yellow, forming a pale yellow solution permanent for 30 minutes.	Pink-brown changing to yellowish-brown in 3 minutes.
0.00006	Same as in the one immediately preceding, except the color was less permanent.	Same as in the one immediately preceding.
0.00004	Same as in the one immediately preceding, except the color was less permanent.	Pale pink-brown changing to yellow in 1 minute.
0.00002	Residue colored pale yellow, forming a pale yellow solution, the color disappearing in 10 to 15 seconds.	Same as in the one immediately preceding, except the yellow color was produced in 10 to 15 seconds.
0.00001	Same as in the one immediately preceding.	Same as in the one immediately preceding.
0.000009	Same as in the one immediately preceding, except the color was paler and disappeared in 5 to 10 seconds.	Very pale pink-brown changing yellow in 5 to 10 seconds.
0.000006	Same as in the one immediately preceding.	Same as in the one immediately preceding.
0.000004	Momentary very pale yellow.	Momentary very pale pink-brown changing to very pale yellow.
0.000002	Same as in the one immediately preceding.	Same as in the one immediately preceding.
0.000001	Same as in the one immediately preceding (just discernible).	Same as in the one immediately preceding.

the Lloyd reaction, also the sulfuric acid and potassium dichromate reaction, is produced by a mixture composed of 0.01 mgm. of hydrastin and 0.01 mgm. of morphin, as shown in Table IX.

Mixtures composed respectively of one part of hydrastin with 20, 30, 60, 100, and 200 parts of morphin, and 100 parts of hydrastin with 1 part of morphin yield a violet color of a bluish or reddish tone of more or less intensity in the play of colors, when treated with sulfuric acid alone or with sulfuric acid and potassium dichromate.

The production of a violet color of some shade or tint, by sulfuric acid alone, or by sulfuric acid and potassium dichromate, is not dependent upon a mixture of any definite proportion of the alkaloids, but the most decided coloration is produced when the alkaloids are in the proportion of one part of hydrastin to nine parts of morphin. To determine to what extent the various colors produced were due to hydrastin alone, the following experiments were made:

When, respectively, 0.005, 0.002, and 0.001 gm. of hydrastin was treated with sulfuric acid alone, the solid residue was first colored yellow, which, on being stirred, or on standing a few minutes yielded a yellow liquid which retained a yellow color for several hours. Quantities of hydrastin identical in proportion to those stated when stirred with sulfuric acid and potassium dichromate yielded a reddish-brown color, becoming strawberry-red in 15 seconds, streaked with red-brown, changing to pinkish-brown with a yellow margin in 5 to 15 minutes.

sulfuric acid alone, and with sulfuric acid and potassium dichromate a momentary very pale pink-brown color. Therefore, the yellow, red-brown, pink-brown, and brown colors produced by the mixed alkaloids are due to hydrastin alone.

The foregoing experiments are given in Table X.

[To be continued.]

Ethical Medicine and Publicity.—If half of the money and literature, and personal energy that has been expended by quack doctors and patent drug manufacturers in getting their goods before the people, had been employed by the reputable representatives of medical science in educating the public into scientific conceptions of diseases and remedies, the quacks and patent drug men would long ago have been forced out of business, the patronage they enjoy have been turned into legitimate channels, the attitude of the laity toward medicine chastened and intellectualized, and the whole standard of public hygiene elevated. * * * The trouble is that the persistent hammering of the quack at the public door is a matter of direct dollars and cents to him, and is carried on as an individual commercial enterprise. Such a crusade on the part of the scientific physician would have to be undertaken in an impersonal way, probably through a representative body, and the advantages to himself are indirect, hence harder to realize and less powerful in stimulus. Nevertheless, we believe the hour has struck when the medical profession, for its own advantage no less than that of the public, should actively and systematically undertake to transmit to the people at large, through mediums and by methods best suited to their receptive capacity, the light which the researches of recent years has shed and is still shedding upon subjects so vitally affecting their interests. We commend the matter to the prompt and serious attention both of individual physicians, and more particularly of medical bodies throughout the country.—[The Medical Standard.]

SPECIAL ARTICLES

YELLOW FEVER: A POPULAR LECTURE.¹

BY

JAMES CARROLL, M.D.,

Assistant Surgeon, United States Army.

Yellow fever, or Yellow Jack, as it is more familiarly called, is, so far as our knowledge goes, strictly an American plague or pestilence, and our earliest authentic accounts of this disease record its occurrence in the West Indies, at the middle of the seventeenth century. By one or two of the older writers it is reported to have been transported there from Siam, but this seems unlikely, because yellow fever has never been shown to be an Oriental disease. Before the time of Sydenham, Oriental plague, typhus fever, smallpox, cholera, pernicious malaria and yellow fever were all called putrid or pestilential fevers; it was believed they were due to the same cause, and that they were transmitted through the atmosphere as visitations from God. At that time the science of medicine stood upon such a low plane that the best English physicians were just beginning to learn that there were differences between measles and smallpox, typhoid fever or typhus fever and malaria, etc. Harvey had only recently announced the circulation of the blood and Malpighi had followed him with a demonstration of the blood-corpuscles in the smaller vessels (capillaries) uniting the arteries and veins. Peruvian bark, that blessing in malarial fevers, was barely known at the time when yellow fever first prevailed at Barbados, Jamaica, Santo Domingo and Martinique, and later at Vera Cruz. In 1761 the disease was carried from Vera Cruz to Havana by the Spaniards, who lost 3,000 persons from it in that year alone, and in 1780, out of an army of 8,000, about 2,000 died of yellow fever within two months after landing at Havana. It is further reported that in 1794 there were over 1,600 victims to yellow fever in the Spanish garrison and squadron at Havana. More recently, for the 10 years from 1870 to 1879, inclusive, 11,746 deaths are recorded for the city of Havana from yellow fever alone. Spain paid dearly for the Pearl of the Antilles in both men and treasure, for beside decimating her troops in Cuba, the disease followed them across the Atlantic and appeared in epidemic form in various cities of the peninsula from time to time.

The fearful mortality attendant upon this disease is well brought out in the accounts of some of these epidemics. For instance we are told by an English physician, Dr. O'Halloran,² who studied the epidemic in Barcelona in 1821, that the General Hospital received 830 patients suffering from yellow fever and of these no less than 749 or 90% died. This keen observer contends the disease cannot be contagious, but is due to some local infection of the atmosphere, and in support of his contention he cites numerous instances during the outbreak referred to, showing the disease was not and could not be directly contagious, because during the epidemic, thousands of persons fled from the city to the country, including those who had slept with, nursed and been intimately associated with the sick, traveling in many instances in the same carts or carriages that had been used for the transportation of patients, and even the dead, and after carrying with them the personal effects of those who had died of the disease. Still, no other cases followed in the districts to which these people fled and the evidence appeared to be indisputable that the disease spread by contagion in certain localities within the city or its environs, and the conclusion was arrived at, that the contagion could not exist in the country, but originated *de novo* in certain localities in the cities, as a result of peculiar atmospheric and local conditions. It was observed that the nuns of the general hospital who were thrown into frequent and direct contact with the sick escaped the disease, while in the convalescent hospital the president, the head apothecary and the superintendent, none of whom had ever entered the rooms of the sick, and who had taken every precaution not to communicate with the sick nor with anything belonging to them, all fell ill. Of course, now that we know that

natural or nonexperimental yellow fever can only be contracted through the bite of a contaminated mosquito, it is quite clear that the presence or absence of the disease in certain localities means simply the presence or absence of contaminated mosquitos. As we view the subject now, the yellow fever mosquito was brought to Spanish ports by vessels coming from Havana, and being a house mosquito it multiplied in those cities during the warm season. It was then at hand to receive and transmit the infectious agent whenever it encountered cases of the disease and these were frequently imported. Upon the appearance of frost the mosquito went into hibernation and the epidemic promptly ceased. As the insect was an imported one it was not present in the country districts, consequently there was no extension of the disease from patients treated there, and in the cities the epidemic could only spread where the proper mosquito chanced to be present. The introduction of the mosquito alone can have no ill-effect unless it has previously bitten yellow fever patients, and in like manner, sufferers from yellow fever are absolutely harmless to others unless they are bitten by the proper mosquito.

As Dr. Howard, no doubt, told you last year, the female mosquito, at certain periods in her existence, experiences a physiologic need for blood. The hemoglobin of the blood seems necessary for the maturation of her ovums, and she will not deposit her eggs until she has obtained a meal of blood. The male insect cannot transmit yellow fever, because having no need for it, he never sucks blood, and while his proboscis will provide him with fruit juices, it will not penetrate the animal skin. The mysterious movements of the disease, passing from house to house, even at times when there had been no communication between the inhabitants; the remarkable immunity enjoyed by some groups of persons who were equally and fully as much exposed as others who were decimated by its ravages; these, as well as the peculiar way in which the infection clung to dwellings and ships, invested it with a mystery that puzzled physicians for centuries, and remained totally unexplained until the demonstration of the mosquito theory within the past five years. Even today, in our own country, where the results upon which it is based were first published, the mosquito theory of the transmission of yellow fever still has many opponents, and some of its supposed friends are very weak-kneed, and seem still to be looking for evidence that would justify them in deserting it. It is painful to read in one of our most prominent and influential daily newspapers, the letters emanating from a wellknown writer upon the subject of yellow fever, who a few years ago was looked up to as an authority, and wrote for standard professional works, but who is now damaging his own reputation and retarding progress by asserting that the mosquito is not the sole medium for the transmission of this disease. It does not seem to have occurred to this widely known and most interesting writer that the burden of proof rests upon him, and that he should either remain silent or be prepared to prove by actual demonstration, that there is some foundation for his claim. I take the liberty here to suggest to the paper in whose interest this writer was sent to Cuba, that it could hardly invest a few hundred dollars more profitably than to enable this gentleman to furnish the necessary evidence in support of his statements, if such evidence is obtainable, as it certainly should be if his assertions are well founded. Who would think today of advancing the old theory that malarial infection is contracted in any other way than through the bite of the mosquito? No one who is familiar with modern ideas on parasitology would entertain the idea for a moment, and there is no more ground for assuming that yellow fever is transmitted in any other way than there was formerly for entertaining that opinion in regard to malaria. In your own State during the last two years you have had abundant evidence of the power of measures, based upon the mosquito theory alone, to suppress this disease, even when that theory met only half-hearted acceptance. Do not understand me as intending to reproach those hesitating nonbelievers who were so slow to move; on the contrary, I sympathize with them, and with their refusal to conform their ideas to all the new theories that were being constantly advanced, then denied, contested, and recontested with every reappearance of the disease.

¹ Delivered at Galveston, Texas, April 12, 1905, under the auspices of the University of Texas.

² Remarks on the Yellow Fever, by Thomas O'Halloran, M.D., London, 1823.

But let us return again to the scenes enacted, and the conditions found, where the disease has prevailed in the past. Dr. O'Halloran, in summing up after studying the epidemic at Barcelona, calls attention to the House of Charity, a clean, well-ventilated building in the noninfected part of the city, and which was occupied by more than 1,100 persons during the height of the epidemic. These persons, men, women, and children, went out daily into various parts of the city, some visited the sick and entered the houses of the dying and the dead. Among all this number, only two contracted the disease. These were treated in the Seminario Hospital, where one recovered and the other died. The one that recovered was at once returned to the House of Charity, where she mingled with the other inmates, still none of them was affected. He then says, "The foregoing is a true report, and may be regarded as an important one. Had the House of Charity been situated in the eastern extremity of Barcelona, or in Barceloneta, where the epidemic cause existed to a high degree, the destruction would have been in all probability great; but as the cause did not extend, or only in a very inferior degree, to that part of the city in which the House of Charity stands, the cause of the non-propagation of the malady is easily accounted for. This case strongly tends to prove that the yellow fever will not multiply except where an epidemic cause exists in force; and it moreover proved that the disease is not contagious." Further on, in speaking of the Casa Misericordia, or House of Pity, he states: "The building is low, but the apartments are spacious and well ventilated. It contained 150 girls during the rage of the epidemic. The nuns who teach them are 24 in number. They maintain themselves by washing, ironing, and other similar modes of occupation. They employ women to traverse the city from house to house to procure needlework, etc. These women went to all parts of the city; they communicated indiscriminately with the inhabitants, and they were not affected by the disease, nor did the nuns or girls suffer by communicating with them. This is a singular fact, and a strong one. It appears strange that a disease which was said to have been imported from Havana into Barcelona, from Barcelona to Intosa, and from thence to Asco, Mequinenza, Malaga, etc., could not be introduced into the House of Pity through numerous channels of communication." Again, speaking of the House of Correction, a three-story stone building, in which were located 100 females during the epidemic season, he asserts, "nine of them were attacked with the reigning malady, four of them had been recently admitted as having committed some irregularity in sickly Barceloneta. They were all removed to the Seminario Hospital, where four died; the remaining five, when cured, returned to the House of Correction; they communicated freely with the others, but no disease ensued. This house was visited daily by some of the female inhabitants of the city, who, through charity, brought eatables, etc., but without detriment to the inmates."

Had this been a contagious malady, the persons who returned to the House of Correction after being cured in the Seminario Hospital, which was then the seat of pestilence and of death, and to which hundreds were sent to die, could scarcely have failed of communicating the disease to the numerous females who had intercourse with them at all hours of the day.

Of 50 persons who were constantly employed burying the dead, only two died, although they communicated freely with the inhabitants of the city in the night-time.

Later he mentions the lazaretto called Marine, a mile to the east of Barcelona, and within 150 yards of the sea. It was opened for the sick on August 7; 79 sick were admitted, of whom 58 died; 32 persons were employed in various duties of the establishment as doctors, friars, servants, and washerwomen, and not one of them took the disease. Of the above number, 6 were employed in burying the dead, and 3 in washing the bedding. After this establishment was broken up, 5 women remained in it, employed in washing the bedding of the Seminario Hospital, but without being affected by the disease.

In his conclusions, he finally observes in discussing the epidemic: "Its fatal and malignant nature in unventilated places; the exemption of parts of the city from its influence, when no precautions were taken; the sickening of persons who

observed the strictest seclusion; the sudden impression of contaminated air on persons recently from the country, without communication with the inhabitants of the city; the greater exemption of nurses and other attendants on the sick from the disease, than those who were simply exposed to the contaminated air of sickly houses; the almost absolute exemption of washers of bedding, clothes, etc., which had recently been used by the sick; the circumstance of the attendants in the hospitals and lazarettos having generally escaped the impression of the malady; the impossibility of diffusing the disease in the country, where no epidemic cause existed; and, finally, the death of some hundreds of persons who communicated with Barcelona, and who sickened in the neighboring villages and country houses without a solitary instance of its affecting the most assiduous of its attendants, however circumstanced, are ascertained facts, and convincing proofs of the noncontagious nature of the yellow fever."

The evidence that Dr. O'Halloran offers in support of his contention that yellow fever is not contagious is most conclusive. After reciting the appearances found upon dissecting the bodies of those who had died of the disease, he publishes a letter written by Dr. Salvador Campmany during the following year. Dr. Campmany was in charge of the Virreina Hospital at Barcelona during the outbreak of 1821, when, between September 1 and December 20, this hospital handled the bodies of no less than 8,649 persons dead of yellow fever. O'Halloran states that Dr. Campmany was at first of the belief that the disease was contagious and when he began to take care of the sick he wore an oil cloth dress. The letter is so interesting that I shall give you the last paragraph verbatim.

"The above sketch does not afford grounds for argument, as to the contagious or noncontagious nature of the disease. I shall only state that out of 30 persons of all descriptions who were destined to assist the sick, not one took the disorder. The nurses continually communicated with the sick. When delirious patients escaped from their beds, the assistants had to take them on their shoulders and replace them in their respective quarters. On the opening of the bodies, the anatomists, in my presence, involuntarily cut their fingers and hands, and not one was inoculated with the yellow fever. When the gravediggers carried the dead bodies to the churchyard, they had to handle them a great deal before throwing them into the pit, and not one suffered in his health. In short, not an individual employed in the lazaretto either took the disorder or was infected by those who were sick of the yellow fever."

One could scarcely desire more complete confirmation than this of the subsequent demonstration, almost 60 years later, by the army board, of the noninfectiousness of the clothing, bedding, and dejecta of yellow fever patients.

These were the opinions in 1823 of an observer who had seen and himself suffered from yellow fever in the West Indies some years before. Others, however, who were equally qualified to observe, insisted, and advanced evidence to show, that the disease was imported and that it was contagious. In short, the same differences of opinion and the same dissensions among the highest authorities in regard to this disease prevailed then as before and since, even to the present day. O'Halloran states that the disease was not declared to be the American yellow fever until August 14, 1821; that in April a fleet of 52 vessels sailed from Havana for various Spanish ports, 20 of them for Barcelona. Cases of yellow fever occurred on some of these vessels after their arrival in Spain, but for commercial reasons every effort was made to conceal them and deny their real nature. Many of the sailors on the infected vessels were, of course, immune, and of those who were susceptible the larger number had suffered attacks during the voyage, so that while they were lying in the Spanish harbors the first persons to become infected were those who visited the ships for the purpose of unloading, making repairs, etc. Some of these vessels lay at Barcelona early in June, and we are told that during this month "the bilious remittent or gastric fever was common, and ultimately predominated in so high a degree as in a manner to supersede all other diseases; and that during the month of July the bilious remittent fever, with hemorrhagic affection, was common and obstinate." The following sentence, quoted verbatim, is of much interest to us at present: "It is worthy of remark

that during this month" (July) "the flies and mosquitos were infinitely multiplied." How well this reminds us that the same unusual prevalence of mosquitos during an epidemic of yellow fever has been noted by a number of American physicians, including Dr. Rush, at Philadelphia, in 1797 and 1805; Dr. Vaughan, at Wilmington, Del., in 1802; Dr. Weightmann, at St. Augustine, Fla., in 1839; Dr. Wood, at Centerville, and Dr. Beyrenheid, at Biloxi, Miss., as well as Dr. Barton, at Clinton, La., and Dr. Dowler, at New Orleans, all in 1853. What interest these observations add to the now wellknown mosquito theory of the transmission of the disease, and how well do modern experiences and knowledge add confirmation to Sydenham's theory that certain diseases resulted from an "epidemic constitution of the atmosphere!"

I would like here to call your attention to some statements made by a wellknown Galveston physician, in 1876. Dr. Greenville Dowell, at that time a member of the Galveston Medical Society and professor of surgery in the Texas Medical College, wrote of yellow fever, of which he was a wonderfully close student, as follows: "Its history shows that no ship, however filthy, can develop it while it remains out of its endemic or epidemic influence. No heat or moisture can alone produce it, or we would have it as often in the East Indies as in the West Indies, and if the conditions in the East Indies were the same as in the West Indies, it would be introduced there as well as in the West Indies, by ships. Hence there must be some cause, specific and *sui generis*, that produces it. This cause, I have assumed, is animalcular or fungotic, and partakes of the nature of the grasshoppers of Egypt and the western prairies, or the smut in cereals; but these are too small to be observed with any instruments we now have, and have so far eluded demonstration; but if we compare the effects of heat and cold on gnats and mosquitos with yellow fever, it will not be difficult to believe it is of the same nature, as it is controlled by the same natural laws."¹ So far as I know, Dr. Greenville Dowell was the first even indirectly to incriminate the mosquito, by pointing out the fact that it is governed by the same natural laws as yellow fever. And five years after, in 1881, Dr. Finlay enunciated his theory that the disease was transmitted by the mosquito, but his theory was not proved until 19 years later.

O'Halloran's observation that bilious remittent fevers prevailed for two months prior to the appearance of yellow fever has been duplicated in the United States hundreds of times, and we are forced to the conclusion that there must be some relationship between bilious remittent and yellow fever. O'Halloran thought that these bilious remittent fevers were of local origin and that they gradually merged into yellow fever. The same opinion has been held by many in our own country, but this has been offset by evidence, on the other hand, that bilious remittent fever was undoubtedly imported from the tropics, and was simply a milder form of yellow fever. The truth is that practically all such cases were genuine yellow fever that were not recognized because of the absence of black vomit, which has been erroneously regarded as a necessary symptom. In the work of the army commission 14 cases of experimental yellow fever were produced by means of the mosquito, and some of them were severe, but black vomit was not present in a single instance. This led some persons to the conclusion that cases produced by only one or two mosquitos were necessarily mild, but the experience of Dr. Guit  ras in August, 1901, proved the contrary. Out of seven cases that he produced by the bites of one or two mosquitos, three died with black vomit.

I have purposely cited from Dr. O'Halloran's account of the epidemic at Barcelona, in order to show that other careful observers, working in other fields, have recorded the same observations and the same opinions as the older American physicians.

The literature of yellow fever in the United States shows that in nearly every outbreak a number of cases, usually the first ones to occur, have escaped recognition. This has happened from the time of Rush until today, and has been due to (1) the comparative mildness of the cases, which led to the diagno-

sis of "bilious remittent fever"; (2) the dread on the part of the physician attending these cases to assume the responsibility for diagnosing the first case of yellow fever, because in the event that black vomit did not supervene, the correctness of the diagnosis would be called into question, and the physician would be branded an enemy to the community. The Eleventh Annual Report of the Florida State Board of Health, published in 1900, furnishes an admirable illustration wherein it is shown that in the outbreak at Key West in August, 1899, there were already 11 cases unrecognized in the town before a single one was correctly diagnosed. Is it any wonder then that under such circumstances the disease was able to gain a firm foothold? The occurrence of a number of cases of the so-called "bilious remittent fever," of short duration, should always excite suspicion, for such cases when found in groups, are almost invariably cases of genuine yellow fever. At the present day nothing less than the absolute demonstration by an experienced observer, of the presence in the blood, of malarial parasites or spirillums would justify any other diagnosis than yellow fever, and even if they were shown to be cases of malarial or relapsing fever, modern scientific medicine requires that, in the case of the former at least, the patients should be rigidly protected against the bites of mosquitos, since we know that malaria, like yellow fever, can be transmitted in no other way than through the bite of that insect, if we except experimental inoculation. In the case of relapsing fever, of the manner of transmission of which we know absolutely nothing, it would be wise to take the same precaution.

The epidemics that have ravaged the city of Philadelphia have been so graphically described by Rush and later by La Roche that one is apt to conclude that the only serious outbreaks this country has experienced were those occurring at Philadelphia, New Orleans, and one or two other seaports. It is only when we search the literature of this disease, that we can appreciate the general devastation and terror created by it, and the enormous losses sustained by the communities it has visited. In a treatise on yellow fever by Dr. Samuel Brown, of Boston, which was published in 1800, he says in speaking of the disease: "This is a foe against which neither ramparts nor intrenchments afford any security: 'It wasteth at noonday'; and every principal town, throughout the United States, exhibits recent and mournful testimonials of its ravages. We will not enter upon a particular detail of the distresses which Philadelphia, New York, Boston, and other commercial places have experienced; the tale of woe would be too afflictive for even the dullest sensibility to bear, and the feelings of humanity would be agonized to over-excitement."

In order to show the manner in which yellow fever invades a seaport town, and the mystery attendant upon its appearance and spread, I will quote from the report of the committee of medical men appointed to investigate the outbreak that occurred at Mobile, Ala., in 1819. After giving in detail the condition of the wharves and docks, the direction of the prevailing winds, and the degree of temperature and moisture, they state that during the previous winter, spring and summer up to July 1, the city was healthy. "In the latter part of July a number of violent cases of bilious fever occurred among persons unaccustomed to the climate, and some of a more questionable character, several persons employed as workmen, in filling up one of the new wharves, were taken violently ill, and died after a short illness of two or three days. About the same time, two persons usually employed about Dauphin street wharf, were taken in like manner, and died after a short illness. A number of carpenters and sailors employed about the wharf, and who were much on board the schooner Sally, filled with stagnant water, and about the steam sawmill, where there was a pond of like offensive water, were taken with violent fevers, and several of them died. The physicians who attended these persons died, but it is stated that one of them, Dr. Lawton, spoke of them as cases of malignant fever. An engineer, at work on a steamboat at the same wharf, died soon after, his illness lasting five days. A man who attended him, and a servant boy living in the same house, were taken down with a similar fever, and died on the third and fourth days. All these persons died with black vomit, and were declared by the attending physicians to be cases of yellow fever. At about the

¹ "Yellow Fever and Malarial Diseases," by Greenville Dowell, M.D. Philadelphia: 1876, p. 13.

same time, other fatal cases occurred among persons whose time was spent about the river and wharves or stores in that neighborhood. Within a few days after the prevalence of yellow fever was known, an exodus took place, and the population became reduced from 1,300 in July to 500. Of these, 133, or over 25%, died."

The report states that the suburbs of the town, at no greater distance than a mile from the river, were as healthy during the prevalence of the fever as more distant parts of the country; and the disease was not known to be communicated, in any instance, to persons out of the town, by the removal of, and attendance upon, the sick. Hence, it was concluded that the disease was only communicable in the atmosphere in which it originated, and even then, some other cause, not understood, appeared to be necessary, because "a number of persons frequently in the room with the sick, dying and dead, in circumstances of the greatest exposure, never took the fever." It is further remarked that Natchez and other ports on the Mississippi below, suffered heavily, and practically every seaport on the Atlantic and Gulf coasts appeared to have suffered more or less that summer from yellow fever. It is very interesting to note how the disease almost invariably first made its appearance in the vicinity of wharves and shipping, in parts of the town where surface drainage is usually more or less defective, and decaying wood and vegetable refuse are necessarily present. As these were the only special conditions found to prevail in these localities, it was quite generally conceded that to them the disease owed its origin. When vessels with yellow fever on board arrived in port, efforts were made to conceal the nature of the disease, and by false entries when patients were buried at sea, or by burial at night, where death occurred in port, many cases are known to have been concealed. Again, a vessel with an immune crew, but infected mosquitos on board, would infect persons from shore who visited the ship for various purposes, yet, there being no sickness on the vessel, she was relieved of suspicion, and the disease was assumed to be of local origin. Cases resembling yellow fever, but without black vomit, were called bilious fever, and under this guise, aided by the occasional concealment of an undoubted case, the disease frequently escaped detection for weeks and months.

In the description of the epidemic at Baltimore, also in 1819, as observed by various practising physicians, we find many statements that must now be regarded with special interest. For instance, it was conceded by all that the first cases appeared at Fell's point, where the principal docks and wharves were located. One observer states that the disease never originated more than two or three hundred yards from the water, and it was six weeks from the commencement before the disease had spread much more than 100 yards from the place of origin. The transmission of the contagion was rightfully attributed to some unknown agent present in the atmosphere, for in speaking of the infection, it is said, "upon this ground then it may be asserted that some matter which was foreign to the natural composition in the air of this place, floated about with it at this time. Some portion of whatever this air contained, was therefore of necessity breathed or swallowed by the people who came within its limits. And the properties of the foreign matter in this air must be decided upon by the effects which it has had on those who receive it into their habits." We have only to add the mosquito now, and the general truth of the above statements becomes manifest. And with the mosquito we necessarily include the insect's bite as an additional, and at that time unknown avenue of entrance for disease. Conceding this, how easily one can explain the first appearance and prevalence of the disease in the localities where the conditions are favorable for the multiplication of mosquitos, viz., in the low-lying and generally poorly-drained districts in the vicinity of the wharves and shipping? When we consider further that the mosquito that transmits yellow fever is a tropic and sub-tropic insect and that, practically speaking, it is not found north of Mason and Dixon's line, it then becomes absolutely clear that yellow fever in epidemic form, can be introduced into that section, only when the presence of high atmospheric temperature and moisture affords conditions favorable for the propagation of this insect. But the yellow fever mosquito is a tropic insect, and yellow fever is a tropic disease; it follows, there-

fore, that given the proper conditions as to temperature and moisture, there must have been introduced at that time, both the proper insect and cases of the disease. These must necessarily have come originally from infected localities within or near the tropics. In the days when yellow fever prevailed in our northern seaports, outbreaks invariably followed the arrival of one or more vessels from Havana, or some other infected port, but the interval elapsing between the entry of the vessel and the recognition of the disease was so long, and the manner of extension of the disease was so mysterious, that it became impossible to trace the connection between the one and the other. Let us suppose, for example, in the month of July, at a time when yellow fever prevailed, and before the days of rigid quarantine, a sailing vessel lying at Havana and bound for Baltimore. She is tied up at a dock, and numbers of the yellow fever mosquitos which are the prevailing house mosquito at Havana, fly aboard. They deposit their eggs in open casks, pitchers, or other receptacles containing fresh water exposed to the air. The crew are immune with one exception, and this man is taken sick three or four days out from Havana on the journey northward. He has yellow fever, but his temperature is only moderately high, and although he is deeply jaundiced there is no black vomit. The captain insists the case is one of bilious remittent fever, and not yellow fever. No one could question his statement, because even the best physicians were unable at that time to draw the line between yellow fever and malarial fever, and it is not always easy to do it today. The hypothetical case of genuine though unrecognized yellow fever, is bitten by a number of mosquitos during the first three days of his fever, but no one is aware of it, or would attach any importance to it if they knew. In two weeks the patient is practically well, and in another week or two the vessel arrives in port with a clean bill of health. There is no sickness on board, she is in fairly good condition, and ties up to the dock in Baltimore—say 25 or 30 days after leaving Havana, and with several infected mosquitos on board.

Perhaps these mosquitos are disturbed by the unloading of the ship, or cleaning of the cabins, and they may fly on to another ship tied up at the same wharf, or travel along the wharf to a watchman's house, or some other dwelling in the immediate vicinity. The first cases of the outbreak may appear on the other ship tied up at the dock, and this latter vessel may have come from Europe and be in rather foul condition. The infection in that case would be attributed to the foul air generated by the action of a hot atmosphere upon the decomposing matter present in her hold. The next case may appear in some one sleeping or employed on the dock, or on a neighboring vessel. In the month of August conditions would be favorable for the propagation of mosquitos, and in addition to those hatched out on the trip from Havana, another brood will soon have appeared on shore. The mosquito may also have been introduced by other vessels earlier in the season, and the conditions will then be suitable for a further extension. The continuance of the outbreak necessarily depends on the coming together of the imported mosquitos and cases of yellow fever, in the first three days of the disease; consequently in numerous instances, only one or two cases occur, and none follows unless fresh cases are introduced by other vessels from infected ports. The frequency of the occurrence of cases of bilious remittent fever in American ports during the last century, shows that during the early part at least, yellow fever was being constantly imported, though it only occasionally assumed epidemic proportions. Let us suppose that the vessel leaving Havana sailed for New Orleans, Mobile, or Galveston, instead of Baltimore. Here the case will be different, because in these places the conditions are favorable for the propagation of the yellow fever mosquito throughout the greater part of the year, and the introduction of a single case might prove sufficient to light up an epidemic because the proper mosquito is at nearly all times present in the houses in abundance. Frequent severe outbreaks have occurred at New Orleans until a large part of the population had become immune, and those who were non-immunes and could afford it, habitually left the city during the warm season. Among the few who remained and chanced to be bitten by the proper infected mosquitos, cases would occur from time to time as bilious fever, often suspected to be yellow

fever, but for reasons of policy they were not so reported. Finally, after a few years had passed, confidence would be restored, and a larger proportion of nonimmunes would supply the material for a fresh outbreak, which was certain to appear sooner or later. Then came a sudden exodus, with the wrecking of commercial interests, neglect of the sick, and the untold suffering known only to those who have passed through a severe epidemic. Here let me remark with emphasis that for the production of an outbreak of yellow fever, three factors are necessary: (1) Preexisting cases of the disease; (2) mosquitos of the genus *Stegomyia*, and (3) nonimmunes or persons who are susceptible to the disease. I would impress upon you the fact that the absence of any one of these factors will render it absolutely impossible for an outbreak to occur. An epidemic of yellow fever is impossible in the absence of preexisting cases, for the disease cannot be generated by any amount of filth, heat, moisture, or decomposition, without the intervention of the three factors named. Excluding experimental inoculation, the occurrence of cases of yellow fever is not possible under any conditions without the presence of the proper mosquito to transmit the infection from the sick to the well. And, finally, given any possible local conditions, any number of cases of yellow fever, and any number of infected mosquitos, in the absence of susceptible persons, cases of the disease must disappear.

But I am going faster than I ought. Here in Galveston you are in the epidemic zone of the disease; you have had your epidemics, and you have reason to guard against them in the future. Your city was described 30 years ago as being built upon an island composed of shingle, and this shingle so saturated with water that the latter could be found at a depth of a few inches. The mean temperature is about 74°, and the rain-falls are usually heavy in April, May, and June. Owing to the saturation of the deeper layers of the soil, the rain water lay upon the surface in pools until it disappeared by evaporation in the dryer months of the late summer and autumn. The surface pools of fresh water were ideal breeding places for mosquitos, as also were the receptacles for rain water, which the early inhabitants collected and used after the custom at New Orleans. Yellow fever paid its first notable visit here in 1839, only a few years after the establishment of the first settlement. The population was about 1,000, and the people were located mostly along the Strand, in close proximity to the wharves and vessels. The first case reported occurred late in September on a steamer recently arrived from New Orleans. At about the same time another case occurred on a vessel anchored only a few yards from her. Both cases were fatal. As others were reported on land at the same time, it is more than likely that these were not the first cases, but as they were the first in which black vomit appeared, they were probably the first in which a diagnosis of yellow fever could no longer be withheld. In this epidemic, which lasted less than two months, we are told that there were 250 deaths, which means the occurrence of at least twice as many cases among the population of 1,000 persons. It is further stated that the epidemic died out because "every unacclimated person had either fled from the town or suffered an attack. This was proved by the fact that when the refugees began to return the disease broke out again among the newly arrived, and there were a number of deaths." How beautifully this all fits in with the mosquito theory, now that we know that the bite of the mosquito can convey the disease as long as two months after it has bitten a yellow fever patient! I have good reason to be a firm believer in the theory of the transmission of the disease by the mosquito, for I have seen 16 cases of experimental yellow fever produced by the application of infected insects, and it was my good fortune to be the first case among them. Among other experiments it was my privilege to apply two mosquitos of the proper genus (*Stegomyia*) to a patient suffering with yellow fever, and 57 days later I applied the same mosquitos to a soldier volunteer, who had been kept in strict quarantine for 78 days. In four days he was taken ill with a typical attack of yellow fever, from which he made a good recovery.

Returning to the subject of Galveston, a few cases are said to have appeared in 1842, but in 1844 a violent outbreak raged for about six weeks, and then ceased suddenly from the

absence of susceptible persons. Here it was again noticed, however, that nonimmunes who visited the town but once for the purpose of shopping, etc., occasionally returned home to be taken ill with yellow fever a few days later. This continued until the appearance of a white frost, which we know benumbs the mosquito and forces it to go into hibernation. This, therefore, affords a rational explanation of the effect of the first sharp frost, which has so long been welcomed as the savior of districts afflicted with yellow fever. During the epidemic just mentioned nearly 400 deaths occurred in a population of about 4,000.

Three years later, in 1847, an epidemic was declared to be present in the month of October and there were about 200 deaths in a population of 4,800. In 1853, after an immunity of six years, the deaths from yellow fever were 535; in 1854, 404; in 1858, 873; and in 1859, 183 in a population of about 10,000.

In September, 1864, the disease was again epidemic, the deaths being 259 and the population 5,500. Three years of exemption followed, and in 1867, a severe epidemic is estimated to have produced 8,000 cases and 1,150 deaths in Galveston in a population of 15,000. From Galveston it was carried to a number of smaller towns, among which Alleytown on the Colorado river was afflicted with 200 deaths and about 800 cases in a population of 1,500.

During the same season Indianola is said to have received the infection from Vera Cruz, and we are told that "in less than a week the whole business part of the town was struck down as by lightning, there being no less than 125 to 150 cases taken during that time out of a population of less than 1,000." The extension of the disease was checked by a rapid depopulation of the town. The number of deaths among the citizens was about 75. From Indianola the disease is said to have been carried to various points throughout the State and even beyond. In 1870 and 1873, a few cases occurred, but the disease did not assume epidemic form. There is reason to believe, also, from the report of Dr. H. A. West, of this city (Galveston), that there were a few mild cases in 1897. I can find no record of any outbreak in Galveston since that time, although two cases were introduced on December 31, last, but as you well know there were in the State of Texas in 1903, over 1,200 cases of yellow fever with nearly 140 deaths. Over 1,000 cases and 107 deaths are recorded for Laredo alone, and if it were not for the energetic measures instituted against the mosquito, there would undoubtedly have been another fearful epidemic to record for the United States, similar to that of 1878, during which according to the Board of Experts appointed by Congress, more than 100,000 persons were stricken in their homes, and 20,000 lives were sacrificed in a single season. In Memphis alone, according to Keating, there were in 1878, 17,600 cases of yellow fever with 5,150 deaths, a mortality rate of about 1 in 4 of the reduced population. Scenes were enacted there similar to those described by Rush in his account of the epidemic at Philadelphia almost a century before, when the streets became deserted, bodies remained unburied, friends no longer shook hands upon meeting, husbands deserted their wives, wives their husbands, and parents their children. So, in Memphis, we are told of a prominent man who fled the city and refused to return when his wife and children were stricken and who still remained 50 miles away when notified of their death. These deplorable incidents, however, were more than offset by numberless instances of heroic devotion on the part of Sisters of Charity, nurses and physicians who died at their posts of duty. As one illustration I might cite from the little book on yellow fever published in 1898, by Dr. W. L. Coleman, of Houston. Dr. Coleman was present during the Memphis epidemic and took down the names of 45 volunteer physicians immediately after their arrival. Most of them came from the Northwest, and one did not remain. The others all contracted yellow fever and 30 of them were dead within a month.

At that time no one could say how the disease was contracted; some held that it was of local origin and contagious, others that it was not contagious; many believed it was imported, that it was infectious but not contagious, and was carried in some mysterious way by the atmosphere. We are told by Keating that "Dr. Dowell, of Galveston, says that in 19 cases out of 20 it will be found to have been introduced or imported," which was wonderfully near to the truth as we know it today.

It may surprise you to learn that yellow fever experimental inoculations began in the United States in Philadelphia, during the yellow fever epidemics in the years 1802 and 1803. It is a fact that in those years, Stubbins Firth, a medical student of the University of Pennsylvania, deliberately experimented upon himself by placing fresh black vomit and blood-serum obtained from yellow fever patients, into wounds made in his arms and legs. Failing in this, he inhaled the fumes from black vomit, which he heated over a sand bath in a small room, and then making the residue into pills he swallowed them. He administered black vomit to animals, injected it into their circulation, and deposited it in their tissues. As the results of these and other experiments were negative, he concluded that yellow fever was neither infectious nor contagious, and reported his work and conclusions in a graduation thesis in 1804.

But little more was done or could be done until the advent of the new science of bacteriology encouraged the belief that this mysterious malady might be caused by a bacterium. The first to claim the discovery of the specific cause of yellow fever was Dr. Domingo Freire, of Brazil, who went further than this, and claimed also that he had conferred protection against the disease by inoculations with specially treated cultures. He was followed by Dr. Carmone y Valle, of Mexico; Dr. Babes, of Brazil; Dr. Gibier, of Paris; and Dr. Finlay, of Havana, each of whom believed that he had found the cause of yellow fever in a different organism. It remained for Dr. Sternberg to show that these investigators were all mistaken, and that the bacteria found by them were not in any way related to the disease. Dr. Sternberg, himself, subsequently exhausted the field so far as the search for bacteria was concerned; he also made extremely careful and thorough examinations of the blood and tissues obtained from patients with yellow fever. He announced finally that his search had proved unsuccessful, and his work stands as the best that has ever been done in the study of the bacteriology of the disease.

In 1897, the sensational announcement was made that Dr. Guiseppe Sanarelli, an Italian bacteriologist, working upon the island of Flores, in Montevideo, had discovered the cause of yellow fever in a bacillus that he had found in about 50% of the patients examined by him. He reported also that the injection of pure cultures of this bacillus into the circulation of dogs, brought about an infection similar to yellow fever in the human being, with the vomiting and other symptoms of that disease, and a similar condition of the organs after death. This announcement naturally interested Dr. Sternberg, who at this time had become Surgeon-General of the Army, and he immediately turned to an organism that he had obtained from about 50% of the patients examined by him, that he had found to be exceedingly virulent for the small laboratory animals, and which he had called *Bacillus X*, because he had been unable positively to identify it. He obtained a culture that had been preserved by one of his former assistants, and directed Dr. Reed and myself to undertake certain experiments with it. As Dr. Sternberg had never injected it into dogs, one of the first steps in our work was a duplication of some of Dr. Sanarelli's experiments; viz., to inject it into the circulation of dogs. We obtained the same effects as Sanarelli had recorded for his yellow fever bacillus, and this seemed to indicate that the organisms must be identical. Dr. Sternberg then procured a culture of Sanarelli's bacillus from Professor Roux, of Paris, and handed it to us for comparative study. It is amusing now to think of the fearful respect with which we handled the culture from Dr. Sanarelli's laboratory, because we were fully prepared to accept it as the cause of yellow fever from what we knew of Dr. Sanarelli's reputation as a bacteriologist. After several months it became apparent that this supposed yellow fever bacillus of Sanarelli was nothing more nor less than the common hog cholera bacillus, an organism that was much better known in America than abroad. Sanarelli was evidently at that time not familiar with the bacillus of hog cholera, for he pronounced the germ obtained by him "the strangest of all microbes that are known." A bitter controversy arose upon the publication of our reports of the work in which we had found that Dr. Sanarelli's bacillus when fed to young hogs would produce the symptoms and lesions of hog cholera. Indeed, Sanarelli still contends in his

own country that he found the bacillus of yellow fever, a contention that finds no support today among reputable bacteriologists in this country or in Europe. It is a remarkable fact that upon his own demonstrations alone, Dr. Sanarelli was awarded large pecuniary prizes and honors as the discoverer of the causative agent of yellow fever. Unfortunately, Archinard and Woodson, and a commission from the Marine-Hospital Service, working in the United States, reported that their results confirmed the claims of Dr. Sanarelli. In 1897 and 1898, the latter commission, consisting of Drs. Wasdin and Geddings, continued their investigations in Havana, and in 1899 an elaborate report was issued, in which it was claimed that dogs, rabbits, mice, and other animals could be given yellow fever by infecting them with Sanarelli's bacillus, that infection took place through the lungs, and that a diagnosis of yellow fever could be made by isolating the bacillus from the blood of the patient. This made matters rather interesting for us, but did not shake our confidence in our results. *Bacillus X* (Sternberg) was found to belong to the group of colon bacilli.

Finally, in 1900, during the American occupation of Cuba, yellow fever became epidemic in Havana. To take advantage of the opportunity thus offered, General Sternberg designated a board to meet at Havana, for the purpose of continuing the study of that disease. The members of that board were Drs. Walter Reed, James Carroll, Aristides Agramonte (a Cuban immune), and Jesse W. Lazear. Drs. Lazear and Agramonte were already at Havana, and we joined them there in June. Our first aim was to confirm or disprove the claim for Sanarelli's bacillus, which he had called *B. icteroides*, and after a most painstaking and careful investigation of the blood obtained during life from 18 undoubted cases of yellow fever, and of the blood and tissues of 11 fatal cases after death, we were compelled to report that we had failed to find *Bacillus icteroides* in a single instance.

Having thus disposed of *B. icteroides*, two lines of work now presented, one an investigation of the mosquito theory, so long advocated by Dr. Carlos Finlay, of Havana, the other a study of the microorganisms present in the intestinal canal of yellow fever patients. The former was chosen, because of the numerous points of resemblance between yellow fever and malaria, which was known to be conveyed by the mosquito. Both diseases are air-borne; both are contracted mostly at night; both jump from house to house in a mysterious way; both are noncontagious; both prevail in the season when mosquitos are numerous, and infections cease to occur upon the appearance of a sharp frost; the interval of time elapsing between the occurrence of the first case and secondary ones in primarily infected dwellings suggested the necessity for an intermediate host in the conveyance of yellow fever; it was noted that in a large military command at Columbia Barracks, near Havana, the only persons who contracted yellow fever were those who left the camp after sundown, and these, after recovery, although they mingled freely with their comrades, never infected them. This latter observation seemed to show that the cause of the disease was not present on the body, in the clothing, or the dejecta. A consideration of all these points led us to decide that the next step should be to test the mosquito theory. In the early consideration of this line of work the members of the board paid a visit to Dr. Finlay, who received them most courteously, showed them the common house mosquito that he believed to be responsible for the disease, narrated the work that he had done, and kindly supplied them with some dried mosquito eggs for the purpose of hatching them out for study. The moral responsibility was next considered, and in a later conference it was agreed that the members of the board would themselves be bitten, and subject themselves to the same risk that necessity compelled them to impose on others.

Dr. Lazear was given charge of the mosquito work, because he already had had experience with other mosquitos. I was to continue my work with the cultures, and Dr. Reed returned to the United States. Dr. Lazear made a number of unsuccessful attempts with mosquitos, applied one or several days after biting a patient, as Dr. Finlay had done, and he himself was bitten by a mosquito that he had applied to a mild case of yellow fever 10 days before. I reminded Dr. Lazear that I was ready,

and he at last applied to my arm an insect that had bitten a patient with a severe attack 12 days previously. Four days later I had fever, and on the day following I was carried to the isolation camp as a patient with yellow fever. On the day that my fever appeared, Dr. Lazear applied the same mosquito, with three others, to a soldier, X. Y., who was taken sick on the fifth day following, and passed through a comparatively mild attack. Scarcely more than a week later, Dr. Lazear was applying mosquitos, as usual, late in the afternoon, to patients in the yellow fever hospital, known as Las Animas, and while thus engaged a mosquito alighted upon his hand. He allowed it to take its fill, and concluded it was one of the common *Culex* mosquitos which were present in the hospital in large numbers. So little importance did he attach to the incident, that he made no note of it, and related the circumstance to me when he was first taken sick, five days afterward. A week from that date he died, having been delirious and affected with black vomit for several days. Thus ended the first set of experiments, with the death of our esteemed and unfortunate colleague.

Two months later a new series of experiments was instituted for the purpose of confirming the results already obtained, to see, also, whether the disease could be contracted from exposure to soiled or contaminated articles of bedding, clothing, etc., and to determine whether or not the infectious agent was present in the blood.

For the first-mentioned experiments an isolation camp, called after our deceased comrade, Camp Lazear, was established in a secluded spot about a mile from Columbia Barracks, and apart from any habitation. In this camp there were placed three immunes and nine nonimmunes, including one immune, and one nonimmune physician. A strict quarantine was maintained, and only the immunes were permitted to leave the camp. If a nonimmune left, he was not permitted to return. As newly-arrived nonimmune Spanish immigrants could be obtained from the immigrant station at Havana, they were brought out and added to the command in quarantine. The camp consisted of seven large hospital tents, separated by a wide interval and pitched in the arc of a circle. The nonimmunes distributed through the tents were required to sleep beneath mosquito bars, and the rule was rigidly enforced. The plan was to pick out men here and there in the line of tents, bring them down with infected mosquitos, and in that way establish the fact that cases could be produced at will by the application of infected mosquitos. It was further desired to show that an infected house was simply one that contained active infected mosquitos, and that nothing more was necessary for the production of an epidemic in a susceptible community. A new tightly-celled frame building was constructed, 20 ft. by 14 ft., provided with two small windows, tightly closed with fine mesh wire screens; also with two vestibules protected by an outer door, and an outer and an inner tightly fitting screen door, so as to guard against the ingress of mosquitos from without or their egress from within. Upon entering the vestibule the screen door through which one passed was closed and the other was not opened until it was made certain that no mosquitos were passing in or out. The lumber used in the building was tongued and grooved; the walls were battened on the outside and lined with white cotton cloth within. The walls and floor were double and all crevices were stopped; the ceiling was covered with cloth and made so low that mosquitos resting upon it could be captured with ease. Across the middle of this room there was built a wire screen partition extending from floor to ceiling and dividing it into two compartments, each with a separate entrance. Beds were placed in each of these rooms and one of them was occupied by two nonimmunes for 18 consecutive nights. The bedding and other articles admitted to the room were all disinfected. On December 21, 1900, the date of the first occupation, 15 contaminated mosquitos were turned loose in the unoccupied compartment, and then a nonimmune entered and lay upon one of the beds, with his chest and limbs exposed for 30 minutes. During this time he was bitten by several insects and others bit him again later in the day, when he lay there for 20 minutes. This procedure was repeated again on the following day, the last of exposure. On December 25, four days after

his first exposure, this man, who had remained in strict quarantine, was taken ill with a severe attack of yellow fever, from which he recovered. The other two men, who slept in the same room but in another compartment, separated from the mosquitos only by the screen partition, remained in their usual health.

Another building had been constructed similar to the above, but provided with only a single vestibuled entrance. It was equally protected against the entrance of mosquitos, and had two small screen-protected windows provided with shutters, so as to exclude sunlight as well as mosquitos. It contained a coal oil stove, by means of which the temperature was kept above 90° during the day, and the atmosphere was provided with moisture. Into this room, which was warm, dark and moist, like the hold of a ship in the tropics, several boxes containing sheets, blankets, pillow slips and garments direct from the yellow fever hospital were placed. These had been soiled intentionally with black vomit and other repulsive material from cases of yellow fever. This room was then entered each evening at sundown by two nonimmune Americans, one of them a physician, who unpacked the boxes, handled and shook the articles, then hung them up on nails in the walls, and retired for the night. Upon rising in the morning they removed the articles from the walls, handled them freely, and repacked them in the boxes where they remained until evening. This procedure of unpacking and repacking, handling and sleeping in the presence of the soiled materials was kept up for 20 consecutive nights, and in the meantime fresh supplies were added as fast as they could be obtained. On one or two occasions the stench drove the occupants out, but they returned again and slept there. They spent the daytime in a tent nearby but were strictly quarantined. The pulse-rate and temperature of all nonimmunes in the camp were recorded three times daily, and showed that the health of these men was not affected in the slightest degree, on the contrary they gained in weight.

These were succeeded by two other nonimmunes after the addition of more soiled garments, etc., and they in turn were followed by another two for the same period. Some of these men slept between the sheets and in the garments used and soiled by yellow fever patients, at the time of their death, and they even slept with their faces upon towels soiled with blood that had been shown by inoculation to be capable of infecting with yellow fever. In no single instance did any disturbance of health follow these exposures; the conclusion was therefore arrived at that yellow fever cannot be contracted through exposure to fomites. If one stops to reflect that the mosquito is not able to infect until 12 days or more after contamination, one is forced to the conclusion that the yellow fever parasite, which has never been seen, must, in all probability, pass through a distinct cycle of development in the mosquito before the insect becomes dangerous. As Dr. Howard has told you, a corresponding but slightly shorter interval is seen with the mosquito that transmits malaria. The developmental phases of the malarial parasite in the mosquito are well known and have been demonstrated. Judging by analogy, therefore, it seems justifiable to assume that the parasite of yellow fever appears also to belong to that group of obligate parasites whose whole existence is passed within the bodies of two living hosts, one of which, man, is a vertebrate, and the other, the mosquito, an invertebrate. This affords an explanation of the uselessness of disinfection against yellow fever as well as malaria, and it also explains the instances occasionally noted in the literature, where a prompt suppression of the disease followed the use of fumigation as well as disinfection.

Returning to the subject of the experiments at Camp Lazear, the susceptibility of the men exposed to the fomites or soiled articles, was shown by the fact that four of them were subsequently infected by means of mosquitos and blood injections. Four nonimmunes in all were infected by the subcutaneous injection of small quantities of blood drawn in the first and second days of the disease. This established another point of analogy between yellow fever and malaria, and demonstrated the presence of the infectious agent in the blood, notwithstanding that we had failed to discover anything upon careful microscopic examination of the blood from many patients, including those

in whom the blood, drawn at the same time, produced yellow fever in persons into whom it was injected.

Nine additional cases were produced in Camp Lazear by the application of infected mosquitos, making in all ten cases of yellow fever brought about at will. All were taken sick within the usual period of incubation, never more than six days; they were selected here and there in the different tents, and no other cases occurred than those purposely inoculated. As soon as a case appeared the patient was immediately removed to the yellow fever isolation camp, a mile distant, to avoid the possibility of any stray mosquitos becoming infected from him. In no instance was the mosquito found to be capable of infecting in a shorter period than 12 days after biting the patient, and one patient was infected with two mosquitos kept as long as 57 days.

This work was concluded by the end of February, 1901, when confirmatory experiments were taken up by Dr. John Guit  ras, of Havana. His first patient was infected in February with a mosquito obtained from the army commission, and his subsequent inoculations were unsuccessful until August, when he succeeded in infecting seven persons with mosquitos. Of these cases, three, unfortunately, proved fatal. Among the latter was a young American nurse, Miss Maas, of Baltimore, who voluntarily submitted herself to the experiment.

In August, 1901, I returned to Havana, and obtaining some of Dr. Guit  ras' mosquitos, infected two Spanish nonimmunes. Drawing blood from one of them and separating the serum, I passed the latter through a filter which was shown to be capable of holding back the ordinary bacteria. Injection of the filtered serum into two Americans infected them with yellow fever. In this way it was shown that bodies smaller than ordinary bacteria, were capable of producing yellow fever upon injection, and our failure to discover anything upon microscopic examination of the blood of yellow fever patients was thus satisfactorily explained. It was further shown, as a point of great scientific interest, that blood that was known to be capable of producing the disease was found to be absolutely harmless after it had been heated to 131   F. for ten minutes. At this time I produced six additional yellow fever cases, all of whom recovered.

Such were the results obtained by the army board, and they can be summarized as follows:

1. *Bacillus icteroides* of Sanarelli was shown to be practically identical with the bacillus of hog cholera, from which it differs only in the source from which it is obtained.

2. Yellow fever is transmitted by a mosquito of the genus *Stegomyia*, and all attempts to bring about the infection through contact with bedding, clothing and dejecta of yellow fever patients have resulted in failure. Hence it follows that disinfection against yellow fever is valueless.

3. Yellow fever can be produced experimentally, by the injection of blood drawn in the first and second days of the disease, but this has no direct bearing upon the transmission or prevention of the disease in its epidemic form.

4. The specific germ of yellow fever is sufficiently minute to pass through the pores of a bacteria-proof filter, and it is destroyed by a temperature of 131   F.

Confirmation of the mosquito inoculations has been furnished by Dr. Guit  ras, in Havana; Drs. Ribas and Lutz, as well as the French Commission, in Brazil, and by a commission of the United States Public Health and Marine-Hospital Service, at Vera Cruz. It is especially gratifying that a French commission from the Pasteur Institute, working recently in Brazil, has confirmed practically all the results of the American army commission.

The following, therefore, may be safely assumed:

1. Disinfection in the prophylaxis against yellow fever is effective only when it takes the form of fumigation and destroys mosquitos.

2. Yellow fever patients can be the source from which other cases spring only when they have been bitten by the proper mosquitos; consequently, in the yellow fever zone all acute febrile cases not diagnosed should be handled as though they were yellow fever, and should be kept rigidly behind safe mosquito screens and netting. So far as has been shown the yellow fever patient is dangerous when bitten by mosquitos during the first three or four days of the fever only, but since

relapses may occur, every precaution should be maintained as long as the temperature remains elevated.

3. The hospitals intended for the treatment of suspected cases of yellow fever should be located upon ground that is high, well-drained, away from creeks, pools, or standing water of any kind, free from mosquitos, and not surrounded by grass or shrubbery. All entrances and exits to such hospitals should be provided with close-meshed wire screen spring doors, and similar screens should be fixed immovably over every window and other opening communicating with the exterior. Standing water should not be permitted in barrels or vessels of any kind, and broken crockery, tin cans, or other possible retainers of rain water should be systematically searched for within a radius of several hundred yards, and removed.

4. In general sanitation, all surface pools should be promptly drained and filled in with gravel, or covered with petroleum. Petroleum should be applied systematically to standing water in all ditches, pools, rain-water gutters, etc., that cannot be filled up or emptied. The margins of ponds should be deepened, to enable the fish to reach mosquito larvae.

5. Water should not be permitted to stand uncovered in houses; and rain water in cisterns or barrels, when not used for drinking purposes, should be treated with petroleum; if the water is used for drinking, all openings, vents, etc., should be closed with wire screens or tightly-fitting covers. Periodic examinations should then be made for wigglers (larvas) or mosquitos, because the female mosquito may pass through a very minute opening when seeking water on which to deposit her eggs. By means of these and other similar measures, the number of mosquitos may be greatly reduced, and the chances for the conveyance of the infection, should it happen to be present, will be thereby greatly diminished.

Stegomyia fasciata, the yellow fever mosquito, is a house-dwelling and house-breeding insect; particular attention should therefore be paid to the smallest as well as the larger collections of standing water within and about habitations.

6. After the removal of a patient, his room and the adjoining ones should be at once tightly closed by pasting paper over all cracks and openings, and then fumigated with insect powder, tobacco, or sulfur, to destroy mosquitos. When the room is opened after a few hours these should be swept up and burned.

7. Experience at Havana has shown that patients suffering from yellow fever upon their arrival at a port can be carried through a thickly populated city to a properly screened hospital, and there treated without the slightest danger to the community, so long as they are rigidly protected against mosquitos. Money spent for the purpose of disinfection against yellow fever is wasted, for yellow fever in epidemic form can only be contracted through the bites of mosquitos of a single genus.

8. The noncontagiousness of yellow fever was clearly shown in certain localities years ago before the use of disinfectants, in places where the yellow fever mosquito did not exist. The belief in the supposed contagiousness of this disease arose from its transmission through the atmosphere by the mosquito at a time when this insect was not suspected or known to be concerned in the transmission of any disease.

9. When a house is infected with yellow fever, it simply contains infected mosquitos; in the absence of this insect, no amount of filth, heat or moisture is capable of generating the disease.

10. Vessels from infected localities should be compelled, upon entering port, to anchor at least a fourth of a mile from shore; they should never be permitted to tie up to a wharf or dock in the city, except in northern latitudes during the cold season of the year. In this way, the chances for contaminated mosquitos reaching the city can be reduced to a minimum.

11. As the yellow fever mosquito does not bite, as a rule, between the hours of 9 a.m. and 3 p.m., it is practically safe for nonimmunes to visit infected localities between these hours for the transaction of business. Before 9 a.m. and after 3 p.m. they will run a greater or lesser risk of being infected.

12. It is now certain that before the lapse of many years, the disease, yellow fever, will have become extinct. The length of time necessary for its complete eradication will depend upon the readiness of our southern neighbors to accept the mosquito theory *in toto*, and institute in their infected seaports vigorous and energetic measures based upon it.

13. Another epidemic of yellow fever should never be seen in the United States. An example has been shown in Cuba, and the measures necessary to prevent the extension of the disease are so simple, so plain and practicable for persons in authority, that the existence of an epidemic of yellow fever in our country should alone be regarded as *prima facie* evidence of the culpability of some responsible person.

In conclusion, I cannot refrain from asking you to pay no attention to the sensational letters, already referred to, as recently published from a wellknown American physician on the Island of Cuba. This gentleman was at one time regarded as an authority upon yellow fever, of which he has seen a great deal, but he is now five years behind the time. His insinuation that cases of yellow fever are still frequent in Cuba, and that they are called typhoid fever, is a scandalous misrepresentation of the actual truth, and an unjustifiable reflection upon the intelligence and zeal of Cuban physicians, like Drs. Finlay, Guit  ras, Agramonte, Albertini and others, who realize fully the responsibility that rests upon them, who have suppressed yellow fever on the island for three years, and who are fully competent to deal with the situation there, now and in the future.

THE PHYSICIAN AS A CITIZEN.¹

BY

EDWARD N. BRUSH, M.D.,
of Towson, Md.

Physician-in-Chief and Superintendent, Sheppard and Enoch Pratt Hospital, Towson, Md.

[Concluded from page 875.]

If the physician is, as a citizen and as a professional man, interested in those things which go for the best training and culture of the coming generation, he is all the more interested in all those matters which affect the life, health and progress of the present, for they are elements which enter into his every-day life and occupation, which must be considered at every bedside.

As man has passed across the stage of human existence from the time of the cave-dweller to the present day, there have come to his nervous organization increased demands; more and more complex stimuli have demanded response from his nervous system, especially from his brain, and with the increased demand and response there has resulted a more complex and thoroughly differentiated organ. "The larger and more numerous and complex cerebral convolutions which distinguish the brain of a civilized person from that of a savage, correspond with the capacities for the exalted ideas of justice, virtue, love, which the savage has not and cannot have." With the elaboration of structure to correspond with and meet the necessities of increased and wider function, have come certain dangers or penalties. The greater the differentiation of parts, the more active the response to stimuli, the greater the instability, and consequently the more pronounced the tendency to disease. As Hirsch puts it in his work on "Degeneration," "A heightened mental action, a refinement and elaboration of the psychic organism, has for a consequence a greater disposition to mental derangement."

The straining after the meretricious in everything, the desire to be seen and known of men, which seems to be the predominating social feature of the times, among many of the citizens of our country brings as the inevitable result of the rush and push, the disappointment and ruin which so often follows from so many misguided ambitions its train of physical and mental wrecks.

An eloquent clinical teacher,² writing 70 years and more ago, said: "Among the higher and educated classes there is in this age and country (England) a wonderful striving for all the objects of wealth and honor and power. We need only think upon the strife of politics, the hazards of mercantile gambling, and the wear and tear of hard professional toil to see how many there must be who, from the common business of life, have derived both to their minds and bodies, new feelings and

impulses and new susceptibilities of disease. These susceptibilities belong chiefly to the nervous system."

If the rush for power, place and pelf were sufficient in its influence upon the health and mental and nervous stability of the race in the early half of the past century to attract the thoughtful consideration of medical men and the warning which I have just quoted, what must be the lesson to be gained from the conditions which confront us at the opening of the present century?

This is eminently the age of preventive medicine. Smallpox, cholera, the plague, malaria, typhus and yellow fever, as familiar conditions in the days in which the extract which I have read was written, as are typhoid and pneumonia today, have been stamped out or are under control, and now we are commencing to grapple in an intelligent manner with the white scourge, tuberculosis. If, therefore, there is anything in the lives we lead, in the business or pleasures which we pursue, which leads in our children or in ourselves to mental wreck or moral deterioration, should not the medical profession take cognizance thereof, and, pointing out the danger, suggest the remedy?

From time to time there have occurred in this country more or less extensive agitations of the drink question, temperance reforms, and crusades. These have largely been based upon moral grounds; although the physical and material ills which follow in the wake of intemperance have by no means been ignored. Recently in some States, attempts have been made to enlist the departments of education in the movement, and laws are upon the statute books of certain Commonwealths requiring the use in the public schools of elementary works on physiology which contain chapters upon the results of the alcohol habit from a physiologic standpoint. Undoubtedly one of the best means of attacking this great evil is from the standpoint of the physiologist and pathologist, but I doubt much being accomplished by the methods at present in vogue in the public schools.

In Germany, in France, in Switzerland, and in other countries of continental Europe, but to a less extent than in the three which I have mentioned, there is a growing and active total-abstinence movement among medical men. This movement is having an influence with the people which I do not believe temperance as preached among us could possibly accomplish. In the face of the direful effects which intemperance has upon the city and State—the tax which it imposes upon the temperate and frugal to support prisons, almshouses, reformatories, hospitals, asylums, and schools for the idiotic and feeble-minded progeny of the drunkard, to say nothing of the cost of police and magistrates and all the machinery of the law, so largely occupied with crimes and misdemeanors growing out of the abuse of alcohol—in the face of these, is there not something which the medical men of the country owe to their fellow citizens in their struggle against this evil? Can we not learn some lessons from our European colleagues?

When one considers the physical, mental, and moral wrecks not only among those given to intemperance, but so often seen in the generation which follows them it would seem that as guardians of the public health this was a subject particularly belonging to the medical profession, that as good citizens it was one which medical men should thoughtfully consider.

Immigrants were to be received into the State for which Plato's laws were made, but only such as appeared to be of a desirable kind. The laws read: "Touching evil men who want to join and be citizens of our State, after we have tested them by every sort of persuasion and for a sufficient time, we will prevent them from coming; but the good we will, to the utmost of our ability, receive as friends with open arms."

Should not the voice of the profession of the whole country be raised in protest against the inefficiency of our immigration laws? Some effort has been made within a few years to shut out the defective and criminal, but much remains to be done.

Within a day last week over 11,000 immigrants landed in New York. For the year ending June 30, 1904, 812,870 foreigners landed in this country; over 260,000 remained in New York State. In five years, out of that number, enough voters may be naturalized to turn the scale of a national election at a time when the contest is a close one. Not only does this vast mass

¹ President's annual address at the one hundred and seventh annual meeting of the Medical and Chirurgical Faculty of Maryland, Baltimore, Md., April 25, 1905, published synchronously with Maryland Medical Journal.

² Collected Works of P. M. Latham, Vol. II, p. 345.

of people, ignorant of our language, laws and customs, threaten the stability of our political institutions, but there is imposed upon us and injected into the blood of the nation additional sources of pauperism, crime, and disease, additional burdens of taxation to provide for the very large proportion who will become public charges, either as criminals or defectives.

This is not a new question. Read the address of Dr. Foster Pratt before the American Public Health Association at Detroit, Mich., in November, 1883. He pointed out that though the tenth census showed the foreign-born to be but an eighth of the population, a third of the insane, a third of the paupers, and a third of the criminals of the United States were of foreign birth.

The census of 1880 showed that in the State of New York 23.8% of the population were of foreign birth, while 44.8% of the insane in the State were born out of the country. By the last census, 26.1% of the population of New York State were foreigners. From September 30, 1888, to September 30, 1903, a period of 15 years, 78,364 patients were admitted to the State hospitals for the insane in New York. Of these, 38,163, or 48.6%, were foreign-born. In other words, of the \$4,000,000 and more which New York State expended in the fiscal year ending September 30, 1903, for the maintenance of her dependent insane, to say nothing of large sums expended for additions to her State hospital system and for repairs and improvements, nearly half was expended in the care of persons born out of the country. New York is somewhat unfortunately situated in this respect. The larger proportion of immigrants land in New York City, and a considerable proportion, last year over 30%, remained in the State, but what has been the experience there is the experience to a less degree in every State in the Union.

The momentum which certain acts attain, as has been pointed out by Herbert Spencer, is little understood or appreciated by our legislators, and when our fathers invited the oppressed and downtrodden of the Old World to seek a refuge on our shores, they could not foresee the results which would flow therefrom. In their days a ship which could land 3,000 persons in New York within a week or 10 days of leaving Europe was unthought of, and when their invitation was extended they expected those who sought a refuge here to come by the then known modes of travel, which, by reason of expense and limited capacity, naturally kept back the pauper classes which in more recent years have poured in upon us.

The individuals or corporations, moreover, who sought the cheap labor of the Old World did not anticipate that the gain they hoped to make might be greatly diminished by the taxes imposed to support the criminal and defective among those laborers.

Dr. Pratt, in the address to which I have referred, speaking of this great evil, says: "Let us protect ourselves from the immigrant bringing inherited and transmissible defects with even more vigilance than from the contagious and infectious diseases of short duration. Regard not so much the danger of today and tomorrow as the dangers of the next and the next and all ensuing decades of national life and well-being." Concluding, he says: "Because of our profession and occupation, we are expected to know the facts, the dangers, their causes and their cure, and we are expected to lead public opinion and action. Shall we, by doing nothing, produce the belief in those with whom is the remedy that there is nothing to do?" I leave this question with you, as one which demands from you, as physicians and citizens, as guardians of the republic, an answer.

One is somewhat naturally led from the topic which we have just been considering to the subject of the care and custody of the insane. The medical profession has always led the way in the reforms and improvements which have taken place in the matter of the treatment of the insane. Pinel, the Tukes, Conolly, Griesinger, Kirkbride, Gray, Chapin, and a long list of others have pointed out better, more humane methods of care and custody. Pinel, Esquirol, Benjamin Rush, Jacobi, Griesinger, Meynert, Krafft-Ebing, Cowles, Kraepelin have worked upon the problems of the pathology and treatment of the psychoses.

Just now here in Maryland we are at the parting of the ways. The State has declared that after 1909 all the dependent

insane shall be cared for in hospitals controlled and directed by the State and at the expense of the State. The measures necessary to the consummation of this great desideratum must be drawn with much care and with due consideration of all the interests involved. When the condition of some of the insane in the jails and almshouses of the State is known, the natural inclination is to attempt or hope to anticipate the date fixed. But questions of tax levies must be solved, buildings must be erected, a code of laws regulating the admission, detention, care, and discharge of patients must be enacted, and the time permitted for all these things is none too long. The active and earnest State Commission of Lunacy and the State officials have this matter in charge, but between their plans and the accomplishment thereof stands the State Legislature, the members of which need a deal of instruction and missionary work.

I shall not soon forget appearing with the late Dr. Rohé before a committee on ways and means in Annapolis in support of some measures looking toward the betterment of the insane at Spring Grove. The honorable chairman, learning that the care of the insane at the State hospital at Catonsville cost about \$150 a year per capita, remarked, "In our county we keep them at so much," naming a price which I am ashamed to repeat—less than would be paid for the most ordinary care and keep of a most ordinary horse. Legislators have not changed, gentlemen, since that day, and, as I have said, there is room for missionary work of a most excellent kind, of the kind to which you are well adapted if the indigent insane in our State are to be properly cared for.

Something may perhaps be expected from me regarding the great questions which are now agitating this city—better and cleaner streets, sewers, enlarged and beautified parks and parkways. Did I not think the question practically settled, and settled as I believe it should be, I might be tempted, even at the risk of insulting your intelligence and further taxing your patience, to make a plea for clean, well-paved streets, a protected water-supply of sufficient quantity and assured purity, and a system of sewers and of sewage disposal.

One thing, however, I would urge upon you, citizens of Baltimore, whatever you do, do it thoroughly. Much that I hope you will do will be for posterity, and it is well that it should be. Having received much from those who have preceded you, it becomes you to hand down to those who come after you even more, for you have had greater advantages, wider opportunity, than did your ancestors. You remember the words of Ruskin (*The Lamp of Memory—Seven Lamps of Architecture*): "When we build, let us think that we build for ever. Let it not be for present delight nor for present use alone; let it be such work as our descendants will thank us for—and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say as they look upon the labor and wrought substances of them, 'See! this our fathers did for us.'"

And yet, after all, build as you may, clean and ornament your city as you may, it will not be the noble buildings, the long lines of well-paved and clean streets, the enticing and restful beauty of your parks, nor wealth, nor extent of commerce which will make your city, but the citizens thereof, and among those citizens you are fortunate in having an organized body of intelligent physicians who may be at all times relied upon to aid in fostering the material affairs of the city, as well as guarding its sanitary interests and those of its citizens. Twenty-nine years ago a noted English scholar and man of science, at the opening of the great university in whose hall we meet this evening, said: "Your sole safeguard is the moral worth and intellectual clearness of the individual citizen." His words, applied then to the whole country, apply with equal force to this city and this State.

There are other matters pertaining to our State and city upon which, did time permit, I should like to touch as being embraced in those which should interest all citizens, but particularly those who are guardians of public health. The Greek republic by its laws was to be provided with good roads, and in our own time and State the construction and maintenance of good roads continues to be a matter of much importance and serious debate. The preservation of our streams and rivers, the

general water-supply of the State, is a matter more serious than many realize, and connected with it, in a large measure directly related to it, is the preservation of our forests and the scientific reforestation of the denuded woodlands of the State. Greater wealth would soon flow to the State from carefully-conducted forestry than from any other source with which I am familiar. Not only that, but the effect upon the climate, upon the rainfall, upon the amount of water in the streams and rivers of the State, and generally upon the public health is impossible to estimate.

Maryland has been favored with many public-spirited citizens. They have been found in all walks of life—in business pursuits, among the clergy, the lawyers, the doctors—and her position today among her sister States is due to the devotion of her many sons.

Moses Sheppard, Johns Hopkins, Samuel Ready, Thomas Wilson, Enoch Pratt, Michael Jenkins, and many others here in Baltimore and in this State have recognized not only the responsibilities, but the opportunities of great wealth.

The sick, the halt, the blind, the insane, the orphan, the anxious mother and tender infant, and the student seeking knowledge or handicraft at the best sources have occasion to bless their memory. But is there not danger of too much dependence upon public or private charity or aid?

People forget the delights of independence and lose that reverence or respect for things which cost them nothing, which is associated with those which are won by the sweat of their brows. This getting something for nothing, this dependence on private munificence, or the attempt to make our government, whether national, State, or local, paternal in character has its distinct disadvantages, nay, even dangers.

The child who is taught that it is the function of government to furnish him not only free education but free books, free transportation to and from school, and even free lunches while there, loses half, and more than half, of his conception of the value of his education. He respects and treasures a book which has cost him or his parents some self-sacrifice, and early begins to have that love which all true scholars have for the records of the wisdom of the ages. Is it not possible that we are unwittingly doing something to train up a generation of men who will look upon the public treasury as their legitimate spoil, the embryo successors of the so-called "grafters" of the present day?

I would not place one single block in the way of the education of every child in the community; nay, I would even go to greater extremes than are now practised to compel parents and guardians to send children to school; but are we not making education in some respects, in some of its features, too free, too common? These, as well as some of the questions involved in the medical charities and free dispensaries, are certainly of interest to physicians, and in their capacity not only as physicians, but as citizens.

The medical citizen who solves some of the more pressing problems of private and public charity, and especially of the altogether too indiscriminate medical charities of large cities, will be rendering his profession and the community a signal service.

Gentlemen of the medical profession, in the code of laws to which I have from time to time referred there were provisions made for certain trained and selected citizens who were termed guardians.

Your profession and training, the demands of professional honor, constitute you guardians of certain of the interests of your fellow citizens, and you are good or bad citizens as you perform or neglect your duties. Those duties are not confined alone or solely to matters which are commonly regarded as strictly medical.

As men of reputation and extensive acquaintance in your several communities, your advice will be sought, your example followed in matters political. Your knowledge of men will help you in advising who will make the best legislators, councilmen, school commissioners, and even mayors and governors. I do not propose to talk politics or advise the use of this organization for ordinary political purposes. There are questions, however, upon which the united voice of the members of this Faculty might well be heard, and, being heard, would have a powerful influence.

The other day in a not far distant State, in a board having to do with the highest educational interests of the State, there was danger of a wholly incompetent and, to the interests of better education, dangerous man being elected. The medical men of the State became interested, and by their united efforts, in the face of the opposition of the dominant party, their candidate was chosen.

In matters relating to public health, to education, to the care of the dependent and the defective, you can, if you will, make yourselves as strongly felt, and as these are matters upon which you are better prepared to pass correct judgment, your duty is plain.

If you are adverse to serving in local or State legislative bodies, your voice should and can be potent in the selection of those who will represent you. Party influence and party fealty, I know, are powerful agents, and often agents for good, and are necessary in our political methods; but sometimes there are higher claims than those of party, and those claims should be, and by the majority of the medical profession are, I believe, recognized.

Let us measure the men we are asked to place in position and power by the same standard we would use in placing our private interests in their hands. Let us investigate their ability to make or execute laws, remembering, with Spencer, that "there is no political alchemy by which you can get golden conduct out of leaden instinct."

We hear now and then of the force of awakened public sentiment. The very phrase implies that public sentiment sometimes sleeps, and while waking and rubbing its eyes and getting its bearings, your practical politician, who never sleeps, will snatch the prize for which he is scheming—the control of public affairs, the key of the public treasury. What is needed in this land and in this day is a live, active, wideawake, always vigilant public sentiment, not one which needs awakening or is only aroused into action by some public or official scandal. In this respect no class can set a better example than the members of the profession to which we belong; none, I fear, is more apt to feel that these matters need not engage their attention.

We are, I take it, united as to the necessity of clean and well-paved streets, of a pure water-supply, of an efficient system of sewerage for our cities and towns, and yet of the hundreds of doctors who realize the importance of these matters, how many personally take the pains to help secure the best men and the most efficient means to accomplish these things?

I believe that certain pessimistic members of the profession hesitate to support the measures looking to hoped-for sanitary improvements here in Baltimore because of doubt as to the honesty or ability of those who may have charge of the execution of the work.

Have those men, have the majority of us, taken occasion to teach our public servants that "corruption wins not more than honesty?" Have we not the rather looked upon dishonesty in official and business life with a too easy tolerance? Have we not sometimes purposely kept our eyes closed to crimes against the community lest we be given some trouble in helping to bring the criminal to justice? Have we not, indeed, with easy good nature on occasion given our voices or names to aid those who sought to mitigate the punishment when the criminal was at last convicted?

When the betrayer of a public trust is made to feel the weight of public opinion and the force of social and business ostracism; when the man who robs the public treasury or a bank or a trust company is punished as certainly and with as little of the law's delay as the petty thief who robs a hen-roost; when from private or semiprivate business affairs "graft" is eliminated, then, and not until then, may we feel certain that our civic corporations are conducted with as much regard for the stockholders' interests, the interests of the citizens of those corporations, as are our many successful and honestly-managed private corporations. That day will come only when you and I take as much and as active interest in the selection of those who conduct those corporations as we would in learning who are the directors of the corporation which is to manage our private investments or guard our estate if we are fortunate enough to accumulate one.

These, then, are some of the elements in our social or political life concerning which the members of the medical profession are particularly qualified to instruct or guide public opinion and public action, and which as good citizens they are bound to take into thoughtful consideration: The importance and force of heredity, the true nature and object of education, and the best methods of imparting an education; the necessity and value to the developing mind of such environment, both mental and material, as shall develop a love for and an appreciation of the true and the beautiful; the selection of those who are physically and mentally equipped for an education, and the selection of that form of education best adapted to the individual.

The methods of modern life, intemperance in living, in eating, in drinking, are subjects upon which physicians daily admonish their patients, but as to their influence upon the general public the force of example, possibly too little is said.

Life in a modern city is not well calculated to prolong life or make it more comfortable. The effect upon the nervous systems of its citizens, of the noise, the rush, the bustle of a city's streets, cannot be calculated, but is by no means a negligible quantity in enumerating the causes of nervous diseases.

The care of the dependent, the sick, the defective, the regulation and control of immigration, the most vigilant scrutiny of all that may affect public health, and a hearty cooperation in every way with the public health authorities are all part of the citizen doctor's duties.

And, lastly, a proper active patriotic interest in the political movements of his State or locality, the use of his knowledge and influence in the selection of public officials, and in holding them to high ideals and strict accountability fall within his line of duty, as they do within that of every citizen of the State.

I have, I feel, but crudely drawn the outline of a picture, the details of which you can fill in better than I can. But I believe no higher calling could come to you; no more responsible office be yours, with greater capacity for good, than the plain everyday duties of a citizen as they are seen or should be through the eyes of a well-informed physician.

In performing those duties, opposition, misrepresentation, contumely will meet you. Seldom will any reward for your self-imposed task come to you. Those you are attempting to aid will misinterpret your motives and oppose your efforts.

You have seen your professional brothers sacrifice the allurements of home, the enticement of wealth and ease—aye, even life itself—that pestilence might be studied and its progress stayed. You have seen from their work that "Peace hath her victories no less renowned than war," and "higher tests of manhood than battles ever knew."

Their work has not only enlarged your professional knowledge, enhanced your professional skill, but wealth uncounted has and will result to this nation and others by reason of their devotion to humanity and science.

To them or their memory but scant tribute has been paid. But this must not deter you. The power, the influence, the knowledge are yours, and as you use them to the healing of the nation, to the uplifting of humanity, to the rooting out of disease and misery, and crime, and corruption, you will be sustained and blessed, as those others who have gone before you have been, by the consciousness of duty done. Great deeds, like a noble piece of statuary, require to be viewed from a proper distance to be fully appreciated, and so to your memory will come in time, as will come to theirs, the tribute of a grateful posterity.

The Need of a Hospital Ship.—The naval surgeons have about given up the hope of ever getting a hospital ship except in the time of war, says the *Army and Navy Register*. There are no funds which will enable the Navy Department to put into commission for service anywhere the Relief, which was fitted out at government expense at Mare Island, Cal., navy yard. There would be great use for the hospital ship if one were in service now, as at all times in the peace period, but there is a disposition to hold to the theory that men can go on and work without any such aid to recuperation after disability. The ships themselves are to have their repair ship on hand to save being sent any distance for the purpose of restoration. The naval surgeons, however, will be content if they can fix things so that in time of war they will be in a position to be ready for the emergency. Everything will be arranged so as to provide for taking over the hospital ship in time of war.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 27, 1905. [Vol. XLIV, No. 21.]

1. Observations on Infant Feeding, with Report of Cases. FRANK SPOONER CHURCHILL.
2. Economics of Medical Organization. J. MADISON TAYLOR.
3. The Development of Fibroids of the Uterus after Ablation of the Appendages. J. WESLEY BOVEE.
4. A Case of Typhoid Perforation of the Intestine with Surgical Treatment and Recovery. THOMAS W. HUNTINGTON and GEORGE B. EBRIGHT.
5. Stenosis of Pylorus in Infancy: An Analysis of One Hundred and Fifteen Cases. (Continued.) CHARLES L. SCUDDER.
6. Ankylosis, Arthroplasty—Clinical and Experimental. (Continued.) JOHN B. MURPHY.
7. Tolerance to Nitroglycerin. D. D. STEWART.
8. Peritoneal Gauze Drainage. An Easy Method for Its Use through the Vagina, after Abdominal Section. W. D. HAGGARD.

1.—Infant Feeding.—F. S. Churchill discusses the embarrassments of infant feeding when breast milk is not available, and the unsatisfactory results of the common practice of diluting cows' milk with water in such cases. Cases of difficult feeding in infancy are: 1. Those of fat indigestion. 2. Those of sugar indigestion. 3. Those of proteid indigestion. Each of these may occur alone or in combination with the others. Proteid indigestion is most common, but fat indigestion is also frequent. Each must be treated individually, the form of indigestion present must be ascertained if possible, and appropriate measures be adopted. The treatment is almost exclusively dietary; the fats and sugar can be regulated by varying the amounts of cream and sugar in the food. The composition of cows' milk, with its high caseinogen and low lactalbumen content, must be remembered in treating proteid cases, the caseinogen must be cut down or eliminated, if need be, and the lactalbumen retained. This twofold object is attained by feeding whey. Increase in quantity and quality of the food must be made gradually. In conclusion, he suggests the desirability of careful study of artificially fed infants and publication of the results.

3.—See American Medicine, Vol. IX, No. 1, p. 10.

5.—Pyloric Stenosis in Infancy.—Charles L. Scudder recognizes two groups, the subacute or chronic, and the acute fulminating cases. While most cases are fairly typical, in some the differential diagnosis is difficult, and a careful study of each symptom and the sequence and grouping of symptoms should be made till the diagnosis is reached by a process of exclusion. He has little faith in the medical treatment, and believes that the condition is practically hopeless without operation. The results of operations since 1898 show a saving of over 50% of the patients, of which probably all would have died if let alone. An analysis of the fatal cases shows that many of them were due to mistakes or errors of technic, too late operation, etc. The operation should be rapid, free from causes of shock, sepsis or hemorrhage, the parts to be handled gently and isolated outside of the abdominal cavity. The Loreta operation is condemned. Pylorotomy is too severe and pyloroplasty is not recommended save in exceptional cases. Some form of gastroenterostomy is best for most patients, but owing to the shortness of the infant mesentery and other reasons, the anterior operation should be avoided if possible. The Finney operation of gastropyloroduodenostomy may be suitable in some cases, or if not feasible, Köcher's gastroduodenostomy may be useful. After-care is of vital importance, and if possible an expert in feeding a baby should have charge. Absolute quiet is essential, and rectal feeding may be needed for a few days. Scudder thinks that a congenital hyperplasia may occur and a spasmodic contraction of this, after birth, is frequent if not the rule.

6.—See American Medicine, Vol. VIII, No. 3, p. 100.

7.—Tolerance to Nitroglycerin.—According to D. D. Stewart, an excessive tolerance to nitroglycerin can be readily acquired if care is not taken to avoid a too rapid increase of the dose, hence the drug, though intelligently employed, is often of little service. The best rule for giving the drug for its effects on blood-pressure, is to administer it four times a day in dose just sufficient to produce the slightest feeling of fullness in the head or to slightly quicken the pulse. If more than this is given, an undesirable tolerance is likely to be established. When a rather rapid increase seems needed to keep up a

constant effect, it is best to discontinue the drug for two or more days, at intervals, and to resume its use with a smaller initial dose. By so doing, the use of very large doses and strong solutions, which are not exactly safe to handle, will be avoided. Nitroglycerin, he thinks, has not met expectations as a remedy in conditions of persistent high tension, and he now uses it in such cases less frequently than formerly, endeavoring at first, at least, to relieve by limiting the nitrogenous intake and maintaining free action of the skin and bowels. Aconite is often substituted for nitroglycerin in these cases with advantage.

8.—Peritoneal Gauze Drainage.—W. D. Haggard says the fancied necessity for drainage after abdominal section has been greatly lessened by the knowledge that the peritoneum can easily dispose of considerable amounts of blood and serum and that accumulations of pus are generally sterile. Wound infection from drainage after hernia operations and the danger of resulting hernia after infected abdominal wounds are infrequent after wounds which have healed aseptically. He places the gauze in the abdomen so that, after the operation is completed and the incision sutured, the gauze may be reached through a new incision in the vagina with less danger of infection.

Boston Medical and Surgical Journal.

May 25, 1905. [Vol. CLII, No. 21.]

1. A Consideration of the Pelvic Articulations from an Anatomic, Pathologic and Clinical Standpoint. JOEL E. GOLDTHWAIT and ROBERT B. OSGOOD.
2. A Case of Foreign Body in the Esophagus. A. COOLIDGE, JR.
3. Conservative Operation on the Ovaries and Tubes: Analysis of 90 Cases. R. G. WADSWORTH.
4. New Tube Forceps and New Cotton Carrier. A. COOLIDGE, JR.

2.—Foreign Body in the Esophagus.—A. Coolidge, Jr., reports the extraction of a large open safety-pin, the point directed upward, being embedded in the esophageal wall. The head was seized by Killian's forceps, through the tube, and the point detached by pushing the pin downward. The pin was then closed by a metal ring, which attached to a stiff wire shaft was passed down outside of the tube and slipped over the hinge. The pin was then extracted engaged in the ring. The writer describes in another article the modification of Killian's forceps which he uses. [H.M.]

3.—Conservative Operation on the Ovaries and Tubes.—R. G. Wadsworth states that in these 90 cases, considering them together without regard to the extent or multiplicity of operation, partial or complete symptomatic relief has been obtained in 86.5%. Multiple operations give less good results than those on the appendages alone. When both ovaries are cystic and part of one or both is saved, the chance of secondary operation for recurrence of cystic disease is nearly three times as great as in those cases in which one normal ovary is present. Subsequent pregnancy has occurred in 26.5%. That the patient has borne children before operation nearly triples the chance of subsequent pregnancy. [H.M.]

4.—New Tube Forceps and New Cotton Carrier.—A. Coolidge, Jr., finds it objectionable that in Killian's forceps the handle is in direct line with the shaft, so that the hand is between the eye and the speculum, or the shaft of the forceps is bowed, making it difficult to control the grasping end. He has had the handle attached at right angles to the shaft carrying the blades. The surrounding tube is pushed down on to and closes the blades by the action of a trigger operated by the forefinger. In order to lock cotton securely on the carrier, he uses instead of the ring a section of tube 2 in. long, which is pushed down to shut the blades. On the shaft of the carrier, about 2 in. from the end, is a collar cut with a screw thread. The lower part of the barrel slides over the collar, but the upper part engages in the screw. The carrier is locked on the cotton by several revolutions of the barrel. [H.M.]

Medical Record.

May 27, 1905. [Vol. 67, No. 21.]

1. Intermittent Claudication and Allied Syndromes Due to Angiosclerosis of the Extremities. J. RAMSAY HUNT.
2. The Gardener's Spade Deformity and the Silver-fork Deformity in Fractures of the Carpal End of the Radius. JOHN B. ROBERTS.
3. My Changes of View in Appendicitis Work. ROBERT T. MORRIS.

4. Toxemia of Intestinal Origin as a Condition Predisposing to Minor Infections. HARRIS A. HOUGHTON.
5. Responsibility in Mental Deformity. JAMES WEIR.

1.—Intermittent Claudication and Allied Syndromes Due to Angiosclerosis of the Extremities.—J. R. Hunt reports several cases. Angiosclerosis in its gravest form, uncomplicated by a vasomotor neurosis, leads to spontaneous gangrene. If the angiosclerosis occurs in combination with a vasomotor instability and a tendency to vasomotor spasm, the syndrome of intermittent claudication results. This is characterized by the development of sensory (pains and paresthesia) and motor (weakness and rigidity) manifestations during functional activity, with a rapid and permanent restoration to the normal during rest. The syndrome, however, has a wider and more general application to the whole circulatory mechanism and has been observed in relation to various organs of the body (heart, intestines, brain, kidneys, and eyes). The prognosis as regards cure is unfavorable. In treatment, rest is important. Patients should never transgress in walking the usual limit of time before the claudication occurs. Potassium iodid, cardiac tonics having little action on the vasomotor system, warm water and galvanic foot baths are among the measures which have been recommended. [H.M.]

2.—Gardener's Spade Deformity and Silver-fork Deformity.—J. B. Roberts notes the frequency with which these fractures are badly treated, enough force not being used to disentangle the fragments and place them in normal relations. In the first, the displacement of the carpal end of the radius is forward, and is frequently unrecognized, the fragment lying between the flexor tendons and the concave palmar surface of the radius. The silver-fork deformity has a marked elevation at the back of the forearm, the normal radius being practically level on the dorsal surface. The author describes other diagnostic points, the article being illustrated with cuts showing the deformities, with skiagraphs and diagrams of the same. Forceful reduction is essential. A light straight splint on the dorsum of the hand and arm, or a molded splint on the palmar surface is usually the proper dressing. [H.M.]

3.—Changes of View in Appendicitis Work.—R. T. Morris, after dropping out of his practice gauze packing, iodoform gauze, long incisions, and the expenditure of time in unnecessary detail, reduced his mortality to 2%. His methods at the time were held to be dangerous. He now uses a cigaret drain, makes an incision one and a half inches long, preferring to work by touch rather than sight, and completes the operation in from five to ten minutes. He does not advocate the removal of normal appendices. He believes in operating as soon as the diagnosis is made with few exceptions, if there is a competent surgeon to be had; otherwise he recommends ice, opium, and starvation. In the interval he operates only when the appendix on palpation is found to be the definite seat of chronic infection or adhesions, which cause symptoms. He now never uses silk-wormgut for buried sutures. [H.M.]

4.—Toxemia of Intestinal Origin.—H. A. Houghton reports 30 cases of minor infections, in 27 of which an excess of indican was found in the urine, the intestinal toxemia reducing the resistance of the tissues. Indicanuria should be treated by diet and other measures looking toward its complete cessation. [H.M.]

New York Medical Journal.

May 20, 1905. [Vol. LXXXI, No. 20.]

1. Metacarpal Fissure: A Practical Type not Heretofore Described, and Some Points Regarding Treatment of Metacarpal Fracture. CARL BECK.
2. A Successful Method of Treating Fracture of the Femur in Infancy. WALTER G. STERN.
3. Puberty and Adolescence in Their Relation to the Etiology of Epilepsy. WILLIAM P. SPRATLING.
4. Syphilis with Late or Absent Secondary Eruption. ROBERT N. WILLSON.
5. The Recognition and Differentiation of Rales in the Lung. FREDERICK E. BEAL.
6. Alkaline Beverages in the Treatment of Pneumonia. J. B. TODD.
7. The Virginia Laws Regulating the Sale of Poisons. GEORGE E. BARKSDALE.
8. The Diagnosis and Treatment of Typhoid Fever. WILLIS JONES.

1.—Metacarpal Fissure.—Carl Beck calls attention to a fracture type which he says has not been heretofore described, viz., the fissure above the metacarpal epiphysis. In the

majority of cases the line of metacarpal fracture is found in the middle of the bone, where it is thinnest. The direction is generally transverse, but the oblique type is sometimes found. When there is dorsal or palmar displacement, the fracture signs are well marked. Sometimes there is epiphyseal separation. Cases of oblique and transverse fracture above the epiphysis have been illustrated by Beck in previous publications (see textbooks on fractures and röntgen diagnosis and therapy). In all these cases there was more or less lateral displacement. The symptoms of this type resemble those of dislocation and were almost always mistaken for such in former years. The proper therapeutic steps can be taken only on the basis of a correct diagnosis. The treatment requires nothing but immobilization. [C.A.O.]

2.—Fracture of Femur in Infancy.—W. G. Stern describes a method of treating fracture of the femur in infancy, which has proved very successful in his hands. He believes that vertical extension in the manner described by him meets all the requirements. It enables the mother to nurse the child with very little effort and enables the nurse to keep the child scrupulously clean, as it is impossible for it to soil the dressings, and the diaper can be changed without difficulty or without causing pain. It holds the fragments together, allows only a minimum of shortening, and is easily applied. The majority of fractures of the femur observed in children under the age of 12 months are caused by the various efforts at traction during labor. In such cases it is wise to refrain from extension before the third day, for the safety of the mother demands that she shall lie quietly at rest and nurse the child after the usual fashion. He has been able to secure enough fixation to keep the child quiet by handling it in a feather pillow. After the third day the limb is placed in vertical extension and kept there for at least three weeks. The child rests on a pillow placed on a low stand next to the bed and should not be above the level of the mattress. Its body is parallel to the length of the bed and its head at about the position of the mother's breast. This enables her to nurse it by merely rolling over on her side and placing either nipple in its mouth. The adhesive straps for the extension are put on in the usual fashion. The extension is carried upward with wire to a hook firmly fastened in the ceiling, then over for three or four feet, so as to get the weight away from the baby, and then down over another hook for a foot or two. Several cases are reported and cuts shown to illustrate this method. [C.A.O.]

3.—Puberty and Epilepsy.—W. P. Spratling concludes as follows: 1. That we can, and must, in many cases of epilepsy that appear during the twelfth to the sixteenth and eighteenth years, coincident with the establishment of the menstrual flow in women, and with the passing of boyhood into manhood, ascribe to these changes the power of inducing well-defined convulsions that may be epileptic. 2. That except in the most remote and exceptional instances, these periods alone in normal individuals have no power to induce epilepsy or even epileptoid phenomena. 3. That by searching carefully, we shall find, in most cases of epilepsy at this period, either a previous history of convulsions, usually in infancy, or a family and personal history so tainted with a tendency to disease, that epilepsy under the stress of puberty is plainly invited. [C.A.O.]

4.—Late Syphilis.—R. N. Willson reports in detail three cases of syphilis with late or absent secondary eruption. The first case is one he believes of undoubted syphilis with an indefinite primary lesion (chancre), a typical gonorrhea (gonococci present in large numbers), an entire absence of early secondary syphilitic lesions, a possibly syphilitic eruption synchronous in its appearance with the use of cubebs four months after the last exposure, and disappearing at once on discontinuing the drug, finally a syphilitic palmar and plantar eruption seven months after the latest possible date of infection. The case responded at once to mercurial treatment. The second case was one of gonorrhea with a probable primary lesion of syphilis on the penis, with induration remaining, and wide but atypical distribution of the glandular enlargement. Sore throat, malaise, alopecia lasting for a month and controlled promptly by mercurial treatment; an entire absence of the secondary eruption up to date; occasional exacerbations of throat and systemic symptoms. The third case is one of undoubted syph-

ilis with gonorrhea; general glandular enlargement; entire absence of (or failure to discover) a primary lesion; entire absence of secondary eruption during the first five years of the disease; then sore throat, alopecia, palmar and plantar papulo-squamous eruption, and subsequently the birth of a syphilitic child. Willson says that he cannot believe these cases to be wholly unusual, even though they controvert in many respects the prevailing tenets and teachings with regard to the symptoms and course of the disease. He believes that early treatment should be instituted in these cases, and that a case which has gone untreated for six weeks or three months does not present as simple a problem as when treated early. [C.A.O.]

6.—Alkaline Beverages in Pneumonia.—J. B. Todd says that a rational consideration of the various conditions that are grouped together to make up the disease called pneumonia, brings the inevitable conclusion that in the treatment of the disease we should do all in our power to promote leukocytosis through the entire course of the disease, also to preserve the proper alkalinity of the blood, for upon this depends the functional life and activity of its living cells to perform their work of growth, repair, and also of the removal of waste products, the destruction of the bacteria and their toxins. We should also maintain the normal specific gravity of the blood. He believes that these requirements are accomplished by the administration of alkaline saline drinks from the inception of the disease, and during its entire course. Of a solution of 2½ gr. of sodium chlorid and 1 gr. of potassium bicarbonate to 1 oz. of cold water, from 6 oz. to 8 oz. should be given every two hours. The addition of a teaspoonful of lemon juice converts it into a refreshing drink, which is gratefully accepted by the patient. Beside this drink, the patient should be allowed all the pure water desired. [C.A.O.]

Medical News.

May 27, 1905. [Vol. 86, No. 21.]

1. Clinical Features and Treatment of Epidemic Cerebrospinal Meningitis. FRANCIS HUBER.
2. Infantile Tuberculosis: Its Portal of Entry, Topography and Clinical Manifestations. ROWLAND GODFREY FREEMAN.
3. Two Unusual Cases of Gastric Cancer. WILLIAM FITCH CHENEY.
4. The Present Clinical and Bacteriologic Status of Vincent's Angina. WM. N. BERKELEY.
5. On Widal Reaction. E. ANDRADE.

1.—Epidemic Cerebrospinal Meningitis.—F. Huber suggests the use of intranasal germicides, on account of the possibility of the germ entering the cranial cavity through the lymph and blood circulation. Notwithstanding the general belief in nontransmission from person to person, it is well to discourage contact. Multiple cases in the same house and among attendants favor the theory of communicability. Lately spread of the disease has been attributed to the flea. Following each thaw a new crop of cases has been noted. The symptoms are those of exaggerated nerve sensibility in the early stages. The distinctive features are sudden onset, mental involvement, pain, and rigidity of the muscles of the back of the neck, vomiting, and headache. The invasion may be mild. Osler describes three forms, malignant, ordinary, and anomalous. Difference in virulence causes faulty notions as to the effects of treatment. It is impossible to predict subsequent progress from the initial symptoms. Lumbar puncture, apart from its diagnostic value, relieves intracranial pressure to a certain extent. Injection of antiseptics has not yielded brilliant results. Experiments at the Roosevelt Hospital with diphtheria antitoxins have not yielded the brilliant results reported elsewhere. [H.M.]

2.—Infantile Tuberculosis.—R. G. Freeman states that tuberculous bronchial lymph-nodes are the most common tuberculous lesion found at autopsy. The lesions following injections of bacilli into the stomach of guinea-pigs were in the cecum, mesenteric lymph-nodes, liver, spleen, bronchial lymph-nodes, and lungs, just such a distribution that is often seen at autopsies, but never attributed to intestinal infection. Intestinal origin may be more common in England and Germany than here, but probably a more careful search is made for the lesions, and they may estimate evidence differently from ourselves. Lesions of the intestines are often very small, and are apt to be overlooked, as are also infections of the thoracic duct

and veins. Swallowed dust as well as food may cause intestinal tuberculosis. The bacilli survive the action of the gastric juice. Tuberculosis is a sufficiently acute general disease in infancy to cause death often before marked emaciation takes place. In 158 cases the lesions were in the bronchial lymph-nodes in 76%, the lungs in 71%, the mesenteric nodes or intestines in 30%, the meninges in 21%. It is usually a most obscure disease for diagnosis, except when the meninges are affected. Tuberculosis of early life is most common during the first year, when the diet is exclusively milk. Owing to the structure of the intestinal wall, bacteria can probably pass through, although it is uninjured. Tuberculosis of the cervical lymph-nodes and the joints is rarely seen under the third year. [H.M.]

4.—Vincent's Angina.—W. N. Berkeley thinks the failure of many laryngologists and pediatricists to recognize this is due to their attention not being specially called to its clinical features. It begins as a grayish necrosis, resembling the diphtheric membrane. When this sloughs it reveals an ulcer often a half to three-quarters of an inch in depth. Sometimes a tonsil is leveled off as if by operation. Bacteria of the same appearance are seen in pyorrhea alveolaris. The majority of cases occur in children. The symptoms are those of subacute sore throat. There is a possibility of contagion. The ulcer heals in from one to three weeks. The patient should be put to bed and given a gargle containing sodium bicarbonate and boric acid. Both a fresh smear and a culture should be examined. The germs are two in number and the characteristic clinical picture appears only when both are present. There may be a "symbiosis," or the two may be morphologic variants of a single germ. The writer describes their appearance and cultural peculiarities. [H.M.]

5.—Widal Reaction.—E. Andrade has found living and dead cultures about equally sensitive to agglutinins, though the dead culture may require more time. The dried blood method is equally effective with both. The reaction is more characteristic with dead cultures and with them there is no pseudoreaction. Dead cultures do not lose their sensibility for a long time. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Pancreatic Lithiasis.—The surgical invasion and conquest of the "abdominal salivary gland" is one of the most recent triumphs which has rewarded the skill and enterprise of modern surgeons. This organ was packed into the most out-of-the-way abdominal space available, while mechanically convenient to the upper part of the digestive tube, where its secretion was required. Accordingly, it was the organ forming the last stronghold that remained to be captured by the surgeon. And being the latest conquest, the territory must, as a natural sequence, be explored and surveyed anew. Accordingly, Dr. Pende's¹ experimental researches into the pathogeny of pancreatic lithiasis are of special importance at this date. The subject, which, till very recently, had never received full attention, naturally remained a very obscure one. The references of some pathologists display the belief that any obstruction to the escape of the secretion through the canal of Wirsung would prove an efficient cause; while others attributed the phenomena of all such cases to an ascending infective process, leading to inflammatory changes in the pancreatic canals. Occlusion of Wirsung's canal by (antiseptic or aseptic) ligation appeared to have previously failed to produce pancreatic lithiasis. Pende has, however, found that calculi did actually form in the pancreatic canals of a considerable proportion of the rabbits on which he had performed ligation of Wirsung's duct. They were always small, and none were discoverable till a minimum interval of 28 days had elapsed. They consisted of a deposit of carbonates in an organic network. There was no appreciable deposit of phosphates.

Bacteriologic investigation gave negative results. The liquid secretion, which had been retained in the duct and its tributaries by the occluding ligature, also failed to yield any culture. Accordingly this observer defends the thesis that simple obstruction of the pancreatic duct—simple arrest of the outflow of the pancreatic secretion—is sufficient to produce lithiasis. Desquamation of the epithelium of the ducts is the primary effect; the cellular elements then lend themselves to the formation of a fibrillar network which forms a nucleus for the precipitation of calcium carbonate. This salt, which is absent from the normal secretion, appears as a result of the chronic irritation due to the stasis—which also leads to a reaction in the pericanalicular and interacinous connective tissue.

REVIEW OF LITERATURE

Examination of Metabolism in Carcinoma Patients.

—To determine whether Robin's symptom of demineralization (impoverishment of the organism in mineral salts, which are excreted in excess in the urine) is characteristic for tuberculosis, as he claims, C. Lewin¹ examined 11 patients suffering from different varieties of carcinoma. Their food was carefully prescribed, its nitrogen and ash contents being known, and their urine examined for its solids, aromatic substances, and fatty acids. He found that the cachexia of cancer, just as the cachexia of tuberculosis, increases the excretion of mineral salts in the urine as compared with the amount of food taken. He considers the term "demineralization" a well-chosen one, and believes it to be a process belonging to the general condition of cachexia. He does not consider it characteristic of one disease more than another, but believes it to occur in all cachexias. In carcinomatous cachexia he noted a marked increase in aromatic substances in the urine, as compared with carcinoma, without destruction of body albumins. This increase is due partly to increased intestinal putrefaction, breaking down of the carcinoma masses, and the destruction of body albumins due to the toxins of the disease; bacterial influences are not in any way influential in producing it. [E.L.]

Parotitis during Starvation Cure.—Reichmann² states that the lack of mastication interferes with the natural cleansing of the buccal cavity, as well as with the flow of saliva. These factors permit bacteria to travel along Steno's duct. The complication, which may be fatal, should be avoided by strict attention to the hygiene of the mouth, scrubbing the cheeks, especially. [r.s.g.]

Functional Test for a Diseased Heart Muscle.—The earlier an insufficiency of the cardiac muscle is recognized, the better the prognosis of the case. According to M. Herz,³ insufficiency can be determined long before there are valvular changes, and the method described by him for this purpose is very easily carried out. He counts the patient's pulse and then holding him by elbow and wrist of flexed forearm, the patient is told to extend this as slowly as he possibly can, his attention being fixed on the movement; the right forearm is usually chosen as having a finer innervation. The patient must not contract his muscle, nor open the arm too quickly; nor must the physician aid the movement in the slightest. Flexion and extension are performed several times, and the pulse again counted. In the case of a normal heart the pulse-rate will be the same or slightly increased; in the case of an insufficiently strong muscle, the pulse-rate will be lowered, the pulse fuller and slower. In abnormally rapid hearts he has known the pulse to slow as much as 40 beats. The author considers this a certain means of determining at a very early date an insufficiency of the cardiac muscle. In cases of atheroma, diabetes, nicotin poisoning, etc., he has made a diagnosis of muscular insufficiency, no other symptom pointing to its existence; later developments justified the diagnosis. In fatty heart the result was always inconstant; in the hypertrophied heart of chronic nephritis the result was always negative, and he believes such a muscle to be healthy, even though enlarged. [E.L.]

¹ Deutsche medizinische Wochenschrift, 1905, xxxi, 218.

² Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 2.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, 215, No. 6.

¹ Il Politecnico, 1905, p. 122.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Operative Treatment of Fracture of the Patella.—H. M. Rigby¹ is an earnest advocate of the open method of operation, with wiring of the fragments, in every case of fracture of the patella, unless a definite contraindication exists. He has thus treated 21 patients during the past four years. The advantages of this method are saving of time to the patient and better final results. By tedious rest and splinting a good fibrous union may be obtained without operation, and a useful joint be produced; but this is a position of false security. In time the fragments tend to separate, leading to instability and finally unfitness for severe muscular effort. The operative method saves about six months of time in the average case, and ensures sound bony union with perfect functional result. Rigby prefers the semilunar incision, and is sure of the advisability of passing two wires in every case if possible. This aids in early manipulation of the joint which otherwise puts too much strain upon one wire and one part of the bone. He has never had to remove the wires. Particular emphasis is given to early massage and passive movement of the joint; in most of his cases this was begun after the twelfth day. At the end of the fourteenth day the patient is allowed to get up. In 17 patients the average stay in the hospital was 23 days. In only one of the 21 patients did infection of the joint occur; this was the only one in which rubber gloves were worn. [A.G.E.]

Experiments to Increase the Resistance of the Peritoneum against Infection by Gastric and Intestinal Perforation.—J. v. Mikulicz² has been working with the problem how to diminish the occurrence of and mortality from peritonitis in grave operations for gastric and intestinal disturbance. Two methods offer themselves: 1. The greater diminution in number and virulence of the bacteria through disinfection throughout the gastrointestinal tract, than has been the case with the ordinary methods of fasting and laxation. In acute cases nothing can be done, but in a number of chronic cases, while the results will not be brilliant, much can be achieved by menthol or iodoanisol, both of which Mikulicz uses extensively. 2. The increase of resistance of the peritoneum against intestinal microorganisms. This can be done by specific immunization, but as the organisms discovered to have been the cause of peritonitis are very numerous, very little can be promised through this. He has, therefore, had a series of experiments performed by his assistant, Miyake, to see how far an artificial leukocytosis would do this. Guinea-pigs were injected intraperitoneally with normal salt solution, neutral bouillon, 2% aleuronat in normal salt solution, and nucleic acid; the latter was also injected subcutaneously. He injected 1 cc. of the solution to every 250 gm. to 300 gm. of the rabbits' body-weight. Bouillon produced but a slight increase in leukocytes, normal salt solution increased them to four to five times the normal number within 18 hours, and still more so if salt solution was permitted to remain in the peritoneal cavity; aleuronat increased them seven to eight times in 30 hours, and nucleic acid did the same within eight hours; this leukocytosis was noted not only in the peritoneal exudate, but also in the blood. The immediate effect of the injection was a hypo-leukocytosis, which gave way to the hyperleukocytosis within probably two hours. In cases where the peritoneum was infected with *Bacterium coli* seven hours after these substances were injected, it was noted that the normal salt solution increased the resistance against the infection to double the normal amount; aleuronat, to eight times the normal amount; nucleic acid, 16 to 20 times. Repeated intraperitoneal injections of the latter increased the resistance to 40 times the normal, subcutaneous injections 32 times. These substances did not possess bactericidal properties. In other experiments the stomach or intestines of these animals were opened and some of the contents squeezed into the peritoneal cavity. Of the 5 control animals, 4 died; of the 10 treated animals, none

died. In 3 cases, one injection of nucleic acid was made; in 2, dead colon cultures were injected; in 3, repeated intraperitoneal injections of nucleic acid were made, and in 2, neutral nucleic acid was injected subcutaneously. In experiments where the injections were made after the infection, 2 animals out of 3 recovered; treatment six hours after infection, caused an animal to recover from six times the fatal dose; one and a half hours after, eight times the fatal dose was recovered from; simultaneous injection of nucleic acid and 12 times the fatal dose, killed the animal. The author has made use of nucleic acid in the cases of 34 patients about to be operated on; he employed 2% solutions of nucleic acid hypodermically, injecting 1 gm. for every 150 pounds body-weight of the patient. In all cases a leukocytosis was noted, it varying from 17% to 45% above the normal. No unpleasant symptoms were noted beyond local induration and some pain. The 34 operations included 7 gastric resections with 1 death from pneumonia, 13 gastroenterostomies (5 carcinoma) with 1 death from an independent complication, and 14 other laparotomies without a fatality. He believes that his good results are in part ascribable to the nucleic acid. He also employs abdominal lavage with normal salt solution, leaving a considerable quantity of the fluid in the peritoneal cavity, as it also serves to increase the number of leukocytes. [E.L.]

Infiltration Anesthesia in General Surgery.—R. M. Parker,¹ from experiments with solutions of salt, eucaïn, and cocaine, and distilled water, is satisfied that an analgesic drug is a necessary ingredient of a satisfactory infiltration fluid. He employs:

Cocain hydrochlorate, or eucaïn	0.1
Sodium chlorid	0.6
Suprarenal extract (1 to 1,000)	5 to 10.
Distilled water to make	100.

He is cautious about large doses of suprarenal extract, since using it upon himself and experiencing nausea, palpitation of heart, and abdominal pain. The only absolute contraindications to the use of infiltration anesthesia are (1): Insurmountable fear by the patient; (2) the requirement of muscular relaxation; (3) plastic operations in which infiltration would destroy the relations. [A.G.E.]

Experimental Investigations Concerning the Physiology and Pathology of the Peritoneum.—The experiments of P. Clairmont and H. Haberer² concerned those factors which serve to protect the peritoneal cavity, namely, (1) peritoneal resorption; (2) phagocytosis; and (3) bactericidal action of the peritoneal fluid. Their experiments concerning peritoneal resorption were made by observing the appearance of the iodine reaction in the urine after the injection of potassium iodide into the abdominal cavity of animals. They found that a simple laparotomy affected the resorptive power unfavorably, but not to as great extent as did eventration. The local use of warm normal saline solution modified to some extent the bad effects of this latter operation. Some hours after either operation the resorptive power of the peritoneum was found to have improved, but had not returned to normal. An increase of peristaltic movements procured by the use of physostigmin caused an increase in the rate of absorption, while a diminution in peristalsis procured by morphin caused diminished resorption. In the first stages of peritonitis an acceleration of resorption occurs, which again becomes much slower as the peritonitis advances, showing that the resorptive powers have little to do with the origin of this inflammation. Regarding the question of phagocytosis, the authors found that every eventration, whether dry or moist, caused an abundant migration of leukocytes; these develop at first an energetic phagocytosis, which, however, rapidly falls considerably below the normal point. The transudation of bactericidal substances from the blood into the peritoneal cavity is not influenced by abdominal operations of any sort. In conclusion, the authors maintain that peritonitis is due to the action of bacterial toxins on the endothelial cells of the peritoneum. Their animal experiments show that flushing the abdominal cavity with normal saline solution is a valuable prophylactic and therapeutic measure. [B.K.]

Clinical Experiences with Sauerbruch's Cabinet.—D.

¹ The Practitioner, May, 1905.

² Archiv für klinische Chirurgie, 1904, lxxiii, 847.

¹ Chicago Medical Recorder, April 15, 1905.

² Archiv für klinische Chirurgie, Bd. lxxvi, p. 1.

B. Hahn¹ briefly details results of employing this cabinet in the clinic of Mikulicz. It is of service in cases of tumor of the thoracic wall and in gangrene of the lung. In the latter lesion the principal aid is the possibility of searching for the diseased focus during operation. Operations upon the esophagus, to aid in which the cabinet was primarily designed, have not been entirely satisfactory. Hahn says this is not due to inefficiency of the cabinet, but rather to the inherent difficulties of the operation, based upon the location and anatomic relations of the organ and the danger of infecting the pleura. The cabinet is being improved and promises much in certain operations. Hahn considers it specially promising in the extraction of foreign bodies from the bronchi, treatment of diverticula of the esophagus, and the removal of foreign bodies impacted in the esophagus. All these promise better results than does carcinoma of the esophagus, for evident reasons. [A.G.E.]

The Appendicitis Question.—H. Haberer² reviews the cases of appendicitis operated on at all stages by v. Eiselsberg and his assistants, with special consideration of the permanent results. These results lead him to conclude that the early operation (during the first 48 hours) should be performed in every case where there is no special contraindication. The patients thus operated upon gave by far the best results, both immediate and remote. If the patient is first seen after 48 hours have elapsed, the expectant plan should be adopted, the surgeon being prepared to operate at a moment's notice. Operation during the attack is necessary in case of abscess formation. The operation at that time should consist of merely opening and draining the abscess; the appendix should be removed only if it is perfectly free and accessible, otherwise its removal should be left to a secondary operation. In diffuse peritonitis the abdomen should be opened by a large incision, the peritoneum freely washed out by normal salt solution, and the appendix removed if accessible. The after-treatment in such cases should consist of hypodermoclysis and stimulation of the heart. If operation is not done during the attack, it should be performed at the earliest possible opportunity in the interval, but should always be withheld until the complete subsidence of all local and general symptoms. [B.K.]

Increase of Agricultural Anthrax in Great Britain.—S. Delépine³ deals with anthrax as it affects the lower animals and people who work with them or their carcasses. During the past three years an unusual number of cases have been brought to his attention. He is convinced that the chief cause of spread is the concealment or overlooking of cases. The remedy appears to be a more complete system of notification. He would enforce the notification of all deaths of cattle from acute illness or other causes not easily explained. This would render desirable a small notification fee and compensation for losses incurred by precautionary measures. Industrial anthrax is practically under control, but agricultural is increasing and will increase still more unless it receives the attention it deserves. There is but little new to be said regarding anthrax in man, except recent practical application of serum therapy. [A.G.E.]

Surgery of Typhoid Perforation.—E. A. Babler⁴ presents a study of this condition, which is of more frequent occurrence than most of the profession have appreciated, and he emphasizes the following points: Careful and complete bedside notes should be kept in every typhoid case. Any sudden change should be immediately investigated. Sudden severe abdominal pain demands immediate consideration. Morphine should never be given a typhoid patient. Early diagnosis and early operation are prime requisites for obtaining ideal surgery. Drainage should be used in every case. [H.M.]

Appendicitis and Typhoid Fever.—C. G. Cumston⁵ considers at length the differential diagnosis between these two conditions, placing the elements under four heads: 1. Analysis of clinical symptoms. 2. Examination of the urine. 3. Examination of the blood. 4. Widal's test. No one clinical symptom is pathognomonic. Albuminuria is more frequent and pro-

nounced, in the beginning, in typhoid fever. Other than the clinical symptoms, Widal's test is the most reliable point. Regarding the association of the two diseases, Cumston summarizes his statements by saying that every time appendicitis exists, either alone or associated with typhoid, an operation is indicated. Interference is contraindicated only in cases of simple typhoid, or one associated with symptoms arising from the appendix, but which are so slight that they cannot be considered as due to a true case of appendicitis. [A.G.E.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Treatment of Yellow Fever.—F. de Ibarra¹ says the dominant disturbance of yellow fever is a sort of a paralysis of the vasomotor nervous centers, this becoming apparent in the anguishing discomfort in the region of the solar plexus, the flushed and anxious expression, the hyperemic and watery eyes, the dilated pupils, etc. The disease is self-limited, and cannot be arrested by any drug or combination of drugs, therefore, heroic or too active measures of treatment should be avoided. Two problems must be constantly kept in mind: The stomach must not be disturbed and the kidneys must be relieved of their congestion. A hot mustard foot bath at the beginning of the attack relieves cerebral congestion, and induces free perspiration. Cold baths of any kind, chilling of the skin surface should be avoided, because they increase congestion, especially during the febrile stage. Sinapisms relieve visceral congestion; they should be especially applied over the stomach and kidney region. Jaborandi promotes perspiration, eliminating the poison through the skin and relieving the kidneys. Lemonade with seltzer, vichy, soda water, or hot decoctions of orange leaves, do the same. Rectal injections of fresh water relieve the kidneys probably quicker than anything else. If the fever or nervousness need attention, the author advises the coaltar products, [a recommendation that should not be followed. s.s.c.] Of cardiac stimulants, there is none better for the disease than digitalis; no alcoholic stimulant should be given, with the probable exception of champagne. Castor-oil is the best drug for the bowels, and the best food is milk or other liquids until the stage of convalescence. He condemns quinine and opium in any form and at any stage of the disease. [E.L.]

Thymus and Thyroid in Dysmenorrhea.—Many of the nervous disturbances that occur in young girls before the full establishment of menstruation are, according to O. T. Osborne,² due to increased secretion of the thyroid before such an increase is functionally needed, and this exaggeration of the thyroid function is probably one cause of the profuse menstruation that often occurs in neurotic girls. Such cases may well be treated with thymus or mammary extract. Dysmenorrhea caused by spasmodic contractions of the uterus or cervix, and the variety that manifests itself by slow and painful establishment of each menstrual flow, can often be avoided by administering thyroid substance for several days before the expected flow. In other words, thyroid extract is one of the best emmenagoges that we possess. Whether it can produce abortion has not yet been decided.

The Failure of Tuberculin Injections as Observed in Insurance Sanatoriums.—Wegener³ has employed tuberculin injections for purposes of diarrhea, but not with the most satisfactory results; in the greater number of cases the results were positive, but they were negative in some that showed distinct lung changes, and even in some with bacilli and hemoptysis. He found that many of the patients not injected did better than the injected ones; hygienic and dietetic methods were employed in both sets of cases, but while the former had to overcome the results of the injections, the latter had no such disadvantage to overcome; therapeutically, therefore, also he is somewhat sceptical. Many of the patients refused to be injected because of this

¹ Therapeutic Gazette, 1905, xxix, No. 4, 232.

² Cohen's System, Vol. xi.

³ Zeitschrift für Tuberculose und Heilstättenwesen, 1904, vi, 421.

¹ Illinois Medical Journal, April, 1905.

² Archiv für klinische Chirurgie, Bd. lxxvi, p. 438.

³ Public Health, May, 1905.

⁴ Quarterly Bulletin Medical Department of Washington University, March, 1905.

⁵ American Journal of the Medical Sciences, May, 1905.

difference, the patients noticing it themselves. He has known some patients that through hygienic measures alone, and sometimes in conjunction with the dietetic methods have been relatively cured. From his experience he concludes that tuberculin is an agent of but little use in institutions maintained by insurance companies; he further says that for these sanatoriums to be of service the patients should be kept longer; the length of time given each patient is only sufficient to improve a very early case and not one anyways advanced. [E.L.]

Antitoxin Treatment of Diphtheria.—B. F. Royer¹ finds that since the introduction of antitoxin for treatment in diphtheria, 18,121 lives have been saved in the cities of Manhattan, Chicago, and Philadelphia. The deathrate in diphtheria hospitals has been greatly reduced, and in many instances cut in half by the introduction of serum therapy. He pleads for a dose of antitoxin in proportion to the amount of exudate and location of the exudate, urging especially large doses of antitoxin in nasal, nasopharyngeal and laryngeal diphtheria. In purely tonsillar diphtheria of one side he prescribes 2,500 units; of both sides, 5,000 units. In tonsillar exudate with involvement of pillars and uvula or pharynx 7,500, or 10,000; where the nose or other parts are involved, 7,500 or 10,000; in laryngeal diphtheria, 7,500 to 10,000. The dose is repeated in each case after from 12 to 24 hours, depending upon the severity of the disease and the signs of improvement as shown by the general condition and the disappearance of the exudate. He asks for the general use of antitoxin earlier in the disease, as the earlier the injection is made the better chance has the patient to recover. During 1904 all patients admitted to the Municipal Hospital for diphtheria and injected on the first day recovered; of the second day injections, 4.09% died; of the third, 13.72%; of the fourth, 17.54%; of the fifth, 14.75%; and of the sixth, 14.87%. Patients admitted on the seventh day are given only 2,500 units, and this is not repeated. He also demands more general use of antitoxin as a prophylactic measure in a dose proportionate in amount of exposure and time of exposure; he injects 500 units to those not directly exposed, 1,000 units to those directly exposed, and 1,500 units if any sign of illness were present. [E.L.]

Treatment of Diffuse Purulent Peritonitis.—This paper, by P. Clairmont and E. Ranzi,² is based upon the experiences of three and a half years in v. Eiselsberg's clinic. The observations cover 41 cases of purulent peritonitis, of which 25 were due to appendicitis, 6 to perforation of the stomach, 2 to duodenal perforation, 2 to cholelithiasis, 1 to disease of the uterine adnexa, 1 to reposition of an incarcerated hernia, and 4 to trauma. The mortality was 63.4%. Their experiences show that operative treatment is indicated in all cases, even if far advanced. The treatment consists in the earliest possible laparotomy, the chances of recovery being in direct proportion to the promptness of operation. The median incision is the best, except where the starting point of the peritonitis can be definitely established by clinical investigation. The removal of the exudate and source of infection is best accomplished by thorough flushing with saline solution, together with partial eventration of the intestinal coils. The abdominal wall should not be closed completely, a removable tamponade being recommended. In cases of gastric or duodenal perforation from ulcer or carcinoma, a jejunostomy is indicated. In the after-treatment great importance is attached to abundant subcutaneous saline infusions. [B.K.]

Treatment of Hemorrhagic Malarial Fever.—W. E. Sparkman³ divides the cases of malarial hemoglobinuria into four grades: 1. Mild cases in which no serious symptoms are present, there being a slight amount of fever, slight jaundice and discolored urine. 2. Cases in which there is an aggravation of these symptoms, with some vomiting, but nothing alarming. 3. Cases in which we start with grave conditions, such as high fever, much vomiting, headache, backache, deep jaundice and partial suppression of urine. 4. Cases with suppression, great vomiting, high fever, repeated chills, weak heart, and all of the signs of impending dissolution. Little is necessary in the first

two series except some mild refrigerant diuretic and avoidance of quinin and calomel. In the third and fourth series dram doses of sodium hyposulfite should be given every three hours until the jaundice begins to clear and urine becomes normal. For the vomiting he applies mustard plasters, and gives iced brandy; also two teaspoonfuls every three hours in ice water of a mixture consisting of

Bismuth subnitrate	8 gm. (2 dr.)
Cerium oxalate	8 gm. (2 dr.)
Carbolic acid	2 gm. (30 gr.)
Mucilage of acacia	102 gm. (3½ fl. oz.)

Potassium bromid, chloral hydrate, acetanilid and sweet spirits of niter are made up into a mixture against fever, insomnia and restlessness. The suppression of urine he combats with potassium acetate, infusion of digitalis, and "watermelon seed tea." Ferric chlorid, ammonium chlorid and tincture of digitalis are given for bloody urine. Quinin is only given after the urine has been clear for 30 hours, and then it is ordered in small doses; on the first sign of recurrence, it is stopped at once. Raw ripe tomatoes he praises for their action on the irritated stomach. [E.L.]

Treatment of Acute and Chronic Gastric Catarrh and a New Method of Giving Hydrochloric Acid.—F. Weillaner¹ treats acute gastritis with castor-oil, giving a dose of from ½ oz. to 1 oz. four to five hours after the onset of the condition; when first called, if he finds the patient in much pain, he orders a morphin injection. Until the castor-oil has produced the desired result, he does not permit the patient to take anything by mouth; the length of time necessary is usually 10 hours. It will rarely be vomited by the patient and is an important factor in checking vomiting. If stimulants are necessary, he orders oil of camphor. The diet is carefully regulated after the subsidence of the acute attack. He gives the same drug at intervals in chronic cases, because of the implication in such cases of parts or all of the intestinal tract. After the fourth day of an acute attack and in chronic cases he may order natural or artificial Carlsbad salts; 1 gm. (15 gr.) is a sufficiently large dose and it should not be given in too much water. Hydrochloric acid he considers indicated in cases of nausea and oppression some hours after meals, which often, if not checked, terminate in gastritis; also in gastritis after the third day of the acute exacerbation. The best method of administering it he has found in a combination of 7 drops of dilute HCl, 0.1 gm. (1½ gr.) of tannic acid, and a half glassful of water. This should be taken slowly through a glass tube; he emphasizes the necessity of the water being distilled. This combination prevents the burning of the acid and improves the appetite for the next meal. [E.L.]

Methylene Hippuric Acid.—By permitting 10 gm. (2½ dr.) of hippuric acid, 7.5 gr. (2 fl. dr.) of polymeric formaldehyd, and 50 gm. (1½ fl. oz.) of concentrated sulfuric acid to stand for several days, A. Nicolaier² succeeded in producing a solution, which, when poured on ice, precipitated a mixture of hippuric and methylene hippuric acids. The former was dissolved from the dry mass by rubbing it up with a cold concentrated solution of sodium acetate and filtering the solution after a half hour. Methylene hippuric acid consists of colorless prismatic crystals, odorless and tasteless, easily dissolved in acetic acid and alcohol. Taken internally, it was well tolerated, even in large doses, and in no case were bad effects noticed from it; even in the case of a dog with albumin and casts was no further kidney irritation produced. The urine contained free formaldehyd, thus showing that in the organism methylene hippuric acid is broken up into hippuric acid and formaldehyd; the same is true when the drug is ingested by man. He gave it to several patients in doses of as much as 9 gm. (2½ dr.) daily without the slightest disadvantage from the standpoint of the heart, kidneys, lungs or cerebrospinal axis; the stomach was never irritated by it, and even a patient with advanced Bright's disease was not injured. It acts as a urinary antiseptic, but is not as effective as urotropin and its derivatives; of four cases of bacterial inflammation of the urinary passage, only one was improved by it. [E.L.]

¹ Therapeutic Gazette, 1905, xxix, No. 4, 217.

² Archiv für klinische Chirurgie, Bd. lxxvi, p. 68.

³ Therapeutic Gazette, 1905, xxix, No. 4, 230.

¹ Münchener medizinische Wochenschrift, 1905, lli, No. 8, 357.

² Therapeutische Monatshefte, 1905, xix, Nos. 1 and 7.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 23.

JUNE 10, 1905.

\$5.00 YEARLY.

The brain behind the gun has at last been recognized as the main weapon in warfare. The Russian government possessed the finest battleships which have ever been built, and the world is now trying to explain the recent naval disaster. The general trend of expert opinion rather points to defective training of the sailors, as the main, if not the sole reason, for the notorious inefficiency of the Russian navy. It is noted that the Japanese train their men in the minutest details. Their soldiers, for instance, have railroad cars in the barrack yards, and are drilled daily in the rapid loading of a train, and at the naval barracks dummy furnaces are constructed, and the embryo fireman is practised day after day in the mere act of shoveling coal, so that he can place each piece exactly where it is needed. Each man becomes a perfect machine, but there is no such system among the Russians. It is only here and there that a writer has noted that all the training in the world cannot make the Russian peasant a sailor. He is a landsman, and his ancestors have always been such. The Japanese have survived as a people simply because they are at home on the water, for all others were killed off long ago in their interminable conflicts with nature and their neighbors. It is natural selection producing a race of sailors. They claim that through these past bloody conflicts the western half of the Pacific Ocean belongs to them by right of conquest, just as America belongs to the white race. Anthropology rightly studied would seem to indicate that their claim is good, and that their rights must be respected by the rest of the world. There were aquatic brains behind the Japanese guns and terrestrial ones behind the Russian.

The lesson of the recent naval battle which is of most interest to physicians and of vital importance to the nation, is not so much the ships and training of the personnel, but the enlistment of the proper races of men for the navy. If brains do not count, then it should be possible to man our navy with anything in the shape of a man and make him efficient by constant training. It is now becoming more and more evident that man follows the law operative among the lower races, that under aquatic conditions species become aquatic by survival of only that type. It is a new problem of psychology hitherto untouched, but the facts are now evident. The control of the oceans of the world is passing to the

types of man which have been aquatic for millenniums and now survive simply because they inherited this favorable psychic variation. The first settlers of America belonged to this aquatic race of Europe, and it was an easy matter to man our ships in early days, and their deeds are famous. The mass of our immigrants are now of different types which have never undergone this selection by nature. Some of them, no doubt, could be made into sailors by training, but the mass could not. Hence the future problem of the naval authorities in the enlistment of sailors is to select them from among the aquatic types of Baltic ancestry. As our salvation as a nation seems dependent upon a navy which requires many years to build, it is good policy to give heed to this new psychic lesson of the Japanese victories.

The continued reports of yellow fever at the Isthmus of Panama have produced a very disagreeable impression, and there appears to be a public resentment of some intangible wrong. The optimistic reports which were sent out by the late Governor of the zone had raised a hope, if not a belief, that sanitary matters were well in hand and that an excellent condition would soon be reached with no apparent difficulty, yet the present conditions are said to be so alarming that there is a returning stream of panic-stricken employees. It is now generally acknowledged that the problems of sanitation are proving more difficult than those of engineering, and that the adverse conditions to be overcome in a tropic jungle are vastly more complex than those of subtropic Havana—a tardy recognition of what the medical profession had repeatedly discussed. In past years the deathrate has been dreadful. The canal cannot be built until the sanitary problems are solved to an extent which permits the builders to do the work, and if this basic law had been recognized a year ago we would now be that much in advance of our present position.

Sanitary deception invariably results in disaster, as panic is sure to follow when the people realize that a danger is hidden. Concealed perils are invariably overestimated. It is bad policy to deceive the people, anyhow, and doubly bad in this case, as it is liable to hamper the obtainment of employees just at the time when

the best men are needed. There certainly is an indefinite public belief that in some way deception has been practised, unintentionally, no doubt, but nevertheless a deception which makes it difficult to estimate just what progress sanitation is really making. The medical profession should know the exact facts, so as to be in a position to give proper advice to those contemplating employment on the canal. Nothing can be more certain than the ultimate success of the sanitarians, if they are unhampered, but it will take time, of course. It is difficult to understand what benefit can be derived from giving out the impression that greater progress has been made than is possible under the circumstances. It would, indeed, be justifiable to exaggerate the dangers a trifle, to prevent any relaxation of the necessary precautions, for it is the commonest experience in epidemics to find new cases due to the carelessness of overconfidence. So let us have full and exact reports of the conditions on the Isthmus, to prevent a repetition of the recent unfortunate impression. Let the new management take the public into its confidence, so that there will be no more needless panics. Considering the large number of Americans now on the Isthmus, there is apparently very little sickness, and the few cases of yellow fever may have caused undue alarm in the lay press.

Typhoid; an Unnecessary Evil.—When the Autocrat at the breakfast table began his famous tirade against conservatism he did not expect, gentle soul, to proclaim himself a *bonnet-rouge*, but his crusty mood ran off and dragged him to that denunciation. In the course of his intemperate harangue the Professor said: "Hydrogen will leak out and air will leak in, through India rubber; and special knowledge will leak out and general knowledge will leak in, though a profession were covered with twenty thicknesses of sheep-skin diplomas. By Jove, Sir, till common sense is well mixed up with medicine, and common manhood with theology, and common honesty with law; *We, the people*, Sir, some of us with nut-crackers, and some of us with trip-hammers, and some of us with pile-drivers, and some of us coming with a whish! like air stones out of a lunar volcano, will crash down on the lumps of nonsense, till we have made powder of them like Aaron's calf." We have clamored much in recent years about the apathy of the public, especially on political morality and on public health. In the awakening of the lay mind on professional matters we shall have our reward, though not exactly according always to our desires and deserts. Mr. Samuel Hopkins Adams, whose article on tuberculosis we praised, afterward as heartily dispraising his article on surgery, is out in *McClure's* with a good popular article entitled "Typhoid Fever; an Unnecessary Evil." From the literature of the subject, Mr. Adams has learned that typhoid is a rural disease, and it is good to note that he ascribes this important information to an early date and to a lay observer, Colonel George Waring, rather than to the more recent medical authors who have tried to impress this view on the professional mind. The shocks and surprises of typhoid fever, though prepared in rustic surroundings, are executed on urban populations, and many American cities have furnished the materials for

this spirited sketch of the pampered minotaur. The author properly emphasizes the superior importance of endemic typhoid over the more dramatic epidemic, which, he says, is "important chiefly by its lesson in exacting exemplary damages, and valuable because it puts the fear of the Lord into the foolish, who have been disregarding His plainest precepts of clean living."

Nonobservance of Notification Laws.—The medical reader does not find in this article so much of novel interest as in the article on tuberculosis, but one finds in this, as in the former article, excessive emphasis on professional responsibility for the spread of communicable diseases. As in the paper on tuberculosis, so in this on typhoid, Mr. Adams points to the nonobservance of notification laws, and says that one of the propagators of typhoid fever is professional lawlessness. We protested none too strongly against a similar hard saying in the earlier article, suggesting that the author, in his sanitary visitations, had acquired more sympathetic knowledge of the difficulties that beset a health officer than of the subtler influences which determine the conduct of private physicians. In commenting on that editorial, a writer in the *New York Times* made a jibe or two at our use of the word "subtler" as if a sort of professional shame were half confessed. Our protest seemed to the *Times* critic a poor defense of "the exercise by physicians of a discretion that seemed somewhat excessive and dangerous even for men as good and wise as they are." So be it. The renewal of Mr. Adams' charge of professional lawlessness in respect to notification of typhoid fever enables us to consider the matter on broader grounds.

Professional Lawlessness.—Let us admit that toward all sorts of notification required by law, physicians are more or less indifferent and exercise a discretion that is somewhat excessive and dangerous, even for men as wise and good as the best of them are. The law requires of physicians three sorts of notification—one relating to deaths, another to births, and a third to certain infectious diseases. Deaths are certified by physicians wherever the law forbids interment of a dead body before the fact and circumstances of death have been recorded. Where bodies may be buried without a permit, there deaths are not registered, and where burial permits are not required, there the people, including often the sanitary authorities, reject the advice of the medical profession, which has for 60 odd years maintained that the fundamental requirement of a sanitary administration is a complete and accurate account of current mortality. This is no defense of physicians. It is a charge of ignorance, wilful ignorance, against all the people of all but 10 of the States comprising this Union. Physicians do not register births in the United States, though they know that a satisfactory statement of profit and loss in population cannot possibly be made without complete information as to the sources of damage and repair. Not one State, not one city, in this country can state a reliable birthrate for any year, though hundreds of physicians regularly register the births occurring in their practice. Here again physicians are not defended,

but the people of the United States, without distinction of locality, are charged with a remarkable lack of intelligence in conditioning more than a score of important privileges and immunities on the attained age of the citizen, without mentioning in any law the simple document upon which proof of age attained may rest.

The notification of infectious diseases suffers from the same causes; the public press is not always ready to give salutary warning, even in such matters as the quality of a water-supply. Unanimity in suppressing or denying facts is not rare. Witness the concord of flagrant mendacity in the San Francisco press two years ago when plague appeared. Health authorities do not approve of notification when it is their turn to furnish information. Witness the conduct of the State Board of Health of California, and afterward of the city Board of Health of San Francisco in the matter of plague, and recall other examples of official lawlessness in the history of New Orleans, Baltimore, Philadelphia and New York. Physicians will comply with the notification laws when the propriety and the necessity of notification are generally recognized. That is not the case at present. The necessity of notification implies some sort of ability and preparedness to make profitable use of information. In most places, physicians know that the authorities are not ready or able to make profitable use of such information. In a majority of American cities having notification ordinances, there are no isolation hospitals, no disinfecting stations, no adequate provision for house disinfection, though the health department may be fairly well manned with illiterate disinfectors and inspectors of nuisances. Not only are many local health officers unprepared to do really useful work, but some even of the more respectable are unable to prevent gross abuse of the information furnished by physicians. Records of death are sold to florists and tombstone makers; records of birth are sold to milkmen, infant food and nostrum venders; the registers of births and deaths are in some cities open without restriction to scandal mongers; records of tuberculosis are sold to quacks. Such abuses are not confined to health departments which are wholly sunk in political debauchery, but are discovered from time to time, or are even firmly rooted, in some well-officered departments. These disgraceful allegations are no defense of professional lawlessness; rather do they involve physicians with all other citizens in a sweeping denunciation of the criminal ignorance which creates a shadow, but provides no substance of sanitary government, which allows health departments to sink below the dull level of uselessness into the mire of vice. Wherever health departments have sufficient means and efficient men, such information as is really desired is forthcoming from physicians. There is little reason to doubt that the great body of medical men, certainly all the best of them, will furnish such information as the laws require whenever and wherever the people have agreed that such laws are meant to be operative and have developed in their Boards of Health a degree of stability with the means and skill to make the right and avoid the wrong use of notification.

The fatigue of school children is easily carried beyond safe limits and the nervous strain from this overexertion is now known to be productive of serious disorders of the nervous system, such as cerebral congestions, headache, vertigo, indigestion, abnormal action of the ocular muscles, disturbances of vision, and a host of secondary conditions due to nervous instability. Investigation of the causes has already brought about a revolutionary change from that rigid and exhausting school routine of the past generations, which no doubt often accomplished as much harm as good. Yet there is much more to be done, and it is of supreme importance that teachers should have practical means of determining when a child is subjected to an overstrain. There has been much investigation in this direction, and it is gratifying to physicians to find that so much attention is given to the subject in pedagogic literature. The whole matter is discussed in a wholesome and thoughtful manner in the March number of the *Journal of Pedagogy*, by Alida S. Williams, whose experience as principal in the New York schools and whose investigations entitle her views to great consideration.

The symptoms of fatigue of children are mostly motor, yet all the proposed tests attempt to measure changes of sensation and volition, and are therefore unreliable. The child's mental powers are feeble at the best, and its attention cannot be kept upon one subject for many minutes without overstrain. It not only demands constant change, but expends all its nervous energies through motor channels. Diseases which cause nervous symptoms in an adult may cause convulsions in an infant, and the same law applies in the school-room. Hence experienced teachers find that disturbances of motor control are the only signs upon which they can rely for information, while vasomotor disturbances, either pallor or flushings, are sure signs that the child is already fatigued. These symptoms, particularly the pallor are known to every observant mother. Under any stimulus the child will continue its play and resent suggestion of rest long after it is exhausted beyond safe limits. In the school-room the teacher must be watchful for the appearance of these symptoms, and depend upon her own common sense and experience. There is a timely protest against experimenting with exhausted children, who can be so easily damaged by such overexertion. Nothing is permissible except quiet observation, having in view the good of the child itself.

The causes of school fatigue are too numerous to mention at any length. It must be remembered that the natural environment for a child is freedom in the open air. Left to itself, it tends to be in constant motion with rapid changes of attention. Anything in the way of restraint is unnatural and therefore harmful and we rarely appreciate the effort the child must make to restrain its movements. The school-room is very modern, for until the last century or two no such restraints were ever inflicted upon the poor little sufferers and the discovery of the harm done is therefore still more recent. The youngest children are the most susceptible to damage and for this reason alone it would

seem desirable to keep them at home, but parents insist upon sending them. The child's brain is not well grown until it is over nine, and it seems absurd to try to train that which does not yet exist. The lower grades are then gradually becoming what they should be—mere custodial institutions for infants, who are so occupied intermittently that nervous strain is impossible, but who may learn good language by imitation. The room used in any grade should approximate an outdoor environment, for any defects, particularly those of ventilation, are known to be markedly depressing to vital functions. If there are any physical defects in any child, it is evident that the artificial environment forced upon it is sure to exaggerate them and cause a breakdown. Particularly do eye defects cause disastrous results from eyestrain. The teacher should know each child's conditions and the whole trend of modern thought is in the direction of a careful physical examination of each child, but it is found impractical on account of objections from the parents. The happiest suggestions are those in reference to reforming the present curriculum. It is generally crowded beyond the pupil's strength and the subjects are apt to be taken up long before the child is able to comprehend them. The consequent exhaustion is the price paid for an ignorant and unscientific ambition to force children beyond their abilities. The public does not appreciate the dangers of precocity.

Typographic blunders have amused readers and maddened writers since printing was invented, and doubtless will continue to do so until by some new wireless or photographic discovery it shall be done away with. A medical writer described recently a bacillus as $\frac{1}{2} \mu$ thick, and 4μ to 5μ long. The compositor, who had never before heard of microns, thought the sign was surely meant for inches, and so the dimensions were given as $\frac{1}{2}$ inch \times 4 inches to 5 inches, and the puzzled readers could think of nothing but a "frankfurter" bacillus. The readers of a certain epitome of medical progress were perplexed to find it one year entitled *Anus Medicus*. In a review of a poisoning case, a violent odor of the urine was said to be the result of the administration of turpentine. The author had written *violet*. In one of our great and enterprising journals the following paragraph was part of the report of a lecture delivered recently:

There should be fusion of medical schools. It is time that the homeopathic brethren were coming into the fold. A difference in drugs should no longer separate men with the same hope. The homeopaths are awake, but they must realize the anomaly of their position. The original quarrel is ours, but they should not allow themselves to be separated by a sobboleth that is inconsistent with their practice today, and the rent in the robe of a Scapalius is more grievous in this country than elsewhere in the world.

"Synope" (for *syncope*) as the title of a chapter in a recent textbook, and "sobboleth" and "Scapalius" are examples of what Skeat has called ghost words—and there are many such—words which owe their existence and inclusion in the dictionaries largely to pure errors of the typesetters. Of course, we blundering authors and editors have long been habited to lay our sins upon the printer, but as he cannot defend himself, it is a mean

advantage to take of him, and we wish that he would some day rise in his righteous wrath and print a list of our mistakes from which he has generously and silently saved us. All the facts suggest the value of a forgiving spirit on the part of disgusted contributors. Not even editors and proofreaders are absolutely impeccable!

Blunders in English not to be charged to the printer, should concern us all more than school-boy definitions and proofreaders' queries. The contributor who headed a paragraph, "A Case of Anthracosis," and reported a case of anthrax—well, his etymology was better than his pathology! There is scarcely a report or textbook published which does not use the words *case* and *patient* as synonymous—"the case recovered, died," etc., and the trials of the editor with manuscripts which repeat that "the case had no temperature," etc., are hard to bear. In a textbook on nervous diseases the word is further abused in the expression, "the case cured through stretching of the plantar," "the case was awakened by a rat running across the bed." The authors are not seldom most imperative that "my manuscript shall not be changed in any way"—at least for the better. In a much-used textbook a paragraph in large caps is entitled:

TO DISTINGUISH CHICKEN FROM SMALLPOX

And that sort of scientific, zoologic, or grammatic diagnosis reappears in most of our journals. Even this amusing nonsense is surpassed by another title in the same book, reading:

TO ELIMINATE THE KIDNEYS.

In a wellknown textbook, the author within half a page speaks of himself as "we," "I," "the author," "the writer." When he has to quote another, one can never know to whom the term, *the author*, or *the writer* (absurd in speaking of one's-self) refers. It is of course to be expected that this author should write:

- "The sexual bladder."
- "A sequelae."
- "Malformations is a congenital hernia, etc."
- "Cerebellar gait exists."
- "Diagnosis is between this disease and migraine."
- "Hysterical joint is a rigid, tender joint."
- "A hallucinatory expression of ants creeping over the body."
- "Astasia-abasia is inability to stand or sit well in hysteria."
- "Diagnosis should not be confounded with other diseases."
- "Nerve-energy is, to my mind, but the most refined form of electricity."
- "The physiological mechanism in somnambulism is out of kilter, so to speak."
- "Excision of the ganglion is to be had," "cure will be had, etc."
- "Early adult life is a predisposing condition of neuralgia."
- "Neuralgia is more frequent in the female sex."
- "Insomnia is sometimes called sleeplessness and is given to those conditions of insufficient or restless sleep or to the entire absence of sleep for a long time."
- "Headache is a condition of pain in the head."
- "There is no department of neurology more neglected than a proper understanding, or at least, if appreciated, the neglect of sufficient advice to convalescents from serious disorders of the nervous system, and in this place we shall devote especial consideration to functional diseases, those so considered in the absence of accurate scientific data to throw the light of a definite pathology upon many cases of them."

Concerning the reviewing of medical books much may be said, but recently a phase of the subject has been suggested which tends to make one grow cynical. A year or more ago, a most excellent book, so far as its science and its English are concerned, was sent out for review by its American publisher. It had the natural misfortune, or good fortune, to follow the modern or, as it is called, the "American" method of spelling words *e. g.*, as in *tumor*, *anesthesia*, *medieval*, etc. This style of orthography has been accepted by most educated and progressive authors, publishers, and editors. Little could be objected as to the value of the book as a new and important contribution upon the subject. But, of course, its orthography would displease a small class of English ultraconservatives, and the English reviewers, with a few of their American followers, made all the fun of the volume possible, and indulged in the irony at their command. Most of the quotations made in the editorial note in the present issue of *American Medicine* immediately preceding this one are taken from another volume recently sent out by another American author. In this second book there is hardly a grammatical sentence, and the science of the author is almost as atrocious as his English. But he and his publisher have been most careful to spell *tumour*, *anaesthesia*, *mediaeval*, and all such words in the most ancient style that could be authorized. As a reward the best English reviewers and their American followers received the pitiful thing with generous praise. They said not a word of the travesty of Medicine and of English illustrated in almost every sentence. Not a word of criticism can be uttered against obsolete and obsolescent spelling, if one at the same time is as careful to write sentences that are grammatical, clear, and expressive. But when all critical judgment of matter and manner is lost in worship of *foetus*, *favour*, *aether*, and the like, sane Americanism may well beg for new reviewers, and more magnanimous standards of criticism.

Russian Medical Students Applying for Permission to Resume Studies.—The conference of the Imperial Military Medical Academy is constantly receiving requests from medical men and pharmacists whose studies have been interrupted by the military requirements, for permission to continue their studies at the close of their term of service. They have been advised that the examinations they have passed will hold good for them, but that they will have to apply again upon their return and show, by documentary evidence, that their claims for continuance are just.

The Mohammedan Pilgrimage.—According to an official statement published by the Sanitary Board of Alexandria, there have been reported at Jeddah during the months of December, 1904, and January and February, 1905, a total number of 363 deaths, including dysentery, 96; smallpox, 7; measles, 15; enteric fever, 5; syphilis, 3; malarial disease, 53; puerperal fever, 7; and pulmonary tuberculosis, 9. These deaths occurred among the population of Jeddah and the pilgrims, whose number varied from between 20,000 to 40,000. From March 30 to April 18, 1905, 17 vessels, carrying a total number of 15,176 pilgrims of different nationalities, arrived at Tor, returning from Yambo, Hedjaz.

Award of Marshall Hall Prize.—The Marshall Hall prize, given every five years by the Royal Medical and Chirurgical Society of England, for original work on the nervous system, has been awarded to Dr. Head. Dr. Head said he had the sensory nerves in his own arm divided. The nerves then were reunited by stitching, and the process of recovery carefully watched day by day. As a result he discovered that there are two entirely distinct sets of nerves to the skin, carrying different kinds of sensations. The first set conveys sensations of pain, heat, and cold, and the second set carries sensations of touch, and enables one to localize sensations accurately. The healing power of the skin depends entirely upon the first set.

AMERICAN NEWS AND NOTES

GENERAL.

Hard on the Profession.—"Work for Feeble Minds: Medical Experts Gather to Exchange Ideas and Discoveries," is the heading given by a prominent Philadelphia newspaper to an account of a recent meeting of the Association of Medical Officers of American Institutes for Feeble-minded Persons.

More Fever on the Isthmus.—The administration office of the Isthmian Canal Commission has received a cablegram from Governor Magoon, at Panama, announcing a death from yellow fever and another case. The Executive Committee has adopted resolutions providing for the paving of the streets of Panama City as indispensable to sanitation of the Isthmus; also adopted resolutions fixing eight-hour day for laborers and mechanics, commencing June 1.

Sanitary Department of the Canal Commission.—Major J. R. Kean of the medical department, on duty in the surgeon-general's office in Washington, has advised the War Department that he will leave Colon for New York soon. Major Kean has been on the Isthmus in conference with the sanitary officers on duty there with a view to establishing a new system of acquiring medical and hospital supplies for use in the sanitary department of the Canal Commission.

Public Bequests.—By the will of the late Mrs. Edward C. Thayer of Keene, N. H., over \$500,000 is distributed to charitable objects, among these being the following: \$20,000 for the City Hospital, Worcester, Mass.; \$10,000 to the New England Hospital for Women and Children, Boston; \$10,000 to the trustees of the Nurses' Home, Worcester, Mass.; and \$5,000 each to the Five Points School of Industry, New York; Massachusetts Society for Prevention of Cruelty to Animals, and the Massachusetts Society for the Prevention of Cruelty to Children.

Personal.—John B. Murphy has resigned the chair of surgery in the Northwestern University with which he has been connected four years, and will take the same position at Rush Medical College. He will continue to be the chief surgeon of Mercy Hospital.—Samuel W. Bandler has just been appointed adjunct professor of gynecology in the Postgraduate Medical School, New York City.—At the University of Colorado, M. E. Miles, who has been demonstrator of anatomy, has been appointed professor of anatomy; E. H. Robertson, professor of bacteriology and pathology, has resigned to engage in other work.—Walter W. Kingsbury has been selected to succeed Clark K. Peterson as house physician of the Malden, Mass., Hospital, to begin his term July 1.—The Massachusetts State Board of Health has reelected Henry P. Walcott for chairman and Charles Harrington for secretary.

Smallpox.—The grand total of smallpox in the United States since January 1, according to reports received by the Public Health and Marine-Hospital Service, give 10,097 cases with 224 deaths, compared with 10,081 cases and 462 deaths for the same period in 1904. It is distributed over 34 States. An official statement has been made by the Board of Health of the State of Washington that in April the State was free from smallpox for the first time since 1899. Responding to a request of the Board of Health of the State of West Virginia for an expert to visit Morgan county, in that State, for the purpose of making the diagnosis of an epidemic prevailing there, Passed Assistant Surgeon T. B. McClintic, directed to investigate the disease in conjunction with the local authorities, found that smallpox, introduced, it is thought by Italian laborers, made its appearance in Morgan county 5 months ago, and that about 200 cases have occurred along the Great Cacapon river for 6 or 7 miles, and on the route of the Baltimore and Ohio railroad near the Potomac river, and the boundary between Maryland and West Virginia for about 20 miles. In Brazil, there have been serious epidemics at Rio de Janeiro and Pernambuco during the last few months, and Nictheroy and Pana have had numerous cases. In Italy there is an epidemic in Catania and 240 cases with 53 deaths have been reported in the past 6 months from Palermo. The prevalence in Sicily is of importance because it has occurred at the period of maximum emigration to the United States. During approximately 6 months covered by the latest reports, there were about 1,500 deaths from smallpox in Bombay, about 100 in Calcutta, and 610 in Shanghai. In other foreign countries the distribution of smallpox, though quite general, does not indicate very decidedly wide epidemic prevalence. The small number of cases of smallpox reported from Germany is noticeable, having relation to the general practice of vaccination. All the 16 cases reported in the German Empire during the week ending April 15, occurred among Russian, Italian, and Macedonian immigrants. Smallpox is not epidemic in any of the insular possessions of the United States.

EASTERN STATES.

Impure Food in Vermont.—The State Board of Health, under the provisions of the new pure food law, has had 118 examinations of food products made at the State laboratory of hygiene. The first report from that institution shows many

impure foods on the market. The samples of maple sugar and syrup examined numbered 38. Five were found to be adulterated. Two samples of oysters were found to contain boric acid. Out of 15 samples of lemon extracts only 3 were found to be pure; 3 were found to be made of coal tar dyed. Four samples of vanilla extracts were found to be below standard. One was found to contain coumarin. Of the baking powders examined 8 samples were found to vary from the legal standard. Some were below standard and others not correctly labeled. All of the 4 samples of coffee examined were found to be pure but 1 was of an inferior quality. A sample of ginger champagne was colored with caramel and was preserved with salicylic acid.

Quackery Hard Hit.—The postoffice department has issued a series of fraud orders against some 50 "female doctors," patent medicine dealers and other individuals of kindred character, who have been doing a prosperous business in Boston and its surroundings for years. Among those against which the fraud orders are issued are: "Dr." Joseph Grady, Dr. Collins' Medical Institute, the Dr. Herrick Medical Company, and "Dr." L. R. Williams. Both "Dr." Williams and the "Dr." Herrick Medical Company had branch offices in some of the other large cities in the East and West. Nearly all against which fraud orders have been issued sent attorneys to Washington, or went there personally, to plead their causes before the Postmaster General. The heaviest task of the inspector has been to establish his contentions against the pseudomedical concerns. As a single illustration of the character and magnitude of the business done by some of these concerns, the inspector tells of one instance of a man paying \$400 for a treatment, and before it was completed was informed that the medicine required would have to be bought in Egypt and would cost \$400, and in addition to these two items the patient was required to pay \$40 in customs duty on the medicine. It did not cure him, and he consulted a physician who informed him that the same medicine could be bought here for about \$1. Some of the offices which the Government is trying to close up have taken in about \$2,000 a week, and another concern paid about \$1,500 a week for newspaper advertisements.

NEW YORK AND VICINITY.

Vote against Sanatorium.—New York City will not be permitted to locate its new tuberculosis sanatorium in Bloomingburg. The matter was discussed at great length at a meeting of the town board recently and representatives of the New York City Department of Health were heard in favor of the plan. Considerable opposition developed, however, and it was announced at a special meeting of the board that the project had been defeated by a vote of 4 to 2.

Bellevue Plans Approved.—The board of estimate has approved of the plans for the new Bellevue Hospital of New York City, and voted an appropriation of \$850,000 for the construction of the first section of the hospital, to be known as pavilions "A" and "B." The original plans for the improved Bellevue would have involved an expenditure of \$10,000,000. Some of the ornamental features were lopped off, and the estimate reduced to \$8,500,000. Those amended plans satisfied the engineers of the finance department, and the appropriation for the first section of the buildings was made without any discussion. The first contracts will be awarded this week.

To Protect Milk Supply of New York.—Governor Higgins has signed Assemblyman Ambler's bill requiring owners or operators of milk stations to procure licenses from the State commissioner of agriculture. In applying for such license the operator must file an affidavit declaring that he will not take part in or permit the adulteration of milk at his station. An amendment to the bill declares that no one shall sell or offer for sale any imitation or semblance of cream which is not cream, and also an amendment which provides that no person purchasing milk or cream at dairies on the basis of the amount of fat contained in the milk shall credit any patron with a greater percentage of fat than is actually contained in the milk or cream so delivered. The health department of New York has been inspecting the creameries along the line of the Erie railroad and has found a great improvement in the condition of the dairies.

PHILADELPHIA, PENNSYLVANIA, ETC.

The New Jefferson Hospital.—It is announced that the new hospital building being erected at Tenth and Sansom streets, will be completed by March, 1906. The formal inspection of the building will take place June 1, 1906.

Innocent Insane Thrown in with Jail Maniacs.—Inspection by the State Board of Charities, of the County Lunatic Asylum at Schuylkill Haven, shows that with the present buildings it is impossible to classify the acute curable cases from the chronic maniac criminals from jail, and incurable epileptics.

Commencement at Jefferson Medical College.—President Potter conferred the degree of doctor of medicine upon the 179 members of the graduating class of whom 98 come from Pennsylvania. Thirty-three members of the class who took

the competitive examination for the position of resident physician at the Philadelphia Hospital made records placing themselves on the eligible list.

Tuberculosis Not Reported.—According to reports received by the Philadelphia Bureau of Health the number of deaths from tuberculosis in the city is often greater than the total number of known cases of the disease. The discrepancy is due to the fact that physicians are especially careless in reporting cases of tuberculosis. All charity workers should use their influence to have such remissness lessened.

One Keeper for 90 Insane.—While the coroner was conducting an inquest into the circumstances attending the death of Nathaniel Garcia, an insane inmate of Blockley, after a furious struggle with attendants, Herman Brandt testified that he was the only attendant in the ward when Garcia became intractable. There were 21 other insane in his charge alone. He was forced to call 6 fellow attendants. Resident Physician Albert Hawks testified that in one other ward there were 90 dangerous insane under the charge of one man.

SOUTHERN STATES.

New Hospital for New Orleans.—The subscription list for the building fund of the new Eye, Ear, Nose and Throat hospital has almost reached \$50,000. The committee is endeavoring to raise \$125,000.

General Hospital at Washington.—The land intended as the site of the general hospital in Washington has at last been obtained. It is situated on Sixteenth street, extended near Brightwood, and is what is known as the Cameron tract, owned by M. M. Parker, containing 43½ acres, and held at \$98,745. It is of the required altitude and was chosen by a board, of which Major Borden, of the medical department, was the senior member.

WESTERN STATES.

Physicians of Illinois.—The State Board of Health of Illinois has just published the final supplement to the official register of legally qualified physicians for the year 1903, which shows that there are 9,980 physicians in the State. The 1905 report on medical education and official register of physicians will be published about October 1.

Epidemic of Pneumonia in Nevada.—The State Board of Health of Nevada has been investigating the health conditions of Tonopah, and find that from January 1 to April 16, 56 deaths occurred, of which 47 were from pneumonia. Pneumonia has been so prevalent in Tonopah as to cause great alarm, and has assumed almost the characteristics of an epidemic.

Typhoid Fever Held Down to Minimum in Chicago.—Chicago has conquered in a 14 years' fight against typhoid fever, according to the weekly bulletin of the health department. In 1891 the city had the highest typhoid deathrate of any large city in the world—17.38 per 10,000 of population. In 1905 its typhoid rate is among the lowest—1.21 per 10,000 for the 147 elapsed days of the year, and a reduction of more than 93% from the rate of 1891.

FOREIGN NEWS AND NOTES

GENERAL.

Sanatorium for the Tuberculous at Dumfriesshire.—It is announced that about \$35,000 has been collected for the founding of a sanatorium for the tuberculous at Dumfriesshire, Scotland. There will be accommodations for 20 patients at the start, and the capacity will be increased as the need arises.

Dengue Fever in Australia.—A severe epidemic of dengue fever is prevalent in a number of cities of Queensland. In Brisbane, where the disease originated, a third of the population was affected and business was crippled. The hospitals are crowded to their utmost capacity and have to refuse all but the most severe cases. In the other towns the cases came from Brisbane and were promptly isolated, so that it is practically under control.

Plague in Egypt.—For the week ended April 6, 1905, 1 case of plague was reported at Alexandria, and 2 cases and 2 deaths in the Tuhk district, province of Kaliubieh. During the week ended April 13, 1905, there were reported in the Tuhk district, province of Kaliubieh, 2 cases and 2 deaths, making a total number since January 1, 1905, of 15 cases and 12 deaths. During the week ended April 20, 1905, 1 case and 1 death were reported at Syafa, Tuhk district, province of Kaliubieh, making a total number since January 1, 1905, of 16 cases and 13 deaths. By decision of the permanent committee of the sanitary board of Alexandria, dated April 5, 1905, plague quarantine regulations were put in force against arrivals from Newcastle, New South Wales. By a further decision dated April 19, 1905, plague quarantine regulations were put in force against arrivals from Jamnagar, India.

Measles in Glasgow.—The medical health officer of Glasgow has taken measures to prevent the spread of measles, acting in cooperation with the school board on the principle that the closing of the primary sections should anticipate rather than follow the extension of the disease. Measles was very prevalent last winter, and this plan was adopted with good results, although not extended over sufficient length of time to show the full value of the system.

Relapsing Fever.—The American consul at Moscow, Russia, reports that during the week ending April 22 there were in that city 2 deaths among 38 cases of relapsing fever, and similar reports from Odessa indicate for the fortnight ending May 6, 19 cases and 2 deaths there from the same malady, a disease of which cases have within the past few months occurred in China, also giving new interest to the so-called *Spirillum obermeieri*, an organism formerly regarded as a bacterium, but recently relinquished to the zoologists. In the Grand Canary, 13 cases were reported in the consular sanitary report for the week ending May 6. The disease is not uncommon in India and Syria, and in April there were cases in Mexico. It has not appeared in the United States since 1869, when there were epidemics in New York and Philadelphia. In America relapsing fever was first seen in 1844 at Philadelphia.

OBITUARIES.

Carl H. A. Kleinschmidt, aged 66, May 20, from general debility, at his home in Washington, D. C. He was a graduate of the University of Georgetown Medical Department, Washington, D. C., in 1862; member of the American Medical Association; its librarian from 1883 to 1890; member of the Medical Society of the District of Columbia; member of the Medical Association of the District of Columbia; first president of the Board of Medical Examiners; for fourteen years member of the board of police surgeons; professor of physiology of the University of Georgetown from 1876 to 1902; and a veteran of the Civil war.

Andrew W. McClure, aged 77, May 21, at his home in Mount Pleasant, Iowa. He was a graduate of the Medical College of Ohio, Cincinnati, in 1853; member of the American Medical Association; sometime president of the Iowa State Medical Society, and of the district and county medical societies. He served as surgeon of the Fourth Iowa Volunteer Cavalry during the Civil war, and has for many years served as member of the Board of Commissioners of Insanity of Henry county, and trustee of the Iowa Hospital for the Insane.

Everett L. Creesey, May 20, from an overdose of morphin, at his home in Beverly, Mass. He was a graduate of Harvard Medical School in 1900. He was an expert on hip and thigh diseases and had been working so hard of late that he could not sleep and took morphin to quiet his nerves.

Lawrence C. Swift, June 1, from cerebrospinal meningitis, at his home in Pittsfield, Mass. He was a graduate of the College of Physicians and Surgeons, New York, in 1878. He was secretary of the Berkshire Medical Society, and a member of the Berkshire Historical Society.

William M. Line, aged 81, May 9, from heart disease, at his home in Aberdeen, S. D. He was a graduate of Jefferson Medical College in 1851; member of the American Medical Association, and for many years a practitioner of Nebraska City, Neb.

H. W. Westlake, aged 48, of Los Angeles, Cal., May 12, after an operation for abscess of the lungs, at the Good Samaritan Hospital, Los Angeles. He was a graduate of the University of Victoria College, Cobourg, Ont., in 1887.

Henry Ward Chamberlain, aged 30, May 21, from sarcoma of the testis, at his home in Bangor, Wis. He was a graduate of the College of Medicine and Surgery of the University of Minnesota, Minneapolis, in 1901.

Maude Miller, aged 30, May 22, from pneumonia, at her home in Greenpoint, Brooklyn, N. Y. She was a graduate of the Woman's Medical College of the New York Infirmary, New York City, in 1899.

Leander L. Tidball, aged 58, May 19, from heart disease, at his home in Monticello, Ill. He was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1874.

Frank A. Xanten, aged 51, of St. Paul, Minn., May 17, from acute uremia, at the St. Joseph's Hospital in that city. He was a graduate of the State University of Iowa College, Iowa City, in 1876.

Jephtha B. Pettijohn, aged 57, May 17, committed suicide by cutting his throat, in his office in Noblesville, Ind. He was a graduate of the Medical College of Indiana, Indianapolis, in 1870.

Joseph A. Gilliss, of Hebron, Wicomico Co., Md., June 2, suddenly at York, Pa. He was a graduate of the Washington University School of Medicine, Baltimore, in 1870.

Alexander Hammond, aged 88, June 2, at his home in Milwaukee, Wis. For many years Dr. Hammond was a resident of Glencoe, Ill., of which he was the founder.

George W. Blend, aged 77, May 22, suddenly, at his home in Oneonta, N. Y. He was a graduate of the Eclectic Medical Society, N. Y., in 1874.

Ellis M. Kessinger, aged 47, May 21, at his home in Sandborn, Ind. He was a graduate of the Hospital College of Medicine, Louisville, in 1891.

FOREIGN.—**S. von Basch**, aged 68, May 1, at Vienna. He was professor of experimental pathology at Vienna and author of numerous works on the physiology and pathology of the circulation, on dysentery, innervation of the uterus, histology of the intestines, etc., and inventor of a sphygmomanometer. **Erasmus Wren**, aged 90, March 6, at his home in Wagga, New South Wales. He was graduated in 1837. He served as government medical officer in the Wagga district for many years. **James Brown Crabbe**, aged 55, March 4, at his home in Chatswood, Australia. **A. W. Nash**, aged 43, March 23, from blood poisoning contracted from a patient on whom he was operating, at his home in Newcastle, New South Wales. **John Francis Scott Fowler**, aged 40, March 2, from edema of the glottis, at his home in British Guiana. He was a graduate of the University of Aberdeen in 1835. Dr. Fowler was an indefatigable worker and never shirked his duty. **Lieutenant-Colonel Charles White**, at his home in Sundbury, England. He was a graduate of Guy's Hospital. After his graduation he entered the British army in which he served until June 1896, when he received the retired appointment. Twenty years of his life were spent in India, where he performed good work for the cholera sufferers, for which he received the thanks of the Indian government in 1892.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 3, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
Arkansas:	Fort Smith.....Mar. 11-Apr. 22...	8	
Florida:	Jacksonville.....May 20-27.....	1	
Illinois:	Chicago.....May 20-28.....	28	
	Galesburg.....May 20-27.....	2	
Louisiana:	New Orleans.....May 20-27.....	11	
		Two imported	
Massachusetts:	Lowell.....May 20-27.....	5	
	Quincy.....May 13-20.....	1	
Michigan:	Detroit.....May 21-27.....	2	
	Grand Rapids.....May 13-27.....	41	8
Missouri:	St. Joseph.....May 20-27.....	12	
	St. Louis.....May 20-27.....	3	
Montana:	Butte.....May 14-21.....	1	
Nebraska:	Omaha.....May 20-27.....	3	
	South Omaha.....May 12-19.....	3	
New Hampshire:	Manchester.....May 20-27.....	1	
	Nashua.....May 20-27.....	2	
Pennsylvania:	Lebanon.....May 20-27.....	1	
	York.....May 20-27.....	16	
Tennessee:	Memphis.....May 20-27.....	5	
West Virginia:	Morgan County.....Oct. 31-May 25.....	200	
Wisconsin:	La Crosse.....May 20-27.....	2	

SMALLPOX—INSULAR.		Cases	Deaths
Porto Rico:	San Juan.....April 1-30.....	Present	

SMALLPOX—FOREIGN.		Cases	Deaths
Africa:	Cape Town.....Apr. 8-15.....	4	
France:	Lyon.....May 6-13.....	1	
	Paris.....May 6-13.....	20	2
Great Britain:	Bradford.....May 6-20.....	9	
	London.....May 6-13.....	2	
	Newcastle-on-Tyne.....May 6-13.....	7	
	Nottingham.....Apr. 29-May 6.....	2	1
India:	South Shields.....Apr. 29-May 6.....	2	
	Bombay.....Apr. 25-May 2.....	63	
	Karachi.....Apr. 16-30.....	27	11
Italy:	Catania.....May 11-18.....	2	1
	Cosenza Province.....Apr. 30-May 4.....	7	
	Lecco Province.....Apr. 20-May 4.....	2	
	Milan Province.....Apr. 20-May 4.....	1	
	Messina Province.....Apr. 20-May 4.....	1	
	Mazzarino.....Apr. 20-May 4.....	1	
	Palermo.....Apr. 29-May 13.....	12	3
	Potenza.....Apr. 20-May 4.....	2	
	Siena.....Apr. 20-May 4.....	2	
	Syracuse.....Apr. 20-May 4.....	5	
	Villanova.....Apr. 20-May 4.....	2	
Russia:	Moscow.....Apr. 29-May 6.....	5	2
Spain:	Barcelona.....May 1-10.....	6	
	Cadiz.....Apr. 1-30.....	1	
Turkey:	Constantinople.....May 7-14.....	1	2
West Indies:	Bridgetown.....May 9.....	1	

YELLOW FEVER.		Cases	Deaths
British Honduras:	Belize.....May 25-June 1.....	4	4
Honduras:	Puerto Cortez.....May 25-29.....	5	3
Mexico:	Tierra Blanca.....May 14-20.....	1	
Panama:	Panama.....Jan. 1-May 13.....	63	22

PLAGUE.		Cases	Deaths
Africa:	East London.....Mar. 18-25.....	8	
Egypt:	Tukh District.....Apr. 15-29.....	2	1
Great Britain:	Leith.....May 6-13.....	3	1
India:	Bombay.....Apr. 25-May 2.....	822	
	Karachi.....Apr. 16-30.....	453	432
	Madras.....Apr. 22-24.....	1	
Japan:	Formosa.....Apr. 20-30.....	238	210

Changes in the Medical Corps of the U. S. Army for the week ended June 3, 1905:

DROUILLARD, First Lieutenant JAMES P., will report to Major Richard W. Johnson, surgeon, president of the examining board at Fort Crook for examination for promotion.

JONES, First Lieutenant PERCY L., assistant surgeon, will report June 12 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement.

CORBUSIER, HAROLD D., contract surgeon, is granted leave for one month, to take effect when he is relieved from duty at Fort Mansfield.

PERLEY, Lieutenant-Colonel HARRY O., deputy surgeon-general, MASON, Major CHARLES F., surgeon, and McCULLOCH, Major CHAMPE C., Jr., surgeon, are appointed a board of officers to meet at West Point, N. Y., about June 5, for the examination of officers of the medical department for promotion or advancement.

RHOADS, First Lieutenant THOMAS L., assistant surgeon, will report as soon as practicable after June 5 to Lieutenant-Colonel Harry O. Perley, deputy surgeon-general, president of the examining board at West Point, N. Y., for examination for advancement.

STONE, Captain JOHN H., assistant surgeon, is relieved from duty at Fort Leavenworth, and upon the expiration of his present leave will proceed to Key West Barracks for duty, relieving Captain Eugene H. Hartnett, assistant surgeon. Captain Hartnett will proceed to Fort Hancock for duty, relieving Major Champe C. McCulloch, Jr., surgeon. Major McCulloch will proceed to the Presidio of Monterey for duty.

KORPER, First Lieutenant CONRAD E., assistant surgeon, now at San Francisco, Cal., having relinquished the unexpired portion of his leave, will proceed to Washington barracks and report at the general hospital, at that post, for duty.

STILES, Captain HENRY R., assistant surgeon, will report June 15 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for physical examination for promotion.

RENO, First Lieutenant WILLIAM W., assistant surgeon, will proceed from Fort Myer to Washington Barracks for temporary duty.

MURTAGH, First Lieutenant JOHN A., assistant surgeon, is granted leave for ten days.

HOGUE, GUSTAVUS I., contract surgeon, is relieved from duty at Fort McDowell and will proceed to his home, North Lake, Wis., for annulment of contract.

Changes in the Medical Corps of the U. S. Navy for the week ended June 3, 1905:

OLSON, G. M., ELMORE, B., EYTINGE, E. O. G., assistant surgeons, appointed assistant surgeons with rank of lieutenant, junior grade, from May 24, 1905—May 27.

MEARS, J. B., acting assistant surgeon, ordered to additional duty at the Marine Recruiting Station, Buffalo, N. Y.—May 29.

GUTHRIE, J. A., surgeon, detached from the Dixie and ordered to the Naval Hospital, New York, N. Y., for treatment—June 1.

MURPHY, J. F., assistant surgeon, ordered to additional duty on the Dubuque—June 1.

Changes in the Public Health and Marine-Hospital Service for the week ended May 31, 1905:

VAUGHAN, G. T., assistant surgeon-general, granted leave of absence for one month and fifteen days from June 16—May 25, 1905.

CARMICHAEL, D. A., surgeon, bureau letter of May 24, 1905, granting leave of absence for fourteen days from May 12, 1905, amended so that said leave shall be for eleven days only—May 31, 1905.

CORPUT, G. M., passed assistant surgeon, granted leave of absence for seven days from May 28, 1905, under paragraph 191 of the regulations. Granted extension of leave of absence for twenty-three days from June 4—May 31, 1905.

HOLT, J. M., passed assistant surgeon, granted extension of leave of absence, on account of sickness, for one month from May 29—May 26, 1905.

WILSON, R. L., passed assistant surgeon, granted leave of absence for ten days—May 31, 1905.

BAILEY, C. W., acting assistant surgeon, granted leave of absence for twenty-six days from June 5—May 27, 1905.

EDWARDS, J. W., acting assistant surgeon, granted leave of absence for three days from May 20, 1905, under paragraph 210 of the regulations.

SCHUG, F. J., acting assistant surgeon, granted leave of absence for fifteen days from June 15—May 26, 1905.

STUART, A. F., acting assistant surgeon, granted leave of absence for thirty days from July 3—May 27, 1905.

GAHN, HENRY, pharmacist, relieved from duty at Purveying Depot, New York, and directed to proceed to Washington, D. C., for duty in the Purveying Depot in that city—May 27, 1905.

STEARNS, W. L., pharmacist, relieved from duty at Purveying Depot, New York, and directed to proceed to Santa Rosa Quarantine, Pensacola, Fla., and report to acting assistant surgeon in charge for duty and assignment to quarters, relieving Pharmacist Chas. Miller—May 26, 1905.

MILLER, CHAS., pharmacist, upon being relieved from duty at the Santa Rosa Quarantine Station, Pensacola, Fla., by Pharmacist W. L. Stearns, to proceed to San Francisco, Cal., and report to the medical officer in command for duty and assignment to quarters—May 26, 1905.

BIERMAN, C. H., pharmacist, granted leave of absence for thirteen days from June 7—May 25, 1905.

Appointment.

Montafix W. Houghton appointed acting assistant surgeon for duty at Providence, R. I.—May 29, 1905.

Resignation.

Acting Assistant Surgeon J. W. Hargis resigned to take effect May 31, 1905.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington, D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

[Continued from page 891.]

Stone in the Kidney and Certain Conditions Simulating It.—D. D. STEWART (Philadelphia) described several cases, some of renal calculus with unusual symptoms or quiescent as regards the kidney, others of a different condition but simulating calculus. In some of the former, stone had not been suspected until Stewart had seen the patient and with him the diagnosis was obscure until repeated examination of the urine revealed small quantities of blood and led to the diagnosis of kidney lesion. A point emphasized therefore is the value of careful examination of the urine, especially as regards the presence of blood. At least four of the cases of calculus might have been diagnosed intestinal involvement so clearly did the symptoms point to that source. In one patient severe gastralgia and enteralgia were the only symptoms, another had been treated for dyspepsia; two more were supposed cases of bowel trouble. One case diagnosed stone, was found to be stricture of the ureter. Points in the diagnosis of these cases were discussed. Stewart considers very few men competent to give an opinion as to stone in the kidney from roentgen-ray findings. There is also need for larger incisions than usually employed in operating for stone as most of the lumbar incisions are too small to allow thorough exploration of the kidney.

Discussion.—I. N. DANFORTH (Chicago) exhibited three specimens from a girl of 25. All were calculi, one from the bladder weighing 180 gm. (6 oz.), another from the left kidney, and a third from the right kidney. The two first were removed during life, the last postmortem. No acute pain was ever felt in either kidney. JAMES TYSON (Philadelphia) has seen cases simulating stone in the kidney, some of the patients operated on and no stone found. In the last two operations done for him in which no stone was found, a condition which might explain the symptoms was what might be called capsulitis. The capsule was thickened, closely adherent and depressed. Decapsulation resulted in recovery in both instances. The symptoms had been those of tenderness over the kidneys and remittent or intermittent catarrhal urine. He advises examination for this condition when operation is performed. T. FORCHHEIMER (Cincinnati) has seen three cases of the type described by Tyson. Urinary analysis gave no evidence of a calculus but the symptoms pointed to that condition. There was no inflammation of the perirenal fat, only of the capsule. All three patients recovered. FRANK BILLINGS (Chicago), in speaking of the significance of microscopic blood in the urine, said it was present in almost all cases of acute appendicitis; hence with a pain in the right side of the belly the blood might mean appendicitis or renal calculus. In the diagnosis of stone in the kidney, the roentgen ray is a disappointment nearly as frequently as it is an aid. This is especially true if the operator is not a physician.

A Study of Abdominal Tumors.—R. C. CABOT (Boston) presented a statistical study of 4,786 tumors collected from the records of the Massachusetts General Hospital. The five highest in point of frequency were tumors of the liver and uterus, hernia, and tumors of the ovary and kidney. Among the points of general interest was the slow growth of cancer of the intestine, and the condition found in tuberculous peritonitis. In only 2 of 33 cases of the latter condition was the omentum rolled up to produce a tumor; in the others the swelling was due to matted intestines. Another point was that the lower part of the abdomen was involved as frequently as was the upper. Fever was not an infrequent symptom of cancer of the liver.

Discussion.—M. H. FUSSELL (Philadelphia) emphasized the point regarding chronicity of carcinoma of the intestine; one case lasted for 12 or 14 months. W. S. THAYER (Baltimore) spoke of the frequency of fever in cancer of the liver. He mentioned two cases of rapidly growing sarcoma of the liver accompanied by fever; in one the diagnosis of typhoid fever had been made; the other resembled typhoid in all respects except the leukocyte count. Another case, occurring in a nurse, gave the symptoms of fever, chills, prostration, anemia, and slight jaundice. The liver was smooth, and the diagnosis of abscess of the organ was made. Autopsy showed an adenocarcinoma. F. P. KINNICUTT (New York) said his experience confirmed the infrequency of rolled-up omentum in tuberculous peritonitis. J. H. MUSSER (Philadelphia) said chronicity is a feature of cancer of the large bowel. In one of his patients a tumor above the sigmoid lasted for more than 18 months. Localization of the lesion is one reason for this comparative benignity.

A New Method of Treating Cardiospasm.—BERTRAM SIPPY (Chicago) demonstrated a method of overcoming cardiospasm which has given excellent results in a patient who for months had to be fed through a tube. The apparatus is a cloth-covered balloon containing a central canal through which is introduced an ordinary esophageal bougie. After the bag is in position it is dilated and the cloth holds it at the place desired.

THIRD SESSION.

Considerations on Proteid Diet, with Especial Reference to the Distribution of Amidnitrogen, Diaminonitrogen, and Monaminonitrogen.—L. F. BARKER and B. A. COHNE (Chicago) spoke of the wellknown variations in tolerance of the same individual for different kinds of proteid food and the consequent desirability of seeking a cause in the chemie constitution of the foods. The distribution of the various forms of nitrogen in articles of proteid diet has not hitherto been investigated; this the writers have done, applying the method of Hausmann as modified by Osborne and Harris and by Gumbel. The amidnitrogen, melanoidinnitrogen, diaminonitrogen, and monaminonitrogen have been determined in various cuts of beef, veal, and pork, in liver, thymus, in fish, and in chicken. Elaborate tables set forth the results of the studies and were explained at length. The proteid molecule is exceedingly complex, but the ultimate elements are surprisingly few. From all the work that has been done on the subject, Barker believes the possibility of making synthetically all the albumens is a reasonable supposition. This would give the key to the knowledge of proteid foods. Chemic methods of investigation are an aid, but Barker disclaims any idea that this is to solve all problems; many conditions and processes, however, may be explained in this manner. For instance, amyloid formation is probably due to the substitution of one form of nitrogen for another. Again in gout, monaminoacids appear in the urine, and it may be shown that this form of metabolism is as important in this disease as uric acid metabolism has been supposed to be. In phosphorous poisoning similar metabolic changes are at work, as indicated by experiments.

Discussion.—V. C. VAUGHAN (Ann Arbor) says he has long held that the cell, whether bacterial or of the animal body, is a definite chemic compound. If we regard the cell as a definite structure and impaired function as due to the introduction into the cell of an abnormal group of elements or to the rearrangement of the groups, then internal medicine will be put upon a scientific basis. Until this is accomplished we might use empirically some of the suggestions in Barker's paper in a therapeutic way. Vaughan has endeavored to do this in some cases of chronic parenchymatous nephritis and is sure the kind of proteids given causes considerable difference in results.

The Chlorid Exchanges in Three Cases of Chronic Nephritis with Reference to the Dechloridation Treatment.—A. O. J. KELLY and C. A. FIFE (Philadelphia) reported three cases treated by the dechloridation method, with very marked improvement in one, moderate improvement in a second, and absolutely no effect in a third. The first had anasarca, and under a salt-free diet his weight fell from 203 pounds to 139 pounds; later this went to 160 pounds, but without the appearance of edema. The third patient was in a desperate condition, and Edebohl's operation was performed but gave no relief. Kelly considers the sodium chlorid content of the urine as of some value in prognosis in cases of nephritis; an increase following a low percentage is a good sign, a decrease is bad. Concerning the mechanism of retained sodium chlorid in the body, Kelly believes that the salt is first deposited in the tissues, water is then retained with increase of weight, but at first without edema, and finally edema appears. In this connection the changes in circulation have not been sufficiently investigated. A salt-free diet may be of benefit in some cases of nephritis, and should be tried; it may be given continuously for some time, or at intervals during the course of otherwise intractable cases. A point that demands investigation is whether harm is done by the injection of saline solution in many cases in which it is now used almost as a routine measure, as in cases of toxemia, and even in nephritis.

[To be continued.]

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, Held at Washington, D. C., May 18 and 19, 1905.

[Specially reported for *American Medicine*.]

[Concluded from page 892.]

Clinical and Climatologic Section.

Clinical Nomenclature.—This subject was presented in the form of a report of a committee of six, of which VINCENT Y. BOWDITCH (Boston) is chairman. In general the outline suggested by the committee follows that of Turban in order that statistics here may be compared with those of Germany, England, and France, which now use that classification. Minor changes only have been made. The point in the report which brought out the most discussion is that relating to the term "cured" which is defined as the condition in which "all constitutional symptoms and expectoration with bacilli are absent for a period of two years under ordinary conditions of life." This time was by many speakers considered too short. Some objected to the word "cured" in this connection as tending to create in the minds of patients a false sense of security and rendering more

difficult the enforcement of proper methods of living after treatment. The report as presented was finally adopted, as was also a resolution asking that a copy be sent to each member of the association and each tuberculosis organization in the country, with the request that the outline be followed for a year and any criticism based on actual use be sent to the committee before the next annual meeting.

The Relation of Tuberculosis to Life Insurance and Insurance Companies.—C. L. GREENE (St. Paul) called attention to the great loss to insurance companies from tuberculosis and the need for enlisting them in the work projected by the association. He feels confident that insurance companies are ready to help if the matter is properly presented to them. The aid they might give in disseminating literature, with their enormous circularizing facilities, can hardly be estimated. They also should be solicited for aid in erecting sanatoriums in view of treating therein policy holders who contract the disease. Discussion of this subject led to the resolution adopted later in the general meeting.

Early Diagnosis.—Chairman ARNOLD C. KLEBS (Chicago) presented the report of a committee of five on this subject. The report is a most carefully prepared paper discussing in detail physical signs and methods of diagnosis. The use of newer methods, as tuberculin, iodine, and the röntgen ray, is discouraged, emphasis being placed on the value of older means carefully applied. Discussion brought out many opinions favorable to the use of tuberculin. The need of better instruction of medical students in the diagnosis of incipient cases was particularly emphasized.

Open-air Treatment of Surgical Tuberculosis.—W. S. HALSTED (Baltimore) gave notes on 13 cases which well illustrate the very favorable results to be obtained from proper outdoor life for such patients. Some of the results were remarkable when compared with the slow progress or lack of progress of the case while in doors. This salutary effect is also shown by the results of the seaside treatment of surgical tuberculosis at Sea Breeze, Coney Island, a circular statement of which was distributed at the meeting.

Role of Climate in the Management of Tuberculosis.—Chairman C. L. MINOR (Asheville) presented an introductory report of a committee of six members. This report precipitated a vigorous discussion before it was finally adopted.

Influence of the Advent of the Tuberculous upon Native Populations.—C. F. GARDNER (Colorado Springs) said theoretically the danger in this regard is very great. Practically the general statement to be derived from answers to letters sent to 50 resorts is that nonimported tuberculosis in such places has not increased as a result of the advent of tuberculous patients.

Symposium.

Sanatorium Treatment of Tuberculosis.—Several papers were read on each of the two subdivisions of this topic: (1) Cases demanding sanatorium treatment regardless of climate; and (2) cases for which sanatorium control may be regarded *sub judice*. Among these papers was one by J. P. C. FOSTER (New Haven) advocating the systematic detention in hospitals, by health officers, of indigent tuberculous patients, even though they are able to earn their living. Such people are a menace to others, and should be provided for by each city or town. The general result of sanatorium treatment, as voiced by all the speakers, is favorable; as yet there is nothing to equal the hygienic treatment of tuberculosis.

In addition to the symposium, there were read several papers on such topics as the after-treatment of tuberculosis, forms of buildings suitable for open-air treatment, and clinical studies of the disease.

An Educational Leaflet for Distribution among the People.—H. M. BIGGS (New York) presented the introductory report of a committee of four members. A leaflet somewhat similar to those used by health officers in Germany was recommended.

A testimonial dinner to Dr. E. L. Trudeau, on Friday evening, ended the meeting of the association. W. H. Welch was toastmaster, and a general tribute of honor was paid Trudeau for his far-seeing efforts in behalf of the tuberculous, efforts which at first derided, have nevertheless borne wonderful fruit.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, Held at Niagara Falls, May 25, 26, and 27, 1905.

[Specially reported for *American Medicine*.]

Officers.—The following officers were elected: President, R. B. MAURY, Memphis, Tenn.; first vice-president, Howard A. KELLY, Baltimore, Md.; second vice-president, Reuben PETERSON, Ann Arbor, Mich.; secretary, J. RIDDLE GOFFE, New York City; treasurer, J. MONTGOMERY BALDY, Philadelphia, Pa. Hot Springs, Va., was selected as the place for holding the next annual meeting.

Accidental Rupture of the Nonparturient Uterus, with Report of Cases.—GEORGE W. JARMAN (New York) had seen five cases of accidental rupture of the nonparturient uterus. These were detailed. To draw some deductions from his own cases and those reported by others, it seemed to the

author (1) that the operation of invading the cavity of the uterus should not be regarded lightly, and that the same care in the details of asepsis should be carried out as in a laparotomy; (2) that great care should be used in the introduction of steel dilators, and at no time forcing them into the cavity of the uterus; (3) that as one's experience in gynecology increased, the use of the uterine sound decreased, and the fingers more and more frequently took the place of the curet to remove secundines from the uterus; (4) that sterile water was the best fluid for irrigating the uterine cavity; (5) that if a rupture or perforation of the uterine wall occurred, it was better to perform a laparotomy and assure one'sself of the safety of the patient than to hope that no untoward results would ensue; (6) that if one could not be certain of the asepsis of the curetage, it was better to use a small drain through the vagina, and a slightly elevated posture of the patient, than to regret its non-use after the development of septic peritonitis; (7) that in properly conducted cases observed soon after the accident there should be almost no mortality.

Discussion.—A. PALMER DUDLEY (New York) had perforated the uterus four times. In one case, after introducing the instrument into the uterus, he withdrew what he supposed was a fungous growth or secundines, but which proved to be eight inches of the small intestine. The intestine was passed back through the opening made in the uterus and the patient let alone. She had since borne two children. HERMAN J. BOLDT (New York) said it was not always that a perforation of the uterus caused serious trouble. Great discrimination should be used in those cases in which there was danger. In all instances of criminal abortion, where there was any suspicion that infection had taken place, the abdomen should invariably be opened. He had perforated the uterus a number of times, and had seen it perforated by others. In other instances of perforation of the uterus the physician should do nothing except, perhaps, insert a small piece of gauze through the cervix, let the patient alone, and he believed the majority of patients would recover. EUGENE BOISE (Grand Rapids, Mich.) reported two cases of perforation of the uterus, one of which occurred in 1871. The physician in attendance passed a sound clear up to the handle. Nothing was done and the patient developed no symptoms. In the other case, the uterus was perforated with a curet; the cavity was thoroughly washed out, the patient put to bed, without anything further being done, and she made an uninterrupted recovery. FERNAND HENROTIN (Chicago) had seen five cases in which the uterus was perforated. One was accidental. One was the result of the work of an abortionist, and on opening the abdomen, the patient being septic nine days after the supposed operation, he found a bougie nine inches long in the abdominal cavity. The patient recovered after undergoing a severe trial. ANDREW F. CURRIER (New York) agreed with the previous speakers that in many of the cases in which perforation of the uterus had occurred, no damage would result if the intestine had not been withdrawn. If there was a mere puncture of the uterus, if the woman was not septic, it was safe to leave her alone and do just as little manipulation as possible. But supposing the uterus was in a soft, friable condition, one was presented with the alternative of either closing the perforation or of removing the uterus. In many cases the removal of the uterus was preferable, and more than likely would result in more benefit to the patient than the mere closure of the hole. The key to successful treatment was complete drainage, and if there was already a condition of sepsis in the uterus, and one simply closed the wound, he was by no means sure that the sepsis would not continue. Therefore, in cases of that kind it would be prudent to remove the uterus, leaving the wound in the vagina open, and establishing free drainage.

The Treatment of Retroversion of the Uterus by Shortening the Uterosacral Ligaments.—ARTHUR W. JOHNSTONE (Cincinnati) stated that the first step in either retroversion or prolapse was due to a stretching of the uterosacral ligaments. This was proved by clinical experiences and a study of the comparative anatomy of the subject. This stretching was most commonly due to a low grade of infection spreading to these ligaments from the uterus or other contiguous structures, that made them lose their tone. A few cases were due to direct violence. The operation consisted in shortening the uterosacral ligaments through the vaginal incision. The uterus was replaced and prolapse cured. Shock was nil, and convalescence smooth.

A New Plan of Procedure in Retrouterine Displacements.—E. E. MONTGOMERY (Philadelphia) stated that retrodisplacements of the uterus more frequently demanded restoration to normal position than any other form of displacement. Nature's forces should be imitated as far as possible in relieving malpositions. The Alexander operation and its modifications were in this line of procedure. Its usefulness was limited to the uncomplicated and mobile uteri in which operative interference was least demanded. The majority of the intraabdominal operations on the round ligament employed the best part of the ligament in their manipulation and left unaffected its weakest portion. The various operations of ventrofixation and ventrosuspension were departures from the normal, placed the uterus in abnormal relation and rendered painful and difficult the performance of its normal functions. The vaginal procedures required considerable dissection, were ineffective in restoring normal relations, and were to that

degree to be condemned. The operative procedure he would suggest was a combination of operative procedures employed by Gilliam, Ferguson, and Simpson. It permitted of treatment of diseased ovaries and tubes, left the uterus a freely movable organ, supported it by normal elastic and muscular structure capable of undergoing evolution and involution, and finally afforded no opportunity for the formation of unfortunate adhesions.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

PARATHYROID THERAPY AND THE RELATION OF THE PARATHYROID GLAND TO EXOPHTHALMIC GOITER.

BY

W. G. MACCALLUM, M.D.,
of Baltimore, Md.

In a paper published in *American Medicine*, May 20, 1905, Dr. J. J. Walsh, of New York, describes several cases of exophthalmic goiter, in which he carried out a treatment consisting in the administration of an extract of the parathyroid gland, which, as he says, was suggested by a paper read by me before the Association of American Physicians in Washington, in 1903.¹ His results were negative or even worse, and he decides such treatment is not valuable.

In the paper referred to, I discussed the idea of the relation of the parathyroid to exophthalmic goiter which had been suggested by Gley, and stated that in four patients in whom I had found the glands in the tissue removed at operation, there were atrophic or degenerative changes in two, while in the other two the organ was normal. Another case was mentioned in which the glands were not found at all at autopsy, but it is probable that in this case they were overlooked, since the tissue had been much handled and dissected before they were specially looked for. Parathyroid treatment in one patient had, as in Dr. Walsh's patients, no apparent effect.

Since that time I have been able to examine the glands in other patients—in all about nine—and find them practically normal in all, there being at most a slight diminution in size and increase in the fibrous tissue stroma in a few of the cases. The contrast between this condition and that of the highly altered adjacent thyroid gland is very striking.

It seems probable, therefore, that after all there is no sufficient basis for the idea that insufficiency of the parathyroids plays any very important part in the production of the symptoms of exophthalmic goiter, and it is not surprising that parathyroid therapy is ineffectual in this disease. Indeed there are extremely few conditions in which it is definitely established that we are dealing with the results of a parathyroid insufficiency. Of these the tetany which may follow the complete operative extirpation of the thyroid gland, together with the parathyroids is the most clearly defined, but this, of course, is now rarely seen, since surgeons recognize the perilous nature of such an operation.

Again, in the so-called gastric tetany which follows the absorption of toxic materials in some cases of great dilation of the stomach with stagnation of its contents, it is probable that even the normal parathyroid is inadequate to neutralize the poison, and there occurs tetany from parathyroid insufficiency, even though the parathyroid be actually hypertrophied in the attempt to maintain the normal neutralization. It is in such cases as these that the administration of an extract of the parathyroid might be beneficial, although as our experiments have shown,² it is difficult to replace the function of the parathyroid by the use of a parathyroid extract.

Certain other types of tetany suggest a similar relation to parathyroid, but anatomic proof is in our possession for the two types only which I have mentioned.

¹ Medical News, October 31, 1903.

² Medical News, April 8, 1905.

ORIGINAL ARTICLES

THE TREATMENT OF CHRONIC DIARRHEA.¹

BY

REYNOLD WEBB WILCOX, M.D., LL.D.,
of New York.Professor of Medicine at the New York Postgraduate Medical School
and Hospital; Physician to St. Mark's Hospital.

Synopsis.—Diarrhea being a symptom, the cause should be ascertained. This may be (1) mechanical; (2) nervous; or (3) hemic. Under each division there are subdivisions—each subdivision representing an etiologic factor which is the basis for treatment. The last should be considered under (1) dietetic; (2) hygienic; (3) medicinal. Certain remedies and methods should be avoided.

Diarrhea may be defined as an abnormal frequency of the evacuation of feces, of thin consistency, and generally accompanied by tenesmus. Naturally, it is a symptom of many and varied pathologic entities, but inasmuch as it may persist even for a considerable period of time without demonstrable postmortem lesions of the intestinal canal, the symptom diarrhea, should be considered from a therapeutic standpoint. In a general way, there are two factors to be considered: 1. Increased fluidity of the intestinal contents. 2. Augmented peristalsis.

The causes which interest us from the therapeutic side of the question may be classified as follows:

- | | | |
|----------------|---|---|
| (1) MECHANICAL | { | (a) Dyspeptic
(b) Medicinal
(c) Fecal
(d) Parasitic |
| (2) NERVOUS | { | (a) Emotional
(b) Neurotic
(c) Reflex |
| | | { (1) Hysteria
(2) Neurasthenia
(3) Migraine
(4) Climacteric |
| (3) HEMIC | { | (a) Uremic
(b) Purinemic
(c) Malarial
(d) Septicemic
(e) Pneumonic
(f) Grippal
(g) Choleraic
(h) Typhoidal |

The treatment of the mechanical forms of diarrhea is based primarily upon removing the cause of the irritation. This is accomplished by freeing the alimentary canal from all substances likely to cause increased peristalsis. This, in the dyspeptic form of mechanical irritation, is to be accomplished by a full dose of the time-honored castor-oil, which will remove both the undigested foods and the products of fermentation which cause the increased peristalsis. From the clinical side the failure of digestion may be either as to proteids or starches. If proteid indigestion, the process can be checked by resorcin, .39 gm. (6 gr.) four times daily, to which 1.25 cc. (20 m.) of tincture of nux vomica should be added, if there is diminished motor function of the stomach. After a few days the faulty digestion may be corrected by three drops of strong nitrohydrochloric acid or 10 drops of hydrochloric acid, with 3 mg. ($\frac{1}{20}$ gr.) of strychnin sulfate, given in the midst of each meal. Pepsin may be serviceable. If the fault lies in the digestion of starches, diarrhea is not, as a rule, present, for increased peristalsis of the small intestine alone does not cause diarrhea. Although in amylaceous indigestion, constipation is more common, yet there are exceptions. Here thorough mastication of starchy foods, limitation of fluids with their ingestion, and the administration of diastase in 1 gm. (15 gr.) doses, an hour after meals, will generally correct the difficulty. The use of sodium bicarbonate, so frequently prescribed by so-called stomach specialists, is improper in all gastric and most intestinal indigestions. Magnesia ponderosa, in .65 gm. (10 gr.) doses, after meals, meets all indications, does not form carbon dioxid gas, nor interfere with either the free hydrochloric acid or total

chlorid content of the gastric secretion. If bile pigment is present in the stools, the disturbance is presumably high up in the intestine, and a combination of salicylic acid, .39 gm. (6 gr.) with the same amount of acid sodium oleate, with .26 gm. (4 gr.) of phenolphthalein and .03 gm. ($\frac{1}{2}$ gr.) of menthol, given once daily for several days, will disinfect the bile, and remove this cause of intestinal indigestion.

The diarrheas due to drugs are best relieved by cessation of their administration. Inasmuch as continued vascularity of the intestinal, especially of the colonic, mucosa remains which, by giving increased fluidity to the intestinal contents, increases peristalsis, the administration of the dried suprarenal extract, in .32 gm. (5 gr.) doses, thrice daily, becomes necessary.

Fecal impactions are best relieved by softening them by quart injections of warmed olive oil, the patient being in the knee-chest position, or 4 gm. (1 dr.) doses of arsenic-free sodium phosphate, twice daily, by the mouth; .6 mg. ($\frac{1}{100}$ gr.) of phystogmin salicylate, thrice daily, will enable the intestinal muscularis to recover its tone.

In the parasitic form of diarrhea, the remedy proper for the parasites should be administered, further treatment being generally unnecessary. The amebic form readily yields to 8 gm. (2 dr.) of quinin bisulfate in a quart of water, as an injection. In all forms hitherto enumerated, a mixed diet is preferable, care being taken only to exclude those forms of food which leave an undigested residue or readily give rise to gases, as carbon dioxid, hydrogen sulfid, or those of the marsh gas series. The hygienic precautions are the avoidance of the causes, and the substitution of regular for irregular habits.

The nervous forms of diarrhea are common, and call for more than a passing comment. When caused by emotion, the mental instability needs most careful attention, for this symptom is not only inconvenient, but mortifying when control of the sphincter is temporarily lost. The concomitant symptoms are often marked and may overshadow the one under discussion. These are sensations of cardiac or respiratory oppression, rapidly alternating sensations of bodily heat and cold, cerebral phenomena, as oppression, fullness, or vertigo, and dizziness. Temporarily these symptoms are checked by 1 gm. (15 gr.) of ammonium bromid in two teaspoonfuls of aromatic spirit of ammonia, or, if very acute, by cognac. Permanent cure can come only from moral suasion accompanied by removal of all sources of mental irritation, and separation from habitual sources of sympathy.

The neurotic forms, which may be further subdivided into those due to hysteria, the symptom-complex of neurasthenia, migraine, and the climacteric, require not only more careful treatment, based on the underlying cause, but call for a further word of comment. The best results are obtained from the persistent use of the bromids, preferably strontium bromid (free from barium salts), 4 gm. to 6 gm. (60 gr. to 90 gr.) daily. After three days this may be diminished in quantity, and the solution of potassium arsenite commenced, three drops thrice daily, and increased one drop per day until slight untoward symptoms supervene.

The reflex diarrheas are chiefly those from cold and from diseases of the urogenital system. The latter require special investigation and treatment. The former are almost invariably relieved by the daily use of a morning cold bath. The tub bath should commence with a temperature of 88° F., and be taken cooler by a degree or so each morning, until 68° F., or even 58° F. is reached. A five-minute bath followed by brisk rubbing with a turkish towel results in a vigorous reaction, and the morning bath soon becomes not only a therapeutic necessity, but a luxury as well. In addition, an abdominal bandage made of flannel should be constantly worn.

¹ Read at the sixth annual meeting of the American Therapeutic Society, at Philadelphia, May 5, 1905.

Of the hemic causes of diarrhea, the uremic is, perhaps, the most striking. Probably in no form is the use of opium, or its alkaloids, more emphatically contraindicated. We should recognize this as a salutary effort of the organism to rid itself of the poisons whose effects we characterize as "uremia," without possessing very definite knowledge as to their nature, chemic constitution, or pathologic action. The proper method of dealing with this condition is the administration of a high intestinal irrigation of normal saline, in quantity, a gallon, of the temperature of 112° F. to 116° F., through a rectal tube inserted at least 12 inches, the reservoir elevated about three feet. If chronic nephritis is predominately parenchymatous, the sodium chlorid should be replaced by sodium bicarbonate. Intestinal irrigation will free the intestine from irritating contents, will enable the kidneys to perform their functions more properly, and will also stimulate the heart.

Purinemic diarrhea is best combated by 4 gm. (60 gr.) per day of saligenin tannate, regulation of the diet and inhibition of intestinal fermentation by intestinal antiseptics, until the proteid metabolism is established on a satisfactory basis.

Malarial diarrhea is best treated by arsenic, methylene blue, or a combination of extract of ergot, .13 gm. (2 gr.), herberin sulfate, .065 gm. (1 gr.) with piperin, .03 gm. ($\frac{1}{2}$ gr.) four times daily.

The septicemic, pneumonic and grippal diarrheas, are usually of minor importance, as compared with the primary disease. However, creasote carbonate, in 4 gm. (1 dr.) doses, twice daily, is effective.

In patients who have survived the acute onset of cholera, a diarrhea frequently persists. This is best treated by bismuth tribromophenolate 6 gm. to 8 gm. (90 gr. to 120 gr.) daily. In addition the suprarenal extract will assist in restoring vascular tones.

Enteric fever would not be mentioned here were it not for the fact that during the past few years the persistence of diarrhea has been remarked after apparent recovery, when the Currie-Jürgensen (known also as the Brand) bath has been employed. Here the official chlorin water, in 4 cc. (1 dr.) doses in 60 cc. (2 oz.) of water every two hours, will result in cure within a few days.

The facts in regard to intestinal antiseptics are seemingly difficult to impress upon the average practitioner. Even this has been said with reference to the bacillus of Eberth: "It must not be forgotten that often the bacilli are established in the spleen and mesenteric glands, in the lung or even the meninges, and we must, at least, consider these things in our scheme of treatment." The inference apparently is that bacilli are acted upon only when in the intestinal canal. While this may be true for insoluble antiseptics of the bismuth series, for example, it is not true for chlorin, which travels as far as the blood circulates. Cameron's case shows conclusively that it can penetrate into the ventricles of the brain. Even with insoluble antiseptics, limitation of the total of the infectious microorganisms certainly leaves much less work for the natural methods of defense. Lastly, a recent writer may be quoted with profit, as follows: "Bacteriologists often make the mistake of denying the efficiency of minimum doses of so-called intestinal antiseptics, simply because the bacteria are not killed by these agents. They forget that exceedingly small quantities of these substances might paralyze the bacteria and prevent them from forming toxins, even though powerless to kill these organisms." Intestinal antiseptics is certainly logical, eminently practical, and well-established as the proper method of procedure.

By far the best diet for chronic diarrhea is milk. Personally, this is reserved for between meals and at bed time. The first choice is a properly peptonized milk; such is fermented milk, which must be in excellent condition, and not be taken too cold. For the meals,

tea, poached eggs on toast, rare grilled or broiled steak, or lamb chops, fresh chopped beef, with 2 cc. (30 m.) of hydrochloric acid to each 60 gm. (2 oz.), meat soups, with thoroughly boiled rice, toast instead of bread, soft-boiled eggs, with half a bottle of Burgundy of good vintage, will take the patient well toward the time when a regular mixed diet may be resumed. To be avoided, are fruit, raw or sour, cooked and sweetened, succulent vegetables, foods leaving much residue and sugar.

Of improper methods of treatment may be cited opium. This is only admissible, when the alimentary canal has been thoroughly emptied, to check excessive peristalsis. It should be given hypodermatically, as morphin, in substantial doses, and not repeated. A prescription for opium, or any of its preparations or alkaloids, should never be entrusted to patients of the second class—the nervous. There is too great danger of habit formation.

Astringents, as experience has taught us, when introduced into the alimentary canal, do not astringe; they are even likely to irritate. The tannin preparations are sometimes useful in precisely the same way that they are useful as antidotes in alkaloidal poisoning, by temporarily inhibiting the action of bacteria and their toxins. Inasmuch as bismuth naphtholate, bismuth tribromophenolate and bismuth tetraiodophenolphthaleinate are more effective, there is little reason for the use of the tannic acid compounds.

In this brief paper I have endeavored to emphasize the importance of recognizing that the diarrhea is not always due to demonstrable changes in the alimentary tract. Next, that much as we dislike to present symptom treatment, yet pending further knowledge, we must divide our diarrheas into classes, based upon their causation, and then proceed to treat them intelligently in the light of the therapeutics of today.

OBSERVATIONS UPON AMEBAS INFECTING THE HUMAN INTESTINE, WITH A DESCRIPTION OF TWO SPECIES, *ENTAMOEBA COLI* AND *ENTAMOEBA DYSENTERIÆ*.*

BY

CHARLES F. CRAIG, M.D.,

of San Francisco, Cal.

First Lieutenant, Assistant Surgeon, United States Army; Pathologist and Bacteriologist to the United States Army General Hospital, San Francisco, Cal.

[Concluded from page 903.]

(1) *Degenerative Changes*.—In many specimens of feces which have been allowed to stand in a cool room for some hours, and which contain numerous amebas of this species, it will be observed that a peculiar granular and fatty degeneration has occurred within the protoplasm of the organism. Such organisms are motionless; the distinction is less marked between the ectoplasm and entoplasm; the nucleus cannot be demonstrated, nor can other contained bodies which were before visible. The entire protoplasm is replaced by a finely granular material, embedded in which are numerous refractive globules which stain black with osmic acid, thus proving their fatty nature. These amebas are not easily recognizable as such unless the observer has had considerable experience in the study of this organism. This form of degeneration is the most common.

It is not uncommon to see specimens of *Entamoeba dysenteriae* in which the protoplasm is replaced by a hyaline material which is perfectly homogeneous in appearance. Such forms are generally swollen and appear hydropic. This is, I believe, a true form of hyaline degeneration.

* Published with permission of the Surgeon-General of the United States Army. From the Annual Report of the Pathologic Laboratory of the United States Army General Hospital, San Francisco, 1905.

Vacuolization occurs under the same conditions as fatty degeneration, the protoplasm of the organism being replaced by a large number of vacuoles, the nucleus being destroyed or so injured that reproduction is impossible. In such organisms, when stained with the modified Wright method, the degenerative nature of the process is clearly demonstrated. The chromatin, which, in the healthy organism, divides into numerous small clumps, forming a portion of the nucleus of the young spore, does not so divide, but is apparently distributed between the vacuoles, staining very poorly. I have repeatedly seen amebas undergoing this form of degeneration entirely filled with large vacuoles, all structure having disappeared except a few strands of protoplasm lying between the vacuoles and a limiting membrane containing them. Such excessive vacuolization is undoubtedly degenerative in character.

Degeneration by fragmentation is of interest because it has undoubtedly often been mistaken as evidence of reproduction of the amebas by division. Fragmentation occurs under the same conditions as does fatty degeneration and vacuolization. It is most often observed in feces which have stood at a low temperature from two to six hours. The amebas can be seen to have undergone fragmentation, small portions being detached from the main body and lying around it. I have seen this process occur several times in the living organism, small portions of the ectoplasm containing more or less of the entoplasm becoming gradually detached from the body of the parasite, after which they were perfectly motionless. I have repeatedly seen such fragmenting amebas in stained specimens and very often the fragments are entirely separated from the parent body. This form of degeneration should be carefully distinguished from the reproductive phase of this parasite in which the young spores are liberated by a budding of the ectoplasm containing the spore.

As amebas undergoing the different forms of degeneration described are very difficult to recognize, it is obvious that from a diagnostic standpoint the fresher the fecal material to be examined, the better. Some observers believe that a diagnosis of amebic dysentery should be made only when motile amebas are present in the feces. This rule is valuable when the observer is untrained, but to any one who has seen these organisms frequently, and studied them thoroughly, a diagnosis of amebic dysentery can be arrived at almost as easily when degenerative forms are present as when the motile forms are.

(m) *Association with Other Parasites.*—I have already spoken of the very frequent association of *Entamoeba coli* with *Entamoeba dysenteriae* in the feces of patients suffering from amebic dysentery, and will not discuss this subject further.

The most common organism, except *Entamoeba coli*, which is found associated with *Entamoeba dysenteriae* is *Trichomonas intestinalis* which, in my experience, has been found in at least 40% of the cases showing these amebas; in fact, the occurrence of this parasite with *Entamoeba dysenteriae* is so common that I have come to look upon it, when found alone in the feces, as of considerable diagnostic importance in that it indicates that amebas may be found sooner or later. *Cercomonas intestinalis* occurs very frequently in association with this organism, probably in 10% of the cases, and both it and *Trichomonas* often occur in immense numbers.

Any of the intestinal worms may be associated with *Entamoeba dysenteriae*, the most important and interesting being *Strongyloides intestinalis* and *Uncinaria duodenalis*. The first I have found associated with *Entamoeba dysenteriae* in six cases, and the latter in ten cases.

From a practical standpoint the recognition of the association of other intestinal parasites with *Entamoeba dysenteriae* is of the utmost importance, especially when the various forms of worms are present. The debility resulting from amebic infection can only be increased

when the amebas are associated with other intestinal parasites, and the recognition of such association enables us to obviate one element which is retarding therapeutic progress. The association with *Uncinaria* is especially important, as the marked debility often caused by this parasite, due to the anemia which it produces, militates greatly against the patient's recovery.

(n) *Distribution in Body.*—*Entamoeba dysenteriae* is always found in patients suffering from amebic dysentery, in the intestinal tract, almost without exception in the large intestine. It is also found in the fecal material from such patients. While this is the most common habitat of the organism, it has been found in several other localities in the human body. Next to the intestine, the most common organ infected is the liver, where it produces the wellknown liver abscess. It has also been found in the pleura and pericardial cavity in those cases in which a liver abscess has perforated into one or the other of these localities. It has repeatedly been found within the peritoneal cavity, and a few times has been reported as being found in this cavity without the perforation of an ulcer or an amebic abscess explaining its presence.

When an amebic abscess of the liver has perforated into the pleural cavity there often follows an infection of the lung, and numerous instances are on record in which *Entamoeba dysenteriae* has been found in the sputum, following such infection. In my own experience, two patients who were returned to this country from the Philippine Islands as suffering from chronic tuberculosis, proved, upon examination of the sputum, to have amebic infection of the lung. In both cases the clinical symptoms suggested very strongly the presence of tuberculosis. The history of dysentery was imperfect in both cases, but an examination of the bloodstained sputum, which was being continually expectorated, resulted in the demonstration of *Entamoeba dysenteriae*, and the absence of *Mycobacterium tuberculosis*. Both patients were afterward operated upon and an amebic abscess of the liver and lung was discovered in both. Such cases show the importance of an examination of the sputum for the presence of amebas.

Amebas have also been found in the buccal cavity by Gross and Sternberg, but, in the light of our present knowledge, it may be that these were in reality *Entamoeba coli*. Flexner⁵⁴ found amebas in the pus of an abscess of the mouth, but whether or not the amebas were harmless or of the pathogenic variety was not determined.

(o) *Relation to Disease.*—While at the present time most authorities are agreed in believing that the ameba associated with dysentery, or *Entamoeba dysenteriae*, is the cause of a distinct form of this disease, this conclusion is not accepted by some investigators as being finally proved. Among such authorities may be mentioned Laveran, Zancoral, Grassi, Ogata, Celli and Fiocca. The chief arguments used by these investigators in combating the etiologic relationship of the organism to dysentery are the following: The presence in the feces of healthy individuals of amebas; the occurrence of epidemic, endemic, and sporadic dysentery in regions in which *Entamoeba dysenteriae* is not present; the occurrence of numerous epidemics of dysentery in which amebas cannot be demonstrated in the feces; the fact that many different agents when injected into the intestine are capable of producing lesions like those of dysentery; and finally, that the experimental evidence obtained by injecting feces containing amebas does not prove that the amebas are the sole cause of the lesions produced. These authorities are inclined to believe that the amebas which are found in the feces of dysentery are the effect and not the cause of the disease. In other words, that some other factor has produced the pathologic lesions, and that the changes so produced lead to a condition which favors the growth and multiplication of amebas which were normally present.

All these arguments against the etiologic relationship of the parasite to dysentery can be readily answered, especially since the discovery of the relationship of the Shiga bacilli and allied bacilli to certain varieties of dysentery occurring both in and outside the tropics, and the clear differentiation of the existence of at least two varieties of ameba in the human intestine, one harmless and found frequently, and the other pathogenic and found only in cases presenting the peculiar and characteristic lesions known as amebic dysentery.

It is now well known that very extensive epidemics of dysentery are due to bacillary infection, and that patients suffering from this form of the disease present clinical symptoms and pathologic lesions which, while they may be confused with the amebic form, are easily distinguishable and perfectly characteristic. This so-called specific dysentery is due to an organism entirely distinct from the ameba—that is, a bacillus—and the discovery that this organism is capable of producing a distinct form of dysentery proves that this disease does not depend for its etiology upon any one organism, thus refuting the argument which has been brought against the relationship of amebas to the disease; that is, that epidemics of dysentery occur without their presence.

The uncertainty which formerly surrounded the question as to the occurrence of amebas in the healthy intestine, or in diseases other than dysentery, has been solved by the observations of Jurgens⁵⁵ and Schaudinn,⁵⁶ which have been confirmed by myself, and this fact further refutes the argument that all amebas are nonpathogenic because a certain species is found in the healthy intestine. By this I do not mean to say that *Entamoeba dysenteriae* may not occur in the intestine without producing symptoms, for no fact is better known than that pathogenic organisms are often present in healthy individuals. It is, therefore, as foolish to claim that *Entamoeba dysenteriae* is not a pathogenic organism because it is occasionally found in the healthy intestine of man as to claim that the cholera spirillum or the malarial plasmodium are not pathogenic, because they are occasionally present without producing symptoms of the disease.

There is also another factor to be taken into consideration, and that is that the period of incubation of amebic dysentery is, as yet, unknown. All will admit that there must be, at some time, a period in which the amebas will be present in the intestine, in those patients who afterward develop dysentery, without any symptoms being appreciable. This period of incubation we know very little about, except in the case of the lower animals. In considering this question, there should also be taken into account the natural immunity which may be present in the individual; the fact that the parasites may not be numerous enough to produce symptoms, and also a possible lessened virulence of the organism itself. That *Entamoeba dysenteriae* is, or may be, rarely present in cases which do not show the symptoms of dysentery, only proves one of several things; either that the individual harboring them is not infected with a sufficient number, or for a sufficient length of time for them to cause symptoms, or that he is immune to the effects of the organism, or that the organism itself is not virulent.

In regard to the argument which is brought forward that many agents are capable of producing lesions which resemble those of dysentery, I would only say that there is no material which has ever been used for this purpose, that, being injected into the intestine, has produced lesions which in the least resemble those found in amebic dysentery. These lesions are perfectly characteristic and are not found in any other form of the disease or in any lesions produced by artificial means, other than experimental infection with *Entamoeba dysenteriae*.

The argument based upon the fact that in experimental work we are forced to inoculate the amebas mixed with bacteria, and that using such mixed cul-

tures, it is impossible to prove that the lesions produced are due to *Entamoeba dysenteriae* alone, has, I think, been absolutely disproved by the experiments of Harris and myself, which will be mentioned later.

Having thus briefly discussed the arguments against the pathogenicity of *Entamoeba dysenteriae*, and having found that all of them are based upon inconclusive evidence, and have been refuted by recent investigators, the question now arises: What evidence have we for the etiologic relationship of this organism to the disease? It seems to me that we have irrefutable data connecting this parasite etiologically with a certain form of dysentery, known as amebic dysentery, and from an experience of over five years in the study of this disease I am firmly convinced that it is due alone to infection of the intestine by *Entamoeba dysenteriae*. My belief rests upon the following facts:

1. The absolutely characteristic pathology of amebic dysentery.
2. The constant presence of *Entamoeba dysenteriae* in the feces and lesions of this peculiar and characteristic disease.
3. The peculiar situation of the amebas in relation to the lesions.
4. The presence of *Entamoeba dysenteriae* in the pus of liver abscesses, such pus being otherwise sterile.
5. The experimental production of the disease in animals, with all its typical lesions, by the inoculation of this parasite.

In regard to the characteristic appearance of the intestines of patients suffering from amebic dysentery, I would say that the lesions produced by this organism are so distinct in their pathology, both microscopically and macroscopically, from those found in any other variety of dysentery, that a single glance at the intestine will suffice to distinguish this form. If we had no other evidence than the constant presence of *Entamoeba dysenteriae* in these peculiar lesions, and their absence in other conditions, it seems to me the proof would be sufficient to establish the relationship of the parasite to the disease, and this evidence we possess, for *Entamoeba dysenteriae* is always present in the feces and in the intestinal lesions of patients suffering from this characteristic disease.

One of the strongest proofs of the relationship of this organism to the disease is the occurrence in the pus of liver abscesses complicating amebic dysentery, of *Entamoeba dysenteriae* in pure culture. It is admitted by all that this peculiar form of abscess occurs only in conjunction with amebic infection of the intestine. A bacteriologic and microscopic examination will demonstrate that in about 50% of the cases of liver abscess *Entamoeba dysenteriae* is present in pure culture. Not only is this so, but the injection of such pus into animals has reproduced the disease.

But we do not have to depend entirely upon the pathology of the disease or upon the constant presence of *Entamoeba dysenteriae* to establish its etiologic relationship. Numerous authorities have produced typical lesions of amebic dysentery in animals by the rectal injection of fecal material infected with *Entamoeba dysenteriae*. Hlava⁵⁷ examined 60 cases of amebic dysentery and produced the disease in cats and dogs by injecting the feces containing the amebas. Losch⁵⁸ produced the disease in a dog by rectal injections of fecal material containing amebas, and examination of the intestine showed typical ulcerations, the amebas being recovered from the dog's intestine. Kruse and Pasquale⁵⁹ produced the disease in cats by injecting the pus of liver abscesses, which was sterile, except for the presence of amebas. Kovacs⁶⁰ produced the disease experimentally, but was unable to produce any lesions in animals when the amebas found in the feces of healthy individuals were used. Kartulis⁶¹ claims to have produced the disease in cats, both by rectal injection of the feces containing the amebas and also with pure cultures, and found that inoculation of

other microorganisms occurring in dysentery stools failed to produce any symptoms of the disease. He also proved that the inoculation of cats with the amebas found in the healthy human intestine did not produce dysentery. Zancoral⁶² succeeded in giving rise to dysenteric symptoms by means of rectal injections of fecal material containing amebas, and also by injection of liver abscess pus, sterile save for the presence of amebas. Roos⁶³ produced the disease in six out of eight cats by the injection of dysenteric stools into the rectum. Gasser⁶⁴ was also able to produce the disease in this way. Strong and Musgrave⁶⁵ produced dysentery in cats by rectal injections of feces and the contents of liver abscesses, sterile save for amebas. Ulcerations were produced as early as three or four days after inoculation, and wellmarked ulcerations after a week. They state that they had no difficulty in producing dysentery in cats by injection of liver abscess pus and stools containing the amebas. They say:

In two cases in which liver abscesses have been found sterile by cultural experiments, but which contained many motile amebas, dysentery and characteristic ulceration of the bowel were produced in the two cats used. In the stools of these cats and in the ulcers in their colons, we have found very large numbers of motile amebas, some containing red blood cells.

They also say:

In a large number of experiments we have not been able to produce ulcerations or dysentery by the injection into the rectums of cats of bloody mucus stools from our acute specific dysentery cases.

The experiments which I consider the most valuable as showing the causal relation of *Entamoeba dysenteriae* alone to the lesions of this disease, are those of Harris.⁶⁶ He inoculated six puppies with feces containing amebas, of which four developed typic amebic dysentery. All four showed at autopsy typic lesions of the disease, and two of them showed liver abscesses, from the contents of which amebas were easily demonstrated. In one of the abscess cases the liver contained six small abscesses, the largest being about .5 cm. in diameter, and in the other cases one small abscess about a centimeter in diameter was found just above the gallbladder. Harris, in order to prove that bacteria had nothing to do with the production of the lesions, experimented with a large number of organisms, especially *B. typhi*, *B. coli communis*, and *B. anthracis*, the staphylococci and streptococci of suppuration and mixed bacteria that were taken from the feces of individuals suffering from dysentery. He also made injections with the Shiga bacillus. He performed these experiments upon dogs, and inoculated several with each organism. He says:

The study of these records (that is, the records of the experiments) shows that not in a single instance did a dog exhibit evidence of disease following the injection of bacteria, and in most cases they were entirely healthy for weeks and even months thereafter.

In order to be doubly sure of his ground he made cultures from the feces of the same individuals whose discharges had been used successfully to produce dysentery, injecting them into the intestines of four puppies with absolutely no effect. In concluding his research upon this subject, he says:

It, therefore, seems unreasonable to conclude that the germ that produces the disease is a bacterium, or at any rate it seems fairly certain that it cannot be an organism that develops or even lives in the culture mediums ordinarily employed. As neither of these suppositions appear at all probable, and as the ameba was the only other living organism found in the feces that was probably absent from the cultures, it seems logical to suppose that this parasite is the cause of any morbid state that the injection of these discharges may give rise to.

The most recent contribution to the study of this subject is that by Musgrave and Clegg.⁶⁷ As stated, they have succeeded in cultivating several varieties of amebas from various sources, but which they did not differentiate along with certain species of bacteria. They have

infected monkeys, dogs, and cats by feeding them these cultures. They were successful in producing dysentery in 11 monkeys, and from their descriptions of the autopsies on these animals, it is very evident that they were successful in producing true amebic dysentery. Although they do not say that they were using *Entamoeba dysenteriae* in their experiments, I believe that without doubt this was the case. They also produced the disease in a healthy man, who ingested three gelatin capsules containing some three-week old cultures of amebas. On the twelfth day after the capsules were ingested, the man developed a slight diarrhea, and amebas were for the first time demonstrated in the feces. He afterward developed tenesmus and passed bloody mucoid stools, in which were large numbers of amebas, many of them containing red blood-cells. They were able to obtain the amebas in the culture after the development of the diarrhea.

The work of the two authorities last mentioned has proved most valuable in that they have devised a method which makes it possible to obtain cultures of amebas in conjunction with certain species of bacteria. As a result of their work they state tentatively, "that all amebas are or may become pathogenic." In view of the fact that it will obviously be impossible to prove whether or not this statement is true, and as these investigators have worked with amebas obtained from many sources outside of the human body, some of which proved harmless to animals, I believe that such a statement, while undoubtedly of value in prophylaxis, is very misleading. Certainly, so far as *Entamoeba coli* is concerned, an exception must be made, for this species is beyond doubt harmless, as shown by experimental evidence. I have no doubt that Musgrave and Clegg were working with *Entamoeba dysenteriae* when their experiments were successful.

Schaudinn⁶⁸ has proved conclusively that *Entamoeba dysenteriae* is capable of producing typic amebic dysentery in cats, and he has also proved that the young spores which are liberated during reproduction are also capable of reproducing the infection.

PERSONAL OBSERVATIONS.

I have already mentioned the results obtained by feeding and by injection into the rectums of kittens, of fecal material containing *Entamoeba coli*. In none of the many trials was there any evidence of the production of diarrhea or dysentery.*

My work with *Entamoeba dysenteriae* has consisted in feeding experiments and in rectal injections of cats with feces containing the organism, and also control tests made with the bacteria occurring in the feces along with *Entamoeba dysenteriae*.

Rectal Injections.—My first experiments were made by injecting about 5 cc. of fecal material containing *Entamoeba dysenteriae* into the rectums of kittens about half grown. This is the most common method of producing experimental dysentery in cats, and I have found that in about 50% of the animals so injected a dysentery develops which is typical of amebic dysentery as it occurs in man. The disease so produced, however, does not seem to be as severe as when it is produced by feeding experiments, nor is the percentage of successful experiments so large. The incubation period of the disease is also much longer, apparently, than when it is produced by feeding, and it tends to run a much more chronic course. The lesions produced by rectal injections in the cat are typical of those found in man, and the following autopsy record from a kitten that was injected October 19 and killed November 21, illustrates the con-

*The objection urged by Musgrave and Clegg that individuals presenting *Entamoeba coli* in the feces in health had never been observed for a sufficiently long period of time to be positive as to whether or not dysentery might result, has been answered conclusively, as I have observed such individuals for a period of six months, and in my own case, *Entamoeba coli* is constantly present, but has never caused any symptoms of disease.

dition found following rectal injections with feces containing *Entamoeba dysenteriae*:

KITTEN No. 1.—Body that of a half-grown kitten, very greatly emaciated. The abdomen is greatly distended with gas. The mucous membrane of the anus appears swollen and is covered with bloodstained mucus. The subcutaneous fat has entirely disappeared, and the muscular tissue is much atrophied. The pleural cavities are free from fluid and the lungs appear normal. The heart is filled with blood and appears normal. The liver is considerably hypertrophied and deeply congested. There is marked albuminoid degeneration present, but no evidence of abscess formation. The kidneys appear considerably congested and upon section the cortex is found much thickened. The omentum does not appear to be inflamed and contains a very small amount of fat. The intestines are greatly dilated with gas and fluid. The bladder is filled with urine. Upon external examination, the large intestine appears swollen; is grayish in color, with small, dark-colored areas scattered along it. Upon opening the large intestine, the mucous membrane of the rectum is found considerably swollen and inflamed, but no ulcerations are present. Above the rectum for a distance of about 10 cm. the mucous membrane is very much swollen and edematous, bright red in color, and upon scraping, considerable pus is removed from between the folds. For a distance of about 4 cm. from the upper end of the large intestine, the mucous membrane is swollen, reddened and edematous. There are numerous ulcerations, covered in with bloody mucus which can be easily removed. The ulcers are of small size, somewhat irregular in shape, and extend, in most instances, to the submucosa, although there are a few which extend to the muscular coat of the intestine. The edges are much undermined and many of the ulcers are covered in with necrotic tissue, brownish-yellow in color. A few of the ulcers communicate beneath the mucous membrane. The small intestine shows a rather severe acute enteritis, and the stomach an acute gastritis.

Smears were made from the large intestine, commencing at the upper portion, at equidistances, and examined for *Entamoeba dysenteriae*. The smears made from where the ulcerations were marked contained hundreds of the organisms, many of them actively motile. The nearer the rectum was approached the more the amebas decreased in number, although they were present in all the smears. They were least numerous in that portion where there was no evidence of ulceration and no pathologic condition present except swelling of the mucous membrane. Smears made from the lower portion of the small intestine did not show any of the organisms, thus proving that the infection was limited to the large intestine.

It is interesting to note in this case that the most severe lesions were found in the region of the ileocecal valve, the same being true in a considerable number of cases occurring in man, and that the next most severe lesions were met just below the valve, which seemed to warrant the conclusion that this portion of the intestine was peculiarly liable to such infection.

From the time this animal was injected until it was killed, it presented the clinical symptoms of amebic dysentery. The first symptoms appeared about two weeks after the injection, the cat passing fluid stools, mixed with blood and mucus, and containing numerous amebas. This condition persisted for about a week, when a period of constipation intervened, in which two or three days passed without a bowel movement. At the end of about a week the dysenteric discharges recurred. From that time until the animal was killed, the bowel movements varied in number, so far as could be ascertained, from six to ten a day, and every examination showed blood, shreds of necrotic tissue, pus cells, and numerous motile amebas.

The lesions found in this kitten correspond with those obtained in the successful cases in which rectal injections were employed, and they were perfectly typical of the lesions of amebic dysentery as they occur in man.

Feeding Experiments.—By far the most successful manner in which to infect kittens with amebic dysentery is by feeding the infected feces to the animal. My method has consisted in keeping the animals without food for about 24 hours, at the end of which time they are very hungry. About 5 cc. of the feces, containing numerous motile *Entamoeba dysenteriae* is mixed with

milk, and the kittens show no aversion to taking it. In fact, an almost equal amount of feces can be mixed with milk and the kittens will eat it without apparent hesitation. After such feeding the animals are watched carefully and the symptoms noted. My experiments made in this manner were successful in 65% of the animals experimented upon. The period of incubation seemed to vary considerably. In one instance it was only seven days, and the longest period of incubation was eleven days. The first symptom noted was a bloody diarrheal discharge, which persisted continuously, although there were periods in which a day would pass without a bowel movement. At the end of this time, however, the diarrhea appeared to be more severe than before, and the animals passed large amounts of almost pure blood and mucus. The feces were examined repeatedly in all the cases, and there was no difficulty in demonstrating upon every examination motile *Entamoeba dysenteriae*. The lesions produced varied considerably, but in all were severe and were typical of those found in man. To illustrate the conditions produced in kittens by feeding experiments with feces infected with *Entamoeba dysenteriae*, the two following autopsies are given in full:

CAT No. III.—This cat was fed once with feces containing the organism and seven days later developed a diarrheal discharge in which blood and mucus were present, as well as motile amebas. At the end of two weeks it died, and during all this time it passed large quantities of blood and mucus, every examination showing motile amebas.

Autopsy.—Body that of a half-grown kitten, very greatly emaciated. Subcutaneous fat entirely absent. Muscular tissue exceedingly atrophied. Upon opening the abdominal cavity it contains no abnormal amount of fluid and the intestines do not appear to be congested externally. There is no fluid in the pleural cavities and the heart appears normal, as do the lungs. The liver externally is brownish-red in color, with irregular yellow mottlings. There is a small abscess present at the dome of the right lobe, measuring about .25 cm. in diameter. This abscess shows very distinctly through the capsule. The liver is considerably enlarged. Upon section, the cut surface appears greatly congested. The lobules are distinct. No abscesses were found, except the small one mentioned. The gallbladder appears normal. The kidneys appear considerably enlarged and congested externally. On section, they are greatly congested. The cortex and pyramids are distinct, and the cortex is considerably thickened.

The Intestines.—Externally, the large intestine appears but slightly congested, although the walls are markedly thickened. It is considerably dilated and sacculated. Upon opening the intestine, it is found filled with fecal material mixed with a large amount of pus, and in the region of the rectum there is considerable bloodstained mucus. About 1 cm. from the anus, which is bloodstained and covered with mucus, there is an area measuring 4 cm. in length, which presents the typical lesions of amebic dysentery as it occurs in man. The entire mucous membrane is congested, very edematous and much swollen. There are numerous nodular areas projecting into the lumen of the intestine, which, when incised, are found filled with glairy mucus containing amebas. There are also numerous ulcerations, more or less irregular in shape, with thickened and undermined edges; many are covered in with necrotic tissue, which, upon being removed, shows that the floor of the ulcer is formed by the muscular coat of the intestine. Many of these ulcers communicate with one another through and beneath the mucous membrane, and most of them have penetrated to the muscular coat. The remainder of the large intestine shows numerous ulcers, typical of those occurring in the human being suffering from this disease. The condition is especially marked just below the valve, where large areas of the mucous membrane have been destroyed, the muscular coat of the intestine being exposed. The small intestine appears normal, except for a slight enteritis. The stomach appears normal.

CAT No. V.—This cat was fed with milk containing *Entamoeba dysenteriae* several times before a successful feeding resulted. The period of incubation was eight days from the last feeding before the first dysenteric discharge was noted. From that time until it was killed, three weeks afterward, the cat presented the symptoms of amebic dysentery, there being a gradual loss of appetite, emaciation and a diarrheal discharge, containing blood and mucus and motile amebas.

Autopsy.—Body that of a half-grown kitten, much emaciated. Subcutaneous fat entirely absent and the muscular tissue much atrophied. Upon opening the pleural cavities they are found free from fluid and the lungs and heart appear normal, save for considerable congestion. Upon opening the abdominal cavity the small intestine appears much congested externally. The liver is much hypertrophied and greatly congested. This is also true of the kidneys. Upon section of the kidneys, the condition found is that of an acute parenchymatous nephritis.

The Intestines.—The small intestine is greatly congested externally. The large intestine is dark grayish in color and is considerably thickened, especially toward the rectum. Upon opening the intestine it contains a considerable amount of fecal material, blood, mucus, and pus. Commencing at the rectum and extending about half the length of the large intestine, the mucous membrane is greatly swollen, bright red in color, and contains numerous ulcers. The majority of the ulcers are spherical in shape, the edges undermined and greatly thickened, and many of them are covered in with necrotic tissue. Upon removing this necrotic material the base of the ulcer is found to be formed by the muscular coat of the intestine. The process is most acute in the rectum. The ulcerations present are typical of those of amebic dysentery as it occurs in man in every respect. The remaining half of the large intestine is black in color and gangrenous. The mucous membrane has been almost entirely destroyed, exposing the muscular coat throughout this portion of the intestine. It is evident from this that the process commenced in this portion of the gut. No distinct ulcerations can be seen, as the entire mucous membrane has been removed. About 4 cm. below the cecum there is a small perforation measuring about $\frac{1}{2}$ cm. in diameter.

From a consideration of the pathologic conditions found in the animals noted it will be seen that the experimental production of amebic dysentery, showing lesions as typical as those occurring in man, is possible in the kittens, and a microscopic examination of the intestine demonstrates that *Entamoeba dysenteriae* is undoubtedly the cause of these lesions. It is not necessary for me to give in detail the microscopic pathology of the lesions as seen in these animals, as it corresponds in every detail with that of the lesions of amebic dysentery as exhibited in man. I would remark, however, that the amebas were demonstrated in the sections lying in the intermuscular septums and around the edges of the ulcers in every case examined.

In order to be sure that the lesions produced were due to *Entamoeba dysenteriae* and not to bacteria occurring in the feces, cultures were made from the same feces as were used in the feeding experiments, and these given both by the rectum and by the mouth, and in no case was there produced any symptoms of dysentery or diarrhea, so that I believe it is justifiable to conclude that *Entamoeba dysenteriae* alone produced the lesions described in these animals, and that the evidence is conclusive that this organism is the cause of amebic dysentery in man, as the lesions produced in kittens are exactly similar to those which are typical of the human disease. In only one case was there an abscess produced by feeding feces infected with *Entamoeba dysenteriae*. An examination of this abscess, which was in a very early stage, showed it to be composed of necrotic tissue containing a few amebas. Amebas were also demonstrated in the sections which were made of the abscess. Cultures were made, and resulted negatively. There can be no doubt that this abscess was due to infection with *Entamoeba dysenteriae*.

V.—DIFFERENTIAL DIAGNOSIS OF ENTAMOEBA COLI AND ENTAMOEBA DYSENTERIAE.

The occurrence in at least 50% of individuals in health, and in diseases other than dysentery, of amebas infecting the intestinal tract, these amebas being nonpathogenic in character, makes a differentiation of such amebas from the pathogenic *Entamoeba dysenteriae* of great importance. I am convinced that many cases have been diagnosed amebic dysentery, which in reality presented the harmless *Entamoeba coli* in the feces, this organism being mistaken for *Entamoeba dysenteriae*. This mistake might easily be made in patients suffering from acute enteritis, in which it is more than probable that the majority would present *Entamoeba coli* in the feces, and this fact undoubtedly explains the numerous instances of so-called amebic dysentery with rapid and complete recovery.

From my experience there is no disease so resistant to treatment and in which a prognosis is so discouraging as amebic dysentery. From the autopsy work at this hospital, comprising over 300 cases of amebic dysentery, I have yet to see an instance in which I consider the

lesions entirely healed. Of course, the objection may be urged that these were fatal cases, but it should be remembered that in many of them death occurred from some complicating disease, and not from the dysenteric condition *per se*. Everyone is familiar with the fact that amebic dysentery recurs even after very long intervals of time, and it is very important, both to the patient and the physician, to know absolutely that the disease being treated as amebic dysentery is in reality due to *Entamoeba dysenteriae*, and that *Entamoeba coli* has not been mistaken for this organism. These two organisms are easily differentiated by one who has had experience in examining feces from dysenteric patients. There is, perhaps, no class of organisms which has been so often confused with other material occurring in the feces as amebas, and it is obvious considerable experience is needed in order to distinguish these organisms from other cells occurring in the intestinal contents. For this reason differentiation of the two varieties of ameba cannot be made by one who has little or no experience in the examination of the feces of dysentery, but a comparatively little practice will enable any one to differentiate amebas from other cells occurring in the feces, and also to differentiate between *Entamoeba dysenteriae* and *Entamoeba coli*.

In discussing this portion of our subject I shall first consider the differences between the two organisms as they appear in the fresh specimen. *Entamoeba dysenteriae*, as observed in the fresh specimen, differs from *Entamoeba coli* in the following particulars:

Size: *Entamoeba dysenteriae* is, as a rule, considerably larger than *Entamoeba coli*, and the latter organism never reaches the largest size attained by the former.

Color: *Entamoeba dysenteriae* is considerably lighter in color than *Entamoeba coli*. The latter organism is of a peculiar dull grayish color and is not very refractive, while *Entamoeba dysenteriae* is much lighter in shade and the ectoplasm is very refractive.

Protoplasm: *Entamoeba dysenteriae* presents a well-marked distinction between the ectoplasm and entoplasm when motile, and even, in the majority of instances, when the organism is not moving. In *Entamoeba coli* there is never a sharp distinction between these two portions, even when the organism is in motion.

In *Entamoeba dysenteriae* the ectoplasm is very strongly refractive to light, much more so than the entoplasm. The opposite is true in the case of *Entamoeba coli*. This is a very important differential point.

In *Entamoeba dysenteriae* the ectoplasm is seen to be composed of very fine granules, while no evidence of structure can be seen in *Entamoeba coli*.

In *Entamoeba dysenteriae* there is generally present a vacuole, and often more than one, while in *Entamoeba coli* a vacuole is seen but seldom.

Nucleus: The nucleus in *Entamoeba dysenteriae* is generally invisible, and when it can be demonstrated is seen to contain but little chromatin and has no marked nuclear membrane. In *Entamoeba coli* the nucleus is almost always visible. It presents a well-marked, rather thick nuclear membrane, which is very refractive to light, and almost always contains nucleoli and a large amount of chromatin.

Vacuoles and other contained bodies: In *Entamoeba dysenteriae* a vacuole is, in a majority of instances, present, and there may be several of them. The protoplasm often contains a large number of red blood-corpuscles, crystals, bacteria, etc. In *Entamoeba coli* a vacuole is almost always absent, and it is but rarely that a red blood-corpuscle is seen in the protoplasm, and I have never seen more than two or three. The number of crystals and bacteria is also diminished.

Motility: In *Entamoeba dysenteriae* the motility is well marked, the organism moving more or less rapidly in a given direction. In *Entamoeba coli* the motility is generally very sluggish and the progressive movement

so slight that it is often difficult to distinguish it. The degree of motility is alone sufficient to distinguish these organisms in fresh preparations.

In stained specimens the following differences are to be noted.

Protoplasm: In *Entamoeba dysenteriae* the ectoplasm takes a much deeper stain than the entoplasm; the opposite is true in *Entamoeba coli*. In stained specimens this alone is sufficient to distinguish the two organisms.

Nucleus: In *Entamoeba dysenteriae* the nucleus stains much less intensely than in *Entamoeba coli*. The amount of chromatin is much smaller and very often no nucleus can be demonstrated.

In *Entamoeba dysenteriae*, staining methods demonstrate that the ectoplasm is composed of fine granules enclosed in an alveolar structure. The ectoplasm of *Entamoeba coli* appears structureless. The entoplasm in *Entamoeba dysenteriae* is seen to be composed of large granules contained within a well-marked alveolar structure. In *Entamoeba coli* the entoplasm is composed of much smaller granules.

Method of reproduction: Both *Entamoeba dysenteriae* and *Entamoeba coli* may reproduce by simple division or fission. They differ markedly, however, in the most common method of reproduction. *Entamoeba dysenteriae* reproduces by a process of budding, a portion of the nucleus being extruded, the chromatin is diffused in the protoplasm and eventually collects, forming in small spheric clumps, which become arranged around the periphery of the organism and are gradually separated, together with a portion of the protoplasm, thus producing the young amebas. In *Entamoeba coli* reproduction takes place after cyst formation, the organism becoming encysted and eight small amebas being formed within the cyst, which breaks down and liberates them.

The most important factors in differentiating *Entamoeba dysenteriae* and *Entamoeba coli* are the following: The appearance in the fresh specimen of the ectoplasm and entoplasm; the presence or absence of a nucleus; the difference in staining reactions between the ectoplasm and entoplasm; the character of the motility, and the method of reproduction. These organisms, to one who has seen them together, are so easily distinguished that there should be no difficulty in making a differential diagnosis between them, and I am satisfied that a little study will enable anyone who is familiar with microscopic technic to confirm these observations.

VI.—CONCLUSION.

In undertaking the studies which have been detailed regarding the occurrence of a nonpathogenic and a pathogenic ameba I have tried to be perfectly fair in drawing conclusions, and I approached the subject very strongly prejudiced in favor of the view that there did not exist two species of amebas infecting man. I have been forced, however, by the results attending the work to conclude that a pathogenic and a nonpathogenic ameba do exist. I believe that the evidence in favor of this view is incontrovertible to any one who gives the subject thorough study.

From my observations the following conclusions are warranted:

1. The intestine of man may be infected with two varieties of amebas, one pathogenic (*Entamoeba dysenteriae*), and the other nonpathogenic (*Entamoeba coli*).

2. *Entamoeba coli*, the nonpathogenic variety, is found in 65% of the healthy individuals studied, and in 50% of individuals suffering from diseases other than dysentery, if a saline cathartic has been administered.

3. These organisms can be easily distinguished in both fresh and stained specimens.

4. They differ widely in their method of reproduction, and this is the most important method of distinguishing them.

5. *Entamoeba dysenteriae*, whether fed in milk or

injected through the rectum, produces in kittens the typical lesions of amebic dysentery as observed in man.

6. In kittens, *Entamoeba coli*, whether fed in milk or injected through the rectum, is absolutely harmless.

7. Neither feeding experiments nor rectal injections of fecal material or the bacteria occurring in such material produce any of the lesions of amebic dysentery, unless *Entamoeba dysenteriae* is present.

BIBLIOGRAPHY.

- ⁵⁴ Johns Hopkins Hospital Bulletin, 1892, Vol. III.
- ⁵⁵ Loc. cit.
- ⁵⁶ Loc. cit.
- ⁵⁷ Centralblatt für Bakt., 1887.
- ⁵⁸ Virchow's Archiv, Bd. lxxv, 1875.
- ⁵⁹ Loc. cit.
- ⁶⁰ Zeitschrift f. Heilkunde, February, 1893.
- ⁶¹ Loc. cit.
- ⁶² Loc. cit.
- ⁶³ Berliner klin. Woch., No. 45, 1898.
- ⁶⁴ Loc. cit.
- ⁶⁵ Loc. cit.
- ⁶⁶ Hatfield Prize Essay, Philadelphia, 1898.
- ⁶⁷ Loc. cit.
- ⁶⁸ Loc. cit.

DYSENTERY IN COOK COUNTY HOSPITAL.*

BY

C. G. GRULEE, A.M., M.D.,

AND

J. S. WELCH, B.S., M.D.,

of Chicago.

Resident Physicians, Cook County Hospital.

The following work done at Cook County Hospital, Chicago, during the summer and fall of 1904 was thought worthy of the endeavor, chiefly for the reason of determining whether any of the numerous diarrheal cases occurring in this hospital were due to a specific organism, corresponding or akin to any type of the recently much-studied dysentery bacillus.

An investigation of the literature bearing on this subject shows much work to have been done in various parts of the world. As early as 1888 Chantemesse and Widal described certain organisms isolated from cases of dysentery, which organisms they considered of etiologic importance. In 1895 a similar organism was isolated by Celli. The reports of these investigators do not embrace observations regarding agglutination and fermentation reactions, which are now considered so important in the differentiation of the dysentery organisms. During the extensive dysentery epidemic of 1898 in Japan, Shiga isolated a bacillus which he believed caused that epidemic. In the stools in 34 cases examined and in the intestinal wall in two fatal cases this organism was found in large numbers intimately mixed with mucus and blood. Morphologically, it was described as being shorter and thicker than the typhoid bacillus, with rounded ends, usually single but often in pairs, non-motile, staining with anilin dyes and destaining by Gram's method, without spores. Culturally, it was a facultative anaerobe, growing well on common culture mediums. Stab cultures gave a white line growth; plates, a bluish-gray granular colony, in the second 24 hours usually, with regular edges and a center becoming darker with age. Gelatin was not liquefied. No indol was formed in peptone solution. Sugars were not fermented. Litmus milk became acid in 24 hours and later alkaline. Experimentally, the organisms were agglutinated by high dilutions of the serums in all his cases and in many other patients suffering from the disease, but not by the serums of other individuals, whether ill or well, or by the blood of lower animals. The organism was pathogenic to lower animals and agglutinins formed in their blood as well as they did in man, either during the disease or when injected with dead cultures.

In 1901, Simon Flexner, as a result of extensive study of dysentery in the Philippine Islands, described an organism similar to that described by Shiga, but dif-

* Read before the Chicago Pathological Society, November 14, 1904.

fering slightly in cultural and agglutinating characteristics. Two distinct types were isolated and studied. No. I was unlike the Shiga in that it was not present in all cases, was motile, and sometimes occurred in filaments. Serum from the host agglutinated it well, agglutinated the Shiga type slightly, and the types more closely allied to the colon bacillus very well. No. II was always present, and predominated in acute cases. Motility was present. Gas was produced on sugar, *i. e.*, mannite. Litmus milk became acid promptly, and coagulated in 24 hours to several weeks. Indol was produced. Serum from the host sometimes agglutinated the organism, but not other dysentery bacilli, nor did serum from the other dysentery cases agglutinate it. Flexner concludes that a specific organism had not been isolated up to date, but that the varieties of the disease were fewer than clinical and pathologic conceptions led one to suppose. Kruse's work in Germany, during 1900, shows similar results. The organism which he isolated fermented mannite, produced "vine-leaf-like" superficial colonies on plates, and were agglutinated by serums of the hosts.

Other work has been done in Europe. Martini and Lentz conclude in reports published in 1902 that the Shiga bacillus is the true dysentery bacillus, and the mannite-fermenting and indol-producing organisms are but saprophytes.

In the United States, most of the work has been done in and about cities on or near the eastern coast. Among the observers are Duval and Basset, of Baltimore; Park and Dunham, of Mt. Desert, Maine; and later, Park, of New York; Vedder and Duval of Baltimore; Dunn and Hastings, of Boston; and the Rockefeller Institute students under the supervision of Dr. Flexner. Their investigations have shown that the mannite-fermenting and indol-producing type of dysentery bacillus prevails, but not to the exclusion of the Shiga type. Morphologically, the findings agree very uniformly, except that motility was occasionally observed. Culturally, the organisms show, with but slight variations, the characteristics of the Shiga and Flexner types. Experimentally, the different types isolated in the United States have shown the same pathogenicity to animals as elsewhere, and similar agglutination reactions have been obtained. Attempts to produce immune serums have been, and are still being made, but as yet, no satisfactory results have come to our notice.

This report embraces observations of 17 cases of clinical dysentery; five in adults and 12 in children. The characteristics of the stools may be summed up as follows: Blood and mucus in 7 cases; abundant mucus in 5 cases; liquid stools containing no blood or mucus in 4 cases. In one of the cases the nature of the stool is not noted. In one case *Amoeba coli* were present, but from this no dysentery bacilli were isolated. In the adult cases the stools were collected on sterile gauze in a bedpan, in children the inoculations were made from the discharges on napkins. With one exception, all stools were examined within an hour after passage, usually within 15 minutes. In the exception noted, the stool was not examined for six hours after passage, but a second specimen was obtained from this patient the following day and examined within a few minutes. The stools were examined with the naked eye for blood and mucus and as to their color and consistency. Microscopic examination for red and white blood-corpuscles, fat and amebas was also made. A rough estimate as to the number of bacteria was usually attempted. When bloody mucus or mucus alone was present this material was selected for cultural purposes. When neither was present the more fluid portion of the stool was chosen. Agar plates were made from this material diluted in sterile water or bouillon. After 24 hours in the incubator, the colonies present were marked with a blue pencil in the manner advised by Vedder and Duval, and the plate allowed to remain in the incubator for 24 hours

longer. From five to ten of the colonies which had grown in the second 24 hours were inoculated into fermentation tubes of glucose bouillon. In our experience the fermentation tubes proved more reliable than glucose agar, an organism not producing perceptible gas in the latter, when inoculated into the former showed large amount of gas in 24 hours. All colonies producing gas were rejected. Further inoculation was made in litmus milk, gelatin and bouillon, agar slant and stab, glycerin agar, blood-serum and potato. The organism was also plated on agar and gelatin. Fermentation tubes containing 1% solutions of dextrose, maltose, lactose, saccharose, dextrin, mannite and inulin bouillon were inoculated and observed. Inoculations into the litmus nutrose tubes of Hiss, containing the carbohydrates dextrose, levulose, galactose, maltose, lactose, saccharose, dextrin and mannite, were also made. The organisms were also examined for motility, general staining qualities, reaction to Gram's method, presence of flagellas and indol production.

In 13 of the 17 cases examined we failed to isolate any organism which did not produce gas in the fermentation tubes. The remaining four cases deserve special mention:

CASE I.—M. P., boy, aged 1½ years, entered the hospital, July 30; service of Dr. Harvey. The mother said that the child had not been well since an attack of whoopingcough six months previous to admission. He had developed pneumonia two months before, from which he recovered. Since that time the child had had two to three loose bowel movements daily, of a green color, and usually very fetid. Child had vomited some. Physical examination revealed nothing except marked emaciation. After entrance, the bowel movements were two to four a day and until August 6, yellowish and fluid, sometimes containing milk curds, after which time they became greenish. The temperature was usually normal, at times subnormal, until just before death, August 9, when the temperature rose to 102.8° F. No autopsy.

A stool was obtained from this patient two days before death. It showed mucus and red blood-corpuscles. In this case an organism of the Flexner-Harris type was isolated.

CASE II.—F. R., boy, aged one year, entered the hospital August 20, service of Dr. Abt. Child had been sick for two months before entrance, with diarrhea and vomiting; number of stools daily was four to five. Child had never been breast-fed, but mother had fed it on milk, coffee, beer, soft-boiled eggs, etc. Physical examination showed a fairly well-nourished child, with some rachitic manifestations. Double cryptorchidism was noted. During his stay in the hospital, his stools were three to six daily, at first being liquid and greenish, and later yellow. The temperature was usually normal, and at no time more than 1° above normal. Child was discharged well on September 9.

The stool obtained in this case, August 25, was fluid, green, containing solid greenish material, milk curds and mucus, but no blood. A large number of bacilli were observed. In this case an organism was isolated, which differed from the Shiga bacillus only in its action on the carbohydrates.

CASE III.—M. S., a German, aged 43, entered the hospital August 6, service of Dr. Wells. He had been sick with a violent diarrhea for four days. The day before entrance, bowel movements numbered 15, at which time he had noticed streaks of blood in his stools. He complained of loss of appetite, weakness and marked tenesmus. Physical examination revealed nothing more than marked tenderness over the lower abdomen. The day after entrance he had eight bowel movements, but in a few days the number was gradually reduced to one stool a day. These stools contained blood, mucus and some pus. Patient discharged cured on August 29.

The stool examined by us was obtained on the afternoon of the day after entrance. It was fluid, containing blood, mucus and yellowish-brown solid particles.

CASE IV.—H. L., boy, aged 8 months; entered the hospital August 21, service of Dr. Butler. The child was taken sick two weeks before entrance with cramps in the abdomen, some vomiting and diarrhea. Stools were whitish-gray, green, or even at times black, and always of an offensive odor; one to three daily. The child was never breast-fed, but for some weeks before entrance had been fed cream diluted with ice-water. Physical examination showed only emaciation and evidences of rachitis. During its stay in the hospital the number of stools varied from two to six daily, at most times being recorded as greenish and watery. Occasionally vomiting was noted. The temperature on the day of entrance rose to 101.8° F. (rectal), after which it remained normal until the eleventh day, when it rose to 104.2° F. (rectal), dropping again to normal on the thirteenth day. On the fifteenth day it again rose, and persisted until the seventeenth day, on which the child died. Fever was irregularly remittent from the fifteenth to seventeenth day, the highest being 103° F., the day of death. The organisms obtained in

these two cases were practically identical, but differed widely from the dysentery organism.

After a careful review of the literature, the various organisms described in connection with dysentery allow of the following statements and classifications. *B. pseudodysentericus* Lentz, has been omitted from the following because of its gas production on various carbohydrate mediums and in spite of the fact that its action on litmus milk is somewhat similar to that of the Shiga bacillus.

Of these organisms there was nothing characteristic in the arrangement. With the exception of *B. pseudodysentericus* I, and that obtained from Cases III and IV of our series, which hereafter will be designated *B. pseudodysentericus* "A", the organisms reported all correspond to the Shiga bacillus in size and shape. *B. pseudodysentericus* I and "A" are somewhat smaller than the Shiga bacillus. All the organisms are motile, the Bacillus "B," of Duval and Shorer, being actively so. All stained by the ordinary basic dyes, and of those noted all destain by Gram's method.

None of these organisms liquefies gelatin or produces gas in glucose mediums. On agar, glycerin-agar, bouillon, blood-serum and potato, with some minor exceptions, invariably the growth is similar to that of the Shiga bacillus. None produced indol. From the foregoing statement it may be concluded that a classification of these bacteria must rest upon their reactions in some other than the mediums mentioned. The reactions are most constant and characteristic on litmus milk, and these will be used as a basis for classification.

CLASS I.—Those producing permanent acidity.

CLASS II.—Those producing initial acidity with secondary alkalinity.

CLASS III.—Those producing permanent alkalinity. This being taken as a means of grouping the organisms, further differentiation is made possible by their reactions on various carbohydrate mediums.

CLASS I.

1. *B. pseudodysentericus* "A."

2. *B. pseudodysentericus* Kruse.

B. pseudodysentericus "A" produces acid in dextrose and levulose (monosaccharid) mediums. *B. pseudodysentericus* Kruse¹ produces acid only in mannite, maltose, saccharose and dextrin mediums (levulose not noted).

CLASS II.

1. Shiga bacillus.

2. Flexner bacillus.

3. Gladmon bacillus (Taylor-Jones²).

4. Bacillus Y (Hiss and Russell).

5. Organism isolated from Case II of our series, which will be designated Bacillus Z.

6. Bacillus B (Duval and Shorer)³.

7. Bacillus A (Duval and Shorer)⁴.

Action on carbohydrates.

I. Monosaccharids.

Dextrose, levulose and galactose.

Production of acid in all where tried.

II. Disaccharids.

A. Maltose (four organisms noted.)

Acid produced by Flexner and Bacillus "Z".

No acid by Shiga and Bacillus "Y".

B. Lactose (five organisms tried.)

Acid by Bacillus "A" and Bacillus "Z".

No acid by Shiga, Flexner and Bacillus "Y".

C. Saccharose.

Of those noted none produced acid.

III. Other carbohydrates.

(A.) Mannite (four organisms tried.)

Acid by Flexner and Bacillus "Y".

No acid by Shiga and Bacillus "Z".

(B.) Dextrin (five organisms tried.)

Acid by Bacillus "A" and Bacillus "Z".

No acid by Shiga, Flexner and Bacillus "Y".

(C.) Inulin (not sufficiently noted.)

CLASS III.

1. *B. pseudodysentericus* I.

2. *B. pseudodysentericus* II.

On carbohydrate mediums.

A. Mannite.

Alkali by both.

B. Dextrin.

¹The difference between *B. pseudodysentericus* III and *B. pseudodysentericus* Kruse is not considered sufficient to distinguish the former as a separate organism.

²Produced gas in glucose-agar not made previously sugar-free.

³Litmus milk, alkalinity more marked than Shiga bacillus.

⁴Secondary acidity after fourteenth day.

Alkali by *B. pseudodysentericus* II.

No reaction by *B. pseudodysentericus* I.

In respect to agglutination reactions very little of a definite character has been accomplished.

CLASS I.

B. pseudodysentericus "A" agglutinates imperfectly with the immune serum of the Flexner-Harris variety (Class II) at a dilution of 1 to 20, and with its own immune serum at 1 to 60.

B. pseudodysentericus Kruse, did not agglutinate with Shiga (Class II) immune serum in dilution of 1 to 10.

CLASS II.

The Shiga and Flexner bacilli agglutinate with their own immune serums in high dilutions, but the one agglutinates the other very poorly. Bacillus "B" and bacillus "Y" are both agglutinated by the Shiga and Flexner, and the bacillus "Y" by its own serum. Bacillus "Z" is not agglutinated by the Flexner immune serum, but is by its own in the dilution of 1 to 60.

CLASS III.

B. pseudodysentericus I and II do not agglutinate with Shiga immune serum. Action with Flexner immune serum not noted.

Of the three classes, the first would seem to approach the colon-typhoid group of organisms; the second has been regarded as the dysentery group proper; while the third probably is more closely related to the saprophytic bacteria, of which *B. alkaligenes fecalis* may be taken as an example.

It will be noted that the action of the organisms included in the dysentery group proper on the monosaccharids is uniform, *i. e.*, the production of acid. The action on the disaccharids and various other carbohydrates is, on the other hand, very diverse. These facts are significant when we remember that practically all the sugars have become monosaccharids when they reach the colon, in which part of the intestine the dysentery bacillus is most active.

DETAILED DESCRIPTION OF ORGANISMS.

CASE I.—Flexner-Harris.

CASE II.—Bacillus "Z." This organism in morphology, and growth on common culture mediums corresponded to the Shiga bacillus. On the mediums of Hiss, at the end of a week, acidity was noted in galactose, while acidity with some coagulation was noted in dextrose, maltose, dextrin, lactose, and at the end of two weeks in levulose. There was no gas production.

CASE III.—*B. pseudodysentericus* "A."—A short, thick bacillus with rounded and slightly enlarged ends, about half the size of the typhoid bacillus; stains readily with the ordinary basic dyes and destains by Gram's method. Motile. On agar slant and stab, it showed a minute, bead-like growth, more opaque and white than that of the dysentery bacillus. Growth was slow on glycerin-agar. Gelatin not liquefied. Blood-serum growth dry and transparent with irregular edges. Potato colonies small, rounded, and of bluish-gray color. In litmus milk, slight coagulation was noted on the second day, and acidity on the third; after this time neither the acidity nor coagulation perceptibly increased, but there was no secondary change to alkalinity up to the eighteenth day, after which time the observations were discontinued. There was no gas production in the fermentation tubes, and the test for indol gave negative results. In the carbohydrate mediums of Hiss, the dextrose showed on the third day a slight acidity, which increased very little, and a similar change was noticed in the levulose on the fourteenth day. On agar plates, at the end of 24 hours were seen rounded, bluish, transparent colonies, about 1 mm. in diameter. Under the microscope an inner whitish zone and an outer clear bluish zone could be distinguished. The edge was regular and well marked. In 48 hours, under the microscope, there seemed to be a tendency to the formation of concentric rings. At the end of 72 hours the edge became slightly irregular. On gelatin the growth was slower; in other respects, to the naked eye, it resembled that on agar. Under the microscope the colonies seemed more yellowish, the edges more irregular than in agar, and a clear marginal zone was noted.

CASE IV.—The organism isolated in this case was very similar to that of Case III with the exceptions that (1) in litmus milk the acidity appeared on the second day, and the coagulation was somewhat more marked; (2) on Hiss dextrose and levulose mediums there was acid production on the third day which was perceptibly greater in the former at the end of a week; (3) on agar and gelatin plates the colonies showed a central core of a brownish-yellow color.

We regard the organisms isolated from the last two cases as practically identical. The fact that these organisms isolated from cases of enteritis do not correspond to either *B. coli*, *B. typhosus*, or *B. dysentericus*, would

lead one to think that in this organism we have some intermediate form, probably closely related to *B. dysentericus*.

That these organisms possess flagellas, was demonstrated by Johnson's flagella stain. Agglutination experiments were performed with the blood-serum of rabbits, which had been successively inoculated with 1 cc. to 5 cc. of 48-hour bouillon cultures of these organisms and *B. coli*. The results of agglutination with these immune serums are contained in Table I.

TABLE I.

Bacilli.	Case I.	Case II.	Case III.	Case IV.	Coll.
Case I.....	+1 to 120	+1 to 20	.....	.....	.....
Case II.....	.....	+1 to 60	.....	.....	.....
Case III.....	+1 to 20	+1 to 20	+1 to 60	+1 to 20	.....
Case IV.....	+1 to 20	.....	+1 to 20	+1 to 20	.....
Colon.....	.....	.....	.....	.....	.....
Typhoid.....	.....	.....	.....	.....	.....

Final observations made at the end of one hour.

CONCLUSIONS.

1. The bacillary cause of dysentery is a group (Class II) of organisms, of which the Shiga bacillus, the Flexner-Harris bacillus and Bacillus "Y" of Hiss are the most important varieties. Belonging to this group is Bacillus "Z" isolated from Case II.

2. One of the chief characteristics of Group II is fermentation of the monosaccharids, and therefore the contents of the bowel are especially well adapted for the action of these organisms.

3. The organisms included in Classes I and III bear some etiologic relation to dysentery, and *B. pseudodysentericus* "A" of Cases III and IV belongs to one of these groups (Class I).

4. As previously reported by Vedder and Duval, the presence of flagellas was demonstrated on the Flexner-Harris bacillus, and also on Bacillus "Z" and *B. pseudodysentericus* "A."

We wish to thank Dr. E. R. LeCount for his kindness and timely suggestions, and the authorities and physicians of Cook County Hospital, whose assistance has rendered this work possible.

BIBLIOGRAPHY.

- Adams, L. S.: A Study of 337 Cases of Enteric Fever in Children, J. A. M. A., 1904, xlii, 799.
- Bertrand, L. E.: Mechanisme de L'Infection Intestinale dans la Dysenterie, Rev. de Med. (Paris), 1902, xxii, 599-603.
- Chantemesse, A.: Le Microbe de la Dysenterie Epidemique, Bull. de l'Acad. de Med., 1902, xlviii, 144-150.
- Dunn, C. H.: A Motile Culture of *Bacillus dysenteriae*, Jour. Med. Res'ch., 1904, xi, 450-453.
- Escherich: Etiology of Dysentery (Zur Aetiologie der Dysenterie) Centralbl. f. Bakt., 1899, xxvi (No. 13), 385-390.
- Eyre: Aylum Dysentery in Relation to *Bacillus dysenteriae*, Brit. Med. Jour., 1904, i, 1002-1004.
- Flexner, Simon: On the Etiology of Tropical Dysentery, J. H. Bull., 1900, xi, 39, 231.
- Flexner, Simon: Etiology of Dysentery, J. A. M. A., xxxvi, 6-10.
- Foulerton, A. G. R.: The Etiological Significance of *Bacillus dysenteriae* as Tested by the Agglutination Reaction of Patients Suffering from Dysenteric Symptoms. Centralbl. f. Bakt. u. Paras., 1902, xxxi, 205-207.
- Hastings: A Clinical Study of *Bacillus dysenteriae* in Boston and Vicinity, J. A. M. A., 1904, xlii, 1121-1129.
- Hiss, Hanson, P., and Russell, F. F.: A Study of the Bacillus Resembling the Bacillus of Shiga, from a Case of Fatal Diarrhea in a Child, with Remarks on Recognition of Dysentery, Typhoid and Allied Bacilli, Med. News, N. Y., 1903, lxxxiii, 289-295.
- History of the Microbe of Dysentery, J. A. M. A., 1902, 496.
- Howland, J.: The Pathologic Anatomy of Shiga Bacillus Infection of the Intestines in Infants, Med. News, 1904 (March 5), lxxxiv, 483-489.
- Johnson: Methods for Staining Flagella, Report Chicago Path. Soc., January, 1905.
- Kruse: Ueber die Ruhr als Volkskrankheit und ihren Erreger, Deutsch. med. Wchschr., 1900, xxvi, 687-689.
- Kruse: Weitere Untersuchungen über die Ruhr und die Ruhrbazillen, Deutsch. med. Wchschr., 1901, xxvii, 370.
- La Fetra, L. A., and Howland, J.: A Clinical Study of 62 Cases of Intestinal Affection by *Bacillus dysenteriae* in Infants, J. A. M. A., 1904, 855.
- Lentz: Vergleichende Culturelle Untersuchungen über die Ruhrbazillen und ruhrähnliche Bakterien nebst einigen Bemerkungen über den Lackmusfarbstoff, Zeitschr. f. Hyg., 1902, xii, H. 3, 559.
- Martini and Lentz: Über die Differenzierung der Ruhrbazillen mittels der Agglutination, Zeitschr. f. Hyg., 1902, xii, H. 3, 540.
- Müller, P. T.: Über den Bakteriologische Befund bei einer Dysenterie epidemie in Südsteiermark, Centralbl. f. Bakt. u. Inf. (Jena), 1902, xxxi, 558.

- Musser, J. H.: Notes on Tropical Dysentery, J. A. M. A., 1901, xxvi, 10-14.
- Park, W. H., Collins, K. R., and Goodwin, M. E.: The Dysentery Bacillus Group and the Varieties which Should be Included in It, Jour. Med. Res'ch., 1904, xi, 558-568.
- Rockefeller Inst., Rep., 1.
- Rosenthal, L.: Das Dysenterie Toxin (auf natürlichen Weg gewonnen), Deut. med. Wchschr., 1904, xxx, 285.
- Shiga, K.: Über den Dysenterien Bacillus, Centralbl. f. Bakt. u. Paras., 1898, xxiv, 817-829; 870-875; 913-918.
- Strong, R. R., and Musgrave, W. E.: The Bacillus of Philippine Dysentery (extract from report for United States), J. A. M. A., 1900, xxv, 498.
- Taylor-Jones, L.: Dysentery (Washington, D. C.), 6 Cases, J. A. M. A., 1904, xliii, 12-14.
- Vedder and Duval: Etiology of Acute Dysentery in United States, Jour. Exp. Med., 1902, vi, 181-205.
- Wollstein, M.: The Dysentery Bacillus in a Series of Cases of Infantile Diarrhea, Jour. Med. Res'ch., 1903, x, 11-20.

THE BACTERIAL ELEMENT IN CATHARSIS.*

BY

GROESBECK WALSH, M.D.,
of Chicago.

So far as I am aware the theory that the phenomenon of catharsis is a bacterial phenomenon was first called to the attention of the profession in my primary dissertation on this subject which was published last August. The purpose of that paper was to call attention to the similarity, amounting indeed to an identity, which existed between the phenomena attending the exhibition of a cathartic and the phenomena which accompanied many of the so-called low grade infections of the intestinal tract. The paper was founded upon 20 postulates the most significant of which I will quote briefly:

The class of cathartics is the most varied of any in our materia medica, and though differing widely in strength and relatively in effect produces results which are strikingly similar and strongly suggestive of a common agency of force.

All catharsis is accompanied by three phenomena, (1) liquefaction of feces; (2) increase in gas formation; and (3) the induction of increased peristalsis. All forms of mercury with which we are acquainted are germicidal in action, all forms are cathartic in action.

Mercurial catharsis is invariably accompanied by excessive gas formation, liquefaction of feces, and the induction of increased peristalsis and differs only in degree and duration from any form of microbial catharsis with which we are acquainted.

B. coli communis is constantly present in the human intestine from the first taking of food until the death of the individual, it is the hardest of all the intestinal bacteria and will outstrip all other varieties under similar conditions of environment. Its excessive growth is marked by the same group of phenomena which attend the invasion of the intestinal tract by any of the pathogenic organisms, increase of gas formation, induction of increased peristalsis, and liquefaction of feces.

The experiments of Strassburger have proved that the growth of the intestinal bacterial flora is encouraged by the use of mercurous chlorid.

The theory is advanced that mercurial catharsis is brought about by the promotion of the activity of certain of the intestinal bacteria. The results obtained by the use of the other cathartic agents so closely resemble the results obtained from the use of mercury that until definitely proved to the contrary, it would appear only reasonable to believe that they too bring about their constitutional effects by some similar selective action upon the intestinal bacteria.

The recognition and the use of these facts are the first means afforded us for the establishment of a definite intestinal therapy and the removal of the whole subject from the field of empiricism where it has always laid.

The probability is brought home to us that many of the intestinal infections are to be controlled not by attempts at destruction of the triumphant species, hitherto so unsuccessful, but by a destruction secondary to and dependent upon the restoration of the normal bacterial flora of the part.

To give a slightly more connected outline of this theory I will begin by saying that within the intestinal tract of every individual and most animals there normally dwell many classes of bacteria; that *B. coli communis* as has been said, is the most virile of these bacteria and will outgrow all the other groups; this applies not only to those conditions which might be called conditions favorable to bacterial growth, but what is of more significance to us in this matter, *B. coli communis* will out-

* Read at the regular meeting of the North Side Branch of the Chicago Medical Society, December 8, 1904.

grow all other varieties in an unfavorable environment. Clinically this has been noted by Dr. Keen in his "Surgical Complications of Typhoid"; by Drs. McCrae and Mitchell who report six operative cases following typhoid perforation in four of which pure cultures of *B. coli communis* were obtainable from the peritoneal cavity. Drs. Cushing and Livingood say that this virility of the colon bacillus is one of its most distinguishing characteristics. We have all no doubt frequently performed the experiment in the laboratory of producing a pure culture of *B. coli communis* from a number of polymorphous groups of cultures by the addition to the culture material of a small amount of carbolic acid. It is proper here to speak of the remarkable similarity existing between *B. coli communis* and the enormous group of adventitious intestinal bacteria which it so closely resembles. This resemblance has even extended into the field of serum reactions. Some of our most talented investigators at times seem unable to determine at what point variation in function ceases and difference in species begins. Clinically considered, the ability of *B. coli communis* to produce derangements of the intestinal tract identical with the symptoms produced by bacteria admittedly pathogenic has been proved times without number. The following significant quotation from Cumston in an analysis of a series of his cases of enteritis brings this home very sharply to us. He says:

The virulence of the infection in all our cases was consequently due to *B. coli communis* whose exaltation in virulence caused all the other usual inhabitants of the intestine to disappear. It is consequently a fact that in the infantile enteritis which we had under our eyes the intestinal flora became very poor, one or two kinds alone remained but increased in their virulence; the other species were obliged to disappear as the harder varieties invaded the intestine.

To group these scattered clinical facts we might state the proposition thus: It has been proved beyond a doubt that within the intestinal tract of every human being during every minute of life are myriads of bacteria. It has been proved these bacteria are capable of producing, whenever the environment becomes favorable to their growth, the clinical phenomena of liquefaction of feces, increase in gas production and the induction of increased peristalsis. Many observers believe that one of the most favorable opportunities for the excessive growth of *B. coli communis* is the removal from the intestinal tract of many of the other species of bacteria. We know that one of the most efficient methods of removing the evidences of bacterial life is by the use of antiseptics. For many years the medical profession have been using mercury, their most useful germicide, as a cathartic. What more natural conclusion for one to come to than this? Mercury when introduced into the intestine kills off some of the weaker species of bacteria. The colon bacillus, as has been shown by many investigators, withstands the action better than other forms of intestinal bacteria and is enabled by this disturbance in the bacterial balance of the intestinal tract to rise to an exaltation of function which is manifested by the liquefaction of feces, increase in gas formation and induction of increased peristalsis which invariably follow the exhibition of a cathartic.

An abstract of Strassburger's paper, in which from an extensive series of experiments on dogs and men he concludes that the number of intestinal bacteria is actually increased by the use of mercurous chlorid and other "intestinal antiseptics," seemed to add strength to this theory as to the cause of catharsis. Another element of proof was obtained from the textbooks on therapeutics published at the beginning of the century. All these early investigators noted the fact that while small doses of the mercurials produced a typic enteritis, enormous doses had quite the opposite effect. This seemed to drop in very well, for while it is easy to understand how minute doses of a germicide like mercury would affect only the weaker classes of bacterial life

within the intestine, we could see that massive doses might inhibit the activities of all the intestinal bacteria.

To produce this latter condition of complete intestinal asepsis the doses would have to be of a size utterly unknown to our day, and they were. Thus Sue for a long period of time gave one of his patients 2 pounds of metallic mercury every morning, with no bad effects. In 17 out of 18 cases of spasmodic cholera, the patients who were treated at the Bethnal Green Hospital in England in 1832, received during the first 36 hours after admission to the hospital from 1,200 gr. to 1,800 gr. of calomel. The purging rapidly ceased under this treatment and the patients recovered. In the only fatal case the patient received 4,000 gr. of calomel in 42 hours, with no bad results, as Perriera says, except that the patient died.

So much for what I would call the antiseptic theory of catharsis as it was presented last autumn. It becomes apparent at once that while this view of the matter possesses points of strength, it presents also points of notable weakness. A few of these I will enumerate. In the first place, I believe it would be difficult for anyone to demonstrate that many of the cathartics produce any effect, either for good or evil, upon the intestinal bacteria outside the human body, presuming, of course, that we use them in a strength similar to that in which we believe them to reach the intestinal tract. It is also apparent that many of the mercurials produce their intestinal effect even when introduced into the general circulation, as by inunction. Extensive wet mercuric chlorid applications, whether as douches or wet dressings, are prone to produce a persistent catharsis when we have reason to doubt whether any of the mercury ever gets into the intestinal tract at all. As a matter of fact, my attention was so closely fixed upon the germicidal properties of mercury that one other property, which we have reason to believe it possesses, completely slipped my mind. This property is its power as a secretion producer. I believe that in this property, a power which we now know to be possessed by many of the commonly used cathartics, lies the secret of the common tie which binds them all together. It is this ability to provoke a spasm of bacterial activity within the intestinal tract by promoting an effusion of warm blood-serum into the lumen of the gut which constitutes the common agency of force in catharsis.

No writer in this country today can properly treat the subject of catharsis without paying his respects to the recent experimental work of J. B. MacCallum. Upward of 18 months ago Dr. MacCallum began his work at the Spreckles Laboratory, in Berkeley, California; his object was to determine, if possible, the method of action of the saline cathartics. His experiments were conducted upon the intestinal tracts of rabbits and embraced a research into the physiologic action of the following salts: Sodium citrate, fluorid, sulfate, tartrate, oxalate, phosphate, magnesium sulfate, and barium chlorid. Dilute solutions of these substances were used intravenously, subcutaneously, by mouth, and by direct application to the peritoneal surfaces of the intestines. In regard to increasing the peristaltic action of the intestinal coats, his experiments convinced him that the salines acted with more rapidity and force, first when used intravenously, next when given hypodermically, and slowest of all, when given regularly by mouth. Thus the intravenous injection of 1 cc. to 2 cc. of a dilute solution of sodium citrate produced increased peristaltic activity within from one to two minutes after use. When given subcutaneously, they require from 10 to 15 minutes to act, and by mouth, even longer than this. His experiments were also concerned with the problem of increased secretion into the lumen of the gut. This, he found, to be an accompaniment of the use of the saline cathartics. Thus a loop of small intestine from the rabbit, 30 cm. in length, contained in natural conditions 5 cc. of secretion in the beginning, 0.2 cc. in the second 10 minutes, and

0.5 cc. in the third 10 minutes; 2 cc. of a solution of BaCl was injected subcutaneously with these results: 4 cc. of secretion in the first 10 minutes; 3.4 cc. of secretion in the second 10 minutes; 3 cc. of secretion in the third 10 minutes. Other extensive experiments were conducted with similar results. Within the last six months Dr. MacCallum has carried out similar experiments as to increased peristaltic activity and increased intestinal secretion, but using a solution of cascara sagrada instead of the salines. His results (only a brief review of which has so far been published), are practically identical with those I have just quoted. The following brief quotation from one of Dr. MacCallum's earlier papers will notably increase the classes of secretion-producing cathartics:

In connection with the production by these purgative salts of an increased flow of fluid into the intestine, together with salivation and increased urination, it is interesting to note the subcutaneous and intravenous use of pilocarpin and physostigmin as purgatives by veterinarians. These drugs act primarily upon the glands of the body, and no doubt owe their purgative action to an increased secretion of fluid into the intestine.

It is interesting in this connection to read Roper's monograph on the extensive use of pilocarpin as a purgative during an epidemic of pneumonia in South Africa.

To this list of secretion producers we also have many reasons to add the mercurials, whose action upon the salivary glands we have all had occasion to observe.

In order to obtain a proper conception of the mechanical factors in the phenomenon of catharsis we should recognize the fact that catharsis is in reality composed of two separate series of changes: 1. The effects which the drug exerts upon the walls of the intestine. 2. The resulting series of changes which occur in the contents of the intestine, the fecal masses.

We must accept the evidence of Dr. MacCallum that certain drugs can produce peristalsis and increased intestinal secretion. But this is in no sense an adequate explanation of the phenomenon of catharsis. This does not explain the reduction of formed masses of solid fecal matter to a fluid consistency, nor does it mention the gaseous portion of the defecatory quotient. *It may be stated as a proposition which will admit of no denial that an increase in the numbers or activity of the intestinal bacteria will produce liquid feces and the formation of large quantities of intestinal gas, but we know of absolutely no other means of producing these phenomena within the intestinal tract.* To quote from my previous paper:

Suppose one of us was called to see a patient suffering from an acute and violent enteritis, the clinical picture being the usual type of excessive peristalsis, appearance of much flatus, liquefaction of feces with frequent bowel movements. If we knew nothing of the previous history we would decide the patient was suffering from an infectious process in the intestine. We would one and all, without exception, conclude that some species of bacteria, either one foreign to the part or a native dweller had through some stress of circumstances come into power and was causing all the phenomena which we witnessed by an excessive activity of its functions. Suppose, as we were departing, we were told that our patient had taken, unknown to himself, .65 gm. (10 gr.) of calomel, would we change our minds as to the causes of the phenomena we had just witnessed, and if so, why should we?

It is well to bear in mind, if we are inclined to be sceptical as to the bacterial origin of catharsis, that there is absolutely no other reasonable explanation. Although it may be some time before we can all agree upon the truth of this theory, it should be at any rate a matter of mutual congratulation to know that we have discarded forever the ideas that castor-oil acts mechanically, or that blue mass acts "partially" by gravity, and other timeworn ideas of our medical childhood. While the object of this paper is a plea for the recognition of the bacterial element in catharsis, it also opens up a new vista in the normal physiology of the intestinal tract. If we will admit, or if future investigation forces us to admit, that the intestinal bacteria have a definite mechanical function in catharsis, then we must also

admit the existence of this function in everyday life. He is unimaginative and blind, indeed, who fails to see in all the intestinal movements which are excited by stimulation from within the lumen of the gut, an endless series of modifications of the same all-pervading bacterial process. If the inordinate liquefaction and enormous gas production of catharsis are bacterial phenomena, then the lessened variations and perversions of those functions which we see in everyday life are but modifications of the same process, and the intestinal bacteria appear before us with a mechanical function as definite, as clearly outlined, and as necessary to the preservation of health as the cells of the stomach or liver.

Before closing I should like to propose a classification of cathartic medicines, which seems reasonable and differs from all other classifications in that it is justifiable. Cathartics may be divided into two classes: (1) Cathartics which produce a convulsion of activity among intestinal bacteria by the production of an effusion of warm blood-serum into the lumen of the gut; (2) cathartics which act by means entirely unknown to us at the present time.

REFERENCES.

- J. B. MacCallum: American Journal of Physiology, 1903 and 1904; Transactions in Physiology, University of California, 1903 and 1904.
Cushing and Livingood: Johns Hopkins Hospital Bulletin, 1900.
Perreira: Textbook of Therapeutics, 1846.
McCrae and Mitchell: American Medicine, September 13, 1902.
William Roper: The Lancet, August 1, 1903.
Keen: Surg. Comp. and Seq. of Typhoid.
Cumston: International Medical Magazine, 1897.
Groesbeck Walsh: Chicago Medical Recorder, August 15, 1904.

THE LLOYD REACTION FOR MORPHIN AND OTHER ALKALOIDS.*

BY

DANIEL W. FETTEROLF, Ph.G., M.D.,
of Philadelphia.

(From the Robert Hare Laboratory of Chemistry, Department of Medicine, University of Pennsylvania.)

[Concluded from page 906.]

Mixtures of apomorphin hydrochlorid and hydrastin stirred with sulfuric acid, or with sulfuric acid and potassium dichromate, yield colors somewhat resembling those produced by mixtures of morphin and hydrastin; the brilliancy of the colors, however, being greater than with morphin and hydrastin, and having a greater delicacy of reaction.

A mixture composed of 0.001 mgm. of each of the alkaloids, apomorphin hydrochlorid, and hydrastin, treated with sulfuric acid alone, or with sulfuric acid and potassium dichromate, produced a violet color in the play of colors. This would indicate that the delicacy of the Lloyd reaction for apomorphin as hydrochlorid is ten times greater than for morphin.

The apomorphin hydrochlorid employed was Merck's pure, yellowish-white, acicular crystals.

The results of the foregoing experiments are given in Tables XI, XII and XIII.

To determine to what extent the various colors produced by the mixtures of hydrastin and apomorphin hydrochlorid were due to the apomorphin hydrochlorid alone, the experiments in Table XIV were made.

The production of the reddish-violet color in mixtures of apomorphin hydrochlorid and hydrastin, instead of the blue-violet color produced by mixtures composed of identically the same proportions by weight of morphin and hydrastin, may be due to the fact that apomorphin hydrochlorid itself produces a pink color when treated with sulfuric acid alone, and probably this color imparts the reddish-violet tone to the residue.

The green color produced by mixtures of apomorphin and hydrastin when treated with sulfuric acid and potassium dichromate is due to the apomorphin hydrochlorid

* Read before the Philadelphia Section of the American Chemical Society, October 20, 1904, and also, with the results of further investigation, before the Society of Normal and Pathological Physiology of the University of Pennsylvania, November 21, 1904.

alone. The production of a green color may be a means of distinguishing between morphin and apomorphin when mixed with hydrastin and treated with sulfuric acid and potassium dichromate.

EXTRACTION OF THE MIXED ALKALOIDS, HYDRASTIN, AND MORPHIN FROM ANIMAL TISSUES.

The mixed alkaloids, hydrastin, and morphin may be extracted from aqueous solutions obtained from animal tissues by means of various immiscible solvents, in

proportions which with sulfuric acid alone, and with sulfuric acid and potassium dichromate, will yield the play of colors described in this paper, including the blue-violet color.

The method by which the extractions were made from animal tissues to which the alkaloids were added is as given below. Four separate portions of liver mixed with the alkaloids were treated identically, except finally each portion was extracted by a particular immiscible solvent.

TABLE XI.

Ratio. Hydrastin: apomorphin hydrochlorid.	Quantity of alkaloids in parts of a gram.		Sulfuric acid 4 drops (0.1 cc.) brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 4 drops (0.1 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Apomorphin hydrochlorid.		
1 to 1	0.001	0.001	Yellowish-brown to red-violet in 15 seconds, the red-violet becoming very brilliant in 1 minute, and remaining several hours.	Blue-violet to red-violet with blue-violet streaks following the fragment when drawn through the mixture in 10 seconds, changing to very dark violet-red in 3 minutes.
1 to 1	0.0001	0.0001	Yellowish-brown to dark blue-violet in 20 to 30 seconds, becoming olive-green in 5 to 8 minutes.	Dark blue-violet with momentary olive-green or brown streaks in 5 seconds, changing to very dark brown in 1 minute.
1 to 4	0.0001	0.0004	Same as in the one preceding.	Same as in the one preceding, except no olive-green, but very dark brown streaks were produced, changing to very dark brown in 5 to 10 minutes.
2 to 4	0.0002	0.0004	Same as in the one preceding.	Same as in the one immediately preceding.

TABLE XII.

Ratio. Hydrastin: apomorphin hydrochlorid.	Quantity of alkaloids in parts of a gram.		Sulfuric acid 2 drops (0.05 cc.) brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 2 drops (0.05 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.
	Hydrastin.	Apomorphin hydrochlorid.		
1 to 1	0.00001	0.00001	Yellowish-brown to pale red-violet in 20 to 30 seconds, becoming darker red-violet in 5 minutes, permanent an hour or more.	Dirty olive-green with blue-violet streaks following the fragment when drawn through the mixture in 5 to 10 seconds, changing to brown in 1 minute.
1 to 2	0.00001	0.00002	Same as in the one preceding.	Same as in the one preceding.
1 to 4	0.00001	0.00004	Same as in the one preceding, except the red-violet was darker and was produced in 10 seconds.	Dirty olive-green to blue-violet in 5 seconds, changing to very dark brown in 1 minute.
1 to 6	0.00001	0.00006	Same as in the one immediately preceding.	Same as in the one immediately preceding.
1 to 9	0.00001	0.00009	Same as in the one immediately preceding, except the red-violet was darker and was produced in 20 to 30 seconds.	Same as in the one immediately preceding, except the blue-violet was darker and the final very dark brown was not produced until after the expiration of 1½ minutes.
1 to 12	0.00001	0.00012	Same as in the one immediately preceding.	Same as in the one immediately preceding, except the blue-violet was not so dark and the final dark brown occurred in 2 minutes.
1 to 15	0.00001	0.00015	Same as in the one immediately preceding.	Same as in the one immediately preceding.
100 to 1	0.001	0.00001	Pale yellow to pale blue-violet streaks in 15 to 20 seconds, becoming a little darker in 5 minutes, and slowly fading away in 20 minutes.	Pink-brown with very transient blue-violet streaks in 5 to 10 seconds, to pink with brown streaks following the fragment when drawn through the mixture in 1½ minutes, changing to pale brown with pink tint in 5 minutes.
25 to 1	0.001	0.00004	Pale yellow to pale blue-violet in 5 to 10 seconds, becoming darker in 10 minutes and slowly fading away.	Pink-brown with blue-violet streaks in 5 to 10 seconds, changing to pale red-violet with brown streaks following the fragment when drawn through the mixture in 3 minutes, becoming brownish-red in 5 minutes, changing to brown with pink tint in 10 minutes.

TABLE XIII.

Ratio. Hydrastin: apomorphin, hydrochlorid.	Quantity of alkaloids in parts of a gram.		Sulfuric acid, 2 drops (0.05 cc.), brought in contact with the dry mixture of the alkaloids and slowly stirred, with a pointed glass rod, for 5 minutes.	A minute fragment of potassium dichromate stirred in 2 drops (0.05 cc.) of sulfuric acid until the fluid was distinctly yellow; the fragment thus moistened with the acid was slowly drawn through the dry mixture.*
	Hydrastin.	Apomorphin hydrochlorid.		
1 to 1	0.000001	0.000001	Very pale yellowish-brown changing to very pale reddish-violet in 5 minutes, rapidly disappearing.	Momentary very pale violet streaks (only obtained by the greatest care.)
1 to 2	0.000001	0.000002	Same as in the one preceding, except the violet color was produced in 4 minutes.	Same as in the one preceding.
1 to 4	0.000001	0.000004	Same as in the one preceding, except the violet was produced in 3 minutes.	Same as in the one preceding.
1 to 6	0.000001	0.000006	Yellowish-brown changing to pale reddish-violet in 2 minutes, slowly fading away.	Very pale green with pale blue-violet streaks changing to pale yellow in 10 seconds (yellow due to fragment and acid).
1 to 9	0.000001	0.000009	Same as in the one immediately preceding, except the violet was a little darker.	Same as in the one immediately preceding, except the yellow was produced in 20 to 30 seconds.
1 to 12	0.000001	0.000012	Same as in the one immediately preceding.	Same as in the one immediately preceding.
1 to 15	0.000001	0.000015	Yellowish-brown to pale reddish-violet in 1½ minutes, fading to pale pink in 5 minutes.	Very pale green with pale blue-violet streaks following the fragment when drawn through the mixture in 5 to 10 seconds, changing to yellow in 30 seconds (yellow due to fragment and acid.)

* No green or violet color was produced when the 2 drops of acid and fragment were employed.

Mixtures consisting of 10 cc. of the alcoholic solution of hydrastin, containing 0.010 gm. of hydrastin and 30 cc. of the alcoholic solution of morphin, containing 0.090 gm. of morphin and 0.5 cc. hydrochloric acid, c. p., were thoroughly mixed by means of a glass rod, with 70 gm. of liver, previously finely ground in a meat grinder and allowed to stand for 19 hours. The semifluid material was then evaporated on a water-bath at 60° C. until the mass was of the consistency of a thick paste, the time required being six hours. Five cubic centimeters of alcohol were thoroughly incorporated with the mass and the material was again allowed to stand for 19 hours, making a total of 44 hours; the purpose of this treatment being to permit thorough absorption of the alkaloids by the liver tissue.

This mass was thoroughly incorporated with a mixture consisting of alcohol 25 cc., water 50 cc., and 0.3 cc. sulfuric acid, c. p., and digested, with frequent stirring, on a water-bath at 80° C. for an hour, the original volume being maintained by the addition of the alcohol-water mixture. The liquid, while hot, was strained through a strong, fine mesh muslin cloth, and the residue was washed with 150 cc. of the alcohol-water mixture, in small portions at a time, and finally the solid mass was strongly pressed. The strained liquid and washings were evaporated on a water-bath at 80° C. to a small volume, nearly neutralized with ammonium hydroxid, filtered, and the residue while on the filter paper, washed several times with water.

The filtrate and washings were evaporated on a water-bath at 75° C. to 80° C. until only a few drops of liquid remained. This liquid was stirred with 15 cc. of alcohol, filtered, and the residue washed several times with small portions of alcohol. The alcohol was evaporated on a water-bath at 60° C. until nearly to dryness, then removed from the water-bath and the remainder allowed to evaporate spontaneously until complete dryness was obtained. The residue was treated with a small volume of water, filtered, and the residue and filter paper washed several times with small portions of water. The

also the amount absorbed by and eliminated from the living animal tissues, is under investigation.

Joseph C. Wharton⁵ obtained a residue from a chloroform extract of a mixture of bread, butter, and sausage, containing the mixed alkaloids, which with sulfuric acid and potassium dichromate yielded a persistent red color indicative of hydrastin, but no green, blue or purple color. In his experiments with mixtures consisting of one part of hydrastin and four parts of morphin, he obtained, with sulfuric acid and potassium dichromate, a brownish color, slowly changing to a persistent greenish, then to dark greenish-blue or blue and a peculiar not well-defined purplish color.

On extracting with chloroform an aqueous solution containing 0.1 gm. of hydrastin and 0.9 gm. of morphin, slightly acidulated with sulfuric acid, Williams¹ obtained a residue which he believed to be composed of five parts of hydrastin to one part of morphin, because of the greater solubility of hydrastin in chloroform.

The residue from this extract when treated with sulfuric acid alone, "yielded a yellow color, indicative of hydrastin, and on immediately drawing a small fragment of potassium dichromate through the mixture, a violet color manifested itself in the change of colors occurring, which he believes would not nowadays be mistaken for strychnin."

The Lloyd reaction, with various alkaloids, has been

TABLE XIV.

Quantity of apomorphin hydrochlorid in parts of a gram.	Sulfuric acid 2 drops (0.05 cc.) brought in contact with the dry alkaloid and slowly stirred, with a pointed glass rod, for 5 to 10 minutes.	A minute fragment of potassium dichromate stirred in 2 drops (0.05 cc.) of sulfuric acid until the fluid was distinctly yellow; the fluid with the fragment brought in contact with the dry alkaloid and slowly stirred, with a pointed glass rod, for 5 minutes.
0.001	Yellowish-brown to pale yellow in 1 minute, changing to pale pink in 5 to 8 minutes.	Bluish-green to olive-green with dark olive-green streaks following the fragment when drawn through the residue in 30 seconds, becoming dark olive-green in 3 minutes, changing to dark brown in 5 to 8 minutes.
0.0001	Pale yellowish-brown changing to pale pink in 8 minutes.	Pale bluish-green changing to yellowish-brown in 5 minutes.
0.00001	Same as in the one immediately preceding, except the pink color was produced in 10 minutes.	Momentary pale bluish-green streaks, becoming yellow. (Yellow of the fragment and acid.)
0.000009	Same as in the one immediately preceding, except the pink color was produced in 10 to 15 minutes.	Same as in the one immediately preceding.
0.000006	Same as in the one immediately preceding.	Unaffected, except the yellow of the fragment and acid was produced.
0.000004	Pale yellow changing to pale yellowish-brown in 10 minutes.	Same as in the one immediately preceding.
0.000002	Very pale yellow, disappearing rapidly.	Same as in the one immediately preceding.
0.000001	Same as in the one immediately preceding.	Same as in the one immediately preceding.

aqueous solution with the washings was placed in a separatory funnel, rendered slightly alkaline with ammonium hydroxid.

The resulting liquid thus obtained from one of the four portions of liver plus the alkaloids was extracted with ethyl ether, another with chloroform, another with amyl alcohol, and the remaining one with petroleum ether. The extracting liquid was drawn off and evaporated spontaneously, except the amyl alcohol, which was evaporated on a water-bath at 60° C. nearly to dryness and then completely dried in a desiccator.

The residues from these extracts were purified by being treated with a drop or two of acetic acid and dissolving in 5 cc. to 10 cc. of alcohol, filtering and washing the residue with 5 cc. to 10 cc. of alcohol in small portions. The alcoholic solution was evaporated on a water-bath at 60° C. The residue was dissolved in 15 cc. of water slightly acidulated with acetic acid, placed in a separatory funnel, rendered slightly alkaline with ammonium hydroxid, and extracted with the respective immiscible solvent, which had originally been employed in extracting the liver material from which the residue had been obtained.

The dry residue from each of these extracts, with the exception of the petroleum ether extract, yielded the color tests with sulfuric acid alone, and with sulfuric acid and potassium dichromate for the mixed alkaloids. The residue from the petroleum ether extract gave rather indefinite results, probably due to the very slight solubility of the two alkaloids in this liquid. The residue from each of these extracts, including the one obtained by petroleum ether, when treated with sulfomolybdic acid, gave a marked reaction for morphin.

The quantity by weight of the mixed alkaloids, hydrastin, and morphin recoverable from animal tissues,

partially studied by Joseph L. Mayer.⁶ He states that in the work he did "the conditions and method of applying the test were alike throughout, and consisted of mixing approximately one part of hydrastin with eight parts of the other alkaloid."

"To these mixtures a few drops of concentrated sulfuric acid were added and stirred with a glass rod for at least five minutes."

The following table shows the results of his investigation:

Aconitin.....	Brown
Atropin.....	Pinkish
Berberin.....	Greenish-brown
Bruin.....	Light brown
Caffein.....	Dirty white,
Cinchonin.....	"
Cinchonidin.....	"
Cocain.....	Unaffected
Codein.....	Pinkish
Digitalin.....	Mahogany
Heroin.....	Violet-purple
Homatropin.....	Pale yellow
Hyoscyamin.....	Dirty white
Morphin.....	Violet-blue
Pilocarpin.....	Light brown
Quinidin.....	Light green
Quinin.....	Greenish-yellow
Sparteïn.....	"
Strychnin.....	Dirty white
Veratrin.....	Royal purple

While there is some similarity of color reaction, when a mixture of hydrastin and morphin is treated with sulfuric acid and potassium dichromate, the greater permanency of the violet color, preceded by a pink-

brown and a final brown color, and especially the fact that such a mixture treated with sulfuric acid alone, yields a violet color, would serve to distinguish the mixture from strychnin. Therefore it is unlikely that this color reaction should be mistaken except by a novice, for that which is produced with strychnin.

All investigators of this reaction (Williams,¹ Wharton,⁵ Mayer,⁶ Kebler,⁷ Wangerin,⁴) agree in the unlikelihood of this color reaction being mistaken for that produced by strychnin.

The best results are obtained under the following conditions:

1. The deposited alkaloids should be distributed over a very small area, the area not exceeding about 12 mm. in diameter.

2. Two to four drops (0.05 cc. to 0.1 cc.) of sulfuric acid (c. p.) should be allowed to remain in contact with the mixture of the alkaloids undisturbed for about 10 to 20 seconds, then slowly stirred by means of a thin, pointed, glass rod for five minutes.

3. The small fragment of potassium dichromate should be placed in two to four drops (0.05 cc. to 0.1 cc.) of sulfuric acid (c. p.) and stirred until the acid assumes a slight yellow color. The fragment thus moistened with the sulfuric acid should, by means of a thin pointed glass rod, be slowly drawn through the deposit of alkaloids. Then the remaining yellow-colored acid should be gradually mixed with the fragment and deposit, and slowly stirred for five minutes.

In using the Lloyd reaction, strychnin may be differentiated from a mixture of hydrastin and morphin as follows:

1. On treatment with sulfuric acid alone, strychnin enters into solution without the production of any color, whereas the mixture of alkaloids yields a yellow or yellowish-brown color, changing to pink-brown, blue-violet to red-violet, or pinkish-violet in five minutes or less.

2. On treatment with sulfuric acid and potassium dichromate, strychnin yields evanescent blue, purple, and violet colors, finally changing to a reddish color which slowly fades away, whereas the mixture of alkaloids yields a pink-brown color, changing to blue-violet or red-violet, passing through various shades of violet of more or less permanence to dark brown or pink-tinted brown.

BIBLIOGRAPHY.

- ¹ Wharton: Druggist Circular, March, 1901, page 48.
⁵ Mayer: American Journal of Pharmacy, July, 1901, p. 353.
⁷ Kebler: American Journal of Pharmacy, July, 1903, p. 337.

A SIGN OF VALUE IN SPLENIC AND HEPATIC DISEASE.

BY

T. HORACE EVANS, M.D.,

of Philadelphia.

Member American Medical Society for the Study of Alcohol and Inebriety.

Auscultatory percussion is a useful combination for diagnostic purposes; and a combination of percussion and palpation is not unknown, as in the method of obtaining a succussion splash or succussion wave. The method of examining either spleen or liver which I am going to suggest is one uniting palpation and percussion.

The abdominal walls should be relaxed, the lower extremities slightly flexed on the abdomen, and the leg on the thigh. The patient should open the mouth, breathing lightly through it. The physician then gently plunges the fingers of one hand into the abdominal wall at the level of the anterior or lateral costal margin, and rather under the osseous curtain of the same. With the fingers of the other hand, the physician firmly percusses over the supposed site of the organ, spleen or liver, to be examined. The test is double.

Very delicate sense in the percussion hand will discover a variation of resistance, according to the state of the underlying organ, for the retaining hand secures the liver or spleen, as the case may be, between itself and the superior structure, the diaphragm. But the more valuable result will consist in the sensation derived from the parenchyma striking the retaining fingers, which are pressed into the abdominal wall. By a little experience the peculiar shades of consistency of the spleen or liver will make themselves readily perceptible. Any enlargement accompanied by softening or rigidity ought to be quickly distinguished. In cases of typhoid this method is successful for the early diagnosis of splenic variations.

An advantage of the test is in the bony protection, which interferes with the force of the percussion stroke causing the patient pain, as in ordinary deep palpation, and which by the unskilful might be mistaken for pathologic tenderness.

I have noticed in a number of typhoid fever cases that the sense of splenic engorgement, as pain, becomes intensified with the evening rise of temperature. I believe that there is an actual evening or febrile engorgement of the spleen, which can be detected by this method of examination. At least the spleen gives an objective as well as subjective evidence of increased size and suffusion, *i. e.*, a sense of softening and swelling, which corresponds to the fever wave and to the increase of local discomfort. Granting this, and the daily rise and fall of the tide of fever, why should we not discover some pathologic rhythm due to the cycle of the specific infection, or of the patient's mode of response to the same? The principle of sufficient cause must not be lost sight of.

Again, in certain hepatic modifications, as of cystic inflammation, catarrhal or specific, I have been able to establish objective evidence earlier than customary by using this method of examination. A number of obscure symptoms carelessly considered neurasthenic, and possibly due to neurasthenia, are nevertheless easily found related to clinical appearances, such as hepatic congestion or splenic engorgement—transient, febrile, or secondary, as the case may be. No clinician will deny the value of a completer examination of all the patient's viscera.

The sign of splenic or hepatic suffusion, engorgement or softening, as obtained by the combined method of percussion and deep palpation, is one of utility, I believe, and one which I have not found a note of elsewhere.

The Gratitude of the Babu.—The Babu and his peculiar English have lately furnished abundant opportunities for the display of that judicial wit which recalls that of Mr. P. Magnus, and makes us envy the facility with which the audience in a law court is amused. But no imitation, not even that of Mr. Anstey, can be funnier than the original. Two specimens which should have a special interest for doctors have lately been published by our Indian contemporary, the *Pioneer*. Both are letters expressing gratitude for the ministrations of the staff of the Allahabad Hospital for Women. One addressed to the lady at the head of the hospital was to the following effect:

"Dear She,—My wife has returned from your hospital cured. Provided males are allowed at your bungalow I would like to do you the honour of presenting myself there this afternoon, but I will not try to repay you—vengeance belongeth unto God.—Yours noticeably,

This pious sentiment might at first sight seem to be open to misconstruction. The writer, however, like a good many others in India and elsewhere, doubtless introduced his singularly inappropriate quotation merely as a literary flourish, without any particular regard to its application. The writer of the other letter expresses his feeling in less ambiguous terms. He says:

"Dear and Fair Madame,—I have much pleasure to inform you that my dearly unfortunate wife will be no longer under your kind treatment. She having left this world for the other on the night of the 27th ulto. For your help in this matter I shall ever remain grateful.—Yours reverently,

The pleasure with which he makes the announcement is quite in harmony with the evidently sincere gratitude promised for the manner in which he has been helped out of a difficulty.—[*British Medical Journal*.]

SPECIAL ARTICLES

A STUDY OF REPRINTS AND CLINICAL REPORTS
ON PROPRIETARY MEDICINES.¹

BY

ROBERT HESSLER, A.M., M.D.,

of Logansport, Ind.

When I entered the private practice of medicine I almost immediately began receiving circulars and pamphlets from manufacturers of proprietary medicines. All were examined more or less fully, a few were filed away for future reference, and the rest consigned to the waste basket. Occasionally I would receive a separate or reprint on some scientific medical or purely medical subject; at first, mainly from former teachers in medical schools, more rarely from former fellow students. All were filed away among my medical books. Of course I felt flattered on receiving a separate with a dedicatory inscription, but when the paper came from a writer whom I did not know, perhaps had never heard of, I often wondered why it was sent.

It was some time before I discovered that many of my reprints had been sent by the manufacturers whose preparations were mentioned in the text. When I fully realized this I had a house-cleaning, and thereafter I was rather suspicious of a reprint with the name of a proprietary remedy in it. I usually looked through them more or less carefully, but I saved comparatively few. Recently I began to save all the literature that came to me through the mail; I had an object in view. It was a surprise to me how much accumulated in a short time.

After putting together some notes on the relationship of city dust to advertisements of patent medicines in the newspapers,² I determined to go over my material to see if the influence of infected dust cropped out as it does in the newspapers and in medical journal advertisements. I soon came to the conclusion that it does, and if I am wrong in my conclusions, I hope some one will be able to give a better explanation of the facts I am about to mention.

Some one has said that facts are stupid things until brought in harmony with some law, but it would seem at first sight that the literature (the advertisements) of patent and proprietary remedies is about the last thing to obey or come under any law.

Since every science and every art classifies the things with which it deals or which belong to it, we may likewise make at least an attempt to classify. According to the dichotomous system, we can divide the material into two divisions: (a) Coming from the writer of the paper or case report, or (b) coming from a manufacturer and exploiting some article or preparation.

The first division (a) turned out to be a small one, but contained many valuable papers. A paper reprinted from a good medical journal is generally worth reading, whereas one from a poor journal may be regarded with suspicion. I shall dismiss this group with this bare mention.

The second group (b) contained a large amount of all sorts of printed matter. Some of this literature is gotten up very tastefully; there has certainly been a marked improvement during the last few years—superior paper, and presswork, and illustration, the latter often in colors. In many instances the claims for curative properties are quite moderate and reasonable, but the opposite is not lacking: Poor paper, poor spelling, and misused words; and what some manufacturers will not claim, in the nature of curative properties, is not worth claiming. Some of the pamphlets have pictures that bear no relationship to the text, sometimes they serve simply as filling or padding. We can subdivide into groups, as follows:

1. Papers reproduced from good medical journals. Papers or articles more or less descriptive, and followed by case reports. This group contains relatively few papers, and nearly all are worth careful reading. As may be expected, statements are in harmony with the standing of the journal, and there is

usually nothing extravagant about them, and claims for curative properties of the remedy mentioned are reasonable.

2. Papers reproduced from poor or obscure medical journals. This is a fair-sized group, and contains a queer lot of papers. It seems some journals make a business of publishing papers or reports exploiting proprietary remedies. I may be wrong, but it seems so to me. Very emphatic statements or claims for curative properties of the remedy extolled occur now and then. On the whole, the reprints of this group are very superficial, but occasionally a good idea may be obtained from them.

3. Pamphlets or even booklets with more than one paper or article brought together by the manufacturer from various journals; sometimes a paper contains only a single case report, rarely a series.

4. Clinical or case reports in series, but not reproduced from any medical journal. A moderate-sized group, containing some fairly good reports, usually made direct to the manufacturer by some physician connected with a hospital or dispensary. The absence of restraint or editorial supervision at times leads to extravagant statements.

5. So-called "clinical reports" and "case reports," but in reality testimonials and recommendations, or extracts from letters of physicians. The largest group and most widely circulated. Expressions such as "acts like magic," and "most wonderful results," are quite common. Some bear the earmarks of having been written in reply to inquiries from the manufacturer. Usually prefixed by a more or less general description of the remedy and the disease or diseases for which it is to be applied.

In order to include all the literature, we must add a sixth group, for those pamphlets and circulars which are not and do not profess to be reports on remedies. We can dismiss this group with this bare mention.

I may add that in arranging my material I noticed the absence of literature on some of the most widely advertised preparations (in medical journals) and, in order to make my series more complete, I sent out a number of requests for "clinical or case reports." Some of the returns were real surprises—I will mention a few:

One return consisted of a package with 16 different enclosures, all the way from one page circulars to fairly good case reports of 16 pages.

One inquiry brought a book, in paper cover, of nearly 600 pages, containing a miscellaneous collection of reading matter, case reports, and testimonials.

One reply consisted of a circular letter, saying that free samples were no longer distributed, but that a sample of the remedy would be sent on receipt of 25 cents. Nothing said about clinical or case reports.

One manufacturer sent a circular letter which called attention to an enclosed report (really nothing more than a testimonial) and then went on to say that he, the manufacturer, frequently received letters offering to give testimonials in return for a suitable consideration. Is it possible, we may ask, that some of the reports and testimonials sent out are obtained in this manner? In my collection are reports on widely different proprietary remedies, made by one and the same man—even by teachers in medical schools.

Out of the great mass of material which I accumulated I can review only a small part, one or two typical examples of each kind. By beginning with the last group, as given before, we will have a progressive series from the simple and easy to the complex—from the first reader to the sixth, if I may be permitted to use such an expression. By this I do not mean to cast any reflections on physicians who receive this sort of literature *nolens volens*. Nor am I making any criticism of the preparations themselves, I am simply speaking of the literature sent out by manufacturers—some adopt too low a standard and thereby bring their preparations into disrepute; many physicians are apt to make comparisons with advertisements of patent medicines in the newspapers.

As mentioned in the beginning of this paper, my review of this literature is for the purpose of determining whether the influence of infective dust crops out, as it does in the advertisements of patent medicines in the newspapers and of proprietary

¹ Presented, with illustration, before the Miami County, Ind., Medical Society, March 31, 1905.

² *American Medicine*, March 4, 1905.

remedies in the advertising pages of our medical journals. To me the most commonly occurring morbidity names have the flavor of infected dust, of a polluted atmosphere, and it must certainly pay to advertise remedies that are supposed to counteract the evil influence of the dust.

REVIEW OF THE LITERATURE.

L.—A remedy for pain. Pain and inflammation, as in pneumonia, bronchitis, croup, pleurisy, ovaritis, orchitis, tonsillitis, acute pharyngitis, some forms of rheumatism, and boils. Localized pain, as in some forms of rheumatism, lumbago, facial neuralgia, subscapular neuralgia, intercostal neuralgia, and pleurodynia.

The pamphlet contains several hundred "abstracts from reports of physicians," arranged under 60 heads in alphabetic order, from "abscess" to "wounds," and including such names as carbuncle, carcinoma, cold, congestion of the lungs, consumption, corns, cough, croup, and croupous pneumonia.

Excluding names mentioned less than three times, we have the following in order of frequency of mention:

Pneumonia.....	32	Grip.....	5
Rheumatism.....	22	Lumbago.....	5
Pain.....	15	Abscess.....	4
Injury.....	14	Asthma, asthmatic conditions.....	4
Pleurisy.....	14	Pleuropneumonia.....	4
Orchitis.....	11	Sciatica.....	4
Ovaries.....	10	Boil.....	3
Bronchitis.....	10	Cough.....	3
Neuralgia.....	9	Gout.....	3
Croup.....	8	Tonsillitis.....	3

Excluding the terms pain, injury, orchitis, ovaries, abscess, boil and gout, we have left a list of names that in my opinion refer to dust infection.¹ If, moreover, we examine into the cases of the foregoing excluded terms we might be inclined to question some of the diagnoses and refer them to one or other of the various forms of dust infection. A few examples will show this, and it should be kept in mind that the "reports" are often less than a line in length, as will be seen from the following:

Abscess. Of liver, threatened. Satisfactory results.
 Abscess. Cerebral. Pain very much modified in an hour.
 Gout. Pain in big toe. Relief in 15 or 20 minutes.
 Orchitis. Relieved pain immediately.
 Orchitis. Relief experienced immediately.
 Ovaries. Pain in. Relief in less than an hour.
 Pain. In chest. Relieved instantly.
 Pain. In muscles. A great remedy for muscular pain.
 Pain. In side, caused by cold. Cured in an hour.
 Pain. Over right nipple. Relieved. No return of pain.

This list may be strung out at length. There certainly cannot be anything radically wrong when a pain will subside in a short time. A queer sort of "cerebral abscess" or of "orchitis" that can be so readily influenced. Moreover, if we examine into the reports on such specific diseases as pneumonia and bronchitis, we may again question the diagnoses, as a few examples will show:

Pneumonia. Results were surprising. Second application stopped all pain.
 Pneumonia. Pain intense and persistent. Pain better in a few hours; all gone in 36 hours.
 Pneumonia. Severe pain in chest. Relieved.
 Pneumonia. Pain relieved in 15 minutes, disappeared in two hours.
 Pneumonia. Incipient. Worked like a charm, a night's application doing wonders.
 Bronchitis. Acute. Relief after first application, pain and soreness disappearing.
 Bronchitis. Easier in a few hours, perfectly easy on second application.

H.—A small pamphlet on "A New Theory of Treating Rheumatism." Exploits a preparation, or rather three—one for internal use and two for external application. "For the rapid elimination of the rheumatic poison, whether uric acid or various imperfectly oxidized matters." Uric acid is not so strongly insisted upon as a cause as in former pamphlets by the same firm.

The very beginning is suggestive, it says:

Aches and pains. Not all aches and pains are of true rheumatic origin; but yet how common are vague pains affecting muscles, tendons, and nerve sheaths. What is the cause of these? The rheumatic question is yet unsettled and undecided. The uric acid theory has had the strongest hold for a generation past. . . . There has been some doubt thrown about this

theory by late investigators, at least in so far as uric acid is the primal cause. Many symptoms certainly would indicate that true rheumatism is an infectious disease, etc.

There are a dozen pages of professional endorsements, all without the mention of a single date. The "disease" and the results of the treatment are given in bold letters at the head of each endorsement; I will copy a few:

Acute rheumatic pains—Relief immediate.
 Rheumatism—six months' standing—Cured in six days.
 Chronic rheumatism—Worth a thousand dollars.
 Stubborn chronic rheumatism—A certain cure.
 Muscular rheumatism—Surprised with quick cure.
 Traveling rheumatism—H stopped it.
 Torticollis and lumbago—cured in a week.
 Severe attack of sciatica cured in four days.

What is in a name, we may ask. Certainly a patient complaining of "rheumatic aches and pains" may be still far removed from an attack of real rheumatism, that is, of acute articular rheumatism. To me, again, these names suggest the aches and pains of dust infection which often subside in a day or two or on removal to a pure air supply.

M.—A small pamphlet entitled "Loss of Vitality in Malaria," contains a readable "Little Talk about Malaria," followed by "Testimony of the Profession."

The very first case report is as follows:

H. M., 35 years of age; broken-down nerves, chronic malaria and female troubles. Gave the proper remedies for the trouble, and then put her on M to feed up her nerves and brighten her prospects for life. She is now well and is as fat as a pig. She said that she had been a victim of malaria poison for a number of years.

Several similar cases follow and then we come to one with a mention of dates:

March 13, patient in a rundown condition, and a severe cough. The patient said she had a severe attack of intermittent fever the fall before and has since then complained, especially of pain in the left side of chest. She was placed on the remedy and by June 8 was cheerful and happy, and seemed perfectly well.

There are 16 case reports but malaria is not mentioned in all of them. On reading these reports I was reminded of one of my patients who lives in St. Louis—where many of these proprietary remedies are made. He wrote me as follows, after he had been told by a St. Louis physician that he had malaria:

The symptoms began to return and today I have felt mean. Had chilly sensations, nose and eyes water, eyes weak and tired, seem to have a huskiness in the throat, and muscles over the body seem sore as if I had a cold and it settled in them. I just feel mean—not sick; like to choke some one. Otherwise I feel first class—bowels open, stomach good—all right except this malaria, cold, or whatever it is.

The foregoing case is copied from a previous paper on "Dust—A Neglected Factor in Ill-health,"¹ and I am inclined to believe that many of the cases quoted in the pamphlet are cases influenced by a contaminated atmosphere, and that the plasmodium of malaria has nothing to do with the cases.

G. S. H.—This is a rather bulky and substantially-bound booklet on a proprietary syrup. The letters and testimonials are called "Clinical Reports," and are classified under "pathologic headings." Such expressions as "wonderful results" and "works like a charm," are perhaps not wholly out of place. The syrup is evidently a specific, or certainly a favorite, in syphilis, because this term occurs most frequently, that is, about 40 times. I made out a list of the morbidity names that occur over five times in the "classified list"; in several instances I have grouped related names that occur only once or twice, as will be noticed. The list after syphilis runs as follows:

Bronchitis, 37 times, including 3 cases of bronchial asthma.
 Phthisis, 30, including 7 cases of tuberculosis.
 Rheumatism, 29, including 5 inflammatory rheumatism and 1 rheumatic gout.
 Asthma, 25.
 Enlarged cervical glands, struma, lymphatic tumor, 14.
 La grippe, 12.
 Catarrh, 10, including 1 of stomach, 1 of bladder, 1 catarrhal pneumonia.
 Pneumonia, 9.
 Exophthalmic goiter, 8.

¹ American Medicine, October 1, 1904.

¹ Transactions Indiana State Medical Association, 1904.

Malaria and malarial fever, 8.
Cough, 7, including 2 bronchial cough.

After this the list is scattering, including two or three each of goiter, neurasthenia, anemia, laryngitis, hay-fever, enlarged tonsils, tonsillitis, etc. Among ailments and diseases mentioned a single time are the following: Smallpox, locomotor ataxia, fibroma, measles, difficult dentition, typhoid fever.

Unfortunately, for the purpose of critical study, the only dates given are those at the head of each letter, and so we cannot determine the time of the year during which treatment was given. However, the morbidity names occurring most abundantly are suggestive. Do they not indicate the influence of a contaminated atmosphere, with one or two exceptions? The ailments are of a kind that tend to lessen, if not to disappear, so soon as the atmospheric conditions improve. A case may hang on all winter, but so soon as the weather gets warm, improvement occurs and the remedy gets the credit! How uncharitable, some one may exclaim. Let us, therefore, examine some case reports that do mention dates, and see what they show concerning seasonal influence.

N.—A neatly gotten up 24-page booklet on a ferruginous preparation; contains a general account of iron therapy, followed by a series of 23 clinical or case reports, evidently made directly to the manufacturer of the preparation by a dispensary physician.

The cases mentioned are New York City Dispensary cases and private cases of the same type, that is, of people living

ventilated rooms, not conducive to improvements in blood conditions?

(B) Contains a series of eight cases; young women just entering into womanhood, mostly schoolgirls, in a run-down condition. They were kept at home and rested and given the remedy. After several months they were "cured." No dates are given anywhere and no allowance made for the change in air conditions. I have seen children get well simply by keeping them out of dusty schoolrooms.

(C) A series of 12 hospital cases, with fairly good reports, including age, occupation, and time of entering the hospital. The cases are mainly from the Italian quarter (New York City). Now many of these people who came from rural Italy with a pure air supply suffer severely in a large city, and a stay in a good hospital, with rest, good food, and a good air supply, may be all that is needed to restore health, for a time at least. There is, of course, no denying that a good iron preparation may help.

REPRINTS FROM MEDICAL JOURNALS.

In a pamphlet on another iron preparation, O, are given a number of "Records of Cases Treated with O—, in the Hospitals of New York, Philadelphia, and Chicago," the announcement is also made "Original (Authors') reprints furnished upon request." I wrote for and received several.

The first four cases mentioned are simply of hemoglobin estimations and blood counts, nothing said about the patients. I will tabulate the next six cases, regular case reports, up to

TABLE I.

	Headache, hemicrania	Fainting spells, vertigo, dizziness	Anorexia, nausea	Dyspepsia	Constipation	Tinnitus, buzzing in ears	Backache, joint pains	Morning vomiting, vomiting	Nervousness, bad temper	Frequent urination	Palpitation	Constriction in chest	Dimness of vision	Lassitude	Gastralgia	Beginning of treatment	End of treatment
Case V, aged 19, sewing girl.....	+	+	+	+	+	+	+									10/14	11/25
Case VI, aged 36, saleswoman.....	+	+	+			+	+									10/16	10/27
Case VII, aged 42, porter (chronic alcohol, swollen feet).....	+	+	+					+								10/19	11/30
Case VIII, aged 28, waitress.....	+	+	+		+		+		+	+	+	+	+	+		10/20	11/12
Case IX, aged 11, cash girl.....	+	+	+			+										10/30	11/27
Case X, aged 27, typewriter.....	+	+	+		+			+	+						+	11/20	11/30

under unfavorable or unsanitary surroundings. The booklet itself says:

The first six cases were examples of a common anemic condition, so often seen among the tenement poor, especially among the women, and resulting from poor hygienic surroundings, dark, sunless, ill-ventilated rooms, often in basements; with deficient, irregular feeding and constant overwork or exposure.

The symptomatology of the cases runs along the line of bronchial irritation, cough, anorexia, dyspepsia, soreness of the bowels and constipation, headache, and rheumatic and neuralgic aches; all the patients had more or less anemia.

In the first three case reports the entry and discharge dates are given. The "beginning of treatment" ranges from February 27 to March 4; the "was discharged in good condition" dates run from May 22 to June 5. In the 20 other cases no dates are given, except at two places, showing that all have approximately the same range of time, that is, they begin in the cold season and end in the warm season, when doors and windows are open. The improved condition of the patients is, of course, ascribed to the administration of the remedy.

In the case of another ferruginous preparation, P, a request for case reports brought 17 different circulars and pamphlets; three of the larger may be briefly noticed:

(A) Contains a series of 24 cases; all are of indoor occupations; record begins with the first of the year and cases show a marked improvement after one to three months' use of the remedy. The peculiarity of the series consists in the fact that new cases are added every month until August, then additions stop and the record ends. Why? we may ask. Was the approaching cold weather, with attendant confinement to illy-

that of a recently cured housewife and that of a schoolgirl who recently had diphtheria.

In order to condense the table as much as possible, and still include all the symptoms given, I have in several instances grouped what are evidently synonyms. All the patients had anemia, and many had hemic murmurs, and some had menstrual disturbances, all of which is to be expected with such a symptomatology.

The occupations are suggestive of an impure air supply, of rebreathing air, of air in crowded rooms, or of basements, or dark, sunless, back offices. The row of morbidity names is typical of dust infection, as mentioned in my recent paper.

The pamphlet contains two additional series of a variety of cases in which anemia was marked, in some of them the influence of infected dust also crops out. The fact that nearly all the patients improved rapidly while in the hospital tends to show that there was no serious acute disease.

As already mentioned, I received original reprints—reprinted by the manufacturer! The writer of the foregoing cases lives in New York, and his paper was published in St. Louis; a second reprint, received at the same time, is by a Chicago writer, and was published in a San Francisco medical journal.

I do not wish to be understood as openly decrying the use of these new preparations, because I know nothing about their merits; in fact, I am inclined to believe that if they contain iron that is readily assimilated, they were given with benefit. The point to which I desire once more to call attention is simply this: Cases like those mentioned tend to recovery, certainly to improvement, almost as soon as a change in environment occurs. To a shop girl, office girl, or schoolgirl, simple rest at

home may be all that is needed to regain health. To the patient sent to a hospital during the cold months of the year, the change to good air, needed rest, and proper food, may be of more importance than medication. To the poor dispensary patient, cold weather means poor ventilation; warm weather, on the other hand, means free ventilation and a better air supply, and perhaps a return to health.

At the end of this series of reports I want to place "A Clinical Study" republished from a good medical journal which cannot be criticised as being mercenary. It relates to a remedy for removing uric acid from the system, and after the descriptive portion come a series of 14 case reports bristling with analytic data. The pamphlet contains a two-page advertisement of the remedy mentioned in the text, and the leaf of these two pages is continuous, through the binding, with the leaf of pages one and two of the text, thus showing conclusively that the paper was reprinted by the manufacturer—and as such I regard it, and include it in this list.

The whole paper is based on the assumption that the ill-health of the patients mentioned is due to uric acid or one of its allies, and that its elimination will be followed by a return of health. The cases mentioned are evidently of well-to-do private patients, or just the opposite from those mentioned heretofore.

Now I do not desire to make any criticism of that theory or view, either *pro* or *con*, but I would like to call attention to

same patients and "make them sick" on the remedy exploited—simply by beginning treatment in the summer and ending in the winter months.

While making out the table, three of my patients who are subject to dust infection came in, and I questioned them along the line of the symptomatology given, and I have added these three cases at the bottom of the series. The similarity of the symptomatology is certainly remarkable.

CONCLUSION.

Physicians are constantly receiving a large amount of literature gratuitously; a small percent consists of bona fide reprints sent out by writers, the great bulk is sent out by manufacturers exploiting their preparations. The value of the latter kind of literature, to the physician, varies greatly. Many so-called case reports or clinical reports are entirely too superficial, dates and occupations are often omitted. In some reports the symptomatology is on a level with that found in the advertisements of patent medicines in the newspapers. A critical study may lead one to doubt the accuracy of some of the diagnoses—especially in cases in which the symptoms subside in a very short time. To make a report of value and enable a physician to draw proper conclusions, the influence of modifying factors—such as the environment of the patient, the condition of the air supply, and the season of the year—should be

TABLE II.

	Hemicrania, headache	Palpitation	Dead finger symptoms, numbness of fingers	Insomnia	Excitability of temper, nervousness	Vertigo	Muscular pains	Pains in back, pain in neck	Joint pains	Tarsalgia, pain in legs	Intercostal neuralgia, pleurisy	Emaciation, loss of flesh	Devoid of ambition, lack of ambition	Dyspepsia	Dry eczema of legs, psoriasis	Anal pruritus	Socalled neurasthenia	Treated for malaria for years	Flushings	Cough	Membranous enteritis	Constipation	Intestinal fermentation	Tinnitus aurium
Civil engineer, November 12-December 31.....	+				+							+					+						+	
Lady, October 3-October 20	+	++	+				+																	
Merchant, November 20-May 23.....	+	+			+			+																
Retired, October 1-June 16.....	+	+							+											+				
Lawyer, November 11-June 12.....				+	+		+		+				+											
Civil engineer, January 14-November 12.....	+						+																	
Lady, February 14-June 30.....	+	+	+								++													
Lady, January 20-June 12.....	+	+							+												+			
Lawyer, January 20-November 19.....								+		+		+	+		+		+	+						
Merchant, December 13-January 14 (Improved)	+	+		+														+						
Merchant, December 29-May 31.....	+	+		+	+			+		+														
Broker, April 7-June 10.....	+		+	+	+	+				+													+	
Broker, April 10-June 26.....	+		+	+	+	+								+								+		
Merchant, March 6-June 26.....	+	+		+		+				+														
Mrs. C. A., March 25, 1905.....	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Miss M. G., March 25, 1905.....	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mr. J. McM., March 25, 1905.....	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

the cases themselves, which are cited as showing the curative value of the remedy advertised. I have tabulated the cases, with the list of symptoms, or morbidity names, in the order of frequency of mention.

Attention might be called to the list of symptoms, next to the occupations, and to the beginning and ending dates. All begin in the cold months, most of them end in the warm months, and a few run through up to the approach of cold weather. The case marked "improved" was that of a diabetic. In the case of the civil engineers the question arises whether they did not leave the city and get into a better air supply, especially in Case No. 1.

Reading between the lines of the pamphlet, and putting two and two together, I arrived at the conclusion, with two or three exceptions, the cases mentioned are of dust infection. The individuals felt bad while confined to close or illy-ventilated rooms in the winter months, and began to improve as soon as the weather conditions changed and the air supply improved with free ventilation. In my opinion, if I may be allowed to express an opinion based on the meager details of such case reports, the medication had, practically speaking, nothing to do with the improvement, although it is not denied that the change in diet that was advised—reducing the amount of animal food—did help. Odd as such an expression may sound, I am almost tempted to say that I could take the

mentioned. Cases should be cited for every season of the year and patients should be kept under observation for a year at least.

From a study of this kind of literature it would seem that there is a certain class of patients, those subject to the influence of impure air, that can be used to demonstrate the value of a new remedy—in fact almost any remedy: (1) By killing the pain—and thus curing the "disease," or (2) by taking the patient from his unsanitary surroundings and placing him in a hospital where, in addition to the remedy, he gets pure air, proper food and needed rest, or (3) by beginning treatment during the cold season of the year and continuing on into the warm season—when there is free ventilation.

Nude Inspection of Enlisted Men.—So many advantages appear to result from the so-called nude inspection of enlisted men of the army that it would not be surprising if the system were made general and required as a part of the work of every surgeon in charge of the health of the enlisted force. It is now left to the discretion of the individual surgeon, and is coming to be regarded as profitable part of the duty of the medical officer. The inspection affords an intimate knowledge of the physical condition of every soldier, with some information of his habits of cleanliness and his personal conduct. Incidentally, it enables the doctors to find out whether there are approaching infirmities which will make the soldier less useful on the march.

MISCELLANY

THE CRAGMOR CABIN.

At the recent meeting of the National Association for the Study and Prevention of Tuberculosis, at Washington, D. C., a model was exhibited and a short account given of a substitute building for a tent. It is called a Cragmor cabin. It was designed by Dr. Solly, of Colorado Springs, and he has used it with success for patients in Colorado. The accompanying cut shows the appearance of the building. It is designed for one patient. Its dimensions are 16 ft. by 12 ft. At the end of the building, which would be preferably turned to the south, is an open porch 12 ft. by 7 ft. enclosed with wire netting, in which the patient can sleep and rest in the open air. The rest of the cabin consists of a room 12 ft. by 9 ft. The partition between the room and porch can be readily shifted and the dimensions changed. A stove is placed in the room, which affords a comfortable dressing place in the winter and a cool shelter from the noon-day heat of summer. Canvas shades rolling from the bottom are fitted around the porch. The structure is portable, being made in sections of 4 ft. wide and 7 ft. in height. The various sections can be readily changed in position, so that an



open space can be substituted for a closed one, or a door for a window. It can be taken down and moved and put up again at a cost of \$6. The walls are composed of match wood, upon which building paper is pasted on the inner side. The roof is of elaterite, one of the composition roofings, which is laid upon wooden sheeting. In order to keep out cold in winter and heat in summer, there is an inner lining to the cabin of what is called compo-board, a thin board covered with paper on both sides, the paper being so prepared that it can be washed down and thoroughly cleansed. This boarding also forms the ceiling to the room. The construction of the roof is of two trusses, crossing each other like scissors, so that the ceiling runs up in the angle below the trusses and leaves a wide air chamber between the ceiling and the roof, large ventilators being placed in the gables. In the outer walls near the ground are holes, through which air can pass between the outer and inner walls up into the roof chamber and thus permit a current of air to keep the walls of the room cool in summer. In winter a lid closes these holes, so that the space between the walls then contains dead instead of moving air and thus heat radiation from the room is checked. The room itself is ventilated by two windows and a half door leading onto the porch, as well as by a ceiling ventilator. The chief objections to a tent are, that owing to the rapid radiation through the canvas walls, it is usually too hot or too cold, and in wet weather damp; whereas, in the cabin the temperature can be regulated much more satisfactorily and the patient can sleep and is, except for the roof, entirely in the open air, yet has a comfortable room behind

him. Moreover, the cabin is no more expensive and the structure is much more durable than that of the tent, while the flapping of canvas and creaking of the ropes in a wind are eliminated. These Cragmor cabins are manufactured by the Chicago Portable House Company, at Colorado Springs, and cost \$125.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 3, 1905. [Vol. XLIV, No. 22.]

1. Chronic Poisoning by Acetanilid. D. D. STEWART.
2. Neurasthenia Cured by Exercise and Forced Feeding: Report of Two Cases. EDWARD LIVINGSTON HUNT.
3. The Dangers of the Domestic Use of Illuminating Gas and the Means of Avoiding Them. HENRY LEFFMANN.
4. Medical Education: With Special Reference to the Subject of Physiology. MURRAY GALT MOTTER.
5. Conjunctival Irritation Excited by Proximity to a Horse. WILLIAM CAMPBELL POSEY.
6. The Etiology of Choroiditis. C. DREW.
7. The Application of Ice in Lobar Pneumonia. P. A. AURNES.
8. The Expansion of Gynecology: A Suggestion for the Surgical Treatment of Incontinence of Urine in Women. E. C. DUDLEY.
9. Stenosis of the Pylorus in Infancy: An Analysis of One Hundred and Fifteen Cases. (Concluded.) CHARLES L. SCUDDER and WILLIAM C. QUINBY.
10. Ankylosis: Arthroplasty, Clinical and Experimental. (Concluded.) JOHN B. MURPHY.
11. Absence of Articulate Speech: Classification of One Hundred Cases Not Due to Mechanical Faults or Deafness. C. H. HENNINGER.

1.—Chronic Acetanilid Poisoning.—D. D. Stewart reports two cases of acetanilid addiction, one of them at considerable length. The symptoms in the severer cases of chronic poisoning by the coal-tar products are very similar as regards mental and physical debility. There is cardiac weakness, more or less pronounced cyanosis, and blood changes characteristic of the action of a hemolytic agent. But for the leukocytosis, the blood conditions would almost suggest pernicious anemia, with their diminution of the erythrocytes and changes in their size and shape, the presence of erythroblasts, often in larger numbers than pernicious anemia, of polychromatophilic cells, and of cells undergoing protoplasmic granular degeneration. There is usually a notable increase of blood plaques, and a leukocytosis is common, the increase, it is reported, being usually in the polymorphonuclear elements. In Stewart's cases, however, which were uncomplicated, there were 37% and 35%, respectively, of lymphocytes. He thinks that possibly in other cases there might have been some complicating disease influencing the leukocytosis and the proportion of polymorphonuclears.

3.—Dangers of Illuminating Gas.—The perils of the domestic use of modern fuel and illuminating gas, now so generally used, are pointed out by H. Leffmann. The coal gas formerly employed was comparatively nontoxic and its characteristic odor was a danger warning, but the modern water gas that has so largely replaced it in common use, with its larger content of carbon monoxid and its comparative lack of odor, is far more dangerous. Accidents from this cause are far more frequent than formerly, and carbolic acid and illuminating gas have replaced, at least in Philadelphia, he says, for suicides and accidental poisonings, the arsenic and laudanum of the Civil war period. A sleeper can easily absorb a fatal amount of modern water gas without being aroused, and Leffmann shows by a simple calculation how a very small percentage of carbon monoxid—less than $\frac{1}{2}$ gr., for example, to 100 cc. of blood—can render useless its hemoglobin. Gas stoves for cooking are used generally only in warm weather when natural ventilation is good, and the danger from them is therefore lessened, but their burners are seldom furnished with a collar to regulate the air supply, and the combustion is therefore liable to be irregular and deleterious gases are given out. Gas "stoves" or heaters connected with the gas pipes by rubber tubing are objectionable on account of the liability of leakage, which is very great unless the very best tubing material is used. The stopcock on the heater is especially objectionable, as it is the one most convenient to use, and when used the leakage through the tube can go on unchecked.

4.—Medical Education.—M. G. Motter criticises the methods of medical education in this country, and gives quotations from examination papers and medical textbooks in support of his contention. The medical schools are defective in

the too frequent combination of the scientific and practical branches under one chair, in their lack of strictness as to the passing of conditioned students, and in their imperfect classification and faulty order of studies. The State Medical Boards are not all beyond criticism; there is sometimes too much politics in their constitution, and their ideas of what is to be done and how to do it are too often defective. Examination questions are many of them tests rather of the candidate's memory than of his knowledge. The remedies he suggests for present defects are higher standards of preliminary education, more rigid entrance examinations, no advancement of students to higher grades without thorough mastery of preceding studies, and the making of the courses in the so-called scientific branches, whether by textbooks, didactic instruction or laboratory training, at once more scientific and more practical. Medical schools should be reformed in their methods, and the profession as a whole should recognize its duty to itself and to the public in the elevation of its professional standards.

5.—Conjunctival Irritation from Animal Emanations.—W. C. Posey gives the history of three cases in which temporary conjunctival irritation was induced by proximity to horses. In all three of the patients there was also more or less nasal irritation, and in one, handling a cat caused similar symptoms, though to a slight extent. One patient was also subject to hay-fever. Posey has found no reference to this condition in ophthalmologic literature, but finds that nasal irritation from animal emanations has long been noticed by rhinologic specialists.

7.—Ice Applications in Lobar Pneumonia.—P. A. Aurness outlines a method of treatment that he claims to have used for a number of years with great success in lobar pneumonia: As soon as a diagnosis is made the patient is given a full warm bath for cleansing purposes, put to bed and given a laxative dose of calomel and soda. The chest area of the lung tissue involved is carefully outlined, and one or more, as required, specially constructed ice-bags are moderately but evenly filled with crushed ice and applied accurately over the parts inflamed. Each bag is wrapped in a thin layer of gauze and is furnished with a drainage-pipe, the lower end of which empties into a basin below the bed. The main and important feature is this draining off the water as fast as it is formed, thereby establishing a constant and uniform ice application and utilizing the remarkable heat-absorbing quality of melting ice. Examinations are made each morning and evening, and the ice applications adapted to the changing areas of involved lung. There is no danger, he claims, to the vitality of the parts, and the ice applications are kept up as long as the disease appears to be progressing and no threatening signs of collapse appear. In the latter event, ice applications are promptly removed, and stimulation is at once resorted to. The internal treatment throughout the disease, aside from stimulants, includes free use of some mild alkaline mineral water, and 5-drop to 15-drop doses of creasote carbonate every four hours. The bowels are regulated by saline laxatives and enemas, the diet is guided by the digestive capacity, and free ventilation of the sickroom is secured. It is claimed that this treatment lowers the pulse while regulating and strengthening the heart, relieves respiratory difficulty and chest pains, and shortens the duration of the disease in the majority of cases.

8.—Incontinence of Urine.—E. C. Dudley describes a new operation for the relief of the urethrocele with imperfect urinary control, sometimes met with in multiparas. It is based on the same principle as the operation of Albarran for the same purpose; the urethra, however, is not dissected free, and the danger of its sloughing is avoided. The first step consists in denuding a horseshoe-shaped surface between the meatus and the clitoris and to either side throughout its length. In the second step of the operation the meatus is drawn up to a point near the clitoris and secured there by means of two sutures. The lateral portions of the denuded surface are then closed. The first two sutures stretch the urethra upward toward the clitoris, and the lateral ones tend to hold it in its new position. The idea is to straighten the urethra by longitudinal tension, and to collapse it and to hold together the dilated walls and to overcome the sacculations at the neck of the bladder by lateral traction. In many cases, it may be neces-

sary to operate at the same time for the associated cystocele, and in nearly all cases to perform perineorrhaphy for the relaxed posterior vaginal outlet. When there is very much relaxation of the tissues about the clitoris, and there is danger of it being pulled down, he would take a reef in the tissues above that organ, enough to keep it sufficiently high to hold the urethra taut. The last case is still too recent to be correctly estimated.

10.—See *American Medicine*, Vol. VIII, No. 3, p. 100.

Boston Medical and Surgical Journal.

June 1, 1906. [Vol. CLII, No. 22.]

1. The Experience of Nine Years in the Treatment of Diphtheria with Antitoxin. JOHN H. MCCOLLOM.
2. A Description of "Pfeiffer's Disease" (Glandular Fever), with a Report of Two Cases. A. H. WENTWORTH.
3. Report on Early Diagnosis of Tuberculosis. A. C. KLEBS, J. H. MUSSEY, F. BILLINGS, J. C. WILSON, and H. R. M. LANDIS.
4. A Consideration of the Pelvic Articulations from an Anatomic, Pathologic and Clinical Standpoint. JOEL E. GOLDTHWAIT and ROBERT B. OSGOOD.

1.—Treatment of Diphtheria with Antitoxin.—J. H. McCollom gives statistics showing a reduction in the death-rate from 48% to 6.95% in the institutions with which he is connected. In 24 hours after the use of antitoxin the patient will pass from danger to security. When there is evidence that the membrane is extending to the bronchi, doses of 20,000 units to 40,000 units may be given without harm. In cases requiring operation, intubation is generally preferable. Antitoxin, if given during the stage of congestion, will prevent the formation of membrane. During the early stage from 4,000 units to 8,000 units should be given every six or eight hours. Patients apparently moribund recover after large doses. [H.M.]

2.—Pfeiffer's Disease.—A. H. Wentworth describes the disease as characterized by an elevated temperature lasting for a short time and by rapid enlargement of lymph-nodes in the neck, especially along the upper third of the posterior border of the sternomastoid. The symptoms are generally mild, and the swelling subsides without suppuration. It is occasionally complicated by acute nephritis. In parotitis, the chief swelling is below the gland; in inflammation of the tonsils, the nodes earliest affected are near the angle of the jaw; in tuberculous adenitis, the enlargement is slower and firmer. The prognosis is always favorable and the treatment symptomatic. The urine should be examined both before and after recovery. The disease seems to be rare. [H.M.]

3.—Early Diagnosis of Tuberculosis.—A. C. Klebs, J. H. Mussey, F. Billings, J. C. Wilson, and H. R. M. Landis emphasize the importance of diagnosis in the "closed" stage, before bacilli are found in the sputum. The symptoms are rarely typical. Hemoptysis is of great significance. Length and weight of body, circumference and degree of chest expansion, give indication of the state of nutrition. A slight rise of temperature in the afternoon ought to invariably arouse suspicion. A two-hourly record should be taken for several days. In some patients the rise appears only after exercise, in women before and during menstruation. On inspection there is often retardation of respiratory movements over the affected area. Percussion may elicit contraction of one apex as compared with the other. Rales which we can easily discover in the morning or on damp days, will regularly be absent during the afternoon or in dryer weather. The earliest auscultatory sign is the rough and slightly diminished respiratory murmur. This precedes the appearance of rales. Pleuritic friction is often heard in or near the axillary line between the sixth and eighth ribs. Tuberculin is an important diagnostic method, but great care is necessary in its application. [H.M.]

4.—Pelvic Articulations.—J. E. Goldthwait and R. B. Osgood have found abnormal mobility not only in women, but in men and children. A certain amount of motion, especially in the sacroiliac articulations is normal. In nonpregnant cases the onset is generally more insidious and more troublesome in treatment. In cases due to trauma, general weakness, or disease, one joint only may be affected, and referred pains in the leg and hip are more common. When the upper part of the sacrum is drawn back the iliac bones are necessarily separated, the diameter at the brim is increased while the outlet is

narrowed. Much separation at the symphysis can occur only when relaxation at the back is extreme. The pubic bones are of little importance in maintaining pelvic stability. If the upper part of the sacrum is displaced too much backward in labor the direction of the inlet is so changed that the head does not engage normally. To control the position of the sacrum the best position is on the side. Pressure can be made over either the upper or lower part, according to the diameter to be increased. In some cases it is difficult to demonstrate motion at the joints. In the severest cases standing or walking is impossible. When quiet there is little pain other than backache. Referred pains are due to pressure on nerves in the sacral region. Treatment consists in replacement should subluxation exist with subsequent protection with plaster-of-paris, webbing belts, etc. The length of the article forbids adequate abstracting. [H.M.]

Medical Record.

June 3, 1905. [Vol. 67, No. 22.]

1. Inflammatory Disease of the Uterine Adnexa and Its Treatment. H. GRAD.
2. Some Ophthalmic Suggestions. RICHARD KALISH.
3. The Heart and Circulation in the Prognosis and Management of Pulmonary Tuberculosis. SILVIO VON RUCK.
4. The Relation of Ethmoidal Inflammation to Asthma. HENRY COGGESHALL.
5. A Difficult Diagnosis in a Case of Abdominal Pregnancy. W. S. LANGFITT.
6. A Case of Heroin Habit. CHAS. E. ATWOOD.
7. Cactus Grandiflorus. FINLEY ELLINGWOOD.

1.—Inflammatory Disease of the Uterine Adnexa and Its Treatment.—H. Grad first considers the anatomy of the adnexa, the etiology of inflammatory processes in this region and their pathology and relation to pelvic abscess and peritonitis. The symptomatology and course of acute and chronic salpingitis are then elaborated and the question of diagnosis is taken up. In this connection the subject of ectopic pregnancy is discussed, a condition which not only frequently enters into the diagnostic possibilities, but also may be a sequel of a previous tubal inflammation. Considerable space is given to the subject of treatment, and the exposition of the palliative methods is very full. The author believes that this is very important, as the natural termination of these lesions is in resolution and cure, and he says that procrastination in operative measures and judicious persistence in general treatment are to be strongly urged. The use of opiates requires especial care in order not to mask the symptoms, and yet not permit the patient to suffer needlessly. Local treatment may or may not be necessary, and antiseptic applications and irrigations with liberation of pus and absolute cleanliness are the keynote in the treatment of the various lesions of the urethra, vulva, vagina, and cervix. The operative treatment in acute and chronic cases is then described, the author calling attention to the danger attending radical operation during the acute exacerbations, which he terms a questionable procedure. Vaginal drainage will usually bring about a cessation of symptoms with improvement in the patient's condition.

2.—Some Ophthalmic Suggestions.—R. Kalish points out some popular fallacies in regard to diseases of the eye, which he says are often the cause of serious injury to the visual power. Among these is the senseless outcry against the wearing of glasses by the young, the belief that squint in young children should go untreated, as they will outgrow it, and especially what the author terms the self-fitting of glasses in the establishments of opticians.

3.—The Heart and Circulation in the Prognosis and Management of Pulmonary Tuberculosis.—S. Von Ruck says that the relation of the heart and circulation to the course of chronic pulmonary tuberculosis is a factor both in the prognosis and management of such cases which is not generally accorded the attention and study which its importance demands. He suggests the analogy between the relation of the heart and circulation to the local disease in acute pneumonia and in chronic pulmonary tuberculosis. According to his conception this relation differs chiefly therein that the pulmonary obstruction develops rapidly in the one, and more slowly in the other. By reason of this difference more can be done to conserve or increase the power of the heart in tuberculosis

than is possible in acute pneumonia. It follows that close observation of the circulation in the course of tuberculosis is imperative and that a weak second pulmonary sound is to be regarded as a danger signal just as in acute pneumonia.

4.—The Relation of Ethmoidal Inflammation to Asthma.—H. Coggeshall says that asthma is a name given to paroxysmal difficult breathing, and that the disease is an inflammation of the mucous membrane of the ethmoidal cells. An irritation of branches of the trigeminus or olfactory nerves causes an altered activity in the medulla, that is to say, in the center of respiration. The result in the bronchial tubes is a vasomotor disturbance or contraction of muscles, or both. Chronic bronchitis, or emphysema, or a dilated right side of the heart, is not asthma. They are sequels to asthma of severity and long standing. Other varied factors are the contributory causes of asthma. Errors of nutrition, errors of diet, gout, obesity, lymphatism, impure air, and poor circulation are such causes. To these may be added direct irritants to the nasal mucous membrane, such as various pollens, emanations from animals, dust, smoke, and many others in the cases of the sufferers from periodic asthma. The reasons in favor of this view are expounded and the author also outlines a plan of treatment directed toward the correction of the chronic inflammation in the ethmoidal cells.

5.—A Difficult Diagnosis in a Case of Abdominal Pregnancy.—W. S. Langfitt's patient came under observation a month after a missed labor. She had a temperature of 101° F., and other signs of infection. On opening the abdomen the uterus was found to be very slightly enlarged, and displaced by a large mass occupying the pelvic cavity and attached to the right fallopian tube. The fetus, which was dead and disorganizing, weighed six pounds. The removal of the mass was successfully accomplished in spite of the many adhesions, but the patient died a week later of the septic condition already present at the time of operation. The author points out the necessity for careful diagnosis and prompt action in such cases, as it seems likely that the woman would have recovered if she had come to operation before infection had begun.

7.—Cactus Grandiflorus.—F. Ellingwood says that this agent, the night-blooming cereus, is in every way superior to digitalis. It increases the musculomotor energy of the heart, elevates arterial tension, increases the height and force of the pulse wave. It is the heart tonic, par excellence, as it produces stimulation from actually increased nerve tone, through improved nutrition of the entire nervous and muscular structure of the heart. It produces no irritation of the heart muscle like strophanthus, or gastric irritation like digitalis, nor is its action cumulative. It is indicated in all conditions of atonicity, but is contraindicated when there is violent heart action in the presence of a temporary exaltation of nervous or muscular tone.

New York Medical Journal.

May 27, 1905. [Vol. LXXXI, No. 21.]

1. Intermittent Angiospasm on the Basis of Chronic Malaria. FRITZ SCHWYZER.
2. Acute Appendicitis. LEON BRINKMANN.
3. The Surgical Paradox. ELY VAN DE WARKER.
4. Malposition of the Abdominal Viscera, and Medical and Surgical Treatment for Some of the Acute Cases. G. E. BENNINGHOFF.
5. A Case of Extreme Sepsis from Multiple Sinusitis, with Description of Operation. WILLIAM W. CARTER.
6. The Diagnosis of Chickenpox. WILLIAM L. SOMERSET.
7. Mental Wards in General Hospitals. J. MONTGOMERY MOSHER.
8. Abortive Treatment of Gonorrhea in Man. GEORGE GROSS.

1.—Malarial Angiospasm.—Fritz Schwyzer reports several cases in which he has noted a disturbance of the vasomotor nerves caused by chronic malaria. He deals chiefly with the symptoms caused by an irritation of the vasoconstrictor nerves. This irritation of the vasomotor nerves can be compared to an irritation of the sensorial nerves, neuralgia, which causes a contraction of the arteries in a circumscribed portion of the body, or, as is the case during a chill, in all the peripheral arteries. If the contraction of the artery is very pronounced it leads to local ischemias, and a consequence of this will be very diverse subjective symptoms, according to the location of the arterial spasm. He says the whole disturbance may justly be designated as an angiospastic form of chronic malaria. These dis-

turbances are characterized by the enlargement of the spleen, frequent but generally light fever, anemia, indications of melanosis, and, at times, by the periodicity of the angiospastic attacks. The location of the spasms was, in his cases, either cerebral or peripheral. In Case No. 1 the first three attacks indicated plainly cerebral angiospasm, while later the spasms were located in the arteries of the extremities. In Cases Nos. 3, 6, and 8 there were cerebral attacks also, while the cerebral symptoms observed in Cases Nos. 2, 5, and 7 pointed more to a disturbance of the general blood distribution, which manifested itself by anemia of the central nervous system. [C.A.O.]

2.—Acute Appendicitis.—Leon Brinkmann reviews this condition and urges an early diagnosis and early surgical interference. He enters a pronounced protest against the Ochsner treatment of appendicitis. He says the plan of the starvation treatment without the intervention of surgical means until late in the disease violates the basic principles of good surgery. [C.A.O.]

4.—Malposition of Abdominal Viscera.—G. E. Benninghoff concludes that enteric displacements are those most frequently present, and displacements of the colon, the transverse colon particularly, are the most common of any in the abdominal viscera. The great number of times that the appendix is found displaced to a greater or less degree indicates how frequently the cecum must be displaced, and, therefore, the relative position of the colon. The writer, in one patient, found the appendix in the right femoral canal and in another in the left scrotum; both times, however, with intestinal hernia. Both cases are reported. A case of intestinal obstruction due to impaction of the ileum within the pelvic cavity in a woman of 34 is reported. When the abdomen was opened the transverse colon presented immediately above the pubes. Another case of enteroptosis is reported in which the patient recovered under medical treatment. The modified Trendelenburg position was used. Another case is interesting because of the fact that it exemplifies three conditions: Splanchnoptosis, results of cured, recurring appendicitis, and pelvic impaction of the small intestines. [C.A.O.]

5.—Sepsis from Sinusitis.—W. W. Carter reports a case of extreme sepsis from multiple sinusitis, and gives in detail the description of the operations performed. The antrum, ethmoid cells and sphenoid were involved. The points emphasized are: 1. The difficulty in making a diagnosis where the symptom-complex may be a result of sepsis, nephritis and multiple arthritis. 2. The seemingly entire dependence of all the symptoms on the sinus infection, and their prompt relief after operation. 3. The efficiency of the maxillary route when dealing with infections in this area, especially when the antrum itself is involved. [C.A.O.]

7.—Mental Wards in General Hospitals.—J. M. Mosher takes up the subject of establishing mental wards in general hospitals. He is in favor of this idea, and says that it will be an important moment in hospital history when the Association of Hospital Superintendents takes up this question. It means a great deal to patients suffering from mental disorders, especially in incipient stages, and it means a great deal to the hospital. He also gives a brief review of the work done in the new pavilion for mental diseases in the Albany Hospital. [C.A.O.]

Medical News.

June 3, 1905. [Vol. 86, No. 22.]

1. The Prophylaxis of Lobar Pneumonia. J. M. ANDERS.
2. Causes Underlying Prolonged Loss of Function in Certain Injuries about the Shoulder-joint: Prognosis, Treatment. ALFRED S. TAYLOR.
3. A Plea for Medical Treatment of the Inflamed Appendix. A. L. BENEDICT.
4. Late Results of Surgical Treatment in Gastric Ulcer: Preliminary Report. JOHN C. MUNRO.
5. The Laryngeal Complications of Typhoid Fever. RICHARD H. JOHNSON.
6. Remarks on Rotary Lateral Curvature of the Spine. LEONARD W. ELY.
7. The Effect of Intestinal Antisepsis on the Excretion of Hippuric Acid in the Urine. JACOB B. PRAGER.

1.—See *American Medicine*, Vol. IX, No. 20, p. 808.

2.—Prolonged Loss of Function in Shoulder-joint Injuries.—A. S. Taylor discusses cases in which there is neither fracture nor dislocation, but a definite symptom-com-

plex, including pain, loss of power, and atrophy. The lesion is caused by too great diastasis of the head and neck from the shoulder, rupturing the roots of the brachial plexus, causing paralysis, traumatic neuritis, and often cicatricial compression. Prognosis is not favorable. Treatment consists in immobilization with counterirritation over the nerve roots; later, massage, electricity, etc., and surgical interference in selected cases. [H.M.]

3.—Medical Treatment of the Inflamed Appendix.—A. L. Benedict thinks medical cases include acute, or rather, subacute attacks of essentially catarrhal nature, purely spasmodic conditions, unless there is so frequent repetition as to lead to the diagnosis of concretion, and chronic inflammatory conditions, which take a favorable course under treatment. Probably 99% of fatal cases are due to sepsis by the ordinary intestinal bacteria, whose virulence has been increased by constipation. He believes strongly in free catharsis. In ordinary cases there is no indication for morphin, which disguises symptoms, is uncertain as a splint, and imprisons the bacteria and their toxins. He advises calomel and seidlitz powder, fasting, plenty of water, Credé ointment, or pipe-clay and glycerin poultices. Pain, due to spasm, can be relieved by atropin, cannabith indica, etc. In chronic inflammation, dieting with bismuth, salol, etc., must be kept up for several months. [H.M.]

4.—Late Results of Surgical Treatment in Gastric Ulcer.—J. C. Munro states that most of the ulcer cases at Carney Hospital have been relieved for months or years by operation, or else they have been cured one or more times by the same means. Of the various methods of anastomosis, the mortality shows the danger far less than that of allowing ulcers to persist without interference. He advises posterior over anterior anastomosis and the long loop. Recently he has used the method of Roux, or a modification altogether. After operation caution in diet must be used for some months. He believes that in both malignant and benign ulcers medical treatment must yield to surgery. He records encouraging results from anastomosis and gastrectomies in cancer. [H.M.]

5.—Laryngeal Complications of Typhoid.—R. H. Johnson finds in a review of literature that these include catarrh, erosions, infiltrations, ulcerations, diphtheritis, perichondritis, and paralyses. Infiltrations may correspond exactly with the swelling of follicles in the intestine. Stenosis is the most dangerous. It may be caused by edema from ulceration or perichondritis or after recovery from thickened tissue or deformities. Most conditions tend to recovery. A spray of camphor and menthol and rest is all that is required. In threatened stenosis, adrenalin, ice, and rest may be sufficient, or tracheotomy may be necessary. [H.M.]

6.—Rotary Lateral Curvature.—L. W. Ely believes the prognosis bad for ever having a straight spine. Standing and walking correctly are more important than exercises. Young patients may be made much straighter by a plaster jacket worn for six or eight years, perhaps in conjunction with exercises. It should be worn during periods of inaction, especially school hours. Exercises, of which the writer gives a list, should aim to make the spine flexible, to strengthen the back muscles, and teach the patient to control them. [H.M.]

7.—Effect of Intestinal Antisepsis on the Excretion of Hippuric Acid.—J. B. Prager reports animal experiments showing that the feeding of gelatin alone increases the excretion of hippuric acid. After antisepsis with calomel there was practically no hippuric acid, but the excretion of nitrogen was not affected. No matter how much gelatin was fed it was completely burned and some of the body's proteid with it. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Endarteritis—a Complication of Acute Rheumatism.—The paramount importance of arterial pathology is deservedly receiving an increased proportion of recognition from the leaders of medical opinion. We all agree with the aphorism of our illustrious contemporary

which teaches that "a man is as old as his arteries"; although some of us may refuse to acknowledge that there may not be found a good few, at least, of sets of supple and serviceable arteries which have seen over 60 years' service. Our present familiarity with the facts of the relationship between acute rheumatism and cardiac disease makes it almost startling to be reminded that it is only 65 years since the fact of their association was first (1840) definitely formulated by the great French physician, Bouillaud. And indeed it was only the invention and broadcast employment of the stethoscope that made the universal diffusion of that knowledge possible. It was in the same epoch-making volume in which Bouillaud first enunciated the two clinical laws which regulate the mutual relationships of rheumatism and cardiac disease, that he also clearly indicated for the first time to the professional world, the existence of rheumatic arteritis as a clinical entity. The *Traité clinique du rhumatisme articulaire aigu* . . . definitely notes but two cases. The opening illumination of Bouillaud was followed by the observations of Monnerit, who regarded the arteritis of acute rheumatism as a direct extension of the inflammatory process from the endocardium. He specially insisted on the important fact that such arteritis prepared for the development of subsequent degeneration. In a thesis published in 1864, Lemaire¹ gave rheumatic arteritis a somewhat more independent position in the clinical domain: "Dans bon nombre de cas, le phlegmasie artérielle s'est développée brusquement dans les conditions habituelles du développement des maladies rhumatismales aiguës; souvent est notée la coïncidence d'un rhumatisme articulaire . . .". The existence of rheumatic arteritis was not, however, universally admitted; for we find Lelong (in 1869) stating, in his inaugural thesis, *Etude sur l'artérite et sur la phlébite rhumatismales aiguës*: "Nous n'avons pas vu l'artérite se développer comme la phlébite dans le cours du rhumatisme." It was, however, in 1869 that Lécorché informed the world that there were two diathetic affections to which chronic endarteritis could be attributed, gout and rheumatism; and asserted that articular rheumatism attacked the lining membrane of the heart and arteries simultaneously. The full recognition of the importance of rheumatic arteritis, and the development of its clinical and pathologic history are undoubtedly due to the elaborate researches of Gueneau de Mussy.² Of 140 cases which this great clinical observer had carefully collated, the arterial lesions had developed in 68—almost exactly half. Since that date Legroux (1884), Huchard (1892), Hanot (1894), Astier (1897), and Besson (1900), have specially investigated the subject, and published illustrative cases.

A Case of Rheumatic (Brachial) Arteritis.—Still an occasional sceptical voice was heard raised in the attempt to ventilate doubts regarding the actuality of the existence of a true and genuine acute rheumatic endarteritis. An exceptionally demonstrative case has been recently published by M. Barić.³

A gardener, aged 29, of spare habit, was satisfactorily convalescing from an attack of acute articular rheumatism, which had left no other traces than some slight pains in the right shoulder-joint. It was on the fifteenth day from the onset of the original attack that the temperature rose in the evening to 38° (100.4° F.), with the development of a feeling of general malaise and a sense of dragging weight in the right arm with localized pain about the base of the antecubital fossa. On the following morning that pain had increased; there was none in the elbow-joint even when moved, but there was a pronounced elevation of the skin above the fold of the articulation in front, beneath which the brachial artery was found pulsating violently. Light pressure on the vessel produced great pain, and the arterial walls appeared to the touch "moins souples que celles de l'artère du côté opposé." There was no appreciable difference in the radial pulse. Rest and a salicylic regime brought down the swelling and pulsation (as well as the general temperature), but a persistent pain followed pressure. On the

seventh day of the arteritis, the pulsations of both brachial and radial artery on the affected side had become extremely feeble; there was no evidence of thickening of the arterial tunics, nor was there any edema or cyanosis; the patient, however, complained of formication in the fingers, and the whole limb below the elbow felt slightly colder than that of the other side. All local traces had disappeared at the end of 16 days from the appearance of the arteritis.

Dr. Barić has already been one of the first to call attention to the occurrence of such comparatively benign forms of arteritis under the name of *parietal*, by which he would distinguish it from the *obliterative* type—as an occasional complication of typhoid fever.

REVIEW OF LITERATURE

Hydrotherapy in Fevers.—S. Baruch¹ orders for typhoid fever patients, when the temperature reaches 101°, rapid ablutions with gauze or linen cloths, dipped in water at 85°, every two hours, with gentle friction over the trunk only. The temperature of each ablation is decreased 2° until 60° is reached. The patient is dried by patting and a wet compress at 60° placed over the abdomen. When the temperature is persistently above 103°, active friction during the bath is demanded. A diagnostic feature evolved by this treatment is that if one of these baths reduces the rectal temperature more than 2° the case is not one of typhoid. This is as reliable in the first week of the fever as are rose spots during the second week. The smaller the reduction of rectal temperature from one of these baths, the more positive is the diagnosis of typhoid. When the diagnosis of typhoid is made, the Brand bath treatment is carried out, though modified in each case to suit the individual. [A.G.E.]

A Case of Extensive Cutaneous Diphtheria.—C. Bolton and D. Brewer² report the case of a child in whom an ulceration started in the left groin and extended upward over the abdominal wall. No history of any scratch or wound of any kind could be obtained. The ulceration was gangrenous in appearance, with considerable loss of substance in the center, and a broad inflammatory areola. No membrane could be seen. Smears and cultures revealed a pure growth of typical diphtheria bacilli. Antitoxin was administered, and the wound gradually improved, but the child finally died of paralysis and exhaustion. Autopsy and histologic examinations showed those changes which are typically found in patients dying late in the course of diphtheria, namely, very slight degeneration of the heart and central nervous system, but extensive degeneration of the peripheral nerves. [B.K.]

Clinical Tests for Pepsin Lab Ferment.—Illoyay³ cuts white of egg, boiled hard, in pieces weighing 10 cg., adds 10 cc. filtered stomach contents, withdrawn an hour after taking a Boas breakfast, and notes the time required for complete disappearance of the albumen. Normally, it requires from five to five and a half hours. Hyperacidity does not hasten the process. He implies that in anacidity, acid should be added, but does not say so directly. For lab ferment, he adds five drops of gastric contents to 10 cc. milk, and records the time until complete solidification. It never occurs after 15 minutes. Clinically, the presence and quantity of pepsin and lab ferment bear no relation to one another. [T.S.G.]

The Dietetic Use of Predigested Legume Flour.—D. L. Edsall and C. W. Miller,⁴ from numerous clinical observations and elaborate studies in metabolism, find that bean flour in which the starch is predigested by a diastatic ferment is well digested and absorbed by children and adults. A 20% solution is practically equivalent to beefsteak in nutritive value. Its influence upon the digestive tract of the infants studied was usually distinctly favorable, and its influence upon metabolism in infants and adults is at least equal to that of milk. The results in a series of cases detailed are unusual and need to be controlled in several ways, but seem due to a special influence of the legume flour on metabolism. One point definitely determined is that in this way as much as 0.75% to 1.0% of proteid may easily be administered, a fact of great importance

¹ Des lésions du système artériel périphérique, Paris, 1864.

² Clinique Médicale, 1874.

³ La Presse Médicale, March 25, 1905.

¹ St. Louis Courier of Medicine, April, 1905.

² The Lancet, April 29, 1905.

³ Archiv für Verdauungs-Krankheiten, Bd. xl, Heft 2.

⁴ American Journal of the Medical Sciences, April, 1905.

in cases not bearing a proper amount of milk proteid. The flour needs further testing in children and adults who are the subjects of malnutrition. [A.G.E.]

Cooked or Uncooked Milk?—Because of the many recent statements concerning the excellent qualities of uncooked milk for children, H. Bruening¹ investigated the relative value of mother's milk, cooked and uncooked cow's milk in the development of newborn dogs. Dogs of the same litter were the investigating material; two were nursed by their mother, one was given cooked cow's milk, and the fourth raw milk of the same description. The nursed animals developed beautifully, increasing in 75 days, the length of the investigation, from 165 gm. and 205 gm. respectively, to 2,864 gm. and 2,215 gm. They showed splendid development, smooth and thick hair, soft skin, clear eyes, and were mischievous; the sutures and fontanels were closed, and the skeleton normal. The third dog weighed 1,785 gm. at the end of the test; he was also lively, but his abdomen was distended, his hair coarse, and his costal cartilages enlarged; the fontanels were closed. The fourth dog finally weighed but 1,105 gm.; his abdomen was much distended, his hair thin and short, his gait uncertain, and his appearance sickly. The fontanels were still open, and the costal cartilages much thickened; in short the dog had the typical appearance of an individual suffering from rickets. Bruening believes the difference in the milk to have been the cause of the different appearances of the various dogs. [E.L.]

Exophthalmic Goiter.—Joseph Collins and F. Robbins² present an unusually instructive paper on this subject, including a historic review, a review of theories regarding etiology of the disease, and deductions based on a study of 100 cases. The latter are very carefully analyzed regarding all the symptoms of the affection. The 100 cases were collected in 8 years, during which were observed 1,121 cases of neurasthenia, 205 of hysteria, 364 of epilepsy, and 82 of migraine. Of the patients, 12 were males, 88 females. Of the cardinal symptoms, there was evident disease of the thyroid in 76 cases; exophthalmus, 63; von Graefe symptom, 42; Möbius', 18; Stellwag's, 12; tachycardia, 59; palpitation, 51; tremor, 75. Nearly 60% occurred between ages of 20 and 40. Of the 2 developing after 60, both were severe and terminated fatally. The comparative rarity of symptoms referable to the reproductive system, 20%, Collins interprets as evidence of undeveloped sexual activity. Treatment is still experimental. Of the 5 patients operated upon, 4 died. [A.G.E.]

The Pathogenesis of Colic.—Nothnagel³ after refuting the theory of Wilms, who ascribed the pain to the parietal peritoneum, because the intestinal wall was not sensitive to ordinary irritants, states his explanation as follows. The pain is due to pressure on the sensory sympathetic nerves. This does not cause pain to normal nerves, but the pressure also mechanically produces anemia, and this puts the nerves in an irritable state. The pain following thrombosis and embolism is similar in pathogenesis. [T.S.G.]

Rare Modification of the Urine during Typhoid Fever. F. Mouisset and S. Bonnamour⁴ report the case of a man with typhoid fever, presenting considerable albuminuria, who was suddenly seized with severe pains in the abdomen and bladder, with an inability to urinate. The urine withdrawn by catheterization presented a red coloration, which was found not to be due to hematuria, hemoglobinuria, or hematoporphyrinuria. The urine passed during the next few days did not present this coloration at first, but developed it some time after emission. The abdominal pains were accompanied by a profuse, fetid diarrhea. The authors believe this case to be one of alkaptonuria, the pigment being probably produced by intestinal fermentation, and its excretion favored by an old chronic nephritis. [B.K.]

The Opportunities for Infection with Tuberculosis in the Antecedents of the Tuberculous.—C. Fischer⁵ has examined 542 patients suffering from pulmonary tuberculosis with especial reference to the source of their infection. In 74

instances the disease was acquired from parents, in 29 from other tuberculous relatives. Parental infection was only allowed in case tuberculous disease existed at a time when parent and child lived under the same roof for some time and where the parent was in the habit of kissing the child or coughing in its face, where the child shared the room of the parents, or occupied it soon after the death of the parent, the sputum not having been taken proper care of, or where the child nursed the parent during the fatal illness without taking proper care of herself. Infection through other members of the family was allowed, where the patients had slept together, or living in the same room with poor sick relatives; kissing by sick aunts and grandmothers; nursing a sick relative and being coughed at by one having laryngeal tuberculosis. In two instances handkerchiefs not having been sufficiently washed were the conveyers of the infection. In 6 instances it was claimed that the disease was acquired on playgrounds, in 12 in the school or seminary, in 9 in soldiers' barracks, in 3 in infected bedrooms and while nursing tuberculous sick, in 9 from tuberculous friends, in 12 in waiting-rooms and stores, in 10 from a tuberculous husband, and in 57 in the work-room. Only once was the use of milk from a tuberculous cow mentioned as the cause of infection. [E.L.]

Splenic Anemia.—I. H. Levy¹ reports two chronic cases occurring in twin sisters, one terminating fatally. The other has accompanying achylia gastrica. In both cases the differential blood count was unusual, there being a marked relative as well as absolute decrease of the polynuclear cells, and a decided increase of the large mononuclears. Both cases showed a marked tendency to periods of remission. In Case II the exhibition of arsenic always aggravated the symptoms. H. L. Sanford and D. H. Dolley² report in full a case in which death occurred 17 days after splenectomy. The spleen was dislocated, with elongation, torsion, and thrombosis of the vessels, the latter probably being the cause of sudden enlargement of the spleen before operation. The liver was cirrhotic, but this was supposed to accompany rather than result from the splenic condition. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Surgical Treatment of Cirrhosis of the Liver.—R. S. Fowler² reports three cases of operations for cirrhosis. One was hypertrophic cirrhosis without ascites and was operated on twice at 17 months' interval. The patient remained well for 18 months, but now appears to have tuberculous peritonitis in addition to the liver trouble. The second was syphilitic cirrhosis with ascites, the patient dying in 13 days from pneumonia. The third was one of alcoholic cirrhosis with ascites, the patient now being in good condition, 7½ months after operation. Fowler's technic is to tap patients with ascites the night before operation. When the abdomen is opened, the peritoneum is sponged dry, this being done roughly with coarse pads. The peritoneum is then scrubbed with a crash sponge and the upper portion of the liver and under part of diaphragm scraped with a scalpel; the latter structures are also scrubbed with crash toweling, the spleen being abraded, but not so roughly as the liver. The round ligament of the liver is then shortened, the anterior edge of the organ sewed to the parietal peritoneum, and finally the omentum sutured to the parietal peritoneum. [A.G.E.]

Postoperative Gastric and Intestinal Hemorrhages.—W. Busse³ contributes 14 additional cases from v. Eiselsberg's clinics, and summarizes the previously reported cases, making 96 in all. These postoperative gastric and intestinal hemorrhages may occur after operation in any part of the body, but are especially prone to occur after abdominal operations. They are probably due to the displacement of infected or noninfected thrombi from the seat of operation. The operation itself, *i. e.*,

¹ Münchener medizinische Wochenschrift, 1905, III, No. 8, 349.

² The Postgraduate, May, 1905.

³ Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 2.

⁴ Lyon Médical, April 30, 1905.

⁵ Zeitschrift für Tuberculose und Heilstättenwesen, 1904, xvi, 410.

¹ American Journal of the Medical Sciences, May, 1905.

² Brooklyn Medical Journal, May, 1905.

³ Archiv für klinische Chirurgie, Bd. lxxvi, p. 122.

ligation of vessels, is not a sufficient explanation for the occurrence of this phenomenon, and it is necessary to invoke some additional pathogenic factor, such as an impoverished condition of the blood, the effects of narcosis, postoperative vomiting, etc. The hemorrhages are usually repeated, and occur most commonly within the first week. The anatomic changes in the stomach and intestines consist of hemorrhages, erosions and ulcerations. Sometimes no anatomic lesions can be found. The prognosis is grave, and treatment symptomatic. [B.K.]

Advances in the Diagnosis and Treatment of Purulent Peritonitis.—The classification into localized (encapsulated), progressive (multiple encapsulated), and general (free) purulent peritonitis has outlived its usefulness from a surgical standpoint, according to Barth.¹ He has found almost without exception that in cases of appendicitis operated on during the first 24 or 48 hours, a small localized collection of pus, not separated by adhesions from the general abdominal cavity, is found surrounding the appendix; in gangrenous and perforated cases he has found this to be the rule, while in cases where the appendix was simply filled with pus, the collection was usually serous. After the third day adhesions separating the pus from the general peritoneal cavity are usually found, thus showing that this is secondary and occurs only if the virulence of the pus is not too great nor its formation too rapid. Cases of virulent pelvic and general peritonitis are observed as early as the second day, and where multiple encapsulated abscesses exist it simply shows the rapid outpouring of pus with a subsequent reaction on the part of the organism to produce sufficient adhesions. Inasmuch as the formation of adhesions is therefore always a matter of doubtful occurrence, he advises the performance of an operation in appendicitis as soon as the diagnosis is made. The chances of success are the greater the oftener the operation is performed during the first 24 or 48 hours, and the failures after that day are not due to nonsuccess of the operation, but the existence at the time of a beginning general peritonitis. Of 10 patients with perforated appendices thus operated on by him, 7 recovered; 1 died of obstruction on the eighth day, the other 2 of sepsis because of already existing peritonitis. Gangrene of the wall of the appendix does not produce any special symptoms; they only beginning with the perforation itself, and even these symptoms can be simulated by nonperforating appendicitis; the board-like reflex hardness of the abdominal muscles, however, is usually found only in suppurating cases. Barth agrees with Heidenhain that intestinal obstruction in the course of peritonitis is at first a local paralytic condition in the neighborhood of a purulent focus, this then becoming general as the result of the poison of the intestinal contents, and that death is not due to the toxin of the peritoneal pus, but to those of the obstructed intestinal contents. Of eleven such patients he has been able to save seven by performing single or multiple enterostomy. Any distended coil is brought into the abdominal wound and punctured with a trocar, a rubber tube inserted and the intestines sewed to the wound. Within 24 hours the intestines usually empty themselves, but if not, a second and even a third enterostomy are performed by him, generally with ultimate success. The small wound heals usually as soon as the rubber tube is removed. He has performed the operation repeatedly under local anesthesia. The histories of 11 cases are appended. [E.L.]

Relation of Mechanical Distention to the Etiology of Appendicitis.—C. Van Zwahlenberg² finds that in the attempts to explain the vascular changes in appendicitis the fact that fluid can produce pressure has been overlooked. Given a constriction with a concretion behind it, glandular secretion may furnish the first fluid, or fluid may be present at the moment of closure sufficient to produce decided pressure. This occludes more or less the veins and lymphatics, causing dilation of the capillaries and outpouring of serum. Closure may be accidental, favored by position, as in sleep. Attempts by the appendix to empty itself, cause the colic. Irregularities in the appendix are often congenital. The germs involved are normally present in health. If the distention comes from a

sudden increase of intracolonic pressure from exertion, accident, or gastrointestinal disturbance (forcing fluid into the appendix, which by its recoil, forces the concretion into the constriction, closing the ball valve), there will be sudden severe pain. If the occluding mass is forced out by the increasing distention, the pain will suddenly cease. If the occlusion is permanent, necrosis follows, the nerves cease to report pain, and the patient feels relieved till the gangrenous tissue gives way, infecting the peritoneum. The sudden reappearance of severe pain in 24 to 48 hours means peritonitis. The surgeon is rarely called early enough to attempt dislodging the plug by massage. Operation, if performed at all, must be done before perforation or peritonitis supervenes. Weight given to evidence from time and pain must depend on the judgment of the surgeon. When peritonitis has occurred he believes in letting the case alone. [H.M.]

Scopolaminmorphin Narcoses.—Dirk¹ reports concerning the results of 260 scopolaminmorphin narcoses. The patients usually received two injections, one two hours, the other an hour before the operation. The amount injected averaged 1 mg. ($\frac{1}{16}$ gr.) of scopolamin and 2.5 cg. ($\frac{1}{2}$ gr.) morphin. In 12 patients only one injection was given, partly because of the intense action of the drug; in 227 patients, two injections were made, and this followed by ether or chloroform narcosis; he notes that in these cases much less of the anesthetic is needed than when the patient is only given the general narcotic. In 29 instances no other narcotic was necessary. The operations were manifold, 188 of them being laparotomies; 93 patients were older than 50; 3 of the patients died, but in all 3 the state of health was such that they could not have tolerated any other narcotic. These deaths occurred in the early part of the employment of the method, and have taught that elderly weakened individuals must be watched over very carefully after the first injection. The exact procedure and the usual behavior of the patient are described very carefully. The disadvantages and advantages are thus summed up: Its disadvantage is that it can only be employed in a hospital because of its complexity and the necessity of experienced watchfulness; its advantages, however, are many; the patient is saved the anxiety of expecting a general narcotic, as well as the anxiety and memory of watching the other preparations; the transition to full narcosis is performed without excitement and sensations of asphyxia; narcosis is brought about easily without salivation, tracheal irritation, cough, nausea, or collapse; after the operation the patient sleeps a long while, and usually experiences no violent pain; the usual vomiting is spared them; it is a procedure which can be used when ether or chloroform is impossible. The author considers this variety of narcosis indispensable. [E.L.]

Value of the Appendix in the Treatment of Colitis.—An opening into the cecum has been advocated in ulcerative and membranous colitis, with the view of flushing out the colon from above. J. Hutchinson, Jr.,² recommends employing the vermiform appendix for irrigation purposes. All leakage of cecal contents can thus be avoided; a rubber catheter can be inserted and retained and the washing out be thus done efficiently; and, finally, the fistula can be readily closed by resection of the appendix. The author narrates a case, illustrating these advantages. [B.K.]

Treatment of Leg Ulcer.—H. Voerner³ has employed for the last two years, and with considerable success, the following modification from the usual methods of treatment: The medicinal substance having been applied to the ulcer, he bandages the limb with two thin, firm, long, elastic bandages one above the other, beginning as near as possible to the big toe. Because of its increased firmness, this is superior to the single bandage. At night the bandages are taken off and a stimulating dressing applied until morning. When an immovable dressing is required, the ulcer having been dressed, one bandage is applied, and a lime made from tragacanth .05%, gelatin 10%, glycerin 5%, boric acid 5%, and sodium borate 5%, smeared over it after heating it; the second bandage is then applied. This produces a very firm dressing and one which is

¹ Deutsche medizinische Wochenschrift, 1905, xxxi, No. 10, 378.

² Annals of Surgery, March, 1905.

¹ Deutsche medizinische Wochenschrift, 1905, xxxi, No. 10, 378.

² British Medical Journal, May 13, 1905.

³ Münchener medizinische Wochenschrift, 1905, lli, No. 8, 350.

easily taken off. One minute in warm water will dissolve it sufficiently to take it off. [E.L.]

A Series of Cases of Intussusception in Childhood.—C. Wallace¹ reports a study of 20 cases; 19 enterocolic and 1 colic in location. Double tumors were found oftener than would formerly have been expected. It is only after reduction of the main tumor that the presence of the second can be made out. It would simplify nomenclature to call all intussusceptions involving large and small gut enterocolic and indicate whether they are double or where they started. An ileocolic intussusception must always be small, as the prolapse cannot be more than double the length of the mesentery. A tumor can generally be felt without difficulty. An anesthetic will settle at once any difficulty. All the 20 children were healthy; in only 3 was there a history of improper feeding. With the exception of 2 patients in whom resection was done, there was no relation between the duration of the symptoms and the difficulty of reduction. Inflation, except as an auxiliary measure to reduce the tumor out of the pelvis, has been abandoned. The site of the abdominal opening must be determined by the necessity of performing the last stages of reduction with the tumor in sight. In this series the incision was through the right rectus, its center three-fourths of an inch to the right and below the umbilicus. No attempt was made to retain the intestines in the abdomen. The average time of operation was 14 minutes. Want of union in young children is best avoided by using deep sutures through all the coats and separate suture of the anterior rectus sheath. There were only 4 deaths in the 20 cases. [H.M.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

Malignant Degeneration of Cervix after Supravaginal Hysterectomy.—The relative advantages of supravaginal hysterectomy over total extirpation of the uterus in cases of fibroid tumor of that organ, are such as to make the gynecologist select that operation in preference to the more radical one. The supravaginal operation can be more quickly performed, with loss of less blood and less risk of injuring the ureters than the complete operation. One of the chief points in its favor, however, is that the anatomic relations of the pelvic floor are better preserved when the cervix is allowed to remain, and there is less danger of prolapsus of the vaginal walls with shortening of the canal, which often interferes with subsequent function. There is, however, a possibility of malignant involvement of the remaining stump, and quite recently Pestalozza of Florence has added five cases to the 14 collected by Richelot in which an epithelioma had developed in the stump of the cervix after partial hysterectomy. American operators have also noticed a few similar cases. The danger of a malignant degeneration in the cervical stump may be obviated by a thorough cauterization of the cervical canal with either the paquelin or the electric cautery, as suggested by Dr. Clark. This leaves only the rim of the cervix behind, but it does not break the attachment of the broad ligament on either side and leaves the vaginal anatomic relations undisturbed. As cancerous changes in the cervix after hysterectomy for fibroids are of infrequent occurrence, we believe it is safer teaching to advise supravaginal hysterectomy for benign growths and employ the complete operation only in cases of either primary or secondary malignancy.

REVIEW OF LITERATURE

Causation of Puerperal Infections.—According to A. G. R. Foulerton and V. Bonney,² the old classification of puerperal fever into sapremic, septicemic and pyemic is of little value, as it is often impossible to draw any clinical distinction between

these forms. Their classification divides puerperal fever into two groups: 1. Infection of lacerations of the perineum or vagina, with possible extension to the uterus. 2. Primary infection of the uterus. Each group is further subdivided into those cases in which there is local infection with toxemia and those in which a generalized infection is added to these. Their bacteriologic investigations show that the streptococcus was responsible for the majority of cases, while the pneumococcus was next in importance. The clinical manifestations of infection with these two organisms are practically identical. The authors believe that more than one species of streptococcus is concerned in the production of puerperal fever; hence a polyvalent serum must be used in the treatment of this condition. They also maintain that the curet should be discarded in the treatment of puerperal infection, on account of the danger of infecting the still intact deeper tissues of the uterine wall. They advocate digital exploration of the uterus, the removal of any retained fragments, and subsequent douching with an antiseptic solution. They believe vaginal douching before labor to be useless, but not necessarily harmful. [B.K.]

A Survey of Ovariectomy at the Extremes of Life.—H. I. Wiel¹ reports a case of adenosarcoma removed by Kelly from a girl of 5, who three months after operation was well and active. He presents a table of cases in which 130 patients were over 70 and 60 patients were under 10. From a consideration of these he concludes that: Age is no contraindication to operation. Prognosis is extremely favorable, even in the most aged. In the young it is not so favorable, but nevertheless good. Malignant ovarian tumors are rare in the aged, but more common in the young, this greater frequency accounting for the greater mortality. The most frequent tumors in the aged are benign cysts, particularly the multilocular variety, these being comparatively rare in the young. Ovarian dermoids and sarcomas are the most frequent in the young and the rarest in the aged. [H.M.]

Influence of Pregnancy on the Commoner Infectious Diseases.—The investigations of A. Brion² cover 34 pregnant women suffering from typhoid fever, pneumonia, acute articular rheumatism, facial erysipelas, scarlatina, measles, and diphtheria. In 12 of these patients pregnancy was interrupted as a result of the infectious disease. In half of these, in fact in almost all cases where the fetus was viable, the child was born alive. Hence, the death of the fetus cannot be regarded as the sole cause of the abortion, nor can the cause lie in an endometritis or in the height of the mother's temperature, as the author's statistics prove. There seems to be, however, some relation between the severity of the infection and the interruption of pregnancy. Passage of the infecting organisms from mother to fetus could not be demonstrated in any case, but its possibility cannot be denied as a cause of the abortion. [B.K.]

Concealed Menstruation and Its Treatment.—P. Horrocks² reports the case of a girl of 15, who began to have pains, suggesting the onset of menstrual life, without the appearance of any blood. Her attending physician found a bulging, imperforate hymen, and adopted the textbook treatment of making a tiny puncture. A sapremia developed, the opening was enlarged, and the uterovaginal cavity was washed out. Septic peritonitis developed, however, and the author was called in. He opened the abdomen, thoroughly flushed it out, and removed a greatly distended fallopian tube. Drainage was instituted, and the girl finally recovered. Horrocks believes the treatment by minute puncture to be extremely dangerous. It is safe only in those cases where the vagina alone is distended with blood. When there is also hematometra, the gradual escape of the blood provokes uterine contractions, which will drive the retained menses back into the fallopian tubes and abdominal cavity. He believes the only safe treatment is to make a free incision of the hymen, and wash out the blood from above downward by means of a long rubber tube. A light vaginal gauze drain may then be introduced, removed in 24 hours, and a douche given. The author emphasizes the importance of a thorough washing of the peritoneal cavity in the cases that have already gone on to peritonitis. [B.K.]

¹Annals of Surgery, March, 1905.

²The Lancet, April 8 and 15, 1905.

¹Johns Hopkins Hospital Bulletin, March, 1905.

²Zeitschrift für klinische Medizin, Bd. lvi, p. 209.

³The Lancet, May 13, 1905.

TREATMENT

SOLOMON SOLIS-COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Prognosis of Trismus, Tetanus Infantum and Neonatorum, with Reference to Serum Therapy.—In the course of nine years H. Fleisch¹ has treated 8 patients with tetanus neonatorum, 5 in boys and 3 in girls, with 3 recoveries and 5 deaths. One of those recovering was of medium gravity, another very grave, while concerning the third no data were to be had, excepting the fact that the child recovered. Antitoxin was used in all, but the author does not feel as if its employment improved the prognosis in the least; of three patients treated without serum, one recovered, a second was discharged unchanged, a third died. The prognosis depends upon the duration of incubation, the time when antitoxin was first injected, counting from the day of the first symptom, the degree and extent of rigidity, the possibility of nourishment and the behavior of the temperature. On the whole, however, he does not consider the prognosis of tetanus neonatorum as bad as generally painted by authors, but he will not yet give his final opinion concerning the value of tetanus antitoxin in these cases. Of seven cases of tetanus in children, four of whom were males and three females, all but one recovered. They also received serum treatment. The patient who died had a very severe attack, and the antitoxin had no effect from the first. Of six patients treated without antitoxin, three died, and the author therefore feels that the serum has improved the prognosis of this variety of tetanus from 25% to 30%, especially as his mortality with and without serum agrees with that of other authors. In general, he considers the prognosis of tetanus of childhood far more favorable than that of tetanus of the adult. He thinks that statistics treating of serum treatment of tetanus should separate tetanus of the newborn, of the child and of the adult. [E.L.]

Rest in the Treatment of Gastric Ulcer.—F. D. Boyd² does not advise rectal alimentation in acute gastric ulcer, since there is evidence that food injected into the colon finds its way into the stomach, thus preventing complete gastric rest. There is also increased intestinal putrefaction, with possible auto-intoxication. He syphons into the bowel every six hours a pint of normal saline solution, orders an antiseptic mouth wash, and warns the patient against swallowing the secretions of the mouth. He gives no food for four to six days, and after this, milk in small quantities. Toward the end of the rest period the complaint of hunger has been no greater than when rectal alimentation was given. Most patients had a feeling of well-being and an absence of pain. He advises lavage of the stomach in hemorrhage, the water being heated to 104° or 105°. In chronic ulcer complete rest should be persisted in as long as the general nutrition permits. The patient should be kept in bed two months and on restricted diet much longer. In pyloric stenosis, gastroenterostomy, by resting the ulcer, will effect a cure. If there is no stenosis and the ulcer is on the pyloric third of the stomach, gastroenterostomy may cure by giving the ulcer rest, but according to present experience it will not do so if the ulcer is outside the pyloric third. In such cases excision may result in benefit. [H.M.]

Contribution to the Action of Veronal.—Kress³ has employed veronal in 12 cases, employing a dose of 0.5 gm. (7½ gr.); in three instances he noticed a cumulative action by the third or fourth day; the patients slept for several days at a stretch, hardly partook of any food, and were in no condition to leave their beds. A certain amount of caution seems to him necessary therefore, and he advises at the first sign of an accumulation to change it for another drug. [E.L.]

Effect of Various Baths on Blood-pressure, Vascular Tone, and Cardiac Work.—J. Strasburger⁴ finds that during a water bath the systolic blood-pressure first rises, then falls, then rises again. After the bath the pressure falls usually below that point at which it stood before the bath. Cold baths

produce a more marked initial rise, while hot baths have the effect of increasing the terminal rise. During baths above 40° C., the pressure is always above that which existed before the bath, while warm baths below 40° produce a more pronounced fall in the pressure. The indifferent point is 34° to 35°. Below this point the pulse is slowed, while above this temperature it is quickened. The diastolic pressure varies like the systolic, but not in parallel lines. With baths below 40° the course of the pressure curve is determined especially by the vascular tone, the rise in pressure being due to vascular contraction, and the fall to dilation. The rise in pressure towards the end of hot baths is due to increased cardiac action which is diminished below normal by baths of a temperature below the indifferent point. Salt-water baths, containing carbonic acid, stimulate the heart, producing an increased volume of its beats—a property not possessed by simple cold baths. They are, therefore, very useful as pure cardiac stimulants, as they are not accompanied by the contraction of the vessels, which is a characteristic of the action of digitalis. [B.K.]

Treatment of Acute Coryza.—A. Henle¹ has cured five out of six patients suffering with acute coryza within a very short time by employing Bier's passive congestion method. A rubber bandage is tied about the neck, a pressure of 25 mm. being sufficient to produce hyperemia, a filling of the cervical veins, and cyanotic discoloration of the face. The tickling of the nose, the lacrimal and nasal secretions, the headache and other unpleasant sensations disappeared almost at once. The bandage was left in position from two to five hours. He recommends this method of treatment in acute rhinitis, pharyngitis, angina, and laryngitis, also in inflammations of the lateral nasal cavities. Arteriosclerosis contraindicates Bier's method, [E.L.]

Acetozone Treatment of Typhoid Fever.—R. F. Llewellyn² reports the results in 18 cases in which he used 30 gr. daily dissolved in 3 or 4 pints of water. The doses varied from a wineglassful to half a tumblerful, lemon juice being added to each dose. In all a steady fall of temperature set in by the fourth day and in two it began by the twelfth hour; it usually came in 36 to 48 hours. All patients but one were convalescent on or before the fourteenth day. Improvement in the general condition was noticeable in less than 24 hours. Several patients in the remittent stage craved food like convalescents. The slight tendency to constipation which acetozone causes may be corrected by sodium phosphate. There is marked diuresis, absence of tympanites, hemorrhage, and cracked tongue. On account of the bulk of liquid only 2 pints of milk were given daily, supplemented by a tablespoonful of strong raw beef juice every two hours. In a few cases there was vomiting at first. [H.M.]

Veronal in Whoopingcough.—M. Fraenkel³ employed small doses of veronal in a case of whoopingcough which could not be controlled by any drug whatsoever, and with almost immediate results. Since then he has given it to 28 patients suffering from the disease and always with excellent results; in some the spasms disappeared within a few days. Children under 4 were given 0.03 gm. (½ gr.) three to four times daily, restricting their diet at the same time; the dose was cut down as soon as the disease permitted it. No unpleasant symptoms were produced by it, and the children returned to a state of wellbeing very quickly. Older children were given from 0.06 gm. to 0.1 gm. (1 gr. to 1½ gr.) three to four times daily. In but one case was the sleep-producing action of the drug sufficiently marked as to force its discontinuance for the time. [E.L.] [Enthusiastic reports on new remedies for whoopingcough—that are soon forgotten—would fill a large volume. It is to be hoped that veronal will show greater "staying" qualities. s.s.c.]

Failure of Griserin in the Treatment of Chronic Pulmonary Tuberculosis.—Griserin, the drug praised by Kuester as the specific against pulmonary tuberculosis, has been tried by Bruehl⁴ in nine patients with tuberculosis; they were all cases that had failed to respond to other treatment. In all

¹ Deutsche med. Wochenschrift, 1905, xxxi, Nos. 5 and 6, 177 and 223.

² Scottish Medical and Surgical Journal, March, 1905.

³ Therapeutische Monatshefte, 1905, xix, No. 1, 37.

⁴ Deutsche Archiv für klinische Medicine, Bd. lxxvii, p. 459.

¹ Deutsche medizinische Wochenschrift, 1905, xxxi, 220.

² Australasian Medical Gazette, February 20, 1905.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, No. 6, 226.

⁴ Münchener medizinische Wochenschrift, 1905, lli, 356, No. 8.

of them a dose as small as 0.2 gm. (3 gr.) produced intestinal irritation; colic and diarrhea appeared when 0.3 gm. (4½ gr.) were given. In one patient an intestinal tuberculosis was set up, in another a chronic appendicitis was made acute. All of the patients as a result of this, lost their appetite and in weight. The temperature instead of being lowered, was in some cases raised; some of the patients began to complain of night sweats. In some of the patients there was less cough and expectoration, but that was probably due to the diarrhea removing water from the body and a subsequent retention of bacteria. This would explain the rise of temperature noted; the sputum was found to contain more bacteria. He warns against the use of griserin as being not only directly dangerous, but also because it prevents the application of rational and curative methods. [E.L.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

Postpartum Metastatic Panophthalmitis.—Four or five decades ago there were frequent references in medical literature to metastatic suppuration of the eyeball after complicated labor. Formerly the mortality after childbirth in many institutions was from 5% to 10%. Schöbl states that in such an enlightened community as Prague, Austria, he remembers a period during which he saw daily 20 cases of puerperal fever, of which four or five were complicated with metastatic ophthalmia. With the universal adoption in obstetrics of antiseptic and aseptic precautions, the number of cases gradually diminished, until now he states that for many years he has not seen a case in his clinic. Certainly in the American hospitals at the present day this affection is very rare. The time of occurrence is usually from the fifth to the fifteenth day after delivery, depending largely upon whether the metastasis follows infection into the open uterine sinuses or through the lymphatics and bloodvessels near fresh wounds in the parturient tract. DeSchweinitz has reported a case which developed 31 days after confinement. Although careful examination of the pelvic region failed to give evidence of any residual puerperal infection, such infection was not excluded, as a small septic nidus in the uterine wall or mucous membrane might easily escape digital examination. DeSchweinitz cites Axenfeld's tables, in which it is shown that purulent metastatic ophthalmitis might occur anywhere from the first to the fiftieth day. Monolateral cases of puerperal metastatic ophthalmia seem to be about twice as frequent as the bilateral cases, although in the latter instance many cases may have been overlooked on account of the bacterial thrombi in the internal viscera or brain, causing profound constitutional symptoms and usually death. The diagnosis is based upon the panophthalmitis occurring shortly after delivery and the associate local and general symptoms of postpartum infection. Unless the general condition is so grave as to present the complaint of subjective phenomena, the first ocular symptom is loss of vision. Even when the external signs of inflammation are not prominent, there is sufficient obscuration of the intraocular media to prevent satisfactory ophthalmoscopic examination. However, Hirschberg has seen a case in the early stage in which, though cloudy, the vitreous was sufficiently transparent to permit a view of retinal embolism and hemorrhages, and after removal of the eyeball he confirmed the site and nature of the initial retinal lesion. Septic emboli have been found in the bloodvessels of both the choroid and retina and there have been demonstrated repeatedly the presence of the *Streptococcus pyogenes*, *Staphylococcus pyogenes aureus*, pneumococcus, a new diplococcus, and the leptothrix. It is stated that usually in the bilateral cases the septic emboli are first received by the retinal vessels, while in the monolateral cases the primary lodgment may be in the uveal tract. Microscopic examination is usually

unsatisfactory on account of the advanced disorganization of the intraocular contents. The prognosis as to life is good in monolateral cases uncomplicated by metastatic septic emboli elsewhere in the body. Bilateral cases generally result fatally. Recovery of the eyeball is practically hopeless. Even in indolent painless cases vision is soon lost and the eyeball becomes atrophic. Often the globe ruptures near the sclerocorneal junction, allowing a partial escape of the suppurating intraocular debris. In a case reported by Pyle the scleral rupture occurred in the posterior segment, leaving a shrunken globe with the anterior segment on first inspection apparently unchanged. So long as the atrophic eyeball after rupture remains quiescent and painless it may be allowed to remain in the orbit. In case of pain or chronic inflammation it should be promptly excised. In cases in which the intense inflammation and pain is unrelieved by the instillation of atropin, the application of heat and other antiphlogistic and sedative measures, spontaneous rupture should be anticipated by a simple scleral incision beneath the tendon of the external rectus. The pus is evacuated through the scleral opening and the eyeball packed and irrigated in the same manner as in an abscess cavity elsewhere. If necessary, enucleation or one of its substitutes may be performed after the inflammatory symptoms have subsided.

The Surgical Treatment of Panophthalmitis.

The danger of purulent meningitis following excision of a suppurating eyeball gives grave question as to advisability of following the routine practice of many ophthalmic surgeons of enucleating in such cases at any stage of the inflammation. The bloodvessels and lymph channels of the orbit being extensively opened, invite infection to the cerebral cavity. Moreover, the globe is generally soft and bound down with inflammatory adhesions, making it sometimes impossible to avoid buttonholing the sclera, an accident likely to be followed by troublesome complications. Both of the von Graefes advised strongly against the enucleation of suppurating eyeballs, and although Nettleship believes that the danger of meningitis depends more upon perforation of the sclera than the simple presence of pus in the eyeball, he has reported a case of his own in which fatal meningitis followed a perfectly successful enucleation of a suppurating eyeball, and he refers to 14 similar instances with a fatal termination. Marshall gives the details of eight cases at the Royal London Ophthalmic Hospital between the years 1881 and 1896, in which enucleation in panophthalmitis was followed by meningitis. As a substitute for enucleation, evisceration is not satisfactory. It is not free from the danger of sympathetic inflammation, and, as Marshall has said, the products of putrefaction may have soaked into the sclera without causing perforation, making this membrane a possible source of infection. Again, the use of the sharp eviscerating spoon in the diseased and weakened scleral wall is likely to result in perforation, or the opening of a localized peribulbar abscess. In this connection, Enslin and Kuwahara¹ report an interesting case in a woman of 64, who had become blind after an infective corneal ulcer. On account of continued pain and inflammation lasting over a year, and the possibility of sympathetic ophthalmia, enucleation was performed. An accidental opening in the sclera was made posteriorly, and the symptoms of meningitis developed rapidly, death ensuing in 58 hours. To the naked eye there was no sign of acute orbital inflammation, although microscopic examination showed streptococci in the vitreous chamber, in the space beneath the pial sheath of the nerve, and in the irrigations from the orbital cavity. In 21 similar cases reported by Nettleship, all but 4 gave evidence of meningeal affection within 48 hours, demonstrating positively a causal relation between the enucleation and the

¹ Archiv für Augenheilkunde, September, 1904.

meningitis. However, it must be remembered that meningitis may follow cases of panophthalmitis in which no operation has been performed, and in such cases, as Marshall points out, the efficient drainage provided by enucleation may constitute the very best treatment. Ophthalmic surgeons who advocate the conservative treatment of panophthalmitis, direct the local ocular treatment to the relief of pain and the reduction of inflammation by the instillations of atropin and the vigorous application of hot compresses. These measures failing, the sclera is incised between the tendons of the external and inferior recti muscles and the pus is evacuated. The globe may be packed with gauze, and the cavity is irrigated several times daily with a germicidal solution. After the subsidence of the acute inflammation the atrophied globe may be excised, or if deemed advisable, evisceration and implantation may be performed.

REVIEW OF LITERATURE

Cardiac and Gastric Neuroses.—Some months ago Schoen¹ published the opinion that migraine is the result of an ocular disturbance. This theory he strengthened by publishing the details of many cases treated along this line and cured. He now goes a step further, and traces cardiac and gastric neuroses to a disturbance of the eyes; the patients had usually been treated by a number of physicians, and a great variety of diagnoses had been made; gastric catarrh, dilation, nervous dyspepsia, functional and organic cardiac disturbances, Basedow's disease, neurasthenia, etc. In all of these cases Schoen found a definite ocular disturbance, the removal of which cured the chronic disease. The eye disturbance in every case was an upward squint, and is usually congenital; in migraine the symptoms were usually due to astigmatism and hypermetropia. He reports having cured over 100 patients by simply correcting this slight eye defect. He found that these patients were very sensitive to swinging and sea voyages (nausea and seasickness, also dizziness). He believes the pneumogastric irritation to be the cause of the manifold symptoms, and this to be secondary to the constant demand on the innervation of the patient to unite the pictures seen with both eyes, and to equalize the height differences. It becomes more and more difficult as the time passes, and neighboring nerves are irritated as the result. The glasses caused the disappearance of both gastric and cardiac symptoms. [E.L.]

Mycoses, with Special Reference to Mycosis of the Eyeball.—L. Buchanan² finds the most important sites in which these fungi may be found, either as saprophytes or parasites, are the ear, the nails, the larynx, the lungs, and the eye. Several types of organism are found, the one most commonly present in the eye being *Aspergillus fumigatus*. The spores are conveyed by some agency connected with the soil. In 12 of these cases there is a history of injury with some object connected with agriculture. Experimental introduction into the cornea of rabbits has produced suppuration with great regularity. A line of intense inflammatory reaction surrounds the slough and isolates it. The clinical appearances are those of ulcer with hypopyon. The surface is grayish-yellow, appearing as if dry. There is considerable pain and moderate discharge. The disease is slow and little modified by medication. The actual cautery and excision have proved the most efficacious. Probably the disease tends to recovery by separation of the necrotic area and cicatrization. There is no tendency to extension into neighboring tissues. Logwood is the only stain which has much effect on the mycelium. Alkaline mediums are the best for culture. A table showing the principal points of the 22 cases recorded in literature is appended. [H.M.]

Struma and Cataract.—The association of cataract with diabetes and other constitutional diseased conditions has long been recognized. A. Vossius³ calls attention to the relation of cataract to disease of the thyroid gland. This latter organ is now recognized as contributing an internal secretion to the body. Any disturbance of this function produces an autointox-

ication, which frequently causes, among other results, changes in the nutrition of the crystalline lens. After a detailed review of the literature, the author gives his own experiences, which embrace 28 cases of cataract with struma. All the cases were in females, in 22 of whom bilateral cataracts developed. The goiter was usually of considerable size, often produced marked stridor by compression of the trachea. The cataract in these cases does not usually include the whole lens; it involves chiefly the nuclear zone and the perinuclear layers. The outer cortex, which is usually opaque in senile cataract, is quite clear in these cases, or at most, exhibits a few punctiform or linear opacities. A thorough examination of the body, including the urine, revealed no other possible cause for the cataract in these patients. [B.K.]

Congenital Word Blindness.—W. E. Bruner¹ believes that in mild cases much can be done to overcome this defect, but it requires individual instruction from the teacher. Much of the child's knowledge must be gained by oral methods, but reading must be persistently practised, and a slow but steady improvement will be seen. He reports 14 cases from literature, including one of his own. Though these children could not read, or had great difficulty in doing so, they were in all other respects quick at learning, and had unusually retentive memories. Most of them had little difficulty with figures, and some were quite proficient. In attempting to read, these patients spell out each word, letter by letter, and by so doing appeal to their auditory memory, or their memory of speech movement. It is the failure to recognize words "as a picture," which is the essential feature of congenital word blindness. There are two stages in learning to read, acquiring the visual memory of letters, and acquiring the visual memory of words. The memory for numerals being normal in so many cases points to the existence of different centers for numerals and letters. All evidence seems to point to the angular and supramarginal gyri of the left side as the center for word memory. Of the 14 cases reported, 11 have been boys. Nothing is known regarding etiology. Early recognition of the defect may make development of the faculty possible. The old plan of teaching the alphabet is best for detecting this defect. [H.M.]

Conjunctival Bacteriology.—According to F. Fergus² few conjunctival sacs are entirely free from microorganisms. Some of these are nonpathogenic, such as *Bacillus xerosis*, but most of them are capable of doing harm under suitable circumstances. Of the latter there are two groups. Those of the first group are only capable of mischief if the continuity of the epithelium is broken; such organisms are the staphylococcus, streptococcus, pneumococcus, *Bacillus pyocyaneus*. The members of the second group are never present without setting up an inflammation; they include Week's bacillus and the gonococcus. The author believes that bacteriology should be in daily use in every eye clinic (1) to aid in diagnosis; (2) because it is a guide in determining the safety of any operation; (3) because it materially influences the treatment. The presence of pathogenic organisms has not infrequently caused the loss of eyes after such an operation as cataract extraction; hence the importance of bacteriologic examination before operation. In regard to its influence on treatment, the author says that an ophthalmia due to Week's bacillus or the gonococcus will run its course in spite of treatment, and all active efforts must be directed toward preventing contagion of the sound eye, and of other individuals. [B.K.]

One Hundred Cases of Eye Disease with Bacteriologic Examination.—D. Smith³ gives a detailed account of these examinations, with a table of the organisms found. Some of the results are suggestive. Of the staphylococci, the albus was more often found in conjunctival, the aureus in corneal cases. In the lacrimal cases, the streptococcus and pneumococcus predominated. The xerosis bacillus was found 23 times in 10 of these alone or predominating. While zinc chlorid in diplobacillus and antitoxin in Klebs-Löffler conjunctivitis are almost, if not quite specific, he knows of no other specific drug for a specific germ. The staphylococcus seemed in these cases to yield most quickly to a salt of mercury, and that in propor-

¹ Münchener medizinische Wochenschrift, 1904, 11, 1777, No. 40.

² Glasgow Medical Journal, December, 1904.

³ Zeitschrift für klinische Medizin, Bd. lv, p. 63.

¹ Ophthalmology, January, 1905.

² British Medical Journal, March 11, 1905.

³ Manhattan Eye, Ear, and Throat Hospital Reports, March, 1905.

tion as the infection was localized. For the pneumococcus, boric acid, for the streptococcus, hot water, and for the gonococcus, constant cleansing with vaselin, and perhaps a salt of silver in certain stages, gave the best results. In corneal infection, mild treatment seemed to do better than the more active antiseptics. Vaseline hinders growth and protects sound tissue from invasion. Hot water seems better than cold in both conjunctival and corneal infection. [H.M.]

Treatment of Retinal Detachment.—In by far the greater number of cases of retinal detachment is produced by an inflammatory change in the vitreous, a bulging forward of the retina, the production of a rent in it and the flowing of vitreous between it and the choroid; there are some cases in which without tear, without inflammatory change and simply through marked lowering of the intraocular pressure, detachment of the retina develops. The predisposing conditions are myopia, and especially high grade myopia; it occurs oftener in individuals past the age of 40 than prior to this; two-thirds of the patients belong to the male sex, but beyond 50, the sexes are about equally represented. The exciting causes are traumas, bodily overexertion, lifting of heavy weights, long-continued forward bending, violent coughing, hot baths, excessive heat, followed by excessive cold, as a sleigh ride immediately after having been in a very hot room, etc. As spontaneous cure is possible, the treatment, especially in recent and small detachments, should be rest in bed, production of diaphoresis several times weekly, and subconjunctival sodium chlorid injections; the latter should be from 4% to 10%, be repeated every other day, and continued until from 10 to 15 injections have been given. The most successful operation in Sattler's¹ hands has been simple puncture of the sclera and choroid to permit the subretinal fluid to run off. The details of the procedure are described; this can be associated by repeated injections of sodium chlorid solutions beneath the conjunctiva. He has seen some improvement from slight counterirritation to the sclera; with Deutschmann's procedure, he has not had very good success, but has not used it to any great extent; Müller's method he considers too complicated, but says it promises well. The prognosis should never be made too promising, as comparatively few regain good use of the eye. [E.L.]

Coffee Amblyopia.—A. E. Bulson² believes that pronounced amblyopia with contracted visual fields in those who use coffee to excess, is not a rare condition. The marked irritation of the digestive tract favors the decomposition essential to ptomain development, some persons being particularly susceptible. That these ptomains may produce nutritive changes in retina or optic nerve, seems reasonable. The writer reports two cases which improved on pilocarpin and strychnin. In one patient there was a small central scotoma. In experimenting upon himself for two weeks with excessive quantities of coffee, his own fields and visual acuity were temporarily reduced. In mild cases, possibly the discontinuance of the coffee alone would be sufficient to bring about improvement. [H.M.]

Unilateral Annular Scleritis.—D. B. St. John Roosa and E. L. Oatman³ report a case occurring in a man of 54, who for six months had progressive loss of vision in his right eye. The case was diagnosed an aberrant form of glaucoma. Nearly a year later the excavation in the optic nerve had deepened and there was a staphyloma-like swelling on the temporal side of the sclera; there had been no pain. Following an accident, in which severe trauma was inflicted upon the region above the eye, the organ was enucleated. Microscopic examination showed the anterior regions of the sclera and episclera occupied by a dense cellular deposit, which completely encircled and invaded the cornea, extending back from the latter structure a distance of 4 mm. to 10 mm. Isolated nodules were distributed in the adjacent tissues. Deposits also occurred in the subconjunctiva and the tendon of the external rectus muscle. The changes found strongly suggest this case of scleritis may have been a reflex or trophic disturbance. [A.G.E.]

Influence of the School on the Eye and Spinal Column.—Liebreich⁴ believes that both these parts are injured by too

close approximation of the head to the book during reading and writing. This causes too great an effort in convergence and accommodation, the strain resulting in nearsightedness. Through too near approach of the head to the table the normal curvature of the spinal column is enhanced, and by simultaneous rotation of head and body lateral curvature ensues. The cancellous tissue in the vertebrae is especially arranged to support weight directly from above and side pressure destroys parallelism between the upper and lower borders, and this is coupled with loss of symmetry in the intervertebral cartilages. Three equally condemnable positions are those in which either or both elbows rest on the desk, the hand or hands supporting the head. The first two cause scoliosis, the last raises the shoulders too high and augments the normal curves. Seating arrangements should permit the erect posture. The author has recommended that all desks be made the same height, the foot-board and seat varying with the height of the child. A ruler placed on the desk parallel with its plane should point to the elbow of the pupil whose forearm rests on the desk. The curve of the chair back corresponding to the lumbar curve should be convex instead of flat or concave. It is impossible, however, to attain an uninjured position if the method of writing does not fulfil the conditions required to sit erect. Children, under 8 years of age, should not be taught writing. If the orbits diverge very much, requiring an excessive effort for convergence to the near point with overstimulation in consequence of the muscle of accommodation and an apparent myopia, the child should wear prisms base in. [H.M.]

Sensory Ataxia of the Ocular Muscles.—H. Feilchenfeld¹ reports the case of a patient with locomotor ataxia, who had perfect control of his oculomotor apparatus when directing his eyes toward a certain object, but lost that control when asked to "turn the eyes to the right or left," as the case may be. On attempting to make this abstract movement, the eyes would converge, nystagmus would appear in one eye as a result of his voluntary efforts to control the muscles, but the convergent cramp would always recur. The author ascribes this phenomenon to a sensory ataxia of the ocular muscles, to a loss of the sense of muscular position, such as occurs in the legs of the ataxic patient. [B.K.]

Chancroid of the Eyelid.—M. L. Foster² can find no other reported case. The lid in his case was red, swollen, and drooping; the ulcer, 6 mm. or 7 mm. by 2 mm., was in the middle of the intermarginal space, its floor excavated and covered with purulent detritus, its edges abrupt and elevated, but not indurated. There were no symptoms of syphilis in the following two months. A month previously the patient had a sore on the penis, followed by suppurating buboes in the groin. Without a history it is extremely difficult, if not impossible, to distinguish between a simple septic ulcer, a chancroid, and a chancre prior to the appearance of the secondary eruption. [H.M.]

Röntgen Rays in Trachoma.—The first attempts at treating trachoma with röntgen rays were made only two years ago. The results published were encouraging. A. G. Wasutinski³ reports his personal experience in a series of cases. The favorable effect of the rays on trachoma he considers well established. The infiltrate is reduced, the granules disappear, the pannus clears up, the subjective symptoms are relieved. Complete cures are rare, but marked improvement is frequent. The treatment is entirely painless and leads to no complications. The author would reserve the röntgen ray for such cases as have resisted the ordinary methods. [L.J.]

Staining the Skin by Argyrol.—H. M. Post⁴ reports a case in which a 25% solution was injected into the cavity of a chalazion after evacuation. The next day the patient returned with the upper eyelid swollen and black and shining like a highly-polished stovewood. Post injected potassium iodid, 1 gr. to the fluid ounce, several days in succession and gave 5 gr. sodium iodid internally three times daily, gradually increasing the dose, and in 10 days the stain disappeared. [H.M.]

¹ Deutsche medicinische Wochenschrift, 1905, xxxi, 15 and 56.

² American Journal of Ophthalmology, February, 1905.

³ The Postgraduate, March, 1905.

⁴ Annals of Ophthalmology, January, 1905.

¹ Zeitschrift für klinische Medizin, Bd. lvi, p. 389.

² Manhattan Eye, Ear, and Throat Hospital Reports, March, 1905.

³ Russki Vrach, January 8, 1905.

⁴ American Journal of Ophthalmology, March, 1905.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine
DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery
MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology
ALLER G. ELLIS

Obstetrics and Gynecology
WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery
H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment
SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.
D. BRADEN KYLE
Ophthalmology
WALTER L. PYLE
Dermatology
M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 24.

JUNE 17, 1905.

\$5.00 YEARLY.

Children and the Tenements.—In these days of constant allusion to race suicide the thinking person ponders over the antithesis furnished by families with children being barred from tenements and apartment houses. Tenement dwellers are not, as a rule, inherent offenders in neglecting to rear children, but the refusal of landlords to admit those who possess offspring is productive of annoyances calculated to engender disinclination to "multiply and replenish the earth." In New York the matter has assumed such proportions that the Board of Aldermen has requested three city departments, health, charities, and tenement house, to investigate the conditions resulting therefrom. Their report will be of interest in showing whether this matter, both as to frequency and results, is of real or fancied importance. If it proves to be the former, what will be the remedy recommended? As pointed out by a writer in *Charities*, it is difficult to see how the matter is to be regulated by law without infringing on the constitutional rights of property holders. He takes rather a cheerful view of the situation in that families in better circumstances are thereby induced or driven to take their children out of crowded flats to the suburbs, the value of which is not to be gainsaid; at the same time he admits the ruling is a hardship for those who, because of poverty and the present transit facilities, are obliged to live down town near their work. But the landlord has his side in the fact that where families are densely massed, children create endless disturbance and annoy other tenants. The question is one demanding thorough investigation and judicial study before regulation is attempted.

Milk and the Public Health.—The Bulletin of the Health Department of Chicago for June 3 quotes from an editorial in the *Lancet* which deplores the lack of fall, or the presence even of a tendency to rise, in the infantile mortality of London. This obtains in spite of the fact that the general deathrate is undergoing a steady decline. The *Lancet* attributes a large share of this to unwholesome milk supplied to children of the poor, and advocates, instead of reliance on pasteurization or sterilization of the milk itself, efforts to make clean the cow and the dairy. Commissioner Reynolds extends to London the sympathy of Chicago, and directs attention to the results in his city of efforts along the line suggested by the *Lancet*. In Chicago during the decade 1885-1894

the average yearly population under 1 year was 26,818, and the deaths 6,010, or 224 in every 1,000 of this group. For the decade 1895-1904 the similar population was 38,405 and the deaths 5,587, a rate of 145.5 per 1,000. To summarize, the under-1-year population increased 43%, the mortality decreased 35%; in proportion to the total mortality of all ages it decreased 24%. And this excellent showing is attributed largely to persistent efforts in improving the milk supply, confirmation of the belief that if the cow and the dairy are properly kept and the time from the cow to the consumer made short, but little in the city is needed other than apply the fluid to its intended use. A good working principle is to give the milk a rest and get after those things which contaminate it.

The improvement of the human race by properly selected marriages is a subject which periodically crops up for academic discussion in medical and scientific literature. It has even been dignified as a science under the name of eugenics. The end may be desirable, but there are two defects in our knowledge of the subject which will forever prevent any practical suggestions. No one knows what type will be the best for survival in an unknown future environment. We often see the extinction of the families of parents whom any physician would have pronounced ideal, but their children lacked resistance to the invasion of pathogenic organisms or there was some other defect which made them easy targets for climatic causes of physical decay. On the other hand we quite often find that parents below par physically, have fine families. Mr. Pipp is not a mere artistic creation. In the second place it is not at all certain that the strongest are necessarily the best for the future. Typhoid fever seems to delight in removing our splendid specimens and but lightly touching the more frail. A large physique may also be an actual encumbrance. Gorilla-like muscles are now as wholly out of place and as useless as are the long arms of our ancestors, and, as it was uneconomical to support them, these types of men were crowded out by the weaker. Likewise, parts now useful may become useless and therefore detrimental, and in a period of stress the type would perish while the survivors would be what we consider weaklings. If primitive man could have thought on the subject at all he would have scouted the idea that a

weakling with a hairless body would ever be the best type for survival.

Matrimonial Selection is Governed by Natural Law.—The curious unions which take place, apparently defying explanation, must be the result of law such as we find in every biologic phenomenon. About the only thing we know certainly is that man has the same instinct found in the lower animals to select a mate who is more or less different from himself. Every dog fancier knows this. Species survive by selection of the average specimens as a rule, for wide variations generally perish, and the only living animals are those which have inherited this tendency to mate with opposites. Wide variations do not even originate new species, for these arise by survival of types somewhere near the average. The same law governs man's survival. Should like types mate, their common characteristics may be so exaggerated as to be harmful and the line perish. Incest is unnatural, because races die out from in-and-in breeding and surviving types are all descended from those who had opposite tendencies. Exogamy or the selection of mates from other tribes was the next step and became universal, for no other tribes were so vigorous, and consequently they perished. The ancient biblical moral laws against consanguineous and endogamous marriages are merely the expression of inherited instincts. Mankind being then descended wholly from those who naturally marry their opposites, the present tendency is a natural law. It is an instinct for those of great intelligence to marry those of less than the average, for the offspring revert to the better average. Only occasionally do exceptionally able people marry their equals to produce those remarkable families, all of whom are noted. It is very evident that if we try to improve the race intellectually by the marriage of like types we will violate the natural law upon which our existence is based. As for men of genius, we must let happy accident produce them as it always has.

Artificial matrimonial selection has been tried, though the results were disastrous. The Oneida community was based upon the idea that eugenics was a science. Unfortunately the leaders failed to realize that the men and women who joined in such an abnormal life must have been abnormal themselves. Though they tried to select proper physical mates there was less attention paid to the mental and nervous side. The last report of the experiment was published some years ago and it merely referred to the expense saddled upon the State in caring for so many of the offspring in the public asylums. No further comment is needed except to remark that people who would violate instinct by following artificial matrimonial selection, are too abnormal, in our race at least, to produce normal offspring. The only practical side of eugenics which concerns the medical profession is the fact that advice is now and then requested as to whether a certain proposed alliance is desirable. It is solely a question as to whether there is ability to fulfill the role and survive. Rarely is there any reference to the viability or vigor of the future offspring, but should it be a vital question as in royal

marriages, it is settled upon a general survey of each family and eugenics is not involved in the least.

The tendency to be average or normal is a fact which biologists have not sufficiently investigated. Every departure from the normal, whether we call it a variation or modification must be due to a new cause. It cannot be causeless. If in subsequent generations this cause is removed the abnormality will not reappear. We have long given up the idea that disease is inherited, for we know it never appears if the cause is excluded. This tendency to be normal is a biologic law of such paramount importance to physicians that it is astounding there is less heard of it. The influence of the environment in changing organisms is becoming more and more recognized, and heredity reduced to a mere tendency to do as the parent did in like conditions. It wholly explains why defective parents, if they live in a healthy normal manner may produce fine offspring. The children have not been damaged as the parents were. Instead of excluding such parents from matrimony by eugenic theories, the whole trend of investigation must be in the direction of discovering and removing the causes of the defects. Personal hygiene must derive many rules from embryologic investigations. By advocating proper methods of living we will do more good in the way of human stirpiculture than by tampering with matrimonial instincts. It will be best to let the young folks follow the natural laws which have so far kept the world stocked with types good enough for nature's purpose. They would tell us to attend to our own affairs anyhow.

The Failure of the Chicago Drainage Canal.—Pure water is essential to the health of a community. The cities of the Great Lakes are in this respect fortunate because nature provided an unlimited store of fresh water. But improvident man has turned these splendid inland seas into sewage receptacles. Every stream pours in a continual stream of more less diluted sewage. The size of the lakes and the oxidation processes of nature render the smaller contributions of filth negligible, provided drinking water is not drawn from within the limits of possible contamination. In the case of the large communities on the shores of the lakes, the pollution of the neighboring waters cannot be entrusted to natural processes for its neutralization. These cities have therefore resorted to various expedients to procure uncontaminated water. Buffalo discharges its sewage into the Niagara River below the point from which water is pumped for municipal use. Detroit deals in the same way with the Detroit River. Cleveland has expended much more than \$1,000,000 constructing a tunnel under the bed of Lake Erie to enable it to draw its water from a point five miles from shore. In addition this city has made an intercepting sewer that will conduct all the city's sewage to one point conveniently situated for the ultimate installation of some device for rendering the sewage harmless before its discharge into the lake. Further, the medical profession is urging the added necessity for a filtration plant. Chicago had its water tunnels and its intake cribs far out in the lake, but the

volume of filth excreted by so large a community was too great for tunnels of feasible length to reach beyond the area of contamination. Thereupon, instead of adopting some rational sanitary procedure the imagination of the community was fired by a proposal to utilize the fact that Lake Michigan has a higher altitude above the sea-level than has the Des Plaines River (through the Illinois a tributary of the Mississippi) at a point only a few miles from Chicago. Then there was dug that crudity in sanitation, the sixty-million-dollar Chicago Drainage Canal. Into it the sewage of the city—as yet only in major part—is discharged, while a current from Lake Michigan toward the Gulf of Mexico of from four to eight miles an hour is maintained. Of course this method is unscientific, wasteful and disregarding of the interests of communities down the rivers along which the sewage goes. Indeed St. Louis on this account has pending a suit for damages against Chicago. The test of efficiency of any engineering device is that it shall successfully meet the maximum adverse condition or strain of resource. The Drainage Canal, for instance, is a failure if at any time the flow is reversed so that pollution is carried into the lake. This spring, after a heavy but not unprecedented rainfall, the Chicago River for a day or more resumed its flow toward the lake, discharging therein an enormous volume of extremely polluted water. The suspended solids of course have been deposited on the lake's bottom, and no man can tell how many months will elapse before natural processes render it innocuous. At a critical moment the Drainage Canal was inadequate. Nothing is left but the construction of a system of intercepting sewers with some sort of sewage-disposal plant. There must also be filtration beds for the purification of the lake water before it is delivered to the householder. When this is done the Drainage Canal will be useful only to maintain sufficient current in the Chicago River to prevent the collection of stagnant water. It is unfortunate that so costly an experiment was needed to convince a community of the value of the well-established principles of sanitary science. The Federal authorities are now looking it over with a view to make it a navigable stream between Lake Michigan and the Mississippi River. Such an outcome no doubt would ultimately make the canal a profitable enterprise. Adaptation of the canal to a new and originally un contemplated purpose may avoid any real economic waste.

Physical Defects, Truancy, and the Criminal Life.—That disease is one of the great causes of crime is a truth too little recognized and far too little insisted upon. The law takes note only of the crudest phases of the interrelation, and is almost unconscious of the remote and functional beginnings of the criminal's life in morbid habits and bodily necessities. Especially does it ignore the astonishing frequency with which schoolboy truancy is the beginning stage of the adult life of crime. If truancy is often due to impossibility of study, and the subtle working away from morbid literacy, it should be studied and treated in a different manner from present methods. It is gratifying to find Dr. Cronin, the chief of the Division of School Inspection of the

New York Department of Health, thus summarizes his conclusions upon this subject:

Physical defects of one sort or another are the cause of bad habits, truancy, and moral obliquity in later life. It is the physically defective who leave school early or become hopeless truants. Truancy is the first stage of a criminal career, and by improving the physical condition of children we save many of them from the downward path.

If some of the unhallowed money which is now causing so much useless talk with reference to its acceptance for the purpose of civilizing savages were directed toward the poor people from whom it came, that money would be sufficiently purified to satisfy all consciences. The poor children of the tenements should be able to have glasses when they need them. The city too, should appropriate funds to pursue the work so well begun, and so as to improve as much as possible the physical status of the school child of the present.

A Physician among the Eskimos of Labrador.—The April number of the *London Magazine* contains a contribution by Dr. Wilfred Grenfell which bears the title of "A Physician in the Arctic," and gives the results of some of his principal professional impressions of recent years. Those have been gathered during the experiences of a practice of which the writer tells us that: "Beside sailors and the Eskimos, my clientèle includes some 4,000 to 5,000 white settlers, scattered all along the coast of Labrador from Cape Chidley to the Gulf of St. Lawrence, and along the north shores of Newfoundland." A professional existence differing so widely from that of the average medical practitioner cannot fail to supply curiously interesting reminiscences. After telling us that his people may be said, in many respects, to "bear the flavour of prehistoric times"—as can be readily fancied—he proceeds to furnish an illustration, which in turn exemplifies the common kinship of primitive humanity. "They have a firm belief in the healing power of charms, the efficacy of which, of course, lies in faith." A stalwart fisherman came aboard one day "holding his jaw, and stating that he was 'well-nigh crazy with pain'" from a raging tooth; he refused the benefit of the forceps, and forced the doctor to have unwilling recourse to the charm procedure. "Telling him to open his mouth, I proceeded to make an elaborate flourish, and then laid my finger on the offending molar. To my utter astonishment, and I may almost say chagrin, he at once declared he was better. I saw him again a week later. Then he assured me 'he's had ne'er an ache since.'" Another patient came with the announcement, "I want bleeding, please, sir"; and although disappointed in his first visit, he also managed to have his own therapeutic way in the end. He had formerly derived great benefit from being bled in the feet by an old Indian squaw, of whose operation he informed Dr. Grenfell: "It didn't feel quite the same. She bored the holes with a kind o' corkscrew." Healing was always prompt after surgical operation. These Eskimos resemble the Japs in their want of "nerves": "They are sometimes so indifferent to pain one can dispense with the anesthetics; and excellent local anesthetics often actually permit the patients themselves to help one in the operation." The "tonic" properties of the air of the Labrador coast appears to be so beneficial that we should not be surprised to hear of

the best results if a sanatorium could be established there on a proper scale. Spinal disease—with psoas abscess—and hip-joint disease were completely cured after operation, in which systematically aseptic precautions could not be even hoped for; and they were among the most mortal of all the despairs of surgery in the pre-Listerian epoch, as is well known to every senior physician.

The Maternity Hospital and 20 Percent Division of the Fees—In the circulars sent out by some "maternity homes," among the advantages offered are the reception of emergency cases, as "the number of such cases is constantly increasing and will continue to do so." Whether the patient is married or single, does not matter, "her need is just as great in either case." The certain thing, it is urged, is that the existence of "such institutions as ours" will decrease the number of "those resorting to desperate measures because of the lack of regular professional skill and attention," and the rest. And yet the "regular profession" is relied on to send its patients, and pity for the patient and desire to lessen the "desperate measures," are not thought sufficient motives to move the regular physician. He must have his 20% or 25% commission before pity and ethics will come into play! Perhaps he is offered a block of the stock of the institution at par, to be paid for, however, by his commissions for patients recommended—just like the drug companies and tuberculosis hotels, tent cities, and so on. There is no way out of this scandal, except to place all such institutions under overseeing and at least limited control of State Boards of Health. By this means the abuses, evidently invited and desired, may be prevented. Commissions given to the professional referrer of patients should, by law, be plainly entered on the bills to the patient as "*commission given to Dr. ———— 25%.*"

An Epistolary Misadventure.—The following letter of a professor of clinical medicine speaks for itself, and more truly perhaps than the author intended. He says:

In order to sustain the excellent standing we are honored with by your board, we ask, that you kindly furnish us with a copy of your latest schedules of minimum requirements for medical colleges in order that our next announcement may conform to the same.

In the way of epistolary misadventure Master Bully Bottom could not have arrayed words to better defect. To conform to *minimum* requirements is a modest ambition, and prevalent in all trades. In the trade of medical schooling the minimum requirements are easy enough, but their attainment is difficult for a good majority of medical schools. A few years ago the minimum requirements were easy enough to be contemptible, but that phase is passing. In another year or two the minimum requirements will be respectable, and their attainment will be for many schools impossible. Eventually it will be an honorable ambition to conform to the minimum requirements. That time indeed is coming all too swiftly, but it cannot be delayed. In medical education the improvement which has become possible

through large endowments will no more falter in its advance than the earth in its orbit, and in that advance the doom of the small proprietary schools is inexorably sealed.

The Necessity for Scholastic Advance.—Especially pitiable is the case of those who have misread the signs of the times and cast their lot with the purely commercial schools in an unavailing effort to slow the wheels of progress. More than one unendowed school having an honorable history, a competent faculty and a body of influential alumni, has foolishly allowed the gap ahead to widen and the gap behind to close, until they are lost in a ruck of disreputables marked for slaughter. Far different is the case of those few unendowed schools whose faculties early realized that their only salvation was to follow pace. These furnish the most inspiring spectacle in the field of medical education. It is a pity that any of them should be utterly spent in the unequal race. Some of them, and these are wise, have combined forces. This expedient is cruel, but not more cruel than the spur of necessity. Many men of weight in the medical affairs of the present generation will probably outlive the schools which launched them on honorable careers. The declining influence of some proprietary schools must be a matter of serious concern to their alumni, and an active intervention might in some instances restore such schools to enduring usefulness.

AMERICAN NEWS AND NOTES

GENERAL.

The Russian Wounded in Manila Bay.—It is expected by the naval surgeons in America that the new naval hospital at Canacao, P. I., must be crowded by this time with the sick and wounded Russians of the ships which sought refuge in Manila Bay. The hospital was opened on May 14 and has accommodations for about 120 patients, and naturally its facilities are available on the broad ground of humanity to the afflicted of other nations. This is also the case with the Russians who are staying at Mare Island. Close track is kept of the subsistence and hospital supplies which are issued to these Russians, and it will be a matter for the administration to determine later whether the Russian government will be permitted to make reimbursement.

Panama Health Conditions.—Governor Magoon has reported two new cases of yellow fever in the canal zone. They are Manuel Gomez, a Spaniard, and Francis C. Lorga, an Italian. Neither is an employee of the Canal Commission. Governor Magoon, in a letter to Secretary Taft, tells of the precautions taken about the Administration Building in Panama to reduce the danger of yellow fever to the minimum, and says: "A thorough system of inspection is in force, and I think we will have no further trouble from the building, although some of the nonimmunes who work therein may contract the disease elsewhere." The Bureau of Insular Affairs made an abstract of the compilation of yellow fever cases sent by Governor Magoon, which shows a total of 86 cases and 30 deaths on the Isthmus up to May 23. This embraces the following: In Panama, 61 cases and 19 deaths; in Colon, 14 cases and 5 deaths, and to and from foreign parts, 11 cases and 6 deaths. Two cases, one fatal, were recently reported in New York City on ships returning from the Isthmus.

American Medical Society for the Study of Inebriety and Alcohol.—The thirty-fourth annual meeting of this society will be held in the hall of the Atkinson School Building, Portland, Ore., July 12 and 13, 1905, beginning at 9 a.m. The president's address, by Prof. W. S. Hall, of the Northwestern University of Chicago, Ill., will be a review of the progress of the study of the action of alcohol during the year. The Committee on the Influence of Alcohol in Literature and History, will present a report by its president, Dr. John Madden. The Committee on Heredity as a Cause in the Disease of Drug and Spirit Taking, will report, and the Committee on Patent Medicines will also submit a statement of their work. Papers will

be read by Drs. MacNicholl, Steward and others. The second session, Thursday, July 13, at 9 a.m., will be a memorial service to the memory of the late Dr. N. S. Davis, and a continuation of a similar meeting before the American Medical Association. Addresses are expected from Drs. Hall, Webster, Crothers, Kellogg, Hollister, and remarks by ex-Presidents Musser, Billings, Mathews, and President McMurty of the American Medical Association. The public is invited.

Personal.—W. B. Wherry has resigned his position as bacteriologist at the government laboratory at Manila, and has returned to his former position with the Rush Medical College at Chicago.—Major E. C. Carter, United States army, commissioner of public health for the Philippines, has been relieved and will return to Washington.—Victor G. Heiser, of the United States Public Health and Marine-Hospital Service, has been appointed commissioner of public health for the Philippines.—Major J. R. Kean, of the Surgeon-General's office, has returned from the Isthmus, where he went in connection with the purchase of medical supplies for the canal zone. He expresses confidence that, when the sanitary work projected by Colonel Gorgas has been concluded, and the water works system has been put in operation, yellow fever can be stamped out and malarial fever controlled.—H. E. Barnhard, State chemist of New Hampshire, has been selected as the chemist for the new Indiana laboratory of hygiene at Indianapolis, provided for by the last Legislature.

NEW YORK AND VICINITY.

A Higher Deathrate.—Heart disease, according to the city health authorities, was largely responsible for a large increase in Greater New York's deathrate for the week ending Saturday, June 10. During the week there were 123 deaths from this cause, against 58 during the corresponding week of 1904. The total deathrate last week was 17.73; for the corresponding week of 1904 it was 16.61. There were 57 cases of cerebrospinal meningitis.

New Hospital Boards.—Appointments of boards of managers for the eight State hospitals in New York under the new law reestablishing such boards, have been announced. The law restores the system of control in force three years ago, and substitutes for the boards of visitation that existed then, boards of managers, which have general supervision over these institutions, except their finances. They are required to meet once a month and report. Many members of the old boards are among the new boards of managers.

State Charities Plans.—Of the \$600,000 appropriated for enlarging New York's charitable institutions, Fiscal Supervisor Bender will expend \$90,000 for dormitories at the Craig Colony for Epileptics; \$58,000 for two new dormitory cottages for the asylum for feeble-minded women at Newark; \$60,000 for dormitories at the Rome Custodial Asylum; \$40,000 to enlarge the reformatory for women at Bedford, and \$28,000 to enlarge the reformatory for women at Albion. These expenditures will increase the capacities of the institutions named by 670, which is the largest increase on record in any one year, except when new institutions have been established.

Unsanitary Prisons to Go.—Two committees in New York City, one from the Civic Club and the other from the Society of Medical Jurisprudence, have under consideration plans for bringing about better sanitary conditions in the police court and police station prisons. Most of the prisons in Manhattan and the Bronx are about 50 years behind the times and are nearly all unsanitary. The report is to be ready by September 1, and the Board of Health will be called upon to close such prisons as are found to be unsanitary. The committees will also try to have bills passed by the Legislature to remedy existing evils.

New Tuberculosis Fight.—The Charity Organization Society's Committee on the Prevention of Tuberculosis in New York has organized a subcommittee of 21 colored physicians and clergymen to fight tuberculosis among the colored people. The colored nurse of the Charity Organization Society will devote herself to this work, making special investigations among the colored people who attend the dispensary of the Health Board. The secretary of the General Committee says that work along this line is needed before much can be done to lessen the number of tuberculosis cases in New York. There are between 60,000 and 65,000 colored persons in this city, and their deathrate from tuberculosis is 6.33 per 1,000, as against 2.37 per 1,000 among the whites; so the stronghold of tuberculosis is in the colored population.

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid in Philadelphia.—Typhoid fever, almost stamped out in many parts of the city, continues to an unusual extent in the northeastern section. Of the total number of cases, 134, reported in the week ended yesterday, 75% is in the wards comprising the old Kensington district, Port Richmond and Frankford. The authorities can offer no explanation for the prevalence of the disease in this section, except the failure of residents to boil the drinking water.

Pennsylvania Homeopathic Medical Society.—At the annual meeting of the Homeopathic Medical Society of the State of Pennsylvania, the following officers were elected: President, John J. Fuller; vice-president, E. M. Howard; secretary, O. B. Wait; treasurer, E. W. Mercer; and censors, Chandler Weaver, J. M. Caley, and Mary A. Cooke.

University of Pennsylvania Commencement.—A feature in connection with the commencement exercises of the University of Pennsylvania was the presentation to the University of a life-size portrait in oil of Dr. William Osler, the gift of graduates of the medical department who studied at the University under him. These graduates number about 800, members of the classes from 1885 to 1890, inclusive. The portrait is by Chase, and is regarded as an exceptionally good likeness. The presentation was made by Dr. M. Howard Fussell, chairman of the committee.

Cordial Relations among Medical Schools.—The Alumni Association of Jefferson Medical College has passed the following resolutions:

WHEREAS, The Alumni Association of the Medical Department of the University of Pennsylvania has recently honored Prof. William S. Forbes, an alumnus of the Jefferson Medical College, by the presentation to him of a loving cup, with resolutions of esteem, in recognition of his successful efforts in securing the passage of the Anatomy Act of 1883, in the State of Pennsylvania; and

WHEREAS, The agreeable relations already existing between these two schools of medicine are thus augmented and individual friendships are more firmly cemented by such action; therefore be it

Resolved, That the Alumni Association of the Jefferson Medical College does hereby express to the Alumni Association of the Medical Department of the University of Pennsylvania its earnest appreciation of the honor bestowed by this visible and lasting evidence of their professional regard for one of our most worthy and beloved alumni; and,

Resolved, That the Alumni Association of the Jefferson Medical College recognizes the sincerity and felicity of the presentations so gracefully voiced by Prof. George A. Piersol; and, further, be it

Resolved, That a copy of these resolutions be sent to Prof. George A. Piersol, representing the Alumni Association of the Medical Department of the University of Pennsylvania, to Prof. William S. Forbes, to the trustees of the Jefferson Medical College, and to the leading medical journals.

SOUTHERN STATES.

The West Virginia State Medical Association held its thirty-eighth annual meeting in the Board of Trade Hall, Wheeling, W. Va., May 24 to 26, 1905. The following papers were read: "The Teachings of Failures," F. L. Hupp, Wheeling; "The Palliative Treatment of Prostatic Hypertrophy," H. E. Sloan, Clarksburg; "Preoperative and Postoperative Treatment of Surgical Cases," J. E. Cannaday, Paint Creek; "Appendiceal Abscess—Pathology and Treatment—Report of Cases," S. M. Mason, Clarksburg; "Injuries of the Head—Report of Cases," Henri P. Linsz, Wheeling; "Anatomical and Physiological Principles Involved in the Symptomatology of Brain Traumatism," J. Schwinn, Wheeling; "Office Treatment of Rectal Diseases," William M. Beach, Pittsburg; Symposium on Pneumonia: Etiology, S. S. Wade, Morgantown; Pathology, L. O. Rose, Parkersburg; Symptoms and Signs, W. W. Tompkins, Charleston; Treatment, L. D. Wilson, Wheeling; "Tuberculosis," J. W. Preston, Keystone; "Pseudomembranous Croup," S. W. Bush, Parkersburg; "Cases and Experiences of Interest," W. H. Sharp, Parkersburg; "Diseases of the Kidneys," M. McNeilon, Parkersburg; "Rupture of the Bladder," J. R. Cook, Fairmont; "The Importance of Early Diagnosis of Intercocular Lesions," H. R. Johnson, Fairmont; "Ficker's Diagnosticum," L. O. Rose, Parkersburg; "Drugs and the Diazo Reaction—A Communication," William W. Golden, Elkins; "Notes on Tuberculosis," Andrew Wilson, Wheeling. Webster Springs, W. Va., was chosen for the next place of meeting, and the following officers were elected: President, S. S. Wade, Morgantown; first vice-president, G. W. Bruce, Moundsville; second vice-president, F. L. Hupp, Wheeling; third vice-president, A. S. Gimm, St. Mary's; secretary, W. W. Golden, Elkins; treasurer, V. T. Churchman, Charleston; councillors: first district, A. O. Flowers, Clarksburg; second district, A. R. Warden, Grafton; third district, W. W. Hume, Quinnimont; fourth district, W. N. Burwell, Parkersburg; fifth district, T. W. Moore, Huntington. Delegates to American Medical Association: J. L. Rickey and L. D. Wilson, Wheeling.

WESTERN STATES.

A Decision against the Indiana Cigaret Law.—Judge James Leathers, of the Marion County Supreme Court, has decided in the case of the State against W. W. Lowry, indicted for smoking a cigaret, that the anticigaret law, passed by the last Legislature, is constitutional, except wherein it may conflict with the interstate commerce law. Smokers may import cigarets from other States and smoke them, but it is held unlawful to sell or give them away. Mr. Lowry was discharged. The State will take an appeal, in order to test the law.

FOREIGN NEWS AND NOTES

GENERAL.

Rats and Plague.—The theory that the Norway or brown rat prevents the spread of plague by destroying the long-tailed rat varieties is advanced by Lieutenant-Colonel Bruce Skinner in an article contributed to the *British Medical Journal*, May 6, 1905. An examination of the history and march of epidemics and the geographic distribution of rats leads him to the conclusion that the long-tailed varieties are the propagators of the disease; that their habitat corresponds with the endemic areas of bubonic plague, and their occasional geographic range to the regions visited by epidemics.

OBITUARIES.

Henry Putnam Stearns, aged 77, May 27, from general nervous breakdown, at his home in Hartford, Conn. He was a graduate of the medical department of Yale College, New Haven, in 1855. He was an eminent practitioner, teacher, alienist and expert on insanity; was lecturer on insanity in the Yale University, medical department, from 1876 to 1897. During the Civil war he served as first surgeon of the First Connecticut Volunteer Infantry and later brigade surgeon of volunteers and medical director. He was a member of the American Medical Association; at one time president and vice-president of the Connecticut Medical Society and the Hartford Medical Society; ex-president of the American Medico-Psychological Association, and of the Yale Alumni Association, and for 31 years was superintendent of the Retreat for the Insane at Hartford.

James Thorburn, aged 74, May 26, from heart disease, at his home in Toronto. He was a graduate of the Toronto University, medical faculty, in 1856; for several years he was professor of pharmacology and therapeutics in his alma mater; president of the Canadian Medical Council in 1895, and of the Ontario Medical Council in 1897; surgeon to the Queen's Own Rifles, and a member of the staff of the Toronto General Hospital.

John William Compton, aged 80, May 23, at the home of his son, in Terre Haute, Ind. He was a graduate of the Medical College of Evansville, Ind., in 1873. During the Civil war he served as assistant surgeon of the Seventeenth Kentucky Volunteer Infantry; at one time he was a professor of materia medica and therapeutics in his alma mater, and from 1881 to 1885 president of the State Board of Health.

Edward Payson Drown, aged 39, May 25, from peritonitis, after an operation for appendicitis, at his home in Malden, Mass. He was a graduate of the Harvard University Medical School in 1893. He served as city physician of Malden from 1895 to 1898; past president of the Malden Medical Society, and member and district censor of the Massachusetts Medical Society.

Melville M. Shearer, May 28, at his home in Santa Rosa, Cal. He was a graduate of the medical department at the University of Iowa, Keokuk, in 1884. He served as surgeon of the Forty-eighth Illinois Volunteer Infantry during the Civil war; president of the Sonoma County Medical Society, and one time physician of Sonoma county.

John William Streeter, aged 63, June 4, from blood poisoning resulting from a surgical operation, at his home in Lake Forest, Ill. He was a graduate of Hahnemann Medical College and Hospital, Chicago, Ill., in 1868. He served as major-surgeon of the First Infantry, Illinois National Guard, and assistant surgeon-general of the State.

John Ford McCarthy, aged 77, May 27, from cancer, at his home in Valparaiso, Ind. He was a graduate of Rush Medical College, Chicago, in 1855. During the Civil war he served as surgeon in the Fifteenth and the Twenty-ninth Indiana Volunteer Infantry, and as postmaster of Valparaiso for twelve years.

Miles F. McTaggart, aged 55, May 22, from heart disease, at his home in Reno, Nev. He was a graduate of the Eclectic Medical College, Philadelphia, in 1865, and the College of Physicians and Surgeons of Ontario, Toronto, in 1880; a member of the Medical Society of the State of California.

George Miles Palmer, aged 77, May 28, at his home in Warsaw, N. Y. He was a graduate of the University of Buffalo (N. Y.) medical department, in 1865. Health officer of Warsaw; supervisor of the town of Pike for five terms, and during the Civil war he served as surgeon in the army.

Arthur H. Gardner, June 12, from the effects of an overdose of hydrocyanic acid, which he was using for bronchitis. He was a graduate of the New York College of Physicians and Surgeons in 1898. For two years he served as house physician in the German Hospital.

Emil Tietze, aged 76, May 24, at the home of his daughter in Philadelphia. He was a graduate of the Royal Academy of Medicine and Surgery, Dresden, Saxony, in 1847. For many years he was chief surgeon for the Pennsylvania Railroad at Altoona.

Arthur R. Boyle, aged 70, of Wychood Park, Ontario, May 27, in Grace Hospital, Toronto. He was a graduate of the Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ontario, Can.

Jacob Price, aged 78, June 9, from paralysis, at his home in Spring Grove, Pa. He was a graduate of the Jefferson Medical College in 1850. He was one of the oldest practitioners of Chester county, having practised for 55 years.

Roger S. Turlington, aged 40, of Bennettsville, S. C., May 17, from acute alcoholism, in the James Walter Memorial Hospital, Wilmington, N. C. He was a graduate of the Medical College of Virginia, Richmond, in 1895.

Olo B. Collier, aged 28, May 27, from tuberculosis, at his home in Knoxville, Tenn. He was a graduate of the Tennessee Medical College, Knoxville, in 1900; assistant physician of Knox county.

S. S. Finkbliner, June 11, at his home in Parkerford, Pa. He was a graduate of Jefferson Medical College in 1865, and was one of the oldest physicians in the northern part of Chester county.

Charles C. Higgins, aged 65, May 26, from acute nephritis, at his home in Chicago, Ill. He was a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1863.

Henry Wagner Kreider, aged 86, May 25, from senile debility, at his home in Galesburg, Ill. He was a graduate of Rush Medical College, Chicago, in 1856.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 10, 1905:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles..... May 20-27.....	1	
Florida:	Jacksonville..... May 27-June 3....	3	
Illinois:	Chicago..... May 27-June 3....	18	
	Danville..... May 5-31.....	7	
	Galesburg..... May 27-June 3....	3	
Kansas:	Wichita..... Apr. 29-May 27....	21	
Louisiana:	New Orleans..... May 27-June 3....	5	
Massachusetts:	Haverhill..... May 27-June 3....	1	
Michigan:	Grand Rapids..... May 27-June 3....	10	4
Nebraska:	Omaha..... May 27-June 3....	2	
New York:	New York..... May 27-June 3....	1	
Ohio:	Toledo..... May 20-June 3....	15	
Pennsylvania:	Altoona..... May 27-June 3....	1	
	Lebanon..... May 27-June 3....	1	Imported
	York..... May 27-June 3....	10	
South Carolina:	Greenville..... May 20-27.....	2	
Tennessee:	Memphis..... May 27-June 3....	1	
	Nashville..... May 27-June 3....	5	
Utah:	Ogden..... May 1-31.....	7	
Wisconsin:	Appleton..... May 27-June 3....	2	
	Milwaukee..... May 20-27.....	3	
SMALLPOX—INSULAR.			
Philippine Islands:	Manila..... April 8-29.....	3	
SMALLPOX—FOREIGN.			
Africa:	Cape Town..... Apr. 15-22.....	1	
Belgium:	Ghent..... Apr. 29-May 6....	1	
Brazil:	Rio de Janeiro..... May 7-14.....	8	3
China:	Hongkong..... Apr. 8-15.....	3	1
Ecuador:	Guayaquil..... May 2-9.....	3	
France:	Paris..... May 13-20.....	18	2
Great Britain:	Bristol..... May 6-20.....	2	
	Liverpool..... May 6-13.....	1	
	London..... May 13-20.....	3	1
	Newcastle-on-Tyne..... May 6-13.....	7	
	South Shields..... May 6-20.....	5	
India:	Bombay..... May 2-9.....	37	
	Calcutta..... Apr. 15-May 6....	24	
	Karachi..... Apr. 30-May 7....	11	3
	Madras..... Apr. 29-May 5....	4	
Italy:	General..... May 4-11.....	111	
	Catania..... May 18-25.....	7	
	Palermo..... May 13-20.....	1	
Japan:	Yokohama..... Apr. 2-9.....	1	
Russia:	Moscow..... May 6-13.....	7	2
	Odesa..... Apr. 22-May 6....	15	4
	St. Petersburg..... Apr. 15-May 6....	32	8
	Warsaw..... Mar. 11-18.....	1	
Straits Settlements:	Singapore..... Apr. 15-29.....	4	
YELLOW FEVER.			
Brazil:	Rio de Janeiro..... May 7-14.....	42	18
Ecuador:	Guayaquil..... May 2-9.....	5	
Mexico:	Tierra Blanca..... May 21-27.....	1	
Panama:	Colon..... Jan. 23-May 29....	15	
	Panama..... Jan. 1-May 25....	65	
PLAGUE—INSULAR.			
Philippine Islands:	Manila..... Apr. 8-29.....	1	1
PLAGUE—FOREIGN.			
Africa:	Cape Colony..... Apr. 15-22.....	8	6
Arabia:	Aden..... Apr. 18-May 12....	10	10
Australia:	Brisbane..... Apr. 1-8.....	1	
China:	Hongkong..... Apr. 8-15.....	1	1
India:	General..... Apr. 18-29.....	131800	111334
	Bombay..... May 2-9.....	702	
	Calcutta..... Apr. 15-May 6....	1867	
	Karachi..... Apr. 30-May 7....	202	189
	Madras..... Apr. 22-May 5....	2	
	Rangoon..... Apr. 1-28.....	613	539
Japan:	Tokio..... May 10.....	1	

Peru:	Chiclayo.....	Apr. 16-30.....	4	8
	Eten.....	Apr. 16-23.....	2	1
	Lima.....	Apr. 16-30.....	6	2
	Mollendo.....	Apr. 16-23.....	13	8

Changes in the Medical Corps of the U. S. Army for the week ended June 10, 1905:

WINTER, Major FRANCIS A., surgeon, will report to the commanding officer, Base Hospital, Iloilo, P. I., for duty.

CLARK, First Lieutenant JOHN A., assistant surgeon, is relieved from duty at Taft, Samar, and will proceed to Manila, reporting at Division Hospital, for duty.

LAMBERT, First Lieutenant SAMUEL E., assistant surgeon, is relieved from duty at Camp Vicars, Mindanao, and will proceed to Manila, reporting at Division Hospital, for duty.

COFFIN, First Lieutenant JACOB M., assistant surgeon, upon being relieved from temporary duty as sanitary inspector, in command of Hospital No. 4, Manila, quartermaster's dispensary, dispensary Fort Santiago, Manila, and in charge of the hospital corps detachments on interisland transports, will report at Division Hospital, Manila, for duty.

PATTERSON, First Lieutenant ROBERT U., assistant surgeon, is relieved from duty as sanitary inspector and from command Hospital No. 4, quartermaster's dispensary, dispensary Fort Santiago, Manila, and charge of the hospital corps detachments on interisland transports.

CONNOR, First Lieutenant CLARENCE H., assistant surgeon, upon being relieved from duty as surgeon, transport Seward, will report to the chief surgeon of the division for duty as sanitary inspector and in charge of hospital corps detachments on interisland transports, Hospital No. 4, quartermaster's dispensary, and dispensary Fort Santiago, Manila, relieving First Lieutenant Jacob M. Coffin, assistant surgeon.

MORSE, First Lieutenant CHARLES F., assistant surgeon, is relieved from duty at Llorente, Samar, and will proceed to Manila, reporting to the commanding officer, transport Seward, for duty thereon as transport surgeon, relieving First Lieutenant Clarence H. Connor, assistant surgeon.

GIBSON, Major ROBERT J., surgeon, will be relieved from duty in the department of Luzon, upon the abandonment of Malate Barracks, Manila, and will report to the officer in charge of the medical supply depot, Manila, for temporary duty.

BROWNLEE, First Lieutenant CHARLES Y., assistant surgeon, is granted leave for two months, with permission to visit China and Japan, effective about May 1.

SPRINGWATER, SAMUEL A., contract surgeon, is relieved from duty at Malate Barracks, Manila, and will report on transport Ingalls for temporary duty as transport surgeon, relieving First Lieutenant Horace D. Bloomsbergh, assistant surgeon, who will return to his proper station.

WARWICK, CLARENCE A., contract surgeon, is granted leave for four months, with permission to visit the United States. He will be relieved from duty at Camp Gandara, Samar, so as to arrive in Manila before June 15, at which time he will report to the commanding officer of the transport sailing from this port on the above date, for duty thereon en route to San Francisco, Cal., where he will report to the commanding general, department of California, to take advantage of the leave granted.

TALBOTT, First Lieutenant EDWARD M., assistant surgeon, is granted leave for six weeks, with permission to visit China and Japan, effective about April 15.

QUINTON, Captain WILLIAM W., assistant surgeon, is granted leave for one month, with permission to visit Japan, effective about May 15.

TUTTLE, GEORGE B., contract surgeon, is relieved from duty with troops in the field and will proceed to San Pedro Tunisan, Laguna, for duty, relieving Contract Surgeon John R. Hereford, who will proceed to Alaminos, Laguna, for duty.

MONCRIEF, First Lieutenant WILLIAM H., assistant surgeon, is relieved from duty at the Convalescent Hospital, Corregidor Island, and will report at Division Hospital, Manila, for duty.

HEARD, First Lieutenant GEORGE P., assistant surgeon, is granted leave for one month, with permission to visit Japan, effective about June 15.

TALBOTT, First Lieutenant EDWARD M., assistant surgeon, having reported from leave, is relieved from duty at headquarters, department of Luzon, and will proceed to Camp Bantayan, Albay, for duty, relieving First Lieutenant Charles A. Ragan, assistant surgeon, who will proceed to Manila, P. I., and report to the chief surgeon of the department for duty in his office and as attending surgeon, headquarters department of Luzon.

SMITH, First Lieutenant HERBERT M., assistant surgeon, is relieved from further temporary duty at Fort McDowell, and will report to the commanding officer, Army General Hospital, Presidio of San Francisco, for duty at that hospital.

LEMMON, ROBERT, contract surgeon, now at Fort Schuyler, will proceed to Fort Greble for temporary duty at that post, relieving First Lieutenant William Roberts, assistant surgeon, who will return to his proper station, Fort Hamilton, to relieve Major Junius L. Powell, to enable the latter to comply with orders.

DILLON, G. PARKER, contract surgeon, is relieved from duty at the Army General Hospital, Presidio of San Francisco, and will proceed to Fort McDowell for duty.

SLATER, ERNEST F., contract surgeon, is granted leave for 1 month and 16 days, to take effect about June 24, with permission to go beyond the sea.

REILLY, First Lieutenant JOHN J., assistant surgeon, having relinquished the unexpired portion of his sick leave, will proceed to Fort Slocum for duty.

DALE, First Lieutenant FREDERICK A., assistant surgeon, is relieved from duty at the Army General Hospital, Washington Barracks, to take effect upon the arrival at that hospital of First Lieutenant Conrad E. Koerber, assistant surgeon, and will then proceed to Fort Walla Walla for duty.

SHIMER, Captain IRA A., assistant surgeon, will report to the chairman, Isthmian Canal Commission, for duty with the commission on the Isthmus of Panama.

CHIDESTER, First Lieutenant WALTER C., assistant surgeon, now on leave at Evanston, Ill., will proceed to Fort Leavenworth and report in person not later than June 15, to the commanding officer of Companies A and B, first battalion of engineers, for duty to accompany that command to San Francisco, Cal., and upon the completion of this duty will revert to status of leave.

MACY, FREDERICK S., contract surgeon, is granted leave for one month.

AMES, ROGER P., contract surgeon, is granted leave for one month, from about June 27.

STEARNS, CHARLES H., contract surgeon, is granted leave for one month, to take effect when his services can be spared by his post commander.

SCOTT, SIDNEY L., contract surgeon, will proceed from Fredericksburg, Va., to Washington Barracks and report for duty with the troops at Saunders Range, Glenburnie, Md., relieving First Lieutenant William W. Reno, assistant surgeon, who will return to his proper station at Fort Myer.

REILLY, First Lieutenant JOHN J., assistant surgeon, orders of June 3, 1905, so amended as to relieve him from further duty at Jackson Barracks.

GORGAS, Colonel WILLIAM C., assistant surgeon-general, STRAUB, Captain PAUL F., assistant surgeon, and SHIMER, Captain IRA A., assistant surgeon, are appointed a board of officers to meet at Ancon, Canal Zone, Isthmus of Panama, July 17, for the examination of officers of the medical department for promotion or advancement.

LYSTER, First Lieutenant THEODORE C., assistant surgeon, will report as soon as practicable after July 17, to Colonel William C. Gorgas, assistant surgeon-general, president of the examining board at Ancon, Canal Zone, Isthmus of Panama, for examination for advancement.

The following named officers will report on July 17 to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board at the Army General Hospital, Presidio of San Francisco, for examination for advancement: First Lieutenants Sanford H. Wadhams, William J. Lyster, Elbert E. Persons, William N. Bispham, Edward F. Geddings and Henry H. Rutherford, assistant surgeons.

The following named officers will report on July 17, to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement: First Lieutenants Chandler P. Robbins and Harry L. Gilchrist, assistant surgeons.

SIEVERS, ROBERT E., contract surgeon, leave granted for ten days, May 14, is extended twenty days.

CRABTREE, First Lieutenant GEORGE H., assistant surgeon, will proceed to Fort Monroe, to arrive there not later than June 9, for temporary duty in connection with the joint army and navy exercises. Upon completion of the exercises Lieutenant Crabtree will return to his station.

BROOKE, JR., First Lieutenant ROGER, assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Bayard and report to the Army General Hospital, at that place, for duty.

DALE, First Lieutenant FREDERICK A., assistant surgeon, is granted leave for two months and fifteen days, to take effect upon his being relieved from duty at the Army General Hospital, Washington Barracks.

Changes in the Medical Corps of the U. S. Navy for the week ended June 10, 1905:

STITT, E. R., surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 5, and ordered to the Naval Hospital, Canacao, P. I., sailing from New York, N. Y., about June 10-June 2.

ETTINGE, E. O. J., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—June 2.

FARWELL, W. G., assistant surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Brooklyn—June 2.

BISHOP, L. W., passed assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Dubuque—June 3.

MURPHY, J. F., assistant surgeon, detached from the Dubuque, and ordered to continue duties on the Hancock—June 3.

MAYERS, G. M., assistant surgeon, ordered to Washington, D. C., June 19, for examination for promotion, and then to wait orders—June 7.

FURLONG, F. M., LEYS, J. F., GARTON, W. M., BENTON, F. L., and THOMPSON, J. C., passed assistant surgeons, have been ordered to report, June 26, to the president of the Naval and Medical Examining Boards, Washington, D. C., for examination for promotion—June 7.

Changes in the Public Health and Marine-Hospital Service for the week ended June 7, 1905:

SAWTELLE, H. W., surgeon, relieved from duty at Purveying Depot, New York, and directed to proceed to Washington, D. C., for special temporary duty—June 1, 1905.

STONER, G. W., surgeon, to proceed along Canadian border as far as Sault Ste. Marie, Mich., stopping at intermediate points, especially Quebec, Montreal, Niagara Falls and Detroit, on special duty—June 3, 1905.

OAKLEY, J. H., passed assistant surgeon, detailed as inspector of unseviceable property at the U. S. Marine Hospital, Port Townsend, Washington—June 2, 1905.

CLARK, TALIAFERRO, passed assistant surgeon, granted leave of absence for three days from June 7, 1905, under paragraph 191 of the regulations.

KEER, J. W., passed assistant surgeon, granted leave of absence for one month from June 15—June 1, 1905.

SALMON, T. W., assistant surgeon, granted leave of absence for five days from June 4, 1905, under paragraph 191 of the regulations.

SPRATT, R. D., assistant surgeon, relieved from duty at New Orleans, La., and assigned to duty at Louisville, Ky., effective June 15, 1904—June 5, 1905.

PORTER, J. Y., sanitary inspector, granted leave of absence for seven days from June 20—June 2, 1905.

BEAN, L. C., acting assistant surgeon, granted leave of absence for three days from June 8—June 7, 1905.

MCCONNELL, E. F., acting assistant surgeon, relieved from duty at Nuevitas, Cuba, and directed to proceed to New York and report to Surgeon G. W. Stoner, Ellis Island, for duty—June 3, 1905.

MASON, W. C., acting assistant surgeon, granted leave of absence for five days from June 26—June 6, 1905.

RANSOM, S. A., acting assistant surgeon, granted leave of absence for three days from May 3—June 6, 1905.

ACHENBACH, J., pharmacist, granted leave of absence for 16 days from June 13—June 6, 1905.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington, D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

[Continued from page 933.]

Chlorid Retention in Nephritis.—JOSEPH L. MILLER (Chicago) presented statistics regarding chlorid retention in two cases of acute and six of chronic parenchymatous nephritis, one of secondary contracted kidney, one of myocarditis, and four normal individuals. Of the six kidney cases with edema, all had chlorid retention. Miller considers the retention in nephritis as one of degree only, as retention may be equally great in normal persons; the latter gain in weight, but without the appearance of edema. Retention in moderately severe nephritis is not greater than in the normal individual; in severe cases the impermeability of the kidney to sodium chlorid is greatly increased. Edema is probably partly due to lessened perspiration following increased concentration of the body fluids.

Discussion.—ALFRED STENGEL (Philadelphia), who had charge of two of the cases reported by Kelly, said the improvement in the one case was remarkable. The second gain in weight was evidently due to his improved general health, and not to fluid accumulation. In the second case an interesting point was that the patient had for some time been given enteroclysis with salt solution and had become worse. Since the work of Kelly was carried out, Stengel has been in charge of a man of 36 who had acute nephritis eight years ago and several attacks since, in whom reduction of sodium chlorid has given good results. The man is a private patient and routine investigation, as in the others, cannot be employed. He has arteriosclerosis with the highest blood-pressure Stengel has ever noted, the systolic reaching 280 mm. of mercury. Headache has been a prominent symptom during his entire trouble. The patient volunteered the information that he has always been an inordinate salt eater. Reduction of salt in his diet has been followed by a remarkable improvement as to the headaches and the blood-pressure. Regarding the general value of chlorid retention and excretion, Stengel says it promises something in the line of a method of determining what the kidneys are doing in individual cases, and hence a help in prognosis. Other methods have proved inadequate for this purpose, albumin being discredited as a guide, and cryoscopy probably being of little value and the method so cumbersome as to be practically unavailable if it were of value. Hence chlorid retention constitutes a hopeful line of research, but is not so important as the French consider it. F. P. KINNICUTT (New York) says he is giving up the indiscriminate use of salt solution by hypodermoclysis and enteroclysis in hospital practice and is satisfied that better results are thus obtained. D. L. EDSALL (Philadelphia) considers sodium chlorid retention possessed of only a limited diagnostic value. S. J. MELTZER (New York) said the investigations along this line were too loosely carried out, as the excretion of sodium chlorid by the intestine and skin was not accurately determined. The only safe point to consider in this question is that sodium chlorid controls osmosis. It is possible that in diabetes there is high osmotic pressure with the abstraction of fluid. The results with diabetics detailed by Sawyer may have been due to removing chlorids by washing the stomach and thus eliminating the abnormal factor in osmosis; this would appear to account for the lowering of polyuria without reducing the sugar output. Possibly a beneficial effect would be produced by a salt-free diet in diabetes. R. C. CABOT (Boston) asked if any knowledge we possess at present indicates that we should discountenance the eating of large amounts of salt by well persons. A. JACOBI (New York) asked if any one had experience with salt-free food in the treatment of epilepsy. JOSEPH COLLINS (New York) said that two years ago 25 hospital epileptics were put upon reduced salt diet with the result of a reduction of 38% in the frequency and severity of the epileptic attacks. Recently the same method was adopted with five dispensary patients; in four of them the attacks have been reduced upward of 50%. In answer to Cabot's question, he would say that a normal individual may eat as much salt as he pleases, just as he may eat anything else or do anything up to a certain limit. When he is not normal, whether due to disease or what we call old age, he may not eat salt with impunity. KELLY, in closing, said there was absolute necessity for controlling the amount of salt in the feces. The presence of an increased salt content explains what has been known, namely, that diarrhea is good for nephritis.

On the Toxicity of Bile.—S. J. MELTZER and W. SALANT (New York) reported the results obtained in experimenting with the various toxic aspects of bile upon animals, principally frogs. They found that bile contains two elements: (1) A depressing or coma-producing substance; and (2) an exciting or tetanizing substance. These are antagonistic to each other, and normally the second is covered by the first, resulting in neutralization, neither producing an effect.

On the Nature and Origin of Cholemia and Uremia.—S. J. MELTZER reviewed at length the various theories regard-

ing the nature of these conditions. None of the theories explain why the substances they suppose to be present are in the blood for years and produce no attack until a certain time; neither do they show why at times coma, at times convulsions, are produced. Based largely on the results obtained by the experiments detailed in the preceding paper, Meltzer advances a theory to explain cholemia and uremia. When the exciting and depressing substances are in equilibrium, the functions are normal; when they are unstable and there is retention by the kidney or liver, a slight additional accident is sufficient to bring out either the effect of the coma-producing substance or that of the exciting or tetanizing agent.

Discussion.—JAMES EWING (New York) said that if the liver has to do with uremia, these statements give backing to the claim that in uremia the liver is often more affected than is the kidney. He has been studying the livers from a series of cases of uremia, and in certain instances has found striking lesions therein, more pronounced than in the kidneys. S. SOLIS COHEN (Philadelphia) asked if Meltzer excluded cases of chronic uremia from the list caused in the manner he suggests. These cases appear to be admirably explained by that theory, the explosive attacks during the course of the disease being due to the failure of the kidneys to eliminate one of the involved substances. JAMES CARROLL (Washington) called attention to the lesions found in the liver in patients with yellow fever, fatty degeneration mainly. If the liver elaborates urea, this function will cease when it is seriously affected, and the products formerly used will be retained. In so-called cases of puerperal eclampsia, in which the kidney, as indicated by the urine, is not at fault, excessive fatty or cirrhotic changes have been found in the liver.

[To be continued.]

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, Held at Niagara Falls, May 25, 26, and 27, 1905.

[Specially reported for *American Medicine*.]

[Continued from page 934.]

Postoperative Vomiting.—EUGENE BOISE (Grand Rapids, Mich.) said it was assumed as proved that there was a vomiting center from which all impulses toward vomiting were sent. These impulses might be received through various channels. The conditions that led to postoperative vomiting were numerous. They might be grouped as: (1) Those conditions pertaining to the anesthetic; (2) those pertaining to the general condition and surroundings of the patient; and (3) those pertaining to the stomach. The anesthetic caused vomiting (1) by its direct irritant action on the vomiting center; (2) by causing a toxemia, and (3) by saturating the secretions of the stomach. The conditions pertaining to the stomach were: (1) Chronic, such as atony, dilation, chronic disease of the mucous membrane, etc.; (2) acute, as saturation of the tissues and secretions of the stomach by the anesthetic. Treatment must therefore be preventive as well as curative, involving greater care in the preparation of the patient. Four things must be kept in mind: (1) The abnormal irritability of the vomiting center; (2) the condition of the stomach; (3) the condition of the blood; and (4) the condition of elimination. Treatment must be adapted to the conditions found. Theoretically, the indications were to obtund the sensitiveness of the vomiting center; to neutralize, if possible, the irritant character of the anesthetic, to cleanse and soothe the stomach; to keep the patient quiet, in order to avoid circulatory disturbances; to aid elimination, and to support the patient and nourish the irritated nerve centers by rectal feeding, when indicated.

Discussion.—MATTHEW D. MANN (Buffalo) did not believe the character of the anesthetic had as much to do with vomiting as the amount of the anesthetic. The more deeply a patient was anesthetized, the greater the amount of anesthetic used, and the longer time it took the patient to get rid of it, the more the vomiting center was irritated. For three years he had been using ether, preceding it by chlorid of ethyl. He had done an operation lasting 45 minutes with 2 oz. or 3 oz. of ether, when preceded by chlorid of ethyl. Since following this method vomiting had been greatly reduced, and in many instances the patients had not vomited at all. A. PALMER DUDLEY (New York) said that if operators considered the preparatory measures mentioned by Mann there would be less reflex action on the part of the stomach in postoperative work. DANIEL H. CRAIG (Boston) did not consider eserine in any sense a specific against postoperative vomiting, but he thought it had the same effect on cases of postoperative vomiting as gastric lavage, whether resorted to before the patient left the table or later. The effect of small doses of calomel given before operation, or divided doses of it after operation, was the stimulation of normal peristaltic action. With lavage the stomach was emptied. Eserine had no effect on the motility of the stomach itself, but it did in reestablishing or preventing stoppage of intestinal peristalsis. Eserine did the work far more efficiently and effectively than divided doses of calomel, which necessitated giving the patient medicine by the mouth at a time when she was nauseated and unprepared to take it.

[To be continued.]

ORIGINAL ARTICLES

THE RELATIONS OF PUBLIC HEALTH SCIENCE TO OTHER SCIENCES.¹

BY

WILLIAM T. SEDGWICK, M.D.,
of Boston, Mass.

Professor of Biology and Lecturer on Sanitary Science and Public Health in the Massachusetts Institute of Technology, Boston.

Physical science is one and indivisible. Although for practical purposes it is convenient to mark it out into the primary regions of physics, chemistry and biology, and to subdivide these into subordinate provinces, yet the method of investigation and the ultimate object of the physical inquirer are everywhere the same.—HUXLEY.

Physical science is one and indivisible; that, as I understand it, is the keynote of this great Congress, of which public health science forms one section, and, as I am invited to consider, in the brief space of 45 minutes, the relations of public health science to other sciences, I shall take the liberty of selecting from the whole number of other sciences only a few, the relations of which to public health science seem to me for one reason or another especially important at the present time. I accept the term public health science without hesitation, for any division of human knowledge which has worked out its own laws with strict adherence to the rules of inductive and deductive reasoning, as public health science has done, and which has reached results enabling it to predict with accuracy as public health science can now predict, is entitled to a place and an honorable place among the physical sciences.

Public health science had its rise and a considerable development in the eighteenth century. Before that time, numerous procedures tending to protect or promote the public health had, indeed, at one time or another, existed, but these were largely empirical and quite as often directed to the convenience of mankind as to their sanitary safety. In this class belong the Mosaic code; the water-supply introduced into Jerusalem by Hezekiah; the sanitary engineering of Empedocles; the *Cloaca Maxima*; the water-supplies of ancient Mycenæ and of Rome, and all the earlier and too often futile forms of quarantine. Even the art of inoculation for smallpox was only an ingenious knack, introduced from the East where it had been long used empirically, and although it was a public health measure, now of the utmost interest and capable at the time of great practical service, it had until recently no scientific basis, but belonged in nearly the same class as the amulets and charms, the prayers and incantations of the superstitious.

It was not until the middle of the eighteenth century, namely, in 1767, that Sir George Baker, by the use of the methods of pure inductive reasoning, made the first scientific discovery in public health science, in the subdivision of epidemiology, namely, that the epidemic colic of Devonshire, England, was due to an obscure poisoning by lead conveyed through the common cider used for drinking in that district. In 1774, the foundations of State hygiene and sanitation were laid in consequence of the patient investigations and startling revelations of John Howard, by an act of Parliament providing for the sanitation of jails and prisons. The beginnings of marine hygiene and sanitation appear in 1776, when Captain Cook, the navigator, was awarded the Copley medal of the Royal Society for his remarkable success in protecting the lives of his sailors on his second voyage. In 1796, Edward Jenner, working also in a strictly scientific manner, and employing the methods of rigid inductive research, laid securely for all time the foundations of personal hygiene and immunization, by showing how we can produce at will

such modifications of the physiologic resistance or susceptibility of the human body as to make it immune to smallpox.

The importance of these fundamental and splendid discoveries, not only to the public health of the time, but far more to the development of public health science in all the centuries to come, is incalculable. Reduced to their lowest terms, we have in these eighteenth century discoveries the germs of some of the most important divisions of public health science as it is today, namely, (1) epidemiology, (2) sanitation of the environment, and (3) immunization of the human mechanism, this last the most marvelous phenomenon hitherto discovered in personal hygiene.

Time fails me to do more than name some of the principal steps in the advancement of public health science in the nineteenth century. We have, for example, in 1802, the beginnings of factory hygiene and sanitation; in 1829, the first municipal water filter, one acre in area, constructed for the Chelsea Company of London; in 1834, recognition of the important relation of poverty to public health, in the famous report of the Poor Law Commissioners of that year; in 1839, the beginnings of registration and accurate vital statistics; in 1842, an important report on the sanitary condition of the laboring population of England and, in 1843, a similar report on the health of towns; in 1854, for the first time clearly taught, the lesson, even yet not properly taken to heart, that drinking water may be the ready vehicle of a terrible epidemic of cholera. About 1860, striking epidemics of trichinosis first came into public notice; and here, also, belongs the magnificent work of Pasteur, while in 1868, Lister, following in the footsteps of Pasteur, revealed to the world the basis of true cleanliness in asepsis, and in 1876, bacteriology became firmly established as a science by Koch's studies on anthrax. The decade from 1880 to 1890 may be called the golden age of etiology, for in these years were discovered the hitherto unknown parasitic microbes of typhoid fever, tuberculosis, malaria, Asiatic cholera, diphtheria and tetanus. The last decade of a century which has well been called the wonderful, witnessed the discovery of antitoxins by Behring and the beginnings of serum therapy. The list is long, and I have not mentioned nearly all of the discoveries of capital importance, but because of these and their fruits, I am in the habit of saying to my students that with the single exception of the changes effected by the acceptance of the theory of organic evolution, there has been no modification of human opinion within the nineteenth century more wonderful, or more profoundly affecting the general conduct of human life, than that in our attitude toward the nature, the causation, and the prevention of disease—that is to say, toward public health science.

No mere outline like this, of the history of public health science can possibly serve to show how, like other applied sciences, this one has not grown as a branch grows from a tree, namely, from a large stem or stock of knowledge, tapering out into thin air, and with its latest growth its least and weakest. That common simile in which the various divisions of science are represented as branches of the tree of knowledge, is a grotesque survival of a time when neither trees nor science were understood. No simile is perfect or even approximately correct, but one better than the tree and its branches for the origin of relationships of any inductive science is that of a river, rising from various and often obscure sources, growing in size and importance as it proceeds both from the springs within its own bed and by the entrance and contributions of tributary streams, and finally pouring its substance into the mighty ocean of accumulated human knowledge.

Up to the time of the establishment of the registration of vital statistics in England, in 1839, the stream of public health science, although full of promise, was only

¹ Address before the International Congress of Arts and Science, St. Louis Exposition.

a slender thread, but when the results of registration were fully enlisted in its service it visibly widened and deepened. Epidemiology, as has been said, had the honor of giving birth to the science in 1767, and it added to its offspring a rich endowment when, in 1854, Dr. John Snow proved that the water of the Broad street well, in London, had caused an epidemic in which more than 600 persons died of Asiatic cholera. The stream of public health science was still further enlarged and quickened by the revelation in and after the 60's of the simple causes of numerous epidemics of trichinosis and of typhoid fever, the latter sometimes through milk. There was an extraordinary popular awakening in England to the importance of sanitation and public health measures in the middle of the nineteenth century, but we look for some time in vain for any marked inosculation between public health science and other sciences—such as physics, chemistry, microscopy, bacteriology, climatology, engineering, or education. We have, to be sure, minor contributions from the microscopists, such, for example, as that from Dr. Hassall, who, in 1850, made a careful microscopic examination of the water-supply of London, and showed the presence in the public drinking water of muscle fibers, intestinal parasites, and other materials plainly derived from sewage; but it was not until Pettenkofer and his disciples, in Germany, and Angus Smith and others, in England, began their splendid chemico-investigation, that the tributary stream of *sanitary chemistry* enlarged materially that of public health science. In saying this I do not forget that my late friend and colleague, William Ripley Nichols, whose solid contributions to sanitary chemistry were among the first in America, and will always remain among the best anywhere, long ago pointed out that, as early as 1789:

Fourcroy studied the nature of "litharged" wine, Berthollet (1801) the methods of preserving water for long voyages, Chevreul (1846) various chemico reactions which explain the hygiene of populous cities, and (1856, 1862, 1870) methods of preparing and preserving food; Graham and Hofmann reported upon the use of acetate of lead in sugar refining (1850), upon the London water-supply (1851), and upon the adulteration of pale ales with strychnin (1882); Dumas was interested in many sanitary matters and made, among others, reports on the mineral waters of France (1851), on the water-supply of Paris (1859), on the treatment of sewage (1867), and on the preservation of food (1870 to 1872); Wurtz was for a number of years president of the *Comité consultatif d'hygiène*, and a year before his death was president of the *Société de médecine publique*. His investigations and reports on sanitary subjects are numerous—on the disposal of the waste from distilleries and sugar refineries, on the colors employed on German toys and in articles of food, on the adulteration of wines, etc.

Other names will occur to us—such as those of Sir Henry Roscoe, Sir Frederick Abel and Dr. Williamson who served on the Noxious Vapours Commission of 1876; of Frankland, who gave years of service to the Rivers Pollution Commission of 1868, and in connection therewith devised an elaborate system of water analysis; we think also of Schützenberger devising a method for the determination of oxygen dissolved in water (not, to be sure, simply for sanitary purposes), Mallet, studying the various methods of water analysis, Remsen studying the organic matter in the air, and Leeds the practical effect of charging with oxygen (or rather with air) water used for purposes of domestic supply.¹

I dwell intentionally upon the service of sanitary chemistry to public health science previous to the rise of bacteriology, because I believe that, dazzled as we have been and still are by the blazing achievements of bacteriology, beginning, let us say, with the discovery of the microbe of tuberculosis by Koch in 1882, students of public health science have been too much inclined to underrate the past services and present relative importance of sanitary chemistry. I know of few more important contributions to public health science, even since 1882, than the chemico work of the State Board of Health of Massachusetts under the able direction of my friend, Professor, afterwards President Drown (the successor of Nichols) and his associates and successors; or that of another friend, the late Professor Palmer of the

University of Illinois, whose chemico studies of the rivers of Illinois will long remain a monument to a life full of promise and too soon cut short, or that of still another friend, Professor Kinnicutt, who fortunately is still engaged in fruitful work.

I have perhaps, said enough, though it would be difficult to say too much of the magnificent contributions to public health science of Pettenkofer and his disciples in sanitary chemistry; but the work of these investigators in sanitary physics, and especially the physics of the soil, of the atmosphere, of the walls of buildings, and of heating and ventilation, in their relations to the public health are quite as important, and perhaps today even more neglected. In view of the increased facilities for transportation and the growing habit of traveling, together with the tendency to outdoor life, which seem to be characteristic today of all civilized nations, the next 25 years will probably see a return to the patient and exact studies of the environment, such as the chemists and physicists began, and have in some measure continued, since the middle of the nineteenth century. These studies will be directed largely to further knowledge and control of the environment, but they will not end there, for personal hygiene, owing to recent advances in physiology, is today one of the most inviting fields for work and education, and I hardly need to point out to a company of experts that the proper care and right use of the individual human mechanism reacts favorably and fundamentally upon the public health no less truly or effectively than an improved condition of the environment or of the public health tends to promote the welfare and long life of the individual.

The sphere of hygiene may be divided, as it often is, into the two hemispheres, public hygiene and personal hygiene, or it may be cut into one portion, dealing chiefly with the human mechanism and its operation (personal hygiene), and another portion dealing chiefly with the environment of that mechanism (sanitation). The time has gone by when any one person can safely undertake to deal with the whole sphere of hygiene. The physiologist and the physician must in the future leave to the architect and the sanitary engineer such subjects as housing, heating and ventilation, water-supply, and sewerage, precisely as the sanitary engineer has never presumed to deal with foods and feeding, vaccines and antitoxins, exercise, sleep, and rest. The former subjects deal chiefly with the control of the environment, the latter subjects chiefly with the control of the individual, and sanitation and hygiene must henceforward be regarded as separate hemispheres of the science of health.

The *science of architecture*, if under this head we include the principles of building construction, and the heating and ventilation of buildings, has done and is doing much of interest and importance to the student of public health science. For my own part, I am continually more and more impressed with the fact that the air supply, especially for the modern civilized and too often sedentary form of mankind, is in the long run quite as important as the water-supply, the milk supply or any other supply. Surely, we cannot be too careful of the purity of a substance which we take into our bodies oftener, and in larger volume, than any other, and which has come, rightly no doubt, and as the result of long and painful experience, to be known as the very breath of life. I am well aware that human beings may survive and seemingly thrive, even for long periods, in bad air, but I am certain that for the best work, the highest efficiency, the greatest happiness, and the largest life, as well as for perfect health, the very best atmosphere is none too good. Hence, I believe that the permeability of the walls of houses and other buildings, and the heating and ventilation of dwellings, school houses, churches, halls, and other public places, require, and in the near future will receive, a much larger share of our attention than they have today.

In an age characterized by urban life and possessing

¹ Wm. Ripley Nichols, address before American Association for the Advancement of Science. Proceedings American Association, for the Advancement of Science, Vol. xxxiv, 1885.

skyscrapers, tenement houses, and other huge beehives, in which human beings aggregating vast numbers spend a large part of their lives, buildings require for their proper construction, lighting, heating, air supply, water-supply, gas supply, and drainage, the scientific services not only of architects, but of engineers, and such public buildings form one small section of the aid which modern *engineering science* is now everywhere rendering to public health science. The present has rightly been called an age of engineering, and to no other science, excepting only medicine itself, is public health science today more indebted than to engineering science. I have referred above to the construction of the first municipal filter attached to a public water-supply as that of the Chelsea Company, of London, constructed in 1829. How different is it today! Not only nearly the whole of London, but also Berlin and Hamburg, and a thousand lesser cities all over the civilized world, are now protected more or less perfectly from epidemics of typhoid fever, Asiatic cholera, and other waterborne diseases, by vast municipal filters, ingenious and scientific in design, and costly in construction, the work of skilful and faithful engineers; and monuments more precious, if less enduring than brass, to the contributions of engineering science to public health science. Innumerable storage reservoirs and vast distribution systems for supplies of pure water, also bear witness to the enormous debt which public health science owes to engineering science, as do proper street construction, and still more those splendid systems of sewerage with which so many modern cities are equipped, and which not only serve to remove quickly the dangerous liquid waste of human and animal life, but also keep low and wholesome the level of the ground water, reducing dampness and promoting dryness of the environment, and thereby strengthening that physiologic resistance by means of which the human mechanism fights against the attacks of infectious disease. Nor do the services of engineering science end here, for the fluid content of the sewers must always be safely disposed of, and sewage purification is today a problem of engineering science no less important or difficult than that of water purification. These same processes of the purification of water and sewage are matters of so much moment in public health science that in almost every country experiment stations are now maintained at public and private expense for the purpose of working out the most practical and most scientific methods of purification.

In no respect have the services of engineering science to public health science been more conspicuous than in the application and the further study of the principles involved in the processes of water purification. It has lately been shown, for example, that the introduction of pure water-supplies has in many cases so conspicuously lowered the general deathrate as to make it impossible to escape the conclusions (1) that the germs of a greater number of infectious diseases than was formerly supposed are capable of prolonged life and ready conveyance by public water-supplies; and (2) as a promising possibility, that as the result of the greater purity of the water supply the physiologic resistance of the consumers of pure water-supplies is enhanced in some manner as yet unknown; the net result being that the general deathrate is lowered to such an extent as to lead to a rapid increase of population in communities previously stationary or multiplying far less rapidly. In the case of the city of Lawrence, Mass., for example, I have recently had the privilege of examining the results of studies by the distinguished hydraulic and sanitary engineer, Mr. Hiram F. Mills, which show that since the introduction of a municipal filter, which purifies the water of the Merrimac river, supplying water to the citizens of Lawrence, while the population has increased nearly 70%, the total number of deaths remains about the same as it was ten years ago. Mr. Mills concludes from the results of his studies—and I see no escape

from his conclusions—that the introduction of the municipal filter has not only saved the lives of thousands of citizens, but has also caused the population to increase to a point much beyond any which it would have reached had the city continued to use unpurified the sewage-polluted water of the Merrimac river. A demonstration of this sort shows how easily the diminishing increase of population under a lower birthrate may sometimes be counteracted without resort to that fish-like spawning which seems to be the only remedy of those who are terrified by “race suicide,” so-called. Moreover, it is hardly necessary to point out that such a diminishing deathrate means a far more rapidly diminishing morbidity rate—in other words, it means a heightened working efficiency of the population as a whole, and it must not be forgotten that for most of the results obtained in the scientific purification of water-supplies we are indebted to the science of engineering.

On the other hand, we must observe that engineering science, so far as water purification is concerned, is as yet only in its infancy and by no means thus far altogether satisfactory. In the United States, for example, in the last two or three years a number of epidemics of typhoid fever have resulted from the defective operation or construction of municipal filters, and while much has been done, it is clear that much still remains to do. In this connection it should be said that public health science in the United States suffers constantly and severely from an unsatisfactory condition of the science and art of administration or government in many American cities. Public health works are too often neglected, delayed, mismanaged or built at extravagant cost, to the sanitary and economic damage of the people as a whole, and the tendency is far too common to place the care and operation of costly devices or systems in incompetent hands. I cannot here dwell as long as I should like to do upon the mutual relations of public health science and the sciences of legislation and administration. Speaking of my own country alone, I must confess that we are still very deficient in the applications of these sciences. We have not even a national Board of Health, although we have, fortunately, in the Public Health and Marine-Hospital Service, a strong substitute for one. The peculiarities of our democratic and republican government have hitherto made it impossible for the people of the United States to secure either from federal authorities or from local sources that measure of paternal sanitary and hygienic protection which they ought to have, and it is the duty of every American worker in this field to bend his energies toward a better organization of the public health service in every direction, municipal and State, as well as national. The appointment, in 1886, of a distinguished hydraulic engineer to membership on the State Board of Health in Massachusetts marked an epoch, so far as America is concerned, in both sanitary legislation and administration. This appointment was a formal recognition on the part of the public of the necessity of a larger proportion of engineering science in matters relating to the public health and the results have justified the new procedure. It is now, fortunately, becoming less rare in America to secure the services of engineers upon such boards, and there can be no question that participation of the expert laity with medical men is likely to be extended, probably far beyond our present ideas.

In a notable discourse before the International Medical Congress at the Centennial Exhibition, held at Philadelphia in 1876, Dr. Henry I. Bowditch, of Boston, one of the pioneers of hygiene and sanitation in America, divided the century then closing as to its relation to public health science into three periods: The first, from 1776 to 1832, a period of reliance upon authority and upon drugs; the second, from 1832 to 1869, a period of true scientific observation; the third, from 1869 onward, an epoch in which the medical profession is aided by the laity and State hygiene is inaugurated. Dr. Bowditch

has much to say of the desirability of a wider cooperation of the laity in State hygiene, and remarks: "In all that tends to the promotion of State hygiene hereafter, the laity will naturally and cordially cooperate with the (medical) profession." The history of public health science shows Dr. Bowditch's prediction to have been well grounded. The names of John Howard and Captain Cook in the eighteenth century, and of Edwin Chadwick, John Simon, and Louis Pasteur (not to mention a host of lesser workers) in the nineteenth century, show conclusively that public health science has been, even from the start, by no means confined to medical men. We may go further and say, that even when forwarded by medical men, these have seldom been busy practitioners. Sir George Baker and Jenner were, it is true, of this class, but not Pettenkofer or Koch, or Ross, or Billings, or Reed.¹

Reflections of this sort naturally lead to a consideration of the reciprocal relations of public health science and the science of education. I do not need to dwell upon the beneficial effects of public health science upon the hygiene and sanitation of school children or school-houses. These benefits have long been emphasized by sanitarians and sanitary reformers, and are sufficiently obvious. The reverse of the picture, however, is by no means so well understood. Unless one is familiar with the facts, it is difficult to conceive how little impression the splendid progress which the last 50 years have witnessed in public health science has as yet made upon the curriculum of education. From top to bottom, and from bottom to top, the schools, whether primary, grammar, high, normal, technical, medical, or any other class, are recreant, inasmuch as they neglect almost wholly any adequate training of their pupils in the principles of public health science, which are confessedly of such profound importance to mankind. There is, to be sure, just now a popular wave of enthusiasm touching the extermination of tuberculosis, but in the United States at any rate, both schools and universities are singularly negligent of their most elementary duties in this direction. Yet if what I have said before is true, if the laity are to participate from this time forward with medical men in sanitary and hygienic legislation and administration; if engineers and medical men in particular are to serve upon Boards of Health or in other executive positions connected with public works, then, surely, it is the duty of the science of education to lend its powerful aid and not to fail to save the lives and health of the people as these can be saved today, but always to promote that public health and that large measure of consequent happiness which can probably be more easily and quickly accomplished in this way than in any other.

As to the function of medical education and engineering education in respect to the dissemination of public health science I shall say only a word. In spite of the reiteration by medical men of their belief in the importance of hygiene and preventive medicine as a part of the equipment of the medical profession, it is a significant fact that in America even the best medical schools devote very little time to any adequate instruction in these subjects. It may be that this is wise and that the pressing necessities of practical medicine forbid any extended instruction in public health science. I am willing to believe, if I must, that this may be the case; but if it is, then the community must look for the most part elsewhere than to medical men for adequate investigation, legislation, and administration of public health science. Medical men must, of course, always participate in the work, in connection, particularly, with the control of epidemics and in those forms of preventive medicine which have to do with vaccines, serums, and other means of modifying the vital resistance of the human body. But as regards the care and control of the en-

vironment, medical knowledge is not indispensable, and the entrance of the engineer and the sanitary expert upon the field, as foretold by Dr. Bowditch nearly 20 years ago, is today a conspicuous, and probably a wholesome fact. As to the attitude of engineering education toward public health science there can be no question. If what I have said before is true, then engineers are bound in the future to take constantly a larger and more important part in public health work, and must be informed, and if possible, trained accordingly. Moreover, as regards both medicine and engineering, the problem is by no means insoluble, for a very short course of instruction rightly given would easily inculcate the necessary fundamental principles, while electives or postgraduate work might enable those few whose tastes led them in this direction to investigate and specialize and more thoroughly prepare themselves for public service.

I cannot treat, nor do I need to treat, as thoroughly as I would be glad to do, the mutual relations existing between medical science, especially the science of medical bacteriology, and public health science. These are already sufficiently obvious and well known. From time immemorial medical men have served, often devotedly, and sometimes heroically, in the cause of public health science. I take it, however, that since we have in this Congress and in our own department a section of preventive medicine, I may pass over without comment this part of my subject.

As regards sanitary bacteriology, however, the relations existing between this and public health science are so fundamental, so extensive, and so important, not only on the medical but also on the engineering side, that although we have also in this Congress under the department of biology, as is entirely proper, a section of bacteriology, I may linger at this point for one moment. The bacteria and other microscopic forms of plant and animal life, all of which are conveniently included under the term microbes, have so lately begun to be understood and appreciated that we must still emphasize their extreme importance. The discoveries of the botanists and zoologists and revelations of the microscopists in this domain are comparable in their importance to public health science with nothing less than the revelations of the telescope to astronomy. Astronomy had, indeed, existed long before the invention of the telescope, and public health science, as I have shown before, had its beginnings nearly a century before any considerable progress had been made in microbiology. But it is not too much to say that the developments in microbiology since Pasteur began his work have not only revolutionized our ideas of the nature of the infectious diseases, but have also placed in our hands the key of their complete control.

Concerning the relations of physiology to public health science, I must not fail to speak. Here is a field absolutely ripe for the harvest, but one in which the harvesters are as yet very few. I have lately had occasion to examine somewhat carefully the present condition of our knowledge of personal hygiene—which is nothing more (and should be nothing less) than the applications of physiologic science to the conduct of human life—with the result that I have been greatly impressed with its vast possibilities and promise. Man is a gregarious animal, and mankind is today crowding into cities as perhaps never before. Moreover, the industrial and commercial age in which we live is characterized to an extraordinary degree by the sedentary life. Yet the sedentary life is almost unavoidably an abnormal life, or at least it is a life very different from that lived by most of our ancestors. In the sedentary life the maintenance of a high degree of physiologic resistance apparently becomes difficult, and if the vital resistance of the community in general is lowered, then the public health is directly and unfavorably affected, so that considerations of personal hygiene have a direct bearing upon the science of public health.

¹ During the course of an epidemic, physicians are too busy to make observations which require much time or care, or to make more than brief notes.—J. S. BILLINGS.

There are, to be sure, interesting and suggestive symptoms of a wholesome reaction, in America, at any rate, against the evils of the sedentary life. Parks and open spaces are being liberally provided; public and private gymnasiums are rapidly coming into being; public playgrounds are thrown open in many of our cities, free of expense to the laboring, but nevertheless often sedentary population; vacations are more than ever the fashion; sports and games are everywhere receiving increasing attention; while public baths and other devices for the promotion of personal hygiene are more and more coming into being. All this is as it should be, but all is as yet only a beginning. Here, again, the science of education is sadly at fault, and in direction of educational reform as regards personal hygiene lies immense opportunity for a contribution to public health science.

The science of statistics, which has done great service in public health science in the past is likely to do much more in the future. Without accurate statistics of population, mortality and the causes of sickness and death, the science of epidemiology is impotent, and the efficiency or inefficiency of public health measures cannot be determined. And yet, in ignorant hands, statistics may be worse than useless. It is a matter for congratulation to Americans that we now have in Washington a census bureau permanently established and under expert supervision; but until the various States and cities of the United States follow this excellent example of their federal government, one of the most important aids to public health science will continue to be wanting, as is unfortunately too often the case today, not only in America, but in many other parts of the civilized world.

KNEE INJURIES, AND HOW TO MANAGE THEM.

BY

DE FOREST WILLARD, M.D.,

of Philadelphia.

Professor Orthopedic Surgery, University of Pennsylvania; Surgeon Presbyterian Hospital, etc.

Given a joint as large and complicated as the knee, with the liability to injuries varying in degree from a slight sprain or contusion up to that of a complete crush of the bones and joint; given also the mental attitude of the patient, varying all the way from that of the footballist who has been maltrained to believe that any acknowledgment of injury or pain is unmanly, to that of the hysteric girl injured in an accident and anxious to recover full damages from a railroad company; with such a variety of conditions the surgeon will encounter a problem that will tax his powers of diagnosis and treatment to the fullest exercise of judgment, discrimination and skill.

To extend this paper to the major injuries of fracture, dislocation, gunshot and other penetrating wounds of the knee-joint, would prolong the article indefinitely, hence I will endeavor to restrict its scope to the injuries which, though less destructive at the time, may be of longer continuance and perhaps of greater ultimate annoyance to the patient from weakness, disability and painfulness of the joint, together with frequent interruption to his normal vocation.

Sprains with or without Laceration of Ligaments.—Sprain of the knee occasioned either by twists or by a forcible bending of the knee in any abnormal direction may result simply in the stretching of the lateral ligaments, tendons or periarticular structures, or in partial or complete rupture, depending upon the direction, and the degree of effort exerted. The sharp pain occasioned at the time may temporarily pass away, especially under the excitement of the injury, even when considerable laceration has occurred, but subsequent use may develop an inflammation either about the joint or extending into it. This may or may not be followed by serous effusion.

The question of diagnosis is an important one. The conditions most likely to be confounded with a laceration of ligaments are displacement of the semilunar cartilage and the slipping of a loose body in the joint; these accidents will be discussed later. A so-called sprain sometimes means extensive laceration of tissues, tearing up of periosteum and even fracture with fragments of bone in the joint, hence an X-ray shadow is desirable. For a sprain of moderate degree, I know of nothing so immediately helpful as the continuous application for an hour of hot water constantly applied at the highest temperature endurable to the skin, or of dry heat obtained by an electrically-heated pad. If the diagnosis is that of only a slight sprain, tight strapping of the entire joint with adhesive strips, after a slight period of rest, may permit the patient speedily to resume his occupation. If the injury is more severe and pain and effusion into the joint occur with swelling, the early application of ice-bags or of a rubber coil of ice water will often abort a threatened invasion of the joint. The joint should be put at once at rest with a gypsum or other rigid dressing, and rest in bed or on crutches enforced for at least a week. At the end of that time the cast may be removed, the joint moved slightly voluntarily and the cast slipped again over the knee. After daily treatments of this character for a week, the cast may be removed entirely and adhesive strips, or a flannel or rubber bandage applied. Both voluntary and passive motions should be instituted. Exercise in a well-equipped orthopedic gymnasium will be of the greatest service. Dry hot air is useful in producing absorption, as is also the therapeutic effect of the X-ray. The subsequent weakness of the joint is often due to undue mobility, caused by torn or lax ligaments. Slight effusion may be absorbed, but if the amount of fluid is large it should be removed by aseptic aspiration, or by free incision. If the quantity is large, there is much danger of permanent disability if the fluid is allowed to remain.

There should be no hesitancy about opening the knee-joint whenever it becomes necessary. Much of the timidity displayed by surgeons is the result of old methods which were necessarily dangerous. With rigid asepsis, the surgeon is as safe in exploring a knee-joint as he is in opening the peritoneal cavity.

Contusions.—Contusions of the knee are usually of lighter degree than sprains, and while synovitis with effusion or arthritis may follow, the general rule applicable to sprains will apply to injuries of this class.

Displacement of Semilunar Cartilages.—English writers have a rather peculiar designation, "internal derangement of the knee-joint," which is capable of quite wide application. Its ordinary restriction, however, should be limited to displacement of the semilunar cartilage (Hey). If a semilunar cartilage is displaced, or a portion of it is broken off and slips back into place before it is seen by the surgeon, as is not infrequently the case, it is difficult to diagnose such an injury from the slipping of a loose cartilaginous body. When, however, the semilunars are loosened from their connections and are pushed in any direction, the clinical symptoms are sufficiently evident, unless the swelling is very great before the surgeon's examination. The suddenness of the pain and deformity, the flexed position of the limb, the presence of a hard foreign body in the connective tissue, the locking of the joint and the inability to produce extension are marked symptoms. Some writers endeavor to make distinctions between the lawn tennis knee, the golfer's knee, the football knee, etc., but while certain forms of injury are prone to occur in various athletic movements, yet the great multiplicity of movements and the variety of traumatic forces applied make it more judicious for the surgeon to consider each case carefully and to differentiate if possible the conditions of sprain, contusion, laceration of ligaments, displacement of cartilages, fracture, etc. It should always be remem-

bered that the injury to the periarticular structures may be even more important than the joint injury.

A displaced semilunar cartilage can be reduced after anesthesia by making traction upon the lower leg to draw it away from the femur, then making pressure upon the displaced cartilage, the leg is strongly flexed and rotated, then quickly extended. Should this maneuver fail, the leg may be sharply flexed upon the thigh over the fist or arm of the surgeon, while with the other hand, manipulation of the lower leg is continued. The best position for this is with the patient lying upon his back upon the floor. Other surgeons seat the patient upon the edge of a table and flex the leg sharply underneath. If the displacement has occurred laterally, pressure and counterpressure must be made in accordance with this position. If the cartilage can be reduced, it is not wise at the first displacement to perform an open operation, since fixation and attachment of the cartilage may occur after reduction, provided thorough rest and protection are given to the joint for a time sufficient to allow adhesions. The patient must use extreme care against violence, and particularly against undue flexion of the joint. It is well to wear for some months an apparatus which will not only limit the flexion and extension of the joint, but will also protect it from secondary traumatism. The constant reminder to the individual by such an apparatus is also helpful, and especially in the case of an active boy the restriction of movement will be of much use. Two lateral steel uprights with stop-joint at the knee may be attached to a sole plate worn inside the shoe. Leather or felt casings, with or without joints, while sometimes necessary, are harmful by their interference with circulation. Should slipping recur, the joint should be freely opened, especially in young or middle-aged patients, and the cartilage stitched in place around its circumferential border with chromicized gut or kangaroo tendon; if the cartilage shows signs of disease or of degeneration, it should be removed; if the fragment is small, it should also be removed. It should be remembered that these cartilages are of low vitality, but that they are the natural cushions of the knee. The surgeon can never be too careful in opening a knee-joint that his asepsis is complete. After the open operation the joint should be fixed for about two weeks by plaster-of-paris or other rigid splint. After that, slight voluntary motions should be permitted, followed later by involuntary passive movements and by massage, either manual or mechanical, or gymnastics; a well-equipped orthopedic gymnasium adds much to the rapid improvement of the patient. If the patient will sit upon the edge of a table or high chair and swing the leg to and fro, he will accomplish much. This movement can be increased by adding a weight or pendulum attachment to the foot. Protection by mechanical means of a brace is best. A bandage, or rubber, or laced knee-cap interferes with the circulation, and does not give much practical support. For the removal of induration and of effusion, an application of imbricated adhesive strips over the entire joint is of value. The pressure of a wet, flat sponge, bound in position, also assists in absorption.

Blisters, iodine, iodovaseline are of service. Ichthyol ointment is vile and smelly. Alternate hot and cold water douchings are especially useful, if followed by massage and manipulations.

For fixing the joint, next to absolute rest in bed, there is no application so convenient as that of plaster-of-paris. The denunciation of plaster-of-paris in knees as in other surgery, comes from those who do not understand its use, or who apply it improperly. An expert in gypsum can use it largely in surgery and with the greatest advantage. It applies itself evenly to the surface, giving pressure upon no single point, but extending over a large area. It is cheap, easily applied, easily removed (provided section is made upon an inserted zinc strip before it is thoroughly hardened); can be loosened

or tightened to accommodate itself to any amount of swelling, and is invaluable in cases in which it is necessary to prevent interference to treatment by the patient. Binder's board, wood, felt and other substances are effective, but are by no means as convenient. If one has the time to give to the work, silicate of soda or starch bandages are lighter, but in no other way superior.

Immobilization of a healthy joint will not cause ankylosis. It is the disease which produces the stiffening, and as motion is a normal function of the joint, one should use the greatest discrimination in regard to the time in which an inflamed or diseased joint is kept at rest. Of course in tuberculous joints, ankylosis is often the result desired when the process is thoroughly advanced, but traumatic joints are in an entirely different category.

Massage after sprains or contusions or dislocations, is certainly a most valuable measure. It is difficult to lay down laws as to the time when it should be commenced, or when passive motion should be instituted. In general, it may be stated that the sooner it can be applied without producing discomfort or increase of inflammation, the better. There is no other rule that will apply better than this. If inflammatory symptoms are awakened or pain increased, one must go more slowly. Dry, hot air is helpful also in promoting absorption.

It is of the utmost importance that the muscles be strengthened in order to prevent semilunar displacement, since lax ligaments are a common cause. Persistent weakness is due to abnormal mobility. The "slipping joint" is due to lax ligaments and feeble muscular stability. The creaking joint is usually due to deposits or to a relaxed joint.

The restoration of function after an injury of the knee is one of the most important elements in the treatment. Many knees are permanently stiffened by the want of proper primary and secondary management.

Ankylosis is often the result of permitting serous or blood effusions, or purulent collections to remain until the joint functions have been obliterated. All this could have been prevented by early removal. Of course in severe injuries of the joint, motion may be blocked by bony fragments. By the use of the skiagraph these can be readily detected and should be removed if they prevent motion.

For the ankylosis following injury and inflammation of the knee-joint, massage and active and passive movements are necessary. If the bands are fibrous and for the relief of the stiffness in tendons and periarticular structures following inflammation, forcible movements under anesthesia may be employed judiciously by a surgeon and will be helpful. It is never wise to carry the movements to an extreme degree at the first effort. I have elsewhere given my views as to the extent and persistence of these movements.¹

Loose Bodies.—Loose bodies in the joint may be either cartilaginous, calcareous, fatty, fibrinous, or ossific. They may be free in the joint, or may still remain attached to the synovial fringe by a slender elongated filament. While they remain external to the two opposing joint surfaces they may give little or no trouble, but when caught between the femur and tibia the sudden locking of the joint and the sharp pain is often sufficient to throw the patient to the ground or cause him to faint; sometimes the joint remains in the flexed position; more frequently a little manipulation of the leg allows the body to slide out and the knee can be again straightened; the consequent traumatism of the synovial lining may be slight, or it may be so severe as to cause much effusion of serum into the joint and into the bursa above the patella. The joint should be placed absolutely at rest in bed until the acute pain has passed, together with local anodyne applications and a plaster cast or other splint. Crutches and adhesive plaster strapping with slight motion should be allowed at the end of a week. Repeti-

¹ Knee Ankylosis, Pennsylvania Medical Journal, January, 1905.

tions of the accident may be frequent, or a body may hide itself so that a long time will elapse before the bones are placed in such position as to allow it to fall between the surfaces. The Germans very aptly call these bodies "joint mice." It is not wise to operate upon the joint while in the acute stage. The interval operation is a safer one if thorough asepsis is insured. As the patient frequently acquires great dexterity in discovering the loose body and in extricating it from the joint surfaces, local anesthesia is preferable. The method of fixing the body by a pin and then giving ether is much more effective in theory than in practice. Spinal anesthesia is too risky an operation to add its dangers to that of opening the joint. An incision should be made directly over the body; if others are suspected, the bare finger should never be inserted into the joint, but a thoroughly sterile rubber glove should be employed. Hemorrhage should be controlled before the closure of the capsule with a silk or fine chromicized gut ligature; the skin wound should be closed without drainage and the joint placed at rest in plaster-of-paris or other splint for a week; after which voluntary motion should first be permitted, after that increasing passive motion; employment of crutches for one or two weeks, after which locomotion should be encouraged. When thickened synovial fringes are found, the opening should be made upon both sides of the joint so as to trim away all indurated portions. The wounded synovial membrane need not be sutured, but all hemorrhage should be controlled by hot applications before closure of the capsule. I once had quite a large hemorrhage in a case of this character, which required reopening of the joint. If there is any suspicion of degeneration of the fringes, a section should be reserved for microscopic study. I have had patients who have been upon crutches a year relieved in ten minutes by the removal of such a small floating body.

Sensitive Joints, Often Called Hysteria.—Under this head will be found many cases of results following moderate traumatism in neurotic individuals, or in fact in any individual who has been long subjected to rest after an accident. There is always a proper period of rest for inflamed tissues, but there is always a time for movement. The wisest and most successful surgeon is he who is able to diagnose the proper period when motion is to be substituted for rest and the extent to which it should be carried. A careful consideration of all the presenting clinical symptoms is essential. In many of these cases hypersensitiveness is the rule; the patient will scream with pain almost before the joint is touched. I do not mean that this is necessarily deception. Nervous, hysteric people are not always deceptive, but they have acquired the habit of pain; they deceive themselves. In fact, few individuals can bear care and nursing and sympathy without acquiring an undue and exaggerated idea of their sufferings. An amount of pain that would be scarcely recognized in the normal state becomes under these circumstances of extreme importance and many joints are nursed for months and years after they should be performing their proper functions. "Ankylophobia" is an excellent name for this condition. It should be remembered always that the normal function of a joint is motion, that as speedily as possible after the subsidence of the acute inflammatory stage, this condition should be instituted, but too vigorous motion will simply retard the cure. Those who commence massage early and institute it properly are the most successful.

A practised surgeon does not even require the evidence of the X-ray to decide that a sensitive joint such as I have described, which shows no evidence of degeneration or induration after months of disuse, is a knee demanding firm, calm management of the mental condition of the patient, coupled with gradually increasing voluntary and involuntary movements of the joint. The treatment may well be commenced with etherization and moderate forcible movements, followed by

massage and the various maneuvers already described. Judicious treatment will save these patients from years on crutches or rolling chairs, from which they may be "miraculously rescued" by Christian scientists or osteopaths.

When there is tuberculous degeneration and destruction, of course the whole condition is a different one and must be carefully diagnosed and cautiously treated. Tuberculous invasion should always be suspected in children, but is much less common in adults. In fact, the whole course of treatment will depend upon the accurate diagnosis of the condition.

Blood Clots in the Joint.—A violent contusion of the joint or other injury may be followed by a large effusion of blood. Sometimes this takes place slowly, and is not painful. It is best removed by the local application of ice, with a posterior splint and complete rest. If a diagnosis is well established, by the symptoms, the X-ray and the aspirator, it is wiser to open the joint and get rid of all the blood and the clots, since even if absorbed, more or less ankylosis is liable to result. Of course, the removal should be done under the most careful asepsis. The joint should be irrigated; a clean gloved finger introduced to remove clots and the joint drained with gauze. The drain may be removed on the fourth day and the wound stitched two or three days later, after which the joint may be carefully moved voluntarily. The sutures may come out by the end of the second week, and the patient should be encouraged to use the joint in walking in the fourth week. If the patient is not in good condition, there is great danger of this blood becoming infected if it is not removed.

Synovitic Effusions.—A large flat sponge or elastic bandage, or strapping, may assist in the absorption of the effusion, or an aspirator will remove hydrops, but when it is large and continuous, it is wiser to make an opening under thorough asepsis and to drain the joint with gauze. If this is not done, it often means many months of disability, which will be a very serious matter to a bread-winner. If the effusion becomes infected and purulent, of course free opening, irrigation and drainage, must be instituted at once. This is the only reasonable treatment for septic or gonorrheal arthritis. In acutely septic cases, one should seldom trust to lateral incisions, but should lay the joint freely open by a semicircular incision, so as thoroughly to reach every portion of the joint with formalin solution. The joint in these cases is wisely left exposed if the constitutional symptoms are great, since the saving of the life of the individual is first to be considered.

CONCLUSIONS.

1. Apparently slight injuries of the knee often prove more lasting and annoying than those of a more positive nature, as fracture or dislocation.
2. Every injury of the knee should receive careful examination, since laceration of ligaments or of periarticular tissues, or displacement of semilunar cartilages, or of loose bodies, may have occurred. Obscure fractures, also, are not uncommon.
3. Every injured knee requires rest during its acute inflammatory stage; rest in bed, fixed dressings, and crutches are needful. Heat and cold are two powerful agents in aborting a threatened inflammation.
4. Adhesive plaster strapping is of great value in securing partial restraint of a knee and in producing absorption of effusion. Restricting apparatus should be used with discrimination.
5. Blood clots in the joints should be removed by incision and flushings.
6. Effusions, if large, should be removed by aspiration, or incision followed by weak iodine injection.
7. Displaced semilunar cartilages should be stitched in position, or removed. Loose cartilaginous bodies should be removed.
8. Motion is the normal condition of joints, conse-

quently massage and voluntary motions should be instituted as soon as the inflammatory stage has passed. Neglect of this precaution may result in a neuromimetic patient and a chronic cripple.

9. Sensitive neurotic knees should not be mistaken for diseased ones.

10. Complete primary rest during the inflammatory stage, followed by massage, voluntary and involuntary movements, gymnastic exercises, hot-air treatment, hot and cold douchings, etc., are the best means at our command for preventing ankylosis.

11. Should ankylosis follow, forcible straightenings, tenotomies, osteotomies, etc., may be required.

TROPICAL ANEMIA.¹

BY

M. J. ROSENAU, M.D.,
of Washington, D. C.

Director Hygienic Laboratory, United States Public Health and Marine-Hospital Service, Washington, D. C.

You have all heard the saying "we enjoy the spices of Araby but do not feel the burning suns which bring them forth." Tonight I want you to enjoy some of the good things of tropical pathology without suffering the discomforts such studies involve. One of these discomforts I shall long remember.

It was one of my first visits to the tropics. I landed at Vera Cruz, Mexico, and for official reasons immediately took the train for the city of Jalapa, a mountain town 4,000 feet above the level of the Gulf of Mexico. In passing through the lowlands known as the "tierra caliente," I saw for the first time the great tangle of the dense jungles, where an inconceivable amount of vegetation was having a fierce struggle for existence. Arriving on top of the mountain I obtained a superb view of the blue waters of the gulf and surrounding mountain chains for many miles. The weather was delightful and the scene enchanting. But when I awoke the next morning my disenchantment began. I had an irritating eruption and itching all over my body, which grew worse until it became almost intolerable. In the center of each one of the irritated places I could plainly see a minute bright blood-red particle which I picked out with the point of a needle, and, placing it under a microscope, recognized a "jigger," or the sand flea of warm countries.

In the course of time I learned that this was only one of the many thorns that grow upon the roses of the tropics. The next day I returned to the coast and went through the large civil and military hospitals at Vera Cruz and obtained a birdseye view of another kind of a jungle. I gradually realized that the same warmth, moisture and rich soil which favor such an abundant growth of vegetation and which in turn support a great amount of animal life, find their counterpart in the microscopic plants and animal parasites infecting man. In fact, if you compare our primeval forests and their scanty underbrush and occasional animal life in this latitude with the luxuriant and diverse flora and fauna of the tropics, you have a good comparison between the variety and frequency of the parasitic diseases in the two regions. For, all the infectious diseases are due to species of the animal and vegetable kingdoms which have become parasitic and pathogenic for man.

Not to take up too much time in introducing the subject of tropical diseases, I want to pause long enough to state that while there are still many tropical pathologic puzzles inviting solution, on the other hand we have a more precise knowledge of the cause, methods of transmission, prevention and treatment of some of the diseases of warm countries than many of those which have been studied a much longer time in the better equipped

laboratories of more favorable climates. This is particularly true of the subject that has been given me for tonight, namely, the tropical anemias.

I need not tell you that almost every cause which produces the symptom of anemia in the temperate or arctic regions will have a like effect, if operative in warm climates. But in the tropics we find much more anemia than in any other part of the world as a result mainly of two diseases, one caused by an intestinal parasite—the hookworm, and the other caused by a blood parasite—the malarial organism.

I am not going to give you an ordinary textbook description of the two infections. That would take much longer than the time at my disposal would allow. I purpose to describe them just as I have seen them, so that what you hear may be of practical use to you when you meet these infections face to face, as you surely will whether you practise medicine under a vertical or a slanting sun.

These two diseases—uncinariasis and malaria—have several points in common beside the fact that they produce anemia. The causes of both diseases are perfectly well known, scientifically demonstrated and thoroughly studied. The means of transmission are well understood, the power of prevention lies perfectly at hand, and remedies that kill the parasites whether in the intestines or in the blood may be bought at every drug store in the world.

First, let us take up hookworm disease. These little worms are about half an inch long and not much greater in diameter than a hatpin. These parasites are known as hookworms, *Anchylostoma duodenale* and *Uncinaria americana*. Two kinds of hookworm infect man; the old world and the new world forms. *Anchylostoma duodenale*, Dubini, 1843, causes the trouble in the old world. *Uncinaria americana*, Stiles, 1902, inhabits the American continent. Both of these forms cause the same train of symptoms and have a similar history. The American worm is smaller but has larger eggs than its European cousin. There are other differences in structure which make these two parasites about as distinct, from a zoologic viewpoint, as a dog and a wolf.

Hookworms live mainly in the upper part of the small intestine of man, attached to the mucous membrane, where it is believed they suck the blood of their host, producing the anemia and other symptoms of the disease known as *Anchylostomiasis* or *uncinariasis*. I have here a male and a female worm fixed upon a slide for microscopic study. By holding it up to the light you will see they are round worms, or nematodes, belonging to the strongylus family—*Strongylidae*—to which the closely allied parasite causing Cochinchina diarrhea is related. I will show you later, on the screen from lantern slides, some of the practical points concerning the structure and life history of this little worm, which is by all means the most important intestinal parasite found in warm climates. It is very prevalent and causes a great deal of sickness, stunting of growth, and impairment of the intellect. It so saps the energy and vitality of the persons infected that the worm has been facetiously spoken of by the public press as "the germ of laziness."

The Porto Rican Anemia Commission (Ashford and King) has shown that 90% of the rural population of that island are infected with hookworms, and that 30% of all deaths in Porto Rico are due to hookworm disease.

The adult worm lives in the intestinal tract and feeds on the blood of its host. It holds on to the mucous coat of the intestines by means of four well-developed hooks, it has strong teeth, and remains fastened in the rich vascular layers where it obtains its blood supply. The hookworm is usually fastened to the upper part of the small intestine, for which reason it was first called *Anchylostoma duodenale*.

The worm does not always remain fastened to one

¹ A lecture delivered to the students of the Medico-Chirurgical College, Philadelphia, Pa., January 27, 1905.

place in the bowels, but sucks blood first at one place then at another. In this way it is supposed the patient loses blood directly into the parasite, and also from minute hemorrhages. The injury to the intestinal wall does not stop with the bite, but the minute wounds form an excellent point of attack for bacteria, and give rise to digestive and other troubles. All the symptoms of the disease cannot be explained by the extraction of blood and the mechanical injuries produced. It is very probable that the worm poisons its host by means of a toxin at present little understood.

Here is a specimen from a case of yellow fever, complicated with hookworm infection. You will see the little worm hanging tenaciously to the mucous membrane of the duodenum, and surrounding the place where the worm is attached is a hemorrhagic area almost the size of a silver dollar. In yellow fever there is a tendency to hemorrhages from the mucous membranes, and the wound in the mucosa at this point has favored an unusually large ecchymosis.

The adult female worm in the intestinal tract lays an enormous number of eggs, which are passed in the stools and are readily seen under low powers of the microscope. The diagnosis is best made from the appearance of these eggs, which are ovoid and from 6 to 10 times the diameter of a red blood-corpuscle. They are very characteristic in appearance.

The principal clinical manifestation of hookworm disease is anemia. This anemia has been and still is confused with malarial anemia. Going through the wards of the San Sebastian Hospital at Vera Cruz, one is struck by the large number of very pale and cachectic patients which one sees in the medical wards. Some of these pale creatures are just about able to sit up in chairs; others, too weak for that, are in bed; and still others, with deathlike pallor and edema, are in the last stages of their ailment and will soon pass away. If these patients are examined more carefully it will be found they can readily be divided into two distinct classes.

One class of patients has recurrent attacks of fever, enlarged spleen, and a microscopic examination of their blood readily discloses crescents and ameboid malarial parasites.

The other class has an entirely different history. The patients have been ailing for years, are weak and anemic, have digestive troubles, but unless they are suffering with some intercurrent disease, rarely have febrile attacks. These patients finally break down and enter the hospital. There, under the influence of rest and nourishing diet, they improve, so that they are able to get about again; but the conditions soon recur, and they come and go to the hospital for years. Finally, they enter for the last time, lie down exhausted, edema sets in, and death ends their suffering. An examination of the feces in this latter class of patients discloses the eggs of the hookworm. These patients are suffering with uncinariasis.

In all of this time they may have had little or no fever, no malarial paroxysms, no malarial parasites in their systems; still the diagnosis of malarial fever is tenaciously clung to and they are dosed with quinin, without avail. The pity of it is that a drop of blood or excrement under the microscope would settle the diagnosis in a few minutes, and by proper treatment the patients could be entirely cured.

After one becomes accustomed to the two classes of cases, the diagnosis may often be guessed at simply from the history and appearance of the patient; but the positive diagnosis of hookworm disease is best made by finding the eggs of the worm in the stools. The anemia produced by hookworm disease and that caused by the malarial organism, have certain differences which are of practical importance. The blood in the early stages of hookworm infection may resemble the blood of chlorotic girls. That is, there is proportionally a greater loss of

hemoglobin than of red corpuscles; but, finally, the destruction of the red corpuscles causes a condition of the blood resembling that of pernicious anemia, for which disease, uncinariasis has sometimes been mistaken. In hookworm disease, it is common to find an increase in the number of eosinophile cells, which is a practical point and of diagnostic significance.

In malaria, on the other hand, we never find a chlorotic condition of the blood. The diminution in the amount of hemoglobin and the destruction of the red blood-corpuscles go hand in hand. Eosinophiles are present in malarial blood, but are not materially increased in number at any stage of the disease. A differential count of the leukocytes, however, discloses a disproportionate increase in the large mononuclear cells. Some of the leukocytes plainly show the malarial pigment in their protoplasm. A specimen of blood showing pigmented large mononuclear leukocytes, and an increase in number, is very suggestive of malarial infection.

Hookworm disease may occasionally be contracted by taking the larval stage of the worm into the system with drinking water, contaminated food, or dirty hands; but, as Looss has shown in Egypt, where this form of anemia is very common under the name of Egyptian chlorosis, the larval forms of the worm may enter through the skin. In piercing the skin the worm sets up an irritation, called "ground itch," or "masa mora," which is very common in persons who go barefooted. The larva pierces the skin, as has been shown by Looss and confirmed by Schaudinn, enters the circulation, is caught in the capillaries of the lung which it pierces, and partly by means of its own motion aided by the act of expiration and the ciliated cells of the trachea, finally works its way to the throat, where it is swallowed, passed through to the small intestine, grows to the adult sexual stage and fastens itself to the mucosa.

From what has been said it is plain that the prevention of the disease lies especially in drinking pure water and eating clean food, in wearing shoes, in cleanliness of habits, and attention to personal hygiene as well as general improvements in sanitation, especially proper disposal of the discharges from the body.

The cure for the disease is thymol, betanaphthol or podophyllum. The patient should be placed upon a milk and soup diet for several days in order to prepare the intestinal tract, so that the anthelmintic may come into direct contact with the worms; 2 gm. (30 gr.) of thymol are given in capsules at 8 o'clock in the morning and this is followed by another dose at 10 o'clock, with epsom salts at noon. The dose of betanaphthol is 1 gm. (15 gr.) If all the worms are not expelled by one treatment, which may be determined by an examination of the stools after a week, it will be necessary to repeat the treatment. Sometimes several treatments are necessary in severe multiple infections. Both thymol and betanaphthol are poisonous and should be administered under the guidance of a physician. As they are soluble in alcohol and oil these substances must be avoided during the treatment.

Turning our attention now to the other great cause of tropical anemia, we will briefly discuss tropical malaria, which sometimes causes an anemia so profound that I have not uncommonly seen patients so bloodless that I had much difficulty in obtaining a tiny drop of blood from the finger-tip or the lobe of the ear for microscopic examination.

Tropical malaria is a very different disease from the benign tertian and quartan fevers we see in the temperate zones. A knowledge of its cause, clinical manifestations, its dangers, methods of prevention and cure is an essential part of the training of every modern physician no matter to what specialty he may confine his activities or in what climate he may practise. For, more commonly than in the case of hookworm disease, persons returning from warm climates bring tropical

malaria in their systems. This refers especially to colonists, soldiers, travelers and others from our new possessions—Porto Rico, the Philippines, Panama, etc., and also the neighboring republics of Mexico, Central and South America, with which countries we are daily growing in closer personal, official and economic relations.

Those of you who go to the tropics will soon find that malaria is its greatest scourge. As a cause of sickness and death it has no equal. Koch justly says "malaria is met everywhere. The professor in his bureau, the traveler in the interior, the soldier on the march—all must recognize that sooner or later they are to become the victims of malaria."¹

A district or a place is considered healthful or not depending upon the prevalence of malaria. It is not alone the high temperature and burning sun that sap our energy in the tropics. I have been in charge of government sanitary works at Santiago and other places in the tropics, in which capacity it was necessary to employ many laborers and mechanics. Many of these men lost several days each week, and sometimes weeks at a time when they were having their chills, or more commonly, recurrent attacks of irregular fever. You can readily understand that the disease is a serious economic, as well as a grave sanitary problem; for not only does it dull the brain of the thinker, but it saps the brawn of the worker. It is a great pity that these conditions are permitted to exist when we know that the infection is preventable, and that, to a limited extent, the disease is curable. The so-called tropical malaria, or estivoautumnal fever, is not strictly a tropical disease. "As the tropics are approached we meet less often with the benign tertian, and quartan fevers, and frequently with the more severe and resistant estivoautumnal infections; also, including the terrible pernicious malarial fevers and the so-called blackwater fever, or hemoglobinuric fever."²

In our own country we find that the infection prevails along the lower region of the southern coast line, being severe in the Gulf States, along the lower Mississippi, and its southern branches. It extends up the Pacific coast into California, and up the Atlantic coast as far as Delaware. The most pernicious forms of the fever occur in Cuba, along the coast, and caused many more deaths in our army corps at Santiago than all the Spanish bullets put together.

Tropical malaria or estivoautumnal fever is characterized by irregular paroxysms, protean clinical symptoms, and much greater resistance to quinin, and a greater tendency to relapse than the benign tertian and quartan fevers seen in this latitude. My experience with the disease is that patients rarely have a sudden and short paroxysm consisting of a sharp chill, followed by high fever and sweating, which is so characteristic of the benign forms of the disease. I have seen many patients sick in bed with severe malarial infection of the tropical type without chills or chilliness at any time throughout the course of their sickness. The fever sometimes intermits, often is continued, and distinguished clinically with difficulty from yellow fever, typhoid fever, and other continued fevers.

As we will see presently, quinin will kill the young and tender parasites in the circulating blood and thereby helps to ameliorate the present symptoms; but it is absolutely without effect upon the crescents and latent phases. Tropical malaria, therefore, cannot always be cured by quinin alone. It is an obstinate and persistent infection and requires good sanitary surroundings, nourishing food, strictest attention to general health, tonics, such as arsenic and iron, and often change of climate, before the system can be freed of the symptoms caused by the infection.

The malarial paroxysm is caused by the liberation of a poison set free when the parasite sporulates. If all the malarial parasites sporulate at the same time we have a sharp type paroxysm, which characterizes the tertian and quartan benign fevers; but if we have multiple infections, which are exceedingly common in the tropics, causing irregular sporulation, we then have the remittent or continued fevers. Mixed infections are not uncommon; that is, a patient may have the parasites of tropical malaria and of one of the benign forms in his system at the same time. This is another explanation of the irregularity in the course of the disease and its symptomatology as seen in warm countries. Typical malarial paroxysms of short and sharp duration are seen only in those cases of tropical malaria in which there is a single and simple infection uninfluenced by quinin.

The disease is often difficult to recognize without the aid of a microscope, and the doctor practising in the tropics without this instrument is worse off than an astronomer without a telescope.

It is not difficult to see the malarial parasite under the microscope, but it requires some practice and experience to avoid errors. This cannot be gained from textbooks or lectures; it must be obtained from (1) actual study of the appearance of normal blood and (2) the study of malarial blood. For the purpose of scientific study it is absolutely necessary to study the malarial parasite unstained in fresh blood in its living state, to watch its movements and its developments. But the young forms of tropical malaria are but tiny specks of protoplasm within the red cells, and in the unstained state are difficult to see. For purposes of diagnosis I prefer stained smears; a modification of Romanowsky's polychrome methylene-blue is by all means the best. In my own hands I have had the best success with Wright's and Goldhorn's modifications.

The parasites of tropical malaria differ from the benign tertian and quartan organisms infecting patients in this latitude. These differences are mainly a smaller parasite with active ameboid movements when young; with very fine granules of pigment, which may be entirely absent. The young forms in shed blood soon assume the characteristic signet ring form. The segmenting or rosette forms, that is the sporulating phase of the parasite, are rarely seen in the circulating blood, but are common in the spleen, liver and other internal organs. In the benign fevers it is rather uncommon to see a corpuscle with more than one parasite. In tropical malarias this is very common. I have seen corpuscles containing five young parasites. The number of infected corpuscles must be almost inconceivable. I have a specimen in my collection in which practically every other red corpuscle shows an infection with one or more parasites of tropical malaria.

The formation of pigment, which is so characteristic of all the malarial infections, is especially marked in the tropical variety.

The spleen and liver, as you will see in the specimens I pass around, are black, even though faded by long preservation in alcohol. For some mysterious reason the parasite of tropical malaria, which is the smallest of all the malarial organisms seems to have the greatest difficulty in getting through the capillary bloodvessels. Great masses of them stick in the capillaries of the spleen, liver, bone marrow, lung, brain, etc., and it is doubtless this fact that causes many serious features of the disease.

There is no definite relation between the number of parasites seen in the circulating blood and the severity of the disease. I have seen more than one patient brought into the hospital in whom comparatively few parasites were found in the peripheral blood taken from the fingertip or lobe of the ear; but the patient at autopsy showed the capillaries of the spleen, liver, brain, etc., literally clogged with the infected corpuscles and pigment.

I cannot pass over this portion of my subject without

¹Craig, Charles F.: The estivoautumnal (remittent) malarial fevers.

²Craig: Loc. cit.

speaking of certain serious phases which tropical malaria may take on at any time. These are described clinically as the cerebral, apoplectic, comatose, algid, dysenteric, pulmonary forms, etc. We can readily understand this localization of the manifestations of the disease when we recall the almost complete clogging of the capillaries of certain organs with the parasite.

In the tropics, many a patient with tropical malaria is brought into the hospital on a litter in whom, without the aid of a microscope, it would be difficult to differentiate the disease from cerebral apoplexy.

After a patient has had the fever for a week or two the peculiar crescent or ovoid bodies, which are so characteristic of tropical malaria, appear free in the blood. These bodies are known zoologically as gametocytes. They are the male and female phase in the sexual development of the organisms. The male is granular, nuclear and is known as the microgametocyte. The female crescent is clear, has a few pigment granules in its center, and gives rise to the macrogametocyte.

These forms are very resistant to the action of quinin. I have seen anemic patients saturated with the poison of malaria, whose blood showed two or three of these crescents in the field of the microscope, take large doses of quinin for weeks without the slightest diminution in the number of these parasites in their blood. This is the unanimous experience of all who have studied tropical malaria.

It is most unfortunate that quinin is so ineffective against these gametocytes, for this phase in the life cycle of the parasite is responsible for the spread of the disease. This is the form infecting the mosquito when it draws the malarial blood.

The crescents remain in the blood of people enjoying good health for months, and are, therefore, an insidious danger. It has long been known that when a ditch is dug for the purpose of laying sewer pipes or water mains in a municipality, malaria is apt to break out along the street so torn up. It was formerly supposed that the disease was due to *mala aria* (bad air) arising as a miasm or emanation from the newly turned soil; but in view of our present knowledge of the disease, it is much more likely that most of the Italian laborers who dug the ditch came from notoriously malarial regions of Italy, and have many of these crescents in their blood, and infect the anopheles mosquitos in the neighborhood, which carry the disease to the nearby houses.

I take it for granted that you all know and appreciate the fact that malaria is conveyed from one person to another by the mosquito. This has been so definitely proved that it may now be stated dogmatically as a scientific truth. I cannot, however, refrain from calling to mind the famous experiment performed by Sir Patrick Manson, which convinced even the doubting Thomases. Female malarial mosquitos, belonging to the genus *Anopheles*, were permitted to bite patients suffering with malaria in Italy. These mosquitos were then sent to England, which for years had been absolutely free from the disease. Manson permitted the mosquitos to bite his son, P. Thurbur Manson, and George Warren, and after a short period of incubation, young Dr. Manson and Mr. Warren both broke out with intermittent paroxysms of chills, fever and sweating, which were entirely controlled by quinin. In the blood of these men was found the same variety of parasites which was seen in the blood of the patients in Italy upon whom the mosquitos fed.

I have already taxed your patience over-long, but before I show you the lantern slides, I must mention the fact that there are other infections causing tropical anemia, one of which, known as dum-dum fever, kala-azar, or splenomegaly, is very prevalent in India and some other tropical regions. This infection, associated with the Leishmann-Donovan bodies found in the spleen, is a febrile disease, characterized by wasting and anemia as its principal manifestation. Both the liver and the

spleen may be very much enlarged. The disease is not known to exist on the American continent, and time is lacking to dwell upon it further tonight.

THE PRESENT STATUS OF RÖNTGEN-RAY THERAPY IN DERMATOLOGY.*

BY

JULIUS HIRAM COMROE, A.M., M.D.,
of Philadelphia.

That the old Hahnemann (homeopathic) doctrine of "similia similibus curantur" has apparently received more direct application in dermatology than in any other field of medical science will become manifest during the course of this thesis. The detailed study of this most important department of medicine can be traced to comparatively recent origin, and it is only during the past decade, with the advent of the röntgen ray as a therapeutic medium, that more uniform and encouraging results have been obtained.

The successful treatment of any pathologic condition depends primarily and essentially upon the discovery and eradication of the exciting cause or etiologic factor, and secondarily upon the treatment of the pathologic process, *per se*. Upon the knowledge of the former depends the most vital principle of prophylaxis and immunity, so manifest in the prevention and treatment of smallpox, diphtheria, and malaria. Conversely we must still helplessly look on at the ravages of bubonic plague, epidemic cerebrospinal meningitis, and most of the exanthems, until the etiologic factors are discovered and successfully combated. Thus it will be observed that not only is it essential to know the exciting cause, but it is much more important to find an antagonistic antidote, so to speak. Typhoid fever and pneumonia well illustrate this assertion.

In some cases, however, paradoxical as it may appear, the curative agent is found to precede the discovery of the exciting cause—notably in rheumatism, in which salicylic acid and its derivatives have been so uniformly successful, and in syphilis and its various manifestations in which the mercuric and iodid salts have deservedly earned the title of specifics. Nevertheless, even today, only conflicting theories concerning the causation of these important pathologic conditions exist. This latter fact still remains true in most cutaneous affections, in all of which, with very few doubtful exceptions, no primary causes have been described. In several dermatologic affections the nervous system has been found at fault, notably in pemphigus, psoriasis, and lichen planus, in which diseases arsenic has produced, at times, most pleasing results (Duhring). Thus it seems, at least for the present, that the therapeutic agents are destined to precede or antedate the discovery of the true exciting factor.

There is no doubt that the most cutaneous diseases are dependent upon two factors, primarily, some exciting microorganism or local pathologic process, and secondarily, upon metabolic changes in the skin and its appendages which are brought about by some remote systemic condition. Granting these conditions, we can logically conclude that correction of the latter (which the careful observer can usually discover and eliminate) and attention to the former (if such indeed may exist) will tend at least to assist in the removal of the underlying pathologic factors and probably bring about a cure. Such an agent has been found in the röntgen ray.

It is not within the scope of this paper to present a detailed account of the discovery of this most important diagnostic and therapeutic agent. The world will never forget how, only ten years ago, Professor Wilhelm Konrad Röntgen, while experimenting with a Hittorf tube of

* Read in part before the Jewish Hospital Medical Association and the Samaritan Hospital Society and in toto before the Northern Medical Association, May 12, 1905.

high vacuum covered with black cardboard, noticed that a screen "washed" with barium platinocyanid crystals gave forth a fluorescence in a darkened room—how he accidentally discovered that this powerful fluorescence still continued when a book containing 1,000 pages and other opaque objects of varying transparencies were interposed and even then left an impression upon the sensitive side



Fig. 1.—Superficial crusted cancer of several years' duration.*

of a photographic plate. But it is more or less essential that we should understand the physiologic action of these rays in order that we may correctly apply them as a therapeutic agent.

Physiologic Action of Röntgen Rays.—Although various theories have been advanced concerning the *modus operandi* of these rays, pathologic findings, preceding



Fig. 2.—Complete disappearance under röntgen-ray treatment.*

and subsequent to their application, invariably tend toward the same conclusions. To quote Dr. W. J. Morton, "they ionize the air, that is to say, they tear asunder joined atoms and provide both positive and negative carriers of electricity, which latter thus make the air a conductor." Thus they are enabled to reach

and penetrate tissues upon which they exert electric, chemic, or inflammatory effects. The physiologic activity of these rays is exerted both upon the skin and underlying structures. Their chief pathologic effects, however, are directed upon the intima of the blood-vessels, which, by the rays' action, undergoes a form of degeneration very similar to an endarteritis obliterans, as a result of which the diseased tissue is practically starved out. Scholtz, however, still believes that their greatest influence is exerted upon the connective-tissue elements, although he agrees that the nature of the process is degenerative. The views of Freund, Pusey, Ellis, Scholtz, Walker, Blackman, Beck, Loeb, Herzog, Sequeira, Major and Snow can be conveniently summarized as follows:

The first stage almost invariably leads to necrosis of cells (the nuclei and protoplasm undergoing lysis) and trabeculas. In many cases, however, the process progresses to fatty degeneration and increased elastic tissue formation and there is a tendency toward the occlusion of the bloodvessels by deposits on the intima. I have elected to term this the destructive stage.

During the second stage we observe stimulation of the connective-tissue elements, leading to the filling up of cavities and the formation of healthy scar tissue. This may, therefore, be appropriately designated the reparative stage.

Clinically we find there is seldom an immediate reaction observed—the improvement is rather slow in making its appearance and may even first make itself manifest long after the application of the röntgen rays has been discontinued. We might conclude, therefore, that the physiologic changes as well as the gross clinical alterations are cumulative in their action, just as is digitalis in its physiologic effect.

Therapeutic Action.—Having been acquainted with the physiologic action of the röntgen rays, we are better prepared to study their effects upon the numerous pathologic cutaneous affections in which they have been more or less employed as a therapeutic agent. It would probably be advantageous to discuss each disease separately, in which manner we may be enabled to note both the individual and collective results which have been obtained and the methods of application which have proved of greatest value in each case. It may be advisable to state at this juncture that I have decided to consider epithelioma and rodent ulcer as distinct and separate diseases, not only because they slightly differ from a pathologic standpoint, but chiefly for the simplification and practicability of the schematic arrangement to be employed in this paper.

Probably no other disease exists concerning which so little is known and for which so little has been accomplished as cancer. The horrible dread the laity possesses for this scourge is therefore not unwarranted. But the gratifying results that have been obtained in superficial or epithelial cancer and which have been greatly reinforced with the advent of the röntgen ray have at least raised the hopes of medical scientists who are striving to discover and neutralize or eradicate the etiologic factor of this plague. This frequent cutaneous affliction will therefore deserve an early and extended consideration and detailed study.

Epithelioma.—The importance of early diagnosis of epithelioma cannot be emphasized too strongly, particularly when we are convinced that in all cases the prognosis is directly and chiefly dependent upon the duration of the disease. Only second in importance to early detection is the prompt institution of judicious treatment, which means the cessation or careful limitation of the use of caustics, curetment and other irrational and harmful medicaments. A brief report of one case by Pfahler will further emphasize the importance of this latter statement:

Mr. S. G., aged 60. Diagnosis, epithelioma of lower lip duration 10 years, when it first appeared as a small, warty

*Treated in the Philadelphia Polyclinic Laboratories under the direction of Jay F. Schamberg, M.D.

excrecence. Delayed treatment until July, 1900, when caustics were applied over an extended period (18 months). Physical examination showed involvement of the right angle of the mouth and greater part of the cheek, with metastasis to submaxillary glands. Ninety treatments were given, and although the glands yielded, the results were practically negative.

This is but one of many similar cases that have been reported, all of which unanimously prove that long duration and tampering with injudicious methods of treatment must necessarily unfavorably influence the prognosis.

Although the most optimistic observers have claimed good results in 90 % of their cases by röntgen-ray therapy, a careful collection of a large number of cases, reported by numerous authors, subtracts largely from these figures. In justice to them, however, it must be stated that the latter figures include many patients which have advanced far beyond the stage of curability by any method, and it is not unlikely that in well-selected early cases, the percentage of cures would be very much increased. Thus of 27 cases reported by Schamberg, 13 patients, or less than 50 %, were cured; of 44 cases reported by George C. Johnston, 30, or 68 %, were cured, and of 236 cases reported by Rodman and Pfahler, 147 or 65 % were cured.

I have collected 339 cases of epithelioma, from which the following table has been constructed, and in which I have endeavored to present the average figures of the following authors: Pfahler and Rodman, George C. Johnston, Schamberg, C. L. Leonard, E. G. Williams, Russell H. Boggs, Pusey and Caldwell, Richard J. Cowen, A. D. Rockwell, W. J. Morton, etc.

TABLE I.

	Cases.	Cured.	Im- proved.	Unim- proved.	Least treatments.	Most treatments.	Average treatments.	Least time.	Greatest time.	Average time.
Pfahler and Rodman.....	236	147	87	2	4	68	25	3 wks.	22 wks.	8 wks.
Geo. C Johnston	44	30	8	6	8	39	22	3 wks.	52 wks.	6-7 wks.
Schamberg	27	13	7	7	*	*	*	*	*	*
Miscellaneous.....	32	27	2	3	6	93	31	2 wks.	36 wks.	10-11 wks.
Total.....	339	217	104	18						
General averages.....		64%	30%	6%	6	66	27	3 wks.	37 wks.	8 wks.

* Figures not obtainable; highest averages of other cases were employed in the computation.

The important question now arises: "What shall be done with those patients that have advanced beyond the stage of röntgen-ray therapy?" In these patients, experience has shown the judicious combination of röntgen-ray and operative procedures will, in many cases, produce marked improvement or even a radical cure. One such case is reported by Laplace:

The epithelioma (lip) was of two years' duration, and had been previously treated by caustics. The röntgen ray was then applied 32 times over a period of five months, during which time the enlarged submaxillary glands disappeared, but the growth showed little, if any, improvement. An operation was then performed, and subsequently 12 more treatments were administered. In seven months the patient was entirely well.

This case, as the preceding, illustrates also the successful action of röntgen rays upon the cervical glands, which uniformly yield first and best.

It must be mentioned that recurrences are to be looked for in some cases, but unlike those occurring after surgical procedure, they are far less in number and are usually easily controlled by reapplication of the rays over a short period of time.

Technic.—The detailed technic in the practical application of the röntgen rays in the treatment of epithelioma will naturally depend upon various factors, principally the electric machine and tube employed—the extent, duration, and location of the disease—and the personal idiosyncrasies of the patient, all of which make it necessary to study each individual case. But it may be of assistance to present some general rule from which variations may be made to meet the conditions as they

arise. Most radiologists employ a high vacuum tube, with a voltage of about 40 and an amperage of 6. We may in this manner give daily treatments for a period of 5 to 10 days, then decrease the number to one treatment every third day, the tube distance averaging 8 inches. The experience and judgment of the operator are put to a test in determining when the treatments should cease, but an average working rule is as follows: Continue the application until a mild dermatitis is produced (but not the formation of vesicles and serous effusion). In some cases this stage is preceded by an itching, tingling or burning sensation, but these premonitory signs should not be depended upon too much. The maximum duration for continuous treatment should be 4 to 6 weeks, after which we should allow an interval of 2 to 3 weeks to watch for repair or cure. This plan usually leads to cicatrization and cure, whereas if the rays are used continuously for many months without an interval for reaction the condition may be aggravated. By this method the usual dermatitis appears in about three weeks.

The following classification will explain what is meant by a hard and soft tube, and will also briefly and conveniently indicate the differences existing between the two:

HIGH VACUUM TUBES.

One-millionth percent vacuum.
Hard tubes.
Small volume of rays.
More penetrating rays.
Give off more electricity.
Less contrast in radiograph.
Bones white with fluoroscope.
Less danger of dermatitis.

LOW VACUUM TUBES.

One-thousandth percent vacuum.
Soft tubes.
Large volume of rays.
Less penetrating rays.
Give off less electricity.
More contrast in radiograph.
Bones black with fluoroscope.
More danger of dermatitis.

By bringing the tube closer to the diseased portion we must naturally reduce the time of exposure, and vice versa. In treating a large area, however, it is advantageous to increase the distance between the tube and the affection under treatment.

The healthy tissue surrounding the pathologic process can be safely and conveniently protected from the influence of the rays by lead foil. As a practical point it may be stated that epithelioma of the buccal mucous membrane is usually difficult to treat and yields the most unsatisfactory results. On the other hand, the rays are particularly effectual in epithelioma situated upon the borders of the eyelid, alas of the nose, and other similar regions. The most deeply-seated epitheliomas, in which cartilage and bone are exposed, seem to do well for a while, but sooner or later spread and become much worse than the primary disease. This fact is particularly emphasized by Schamberg, Hyde, and Montgomery.

The advantages of radiotherapy in epithelioma may be summarized as follows: (1) Safety; (2) convenience; (3) painless; (4) in inoperable cases, or when the patient refuses operation; (5) recurrence less frequent and easily cured by reapplication; (6) best cosmetic results.

Another marked triumph that has been added to röntgen-ray therapy is its effect upon *rodent ulcer* (also known as Jacob's ulcer). Unlike epithelioma, with which it is often associated, it does not involve the lymphatics; produces very little, if any, constitutional cachexia and is rarely fatal. Its ravages, however, are most unsightly in appearance—its destructive action is

progressive and is never spontaneously arrested and it is not uncommon to see the orbits, nose, mouth, and underlying tissues form a crater-like opening, not excluding the excavation of the bones themselves. If the process is permitted to advance, erosion of large bloodvessels may occur and excessive or even fatal hemorrhages be produced.

The importance of early diagnosis and institution of treatment, therefore, cannot be overestimated in this condition, since experience has shown as soon as the underlying structures, viz., cartilage and bone, are exposed, the results are uniformly unsuccessful, in fact, the disease may then be aggravated by the application of röntgen rays.

In this disease, as in epithelioma, various authors have presented figures which represent their results in cases of different stages of development. Thus, Pfahler has collected 90 cases, of which cure was reported in 43, or 48%, and 47, or 52% of patients, were still under treatment and reported to be improving. I have collected 171 cases; of these there were 87, or 50% of cures, and most of the remaining patients were improving under continued treatment. Unfortunately, the detailed figures were not specified in most cases, but the average time in which a cure may result varies from one to many months. According to Hall-Edwards, 9 out of every 10 patients with rodent ulcer, with early diagnosis and treatment, are cured in a few weeks, without pain or inconvenience. His method of procedure is to expose the ulcer to a hard tube (6 amperes, 40 volts) at 8 in. to 3 in., every other day, from 5 to 10 minutes, until a marked dermatitis is

The average technic employed in the radiotherapeutic treatment of lupus vulgaris is as follows: A hard tube is to be preferred (2 amperes, 70 to 80 volts) at 8 in. or 9 in., the exposures varying from 8 to 12 minutes. This is carried to the point of distinct dermatitis, when the treatment is stopped and the reaction observed. Reapplication may then be instituted to suit each individual case.

According to Schamberg, best results are obtained in those cases in which the nodules are ulcerated and in which the mucous membranes of the nose and lips are affected, probably also in hypertrophic and vegetative forms.

The advantages over other methods of treatment are: (1) No loss of blood; (2) no shock; (3) no danger from anesthetic as in surgical treatment; (4) better cosmetic results; (5) recurrence is rare and easily cured.

On the other hand, *lupus erythematosus*, which has nothing in common with the preceding disease except its name, has not yielded the same good results with the röntgen rays, although its literature is scant. Pfahler, who has collected eight cases, all reported with cures, states that the figures are distinctly too high. Beck, Lee, Sjögren, Startin, Jutassy, and Freund report progress, while Hall-Edwards reports a case in which a bad slough was produced. The technic employed is similar to that described for lupus vulgaris.

Probably the most common cutaneous affection, next to eczema, is *acne* (which comprises almost 8% of all dermatoses—Schamberg). The skill of the physician is always called upon to ascertain and remove the

TABLE II.

	Cases.	Cured.	Im- proved.	Unim- proved.	Least treatments.	Most treatments.	Average treatments.	Least time.	Greatest time.	Average time.
Pfahler and Rodman.....	74	65	9	.....	8	87	31	4 wks.	12 wks.	8 wks.
Miscellaneous*.....	23	18	5	.....	6	72	44	3 wks.	14 wks.	9 wks.
Total.....	97	83	14	.....	.....	.....	.....	.....	.....	.....
General averages.....	.....	85%	15%	.....	7	79	38	3½ wks.	13 wks.	9 wks.

* Birkett, Pusey and Caldwell, Morton, Schamberg, etc. Pfahler and Rodman believe that 40 treatments over a period of 12 weeks constitute a good average figure.

observed around the ulcer. Then await a suitable reactionary period, and, if necessary, reapply the rays at longer intervals. As previously stated, most failures are recorded in those patients in whom so much tissue has been destroyed that bone and cartilage are exposed. In these cases, as in the preceding pathologic condition, the judicious combination of surgical and röntgen-ray treatment will, at times, prove beneficial.

Recurrence is infrequent, and is very amenable to reapplication of the rays (Sequeira).

Concerning the next cutaneous disease we are about to consider, viz., *lupus vulgaris*, there is probably no disease so superficial that disfigures and deforms to such a degree. Contrary to most teachings, the tubercle bacillus is not associated with every case of lupus vulgaris; in other words, every case is not tuberculous in nature (Duhring). Just as superficial cancer has yielded to röntgen-ray therapy, so has this rebellious pathologic condition fallen its prey. The reported results of radiotherapy have been uniformly high. I have collected 97 cases, from which Table II has been constructed.

A most interesting case of primary lupus vulgaris of the oropharynx and nasopharynx was reported by H. S. Birkett, in a patient of 15. The diagnosis was confirmed by pathologic findings, tuberculin test, and inoculation of guineapigs. A medium vacuum tube at 10 in. (2 to 3 amperes, 40 volts) was employed, and 10 daily exposures of 10 minutes' duration were given. At this time an erythema of the surrounding parts appeared, and treatment was discontinued for three weeks. Then 23 similar daily applications were given with a resulting perfect cure.

etiologic factor, which is most commonly found to exist in puberty, gastrointestinal disorders, menstrual irregularity, anemia, etc. It is absolutely essential that the exciting factors be removed if good results are to be expected from any mode of treatment.

Röntgen-ray therapy, however, has produced more consistently good results than any other form of treatment, and its employment is usually restricted to the most intractable cases for the following reasons: (1) Many cases yield to other modes of treatment; (2) we may produce an undesirable burn with the best care; and (3) we may cause atrophic, abnormally dry and smooth skin; this, however, usually disappears. According to Sabourand, Unna, and Gilchrist, the exciting factor of acne is a parasite, hence the beneficial results following radiotherapy are ascribed to the destruction of the bacteria and prevention of pus formation as well as to the production of atrophy of the sebaceous glands and hair follicles in the skin.

Over 50 cases have been reported by Pfahler, all of which had resisted all other methods. The vast majority of these patients were cured, and the remaining ones benefited. The average number of treatments given was 12 to 15 over a period of 2 or 3 months. The usual technic is the employment of a moderately hard or soft tube (2 to 3 amperes, 40 volts) at 8 in. to 12 in. for 3 to 10 minutes. The intervals of treatment should average 3 to 4 days over a period of 2 weeks, when a slight erythematous reaction is usually produced. Jutassy and Schein disagree with Torrok, and think that a reaction is unnecessary, although most radiologists continue treatment until a slight erythema is noted. At times a

very slight pigmentation and atrophy appear after the treatment has been stopped, or even a fresh eruption. But the ultimate cosmetic results are usually most gratifying.

Relapses after röntgen-ray treatment are rather infrequent and easily controlled by reapplication.

The most common dermatologic affection is *eczema*, which constitutes at least 30% of all skin diseases. Its resistance to the most judicious forms of local and gen-



Fig. 3.—Epithelioma of lip. (Courtesy of G. E. Pfahler, M.D.)

eral treatment is at times remarkable, for which reason we must frequently meet the subacute and chronic types. Paradoxical as it may appear, the most satisfactory results from röntgen-ray therapy have been obtained in just such cases, *i. e.*, in the chronic variety of the indurated type, and particularly when circumscribed. According to Schamberg, Ullman, Freund, Williams, and others, the itching is very soon relieved and the redness and scaling rapidly disappear, since in proper strength the rays stimulate the normal structures of the skin to healthier activity.

In over 30 cases reported by Schamberg, Montgomery, Baum, Pusey, Allen, and Ravogli the results were uniformly good, the vast majority of patients being completely cured. By far the best results were obtained in the vesicular type occurring about the hands, similar to the so-called continuous acrodermatitis of the French. Montgomery records a remarkable cure in such a case, which had lasted four years, only nine exposures being necessary. Baum has reported four similar cases, all of which rapidly yielded to the rays, there being a slight recurrence in one case, which made reapplication necessary and which soon cleared up entirely. According to Crocker, the pustular type gives very unsatisfactory results.

The technic consists in the employment of a soft tube at 9 in. to 5 in. for 3 to 10 minutes every third day until a reaction is observed. This usually appears in 2 or 3 weeks. (Only a weak current is necessary.)

The results that have been obtained from röntgen-ray therapy in *psoriasis* have not been uniformly successful, although Pusey and Caldwell, Stråten, Startin, Sjögren, and Sederholm have reported complete cures. In one case reported by Pfahler the disease was of 15 years' duration, and after all other methods of treatment had failed, 10 exposures over a period of a month caused its total disappearance. According to Schamberg, however, the period of freedom from the eruption following radiotherapy does not differ materially from that obtained by other methods, and Cowen states that most

cases show the recurrence of new patches, which are often more obstinate than the primary lesions. The technic employed does not differ materially from that described for *eczema*, the exposures being mild and of short duration.

Nevuses and "*port wine marks*" (birthmarks) are cutaneous manifestations closely allied to each other, which have yielded most unsatisfactory results with all previous modes of treatment, although excision and electrolysis have at times been beneficial. On the other hand, röntgen-ray therapy has been most encouraging, Jutassy, Cowen, Pusey, and Pfahler having reported complete cures or marked improvement. The technic employed by Cowen and Pfahler is as follows: A soft tube (2 amperes and 24 volts) at 9 in. to 8 in. for 10 minutes every other day until a dermatitis is produced; cease treatment until this subsides and then renew the application with shorter exposures and less amperage. Jutassy states that we must be bold and even produce a degree of dermatitis approaching ulceration. The least time required was 6 weeks and the maximum 14 months.

Like the two preceding affections, *hypertrichosis* (excessive hair growth) produces an uncomely cosmetic effect, to which the female sex is most sensitive, and it likewise has yielded to some extent to the painful procedure of electrolysis. According to Pusey and Caldwell, radiotherapy has proved only a qualified success in its treatment, but Pfahler and Cowen have reported most satisfactory results in most obstinate cases.

The technic employed by Cowen is as follows: Medium tube (2 amperes and 40 to 60 volts) at 7 in. During the first two days the exposures should be 6 and 7 minutes. The treatment should now cease for a week to await any reaction which might occur, after which 10 daily treatments at 6 in. and for 10 minutes may be given. By this method of procedure a mild erythema usually appears in 3 weeks and lasts 2 or 3 days, after which the hairs will usually fall out. It is a good rule



Fig. 4.—Patient still under treatment but almost well. (Courtesy of G. E. Pfahler, M.D.)

to institute a few more treatments after 3 months have elapsed to guard against recurrence.

In *alopecia areata*, the radiotherapeutic treatment may be said to still be in its infancy, the results thus far obtained having been anything but uniformly successful. Cowen reports several encouraging results, in which he employed a soft tube (weak current) 8 in. to 7 in. and 3 to 5 minutes for 20 exposures on alternate days, after which a dermatitis usually appeared. Two months later (in one case) coarse hairs appeared, followed soon after-

ward by a fine downy growth. In six months there was complete restoration of hair.

Like the preceding, *tinea tonsurans* has not yielded very well to röntgen-ray therapy; other means are usually more successful, and, at the same time, there is less danger of exposing a large area of the scalp. In obstinate cases, however, the rays may be given a trial, in which case it is necessary to produce a slight reaction,



Fig. 5.—Superficial cancer in a man of 30. Duration, one year.*

and continue until the surrounding hairs fall out, then discontinue and wait for results.

According to Hahn, Spiegler, Rinehart, Scholtz, Schamberg and Pfahler, the most inveterate cases of *sycosis* are cured by radiotherapy, but recurrences are not infrequent. The technic is similar to that described for *tinea tonsurans*.

In those cases of *verruca*, which persistently recur after excision, Cowen has found in the röntgen rays almost a specific. He employs a soft tube (2½ to 4 amperes and 25 to 35 volts) every other day at 8 in. for 10 minutes, and usually obtains a dermatitis in about two weeks. At this juncture, the applications are stopped, and in about a month the growths usually disappear. I would suggest a combination of surgical and radiotherapeutic treatments in such cases.

Pusey, Cowen, Scholtz and Hauffman have reported successful results from radiotherapy in *lichen planus*, in which the following technic was employed: Soft tube (4 amperes, 48 volts) at 8 in. for five minutes on alternate days until the usual dermatitis becomes manifest in about three weeks, when the applications are discontinued; improvement should be apparent in about two or three weeks. Since the disease is often resistant to other measures, the röntgen rays are at least worthy of a trial.

Very few cases of *morphea* have been reported by radiologists. Pfahler reports one in which there was considerable improvement, the patient having received 116 treatments scattered over 17 months (owing to his

irregularity in reporting for treatment), with a soft tube at 12 in. to 6 in. for 10 minutes.

The results in *hyperidrosis* have been most unsatisfactory, as, for some reason, the effect of röntgen rays on the activity of the sweat glands is less marked than on the sebaceous glands and hair follicles. I was unable to find any reported cases.

The röntgen rays have also been uniformly successful in the treatment of the most obstinate cases of *pruritus*, particularly in the region of the anus. The employment of a soft tube is advised, and the exposures should be short and administered about twice a week. It may be well to state at this juncture that the genital organs should be well protected, as several cases of aspermia have been reported, not only in those receiving treatment, but likewise in radiologists and others who may have access to the apparatus.

According to Pfahler, *dermatitis herpetiformis*, *keratosis palmaris*, *mycosis fungoides* and *leprosy* have responded favorably to the influence of the röntgen rays, one patient with *dermatitis herpetiformis* (chiefly involving the face) having been greatly benefited by Schamberg.

Soon after the röntgen ray was introduced as a diagnostic and therapeutic agent, its life was seriously threatened by both public and professional censorship, owing to the frequent occurrence of large burns and other less serious sequels, *e. g.*, loss of hair, nails, etc., and trophic changes in the skin. In fact, one case of death was reported by Rubel, but since no autopsy was performed and the patient succumbed to an aggravation of the symptoms of the malady for which he was receiving treatment, the röntgen rays may have had little to do with



Fig. 6.—Same patient as in Fig. 5. Complete disappearance under röntgen-ray treatment.*

it. Since then, three other doubtful cases have been reported. Today, however, with the fortification of a heavily paid for experience and the advanced improvement in technic, these sequels are comparatively rare and less serious.

The old theory that these burns were produced by

*Treated in the Philadelphia Polyclinic Laboratories under the direction of Jay F. Schamberg, M.D.

*Treated in the Philadelphia Polyclinic Laboratories under the direction of Jay F. Schamberg, M.D.

small particles of platinum that were thrown off and imbedded in the skin was almost immediately disproved by Gilchrist, who made numerous sections of the skin in severe burns and failed to find the foreign irritants. That they are not caused by the electric charge, *per se*, is seen by the practical fact that the high vacuum (hard) tube gives off more electricity than the low vacuum (soft) tube, but nevertheless is less prone to cause a severe dermatitis. Weisner and Keinbock think they are trophoneurotic in origin, produced by penetration of the rays through the skin, and causing chemic irritation in the molecules surrounding or in the nerve terminals. Pathologically, röntgen-ray burns are similar to sunburns.

For the prevention of this complication, unfortunately, no specific rule can be laid down—the personal idiosyncrasies in each individual case proving the unknown facts. Thus, in a case reported by Pfahler and Rodman, the hair was removed by an exposure of two and a half minutes, whereas Grubbe treated a patient daily for two years, in which the tube was very close to the skin, and only a slight erythema was produced. As a rule, however, the fair skins are more sensitive; the mucous membrane of the lip is especially sensitive; and the mucous membranes of the mouth and conjunctiva least so, probably due to the continued bathing in moisture (Schamberg). As premonitory symptoms, itching and burning must not be depended upon too much.

The treatment of these burns, as a rule, is most obstinate, and often extends over a period of two or three months. Of course, the first measure is the discontinuation of the exposures, after which Satterlee has found the application of carbolic acid in rose water, 1 to 8, very satisfactory. Engman, however, advises the employment of vaselin for 24 to 48 hours, followed by the use of the combination:

Boric acid	45 gm. (12 dr.)
Zinc oxid	
Starch	
Bismuth subnitrate	of each 32 gm. (1 oz.)
Olive oil	
Lime water	of each 96 gm. (3 oz.)
Lanolin	
Rose water	45 cc. (12 dr.)

Stelwagon employs a 25% ointment of orthoform, with consistently good results. As a final result, skin grafting may be employed, but as a rule proves unsatisfactory.

Although Russell H. Boggs states that "injury to the operator from the rays during the past two years has been due to thoughtlessness or lack of familiarity with what is going on in the röntgen-ray world," nevertheless cases are not infrequently reported; in fact, I was myself severely burned less than two years ago. According to Leonard, varying degrees of erythema, keratitis, and even carcinoma cutis may result and become first manifested many months after exposure. As has been elsewhere stated, several cases of aspermia have been traced to the action of these rays, both in the patient and operator. Two fatal cases of carcinoma cutis, with metastases, have recently been reported. Not only may these detrimental effects result from the rays, but also by frequent and prolonged proximity to the induction coil. To combat successfully or to eliminate these causative factors many ingenious devices have been advanced, namely, hoods for the tube and isolation of the coil. These methods are just as effectual and far less cumbersome than the protective "coats of armor," so to speak, to be worn by patient and operator.

CONCLUSIONS.

1. Radiotherapy must not be considered a panacea. Although it has a large field of usefulness, it also has its limitations and dangers.
2. Most consistently good results are obtained in epithelioma, rodent ulcer and acne.
3. Great benefit may be looked for in eczema, chiefly

the vesicular variety affecting the hands, sycosis, tinea tonsurans, verruca, lichen planus, nevuses and port wine marks, localized pruritus, favus, etc.

4. Deepseated epitheliomas, with exposure of bone, cartilage, etc., appear to do well for a while, but usually get worse eventually. The judicious combination of radiotherapy and operation is highly recommended in these cases.

5. The röntgen rays are beneficial when pain is particularly to be avoided, as in old, feeble people.

6. Radiotherapy produces the best cosmetic results.

7. Recurrences after radiotherapy are less frequent than after other methods, and are more amenable to reapplication of the rays.

8. The high vacuum tube is preferable in epithelioma, rodent ulcer, and lupus, the medium or soft tube being employed in other cases.

9. Radiotherapeutic treatment should be instituted as soon as possible, the result being usually in direct proportion to this factor.

10. Epithelioma of the skin usually reacts better than that involving the mucous membranes.

11. Tampering with caustics and other irrational forms of treatment are to be condemned as measures preceding radiotherapy, since they undoubtedly unfavorably alter the prognosis in such cases.

12. No rule can be laid down for the prevention of burns, etc.; hence the dosage must be carefully regulated in each individual case.

13. No protective ointments, powders, etc., must remain on the part treated, since they may prohibit or lessen the effect of the rays by interfering with their passage.

REFERENCES.

- Medical Record, April, 1901.
 British Medical Journal, Vol. II, 1902, pp. 1316 and 1317.
 Archives of the Röntgen Ray, Vol. VII, 1902.
 Journal of the American Medical Association, Vol. II, 1902, p. 1321.
 Journal of the American Medical Association, June 13, 1902.
 Philadelphia Medical Journal, February 14, 1903.
 Journal of the American Medical Association, December 5, 1903.
 Journal of the American Medical Association, January 3, 1904.
 Medico-Chirurgical Journal, May, 1904.
 Medical Record, January 16, 1904.
 Medical Record, June 16, 1904.
 Journal of the American Medical Association, July 23, 1904.
 Journal of the American Medical Association, August 6, 1904.
 Medical Record, December 24, 1904.
 Medical Record, March 18, 1905.
 Medical Record, March 25, 1905.
 "Röntgen Rays—Their Employment in Cancer and Other Diseases," Richard J. Cowen.
 "Röntgen Rays in Therapeutics and Diagnosis," Pusey and Caldwell.
 Transactions of the American Röntgen-ray Society, 1904.
 "Diseases of Skin," Schamberg.
 "Diseases of Skin," Stelwagon.
 "Modern Surgery," DaCosta.
 "American Textbook of Surgery."
 "Diseases of the Skin," Duhring.
 "Diseases of the Skin," Hyde.
 "American Textbook of Genito-urinary Diseases, Syphilis and Diseases of the Skin," Banks and Hardaway.

ENCEPHALITIS AND OTHER NERVOUS AFFECTIONS COMPLICATING SCARLATINA.*

BY

JOHN H. W. RHEIN, M.D.,
of Philadelphia.

Neurologist to the St. Agnes and Howard Hospitals, etc.

(From the Municipal Hospital and the Neuropathologic Laboratory of the University of Pennsylvania.)

The following case is important and interesting chiefly because while clinically, symptoms of meningitis or irritation of the brain were practically absent, pathologically there was evidence of beginning pachymeningitis and encephalitis.

The patient, a girl of 9, was admitted to the Municipal Hospital on December 30, 1904. The family history was negative, and the previous history was unobtainable beyond the fact that she had had measles just prior to her admission. The eruption of scarlet fever appeared just before she was admitted, having been preceded by vomiting, fever, and angina. There was

* Read before the Philadelphia Pediatric Society, May 9, 1905.

nothing especially interesting in the course of the disease, except that nephritis intervened, and, a short time before death, there developed a tremulous condition of the general musculature. The temperature ranged between 100° and 106°, and the pulse varied from 90 to 160. Upon admission there was a mild delirium, which disappeared in a day or two. She was comatose a few hours before death.

The autopsy, performed by F. Burvill Holmes, established a pathologic diagnosis of edema of the lungs, fibrinous pericarditis, acute splenitis, acute endocolitis, and subacute parenchymatous nephritis. The brain was hardened in formalin, and later, portions were placed in Müller's fluid. Sections were made from various portions of the brain, and stained by the Weigert hematoxylin and Cajal neurofibril methods, by thionin, hemalum, and acid fuchsin. Studies were also made with the Löffler stain.

In the right paracentral region there was a distinct, though not intense round-cell infiltration of the pia, and the pia was slightly thickened. One subpial hemorrhage was seen. Within the substance of the brain there was a moderate perivascular round-cell infiltration. The bloodvessels were congested, and occasionally a leakage of blood out into the tissue was observed. In the sections stained by thionin no change could be observed,



except that the typhoid substance of some of the nerve cells was somewhat granular.

In the frontal region there was distinct distention of the perivascular spaces, and a marked congestion of the bloodvessels. Round-cell infiltration of the pia and small subpial hemorrhages were present also in this part of the brain. In the temporal region the vessels were very prominent, and here also there was some distention of the perivascular spaces.

In the occipital region there were several microscopic hemorrhages into the substance of the brain and under the pia. The pia was thickened, and there was a moderate amount of round-cell infiltration. The pons and cord were examined, but nothing pathologic was found. Sections from the paracentral region, stained by the Löffler stain, failed to show the presence of any microorganisms.

The presence of a mild meningitis associated with an undoubted, if moderate, inflammatory change in the cortex of the brain occurring as a complication of scarlatina, is a finding which, to say the least, is unusual, possibly because it is not frequently searched for in such cases. While meningitis has been observed in a number of cases of this disease, little is known about the part that scarlatina plays in the production of encephalitis, and with the exception of the statement made by Stiebel,⁶¹ that the exanthems bear very little relation to the pro-

duction of encephalitis, I have found no reference in the literature to its occurrence in scarlatina except the recent report of Southard and Sims. These authors,⁶³ in September, 1904, reported a case in a boy of 5, who developed in the fifth week of an attack of scarlet fever a slight limp associated with violent contractures of the flexors of the right thigh. Later all the muscles of the right side, with the exception of those of the face, were attacked with regular contractions and relaxations. The right arm was paralyzed, and pain and tactile senses were rather impaired. Complete paralysis of the right side followed a subsequent attack of contractions. The right side of the face was also involved, and the patient died at the end of two weeks. The pia mater and arachnoid were the seat of a purulent infiltration. Numerous hemorrhages were found in the cortex, and phagocytic cells were found in the meshes of the pia and adventitia of the short arteries of the cortex. Phagocytosis and fatty change of the neighboring nerve tissues were observed, as well as an axonal degeneration in the cells of the anterior horns of the cord. Southard and Keene⁶⁴ published later the same case with five others presenting different clinical symptoms but in which, postmortem, *Staphylococcus pyogenes aureus* was found in the brain. They conclude from their study of these cases, together with the results of experiments on animals, (1) that *Staphylococcus pyogenes aureus* produces in the meninges and brain substance of man a type of inflammation in which hemorrhage is prominent (subcortical region), and a diapedesis, and slight leukocytic emigration up to abscess formation, and acutely destructive hemorrhages with phagocytosis are present. The acute inflammatory appearance was often obscured by collections of mononuclear cells, which were phagocytic for cells and cell detritus; (2) that *Staphylococcus pyogenes aureus* produces an inflammatory process in the brains of guinea-pigs, which tends to subside within two weeks without clinical symptoms. The cell picture is of meningitis at the end of 6 hours, of ependymitis in 12 to 24 hours, and exudation in 24 to 48 hours; (3) that the lesion in pigs is curable; in man irreparable. This is a very important contribution to the pathology of this subject.

The findings in my own case were in some respects similar to those found by these investigators. Numerous small hemorrhages were seen in the brain cortex, and effusion of blood under the pia was present in several places, but the changes in my case were conspicuously inflammatory, though the process had not gone very far and the staphylococcus was not found.

In June, 1904, I⁵⁴ described a somewhat similar lesion occurring in a child who, after pertussis, developed spastic diplegia. In the brain substance there were found small hemorrhages, and greatly distended perivascular spaces partially filled with round cells. There were also acute degeneration of the brain tissues and a round-cell infiltration of the meninges. During the following summer Neurath described somewhat similar changes in the brains in a number of fatal cases of pertussis.

I think we may conclude that meningitis and encephalitis of an inflammatory type, occur as a result of the irritation set up by the streptococcus, or of a toxin in the blood emanating from this, or from other organisms. Strümpell, in 1884, advanced the theory that in acute infections, encephalitis, analogous to acute myelitis in the anterior horns of the cord, was responsible for the development of infantile hemiplegia. Landon Carter Gray⁵¹ viewed this theory as a "flippant" pathologic suggestion, and Gowers stated that a primary inflammation of the cortex of the brain is a purely theoretic disease. Marie states that primary acute myelitis does not exist, but is always the result of an infection.

In the light of the knowledge thrown upon the subject by the cases of Southard and Keene, Neurath's⁵⁰ and my own case, more weight must be given to Strümpell's theory, and just as acute myelitis is caused

by an infection irritant, so may we see acute encephalitis arise from a similar cause.

How often idiocy—a frequent sequel of scarlatina—and epilepsy may be caused by this very process is of course speculative, but that either may be a result is not untenable.

Extension from neighboring inflammations, such as middle-ear disease, or from infectious embolism may produce encephalitis, as Huguenin⁵³ and others have shown. In Tonkin's⁶⁶ case a purulent focus was found in the left frontal region, causing death.

Meningitis itself may be a complication of scarlatina, though, according to Eichhorst²³ and Barthez and Sauné,⁴ it is a rare one. If microscopic examinations of the brain in cases of scarlatina were less uncommon, probably meningitis would be found more frequently in these cases. Claussnitzer¹⁹ in an inaugural dissertation entitled *Ueber hämorrhagische Meningitis bei Scharlach*, declares that while primary meningitis exists in this disease, it must be looked upon as of infrequent occurrence, and that in the majority of cases exhibiting meningeal symptoms, which have come to autopsy, there is merely hyperemia of the brain and meninges. He found only 17 cases in the literature, of genuine inflammation of the meninges. He cites 2 cases of his own, one in a girl of 18, exhibiting symptoms of meningitis, the autopsy revealing the presence of an inflammatory change in the membranes; and a second case in which, without signs of meningeal irritation, there was found at the autopsy hyperemia of the meninges and brain substance, beside small hemorrhages between the pia and cortex, and round-cell accumulation.

Stiebel,⁶¹ as early as 1859, recognized that "arachnoiditis" and more rarely, "inflammation of the pia" complicated scarlatina.

Litten¹² stated that the brain was never affected in his uncomplicated cases, although he recognized the existence of pachymeningitis hæmorrhagica, as well as inflammation of the meninges in these cases. Other cases have been recorded by Volz, Thomas, Halbey (cited by Claussnitzer) Mayr and Fischer (cited by Barthez and Sauné).

Bendel³ cited a case of meningitis in a child of 4, exhibiting meningeal symptoms, namely, hyperesthesia of the skin, the hydrocephalic cry, right-sided hemiplegia, convulsions and death. There was no autopsy. A second case occurred in a girl of 12, who suffered from coma, trismus, spasm of the neck muscles, and clonic and tonic convulsions of the muscles; death resulted. A sister died exhibiting similar symptoms. Two other somewhat similar cases are cited. There was no autopsy made in these cases.

The commonest complication of this exanthem is hemiplegia. Bernhardt⁵ reported 4 cases of this character, 2 with and 2 without aphasia. Willems⁷⁵ collected 65 cases of hemiplegia in children, of which number 5 followed this disease. He reviewed the literature of the condition rather carefully, and quoted a case of Delius, reported as early as 1777, and one of Suedois-Hagström, reported in 1790. He reported a case of his own in a woman of 28, who developed, on the eighth day of the attack, pain in, and paralysis of, the arms. All symptoms disappeared in three weeks. Willems believed this was of toxic origin.

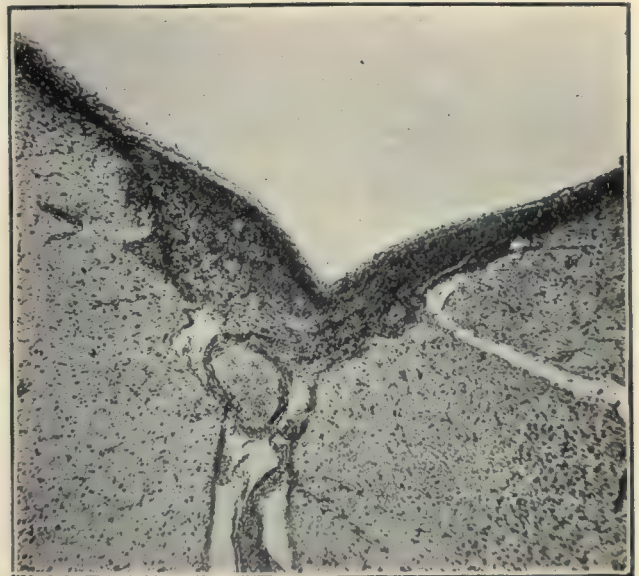
In two cases of hemiplegia reported by Terrier,⁶⁸ there were incontinence of urine and feces and epileptiform convulsions. The reflexes were increased, and Babinski's phenomenon was present. In Barlow's case, a girl of 7, there suddenly developed right hemiplegia two months after a mild attack of scarlet fever. Barlow¹⁵ concluded it was due to cardiac thrombosis, the result of an embolism.

In a case reported by Henoch³⁴ a child of 3 developed a sudden hemiplegia in the fifth day of an attack of scarlet fever. The patient recovered entirely in a year.

Sachs,⁶⁵ in a study of 83 cases of hemiplegia in children, found scarlatina the cause in 3 cases, while Osler⁵¹ attributed the cause to infectious disease in 19 out of 135 cases. John T. Walker⁷⁴ cited a case of scarlet fever in a girl of 7, ushered in by convulsions lasting six hours, while fever, followed by coma and hemiplegia, developed later. Great improvement in the paralysis followed, and while the gait was imperfect, the patient was able to walk, though not to run. Similar cases have been cited by Pepper,⁵² Condie and others.

Aphasia was associated with hemiplegia in a few cases reported by Eulenburg,²² Bohn,⁷ Bernhardt⁵ and Addy.¹ In Bernhardt and Sachs' experience aphasia may accompany right or left hemiplegia in children. Aphasia has also occurred unassociated with hemiplegia. In Brasch's case, a girl of 3 years and 10 months, aphasia developed at the end of the first week. The patient recovered entirely.

In a case reported by Brill, an irregular aphasia followed several convulsive attacks, but improvement ensued after the administration of nitroglycerin. In a case reported by Sheppard,⁵⁹ a girl of 5 lost the power of speech during the first day of the disease. A month later she was generally palsied, and some three weeks later she was



able to walk, but her gait was distinctly ataxic. Great improvement followed. In Taylor's⁷⁰ case a boy of 5 became paralyzed in the second week of the fever. Some time later he died of diphtheria, and the necropsy revealed the presence of an embolism of the left middle cerebral artery, an area of softening in the posterior part of the second and third frontal convolutions, in the parietal and supramarginal convolutions, the island of Reil, the corpus striatum, and the anterior portion of the internal capsule. Vegetations were found on the valves of the heart.

The cause of the hemiplegia in these cases was either hemorrhage, embolism, or thrombosis. While there is no doubt that in most of the cases these are the causes, the case of Southard and Keene demonstrates the possibility of still another pathologic basis for its development.

The next most frequent complication is involvement of the peripheral nerves. A case of multiple neuritis is cited by Greene,²⁷ as occurring in an epileptic boy of 17, who had during an attack of scarlatina, 1,742 fits. He had practically recovered from the fever when the multiple neuritis developed. He recovered entirely in seven weeks.

Méry and Halle⁴⁷ describe the case of a boy of 7, who developed peripheral neuritis during an attack of scarlet fever. At the decline of the disease he suffered from two attacks of scarlatinal rheumatism. The authors ask whether this was due to a toxin the result of the scarlet fever, or whether it was a rheumatoid affection.

In a case reported by Sano,⁴⁸ a man of 42 developed paralysis of the right arm and shoulder on the seventh day of the disease. There were severe pain and contractions, especially in the biceps. The paralysis disappeared at the end of eight weeks, although some pain and atrophy remained in the muscles of the shoulder and arms.

Wood reported a somewhat similar case of paralysis of the right arm which afterward entirely disappeared. In the case of Egies, polyneuritis followed scarlet fever in a girl of 4. The peroneal nerve was palsied, and there was ataxia of all the extremities. The electric irritability of the ulnar and peripheral nerves was lowered, and there was tenderness along the nerve trunks. Cure was effected in two and a half months. Cases of peripheral neuritis are also cited by Thomas¹² and Moureyre.⁴⁵

Thomas Barr⁶ describes an interesting case of facial palsy in a girl of 4, which probably had some relation to suppuration of the middle-ear. Steffen⁶² describes also a case of right facial palsy. In Ballard's¹¹ case, a boy of 2, there was paralysis of the laryngeal muscles five weeks after desquamation was completed. Paralysis of accommodation was present in a case cited by Malone.

Tetany has occurred in a few cases complicating this exanthem. Schatten⁵⁷ reported a case in a boy of 8 who, on the sixteenth day, developed tonic contractions of the muscles of three days' duration, associated with paresthesia, without other sensory disturbance or changes in the reflexes, or electric reactions. Steffen⁶² also reported a case, and Kühn³⁸ refers to a case in a boy of 4½, who developed on the fifth day of the disease, stiffness and difficulty in moving the legs, which later extended to the entire body, lasting six weeks. He looked upon it as the result of a toxin.

In a case reported by McConnell,⁴⁶ tetany occurred during convalescence in a boy of 5½, resulting finally in entire recovery. Loeb⁴³ published the case of a girl of 6, who, after an attack of unconsciousness became tetanic in her thumbs and arms. There was increased irritability of both facial nerves. As the tetany improved, aphasia, choreiform movements, and ataxia followed, from which she finally recovered entirely.

Scarlet fever may cause choked disc, orbital optic neuritis, or amaurosis. In the case reported by Thomas,⁶⁷ a boy of 5 developed a short time after an attack of scarlet fever, progressive failure of sight caused by double optic neuritis. This was followed by paretic symptoms affecting all the extremities. The reflexes were exaggerated, and there was pronounced anesthesia. Speech was lost and the sphincters were involved. Four months later the patient had recovered largely, with some weakness in the right arm, associated with atrophy of the extensors and of the optic discs. In Thomas' opinion these symptoms were due to meningitis caused by the scarlatinal poison.

Amaurosis is probably of uremic origin, and the prognosis is good, the symptoms lasting usually only a few days. Reimer⁵⁶ and Loeb⁴³ have cited cases of this character, and the condition was described as early as 1769 by Withering (quoted by Imbert-Gourbeyre).³⁶ Gubler³⁰ refers to the case of Cazanave, a girl of 9 who gradually became blind during convalescence from an attack of scarlet fever. Later the sensations of taste and smell were lost.

A few cases are on record exhibiting ataxic symptoms. In the case of Greenhow,²⁴ a man of 40 suffered from numbness and tingling of the hands with loss of power, beginning at the end of the sixth week. Ataxic move-

ments of the legs developed later, but all the symptoms disappeared in a few weeks.

Bruns⁹ recorded a case exhibiting ataxic symptoms, in a girl of 7. In Sheppard's⁵⁹ case, a girl of 5 became generally palsied in the fourth week. Three weeks later she walked like an ataxic, but great improvement followed. Moureyre⁴⁵ described a somewhat similar case.

Eulenburg mentioned the fact that unilateral progressive atrophy of the face has followed scarlet fever in a few cases.

Epilepsy was described as a sequel of scarlet fever by Marie,⁴⁴ who cites the case of Landmann, in which petit mal followed scarlet fever in a girl of 12. At the age of 18 major attacks made their appearance. Other writers recognize it as a sequel also.

Disseminated sclerosis followed scarlet fever in a case of Madam Rosa Landis, cited by Raymond.⁵³

Hysteria occurred in the case reported by Talairach,²¹ and in one reported by Carnell.¹⁵ In Carnell's case, a girl of 15, during convalescence from an attack of scarlet fever suffered from general weakness, which soon developed into paralysis of the arms, later involving the legs as well. The history states that the patient improved a great deal, and a diagnosis of hysteria was made.

A case of chronic hydrocephalus, following scarlatina, was reported by Demarge.²⁰ The autopsy revealed granulation of the ependyma of the ventricles, such as those described by Virchow under the name of papilloma, the result of chronic inflammation of the membranes of the ventricle.

Cases of paraplegia have been described by Althaus² and Kennedy.⁴⁰ In the case of Kennedy the patient recovered entirely, but in Althaus' case the injury was permanent.

Neuralgic affections are sometimes met as sequels to scarlatina. Gueneau de Mussy²⁵ (in Barthez et Sauné) refers to a case of facial neuralgia and in double facial neuralgia in one case, and sciatica in three cases observed by Roger.⁵⁵

A case of Friedreich's ataxia following scarlatina is reported by Katz.³⁹

Finally, mental diseases must be mentioned as complicating scarlet fever. Clouston¹⁶ claims that it is the most frequent cause of postfebrile insanity, and Moureyre, who made a careful study of this subject, believed that scarlatinal psychoses are of very frequent occurrence. They are, he claimed, the result of the action of the scarlatinal poison upon the brain. The psychoses of the *periode d'état* may be (1) delirium of collapse, or mental confusion; (2) simple symptomatic mental confusion, in which there exists an acute hallucinatory confusion; and (3) the *psychoses de réve*. These are very frequent. He cites 13 cases illustrating this classification.

Imbecility follows in the wake of scarlet fever; in fact, this disease was the cause attributed in 2.75% of the cases studied by Martin Barr,⁸ and in 2.4% of Roger's cases (cited by Barr).

Very little is known about the lesions which cause paralysis and the other nervous phenomena following scarlatina, because the patients are very apt to return to health, or do not die at the climax of the nervous symptoms. Barthez and Sauné⁴ state that in patients dying of convulsions the only alterations found are injections of the pia and brain. Meningitis has been found in a few cases and infiltration of the meninges, edema of the brain, cerebral anemia, congestion of the membranes, and subarachnoid ecchymoses represent the usual post-mortem appearances. In the case of Tardieu⁶⁹ (in Barthez et Sauné) there was a cerebral hemorrhage the size of a pigeon's egg, and serous infiltration of the subarachnoid tissue.

Guinon²⁸ states that congestion of the pia and brain, distention of the cranial sinuses, and sometimes cerebral edema may be found, and rarely, thrombosis of the meningeal veins. According to Henoch,³⁴ the cerebral

symptoms in scarlatina do not depend upon meningitis, but the postmortem changes consist of hyperemia, edema of the pia and brain substance, thrombosis of the sinuses, as well as stagnation, in consequence of lowered heart's action. Gerhardt,²⁹ in discussing this subject, stated that meningitis and purulent foci in the brain may be found. Thomas⁷² put down as the anatomic findings, hyperemia, slight inflammations, edema, anemia, and hydrocephalus, with rarely severe abscesses and extravasations. Meningitis and effusions into the ventricles are uncommon, while apoplexy and sinus thrombosis are exceedingly rare. Very few cases in which the brain has been studied histologically have come to autopsy, and I know of only the case of Southard and Keene, and that of my own, in which a careful study of the brain substance, as well as the membranes, was made.

CONCLUSIONS.

The most common complications of scarlatina on the part of the nervous system are hemiplegia and peripheral neuritis. More rarely this disease may be followed by paraplegia, optic neuritis, amaurosis, tetany, pseudo-ataxia, neuralgia, epilepsy, disseminated sclerosis, Friedreich's ataxia, hysteria, chorea, hydrocephalus, meningitis, and disordered mental states.

With the exception of hemiplegia, and imbecility, the prognosis is good, if we exclude those rare organic cases such as Friedreich's ataxia, disseminated sclerosis, and epilepsy, which are recorded as following scarlatina. Some of these conditions like Friedreich's ataxia are probably merely hastened in their manifestations by the scarlatinal process.

The pathologic findings consist of thrombosis, embolism, small cerebral hemorrhage, rarely abscess of the brain, congestion of the brain, and meningitis, and finally meningitis and encephalitis.

I am indebted to B. F. Royer for the specimen and notes of the case, and to Robert D. Rhein for assistance in obtaining the references.

LITERATURE.

- ¹ Addy: Lond. Lancet, 1875, No. 1, p. 643.
- ² Althaus: Brit. Med. Jour., London, 1881, No. 1, p. 50.
- ³ Bendel: Wien. med. Presse, No. 23, 1894, p. 890.
- ⁴ Barthez et Sauné: Traité des Malad. des Enfants, 1891, Third edition, p. 86.
- ⁵ Bernhardt: Virchow's Arch., No. 102, p. 27.
- ⁶ Barr (Thomas): Lancet, 1885, Vol. II, p. 658.
- ⁷ Bohn: Jahr. f. Kinderheilk., 1886, No. 25, p. 102.
- ⁸ Barr (Martin): Mental Defectives, p. 118.
- ⁹ Bruns: Neurol. Central., 1888, No. 10.
- ¹⁰ Brach: Berl. klin. Woch., 1897, No. 2, p. 30.
- ¹¹ Ballard: Medicine, 1897, No. 3, p. 907.
- ¹² Bouchard et Brissaud: Traité de Méd., No. 2, p. 447.
- ¹³ Barlow: Med. Times and Gaz., London, 1880, No. 1, p. 50.
- ¹⁴ Brill: New Eng. Med. Monthly, 1882-3, No. 2, p. 426.
- ¹⁵ Carnell: Medicine, 1898, Vol. IV, p. 12.
- ¹⁶ Clouston: Mental Diseases, 1904, p. 658.
- ¹⁷ Cazenave: In Gubler.
- ¹⁸ Clarus: Jahr. f. Kinderheilk., 1874, No. 7.
- ¹⁹ Claussnitzer: Inaug. Dissertation, 1900.
- ²⁰ Demargé: Bull. Soc. Anat. de Paris, 1874, No. 69, p. 503.
- ²¹ Egies: Jahresbericht f. Neur. und Psych., 1889, No. 3, p. 744.
- ²² Eulenborg: Lehrbuch der funct. Nervenkrankh., 1871, p. 431.
- ²³ Elchhorst: Hab. d. Sp. Path. u. Th., 1887, Bd. IV, p. 206.
- ²⁴ Greenhow: Lancet, 1892, p. 590.
- ²⁵ Gueneau de Mussy, Gaz. des Hôp. 1871, No. 77.
- ²⁶ Gowers: Diseases of the Nervous System, Vol. II, p. 400.
- ²⁷ Greene: Jour. Ment. Sc. London, 1903, No. 69, 313.
- ²⁸ Guinon: In Bouchard et Brissaud.
- ²⁹ Gerhardt: Handbuch der Kinderkrank., 1897, p. 123.
- ³⁰ Gubler: Arch. gén. de Méd., 1860-61, p. 534.
- ³¹ Gray: Cyclopaedia of Diseases of Children (Keating) Vol. IV, p. 481.
- ³² Hesselbarth: Arch. f. Kinderheilk., No. 5, p. 103.
- ³³ Huguenin: Ziemssen's Sp. Path. u. Th., Bd. XI, 1, 1876, p. 659.
- ³⁴ Henoch: Vorlesung. Kinderkrank., 1903.
- ³⁵ Holbey: Berl. klin. Woch., No. 6, 1877, p. 211.
- ³⁶ Imbert-Gourbeyre: Gaz. Méd. de Paris, 1863.
- ³⁷ Iloway: Pediatrics, 1902, June 15.
- ³⁸ Kühn: Berl. klin. Woch., No. 39, 1899.
- ³⁹ Katz: Presse Méd., 1898, No. 92, p. 288.
- ⁴⁰ Kennedy: Dublin Quart. Jour., 1850.
- ⁴¹ Litten: Jahr. f. Kinderheilk., 1865, No. 44, p. 333.
- ⁴² Litten: Charité-Annalen, No. 7, 1882, p. 116.
- ⁴³ Loeb: Arch. für Kinderheilk., Vol. X, 1888-9, p. 212.
- ⁴⁴ Marie: Sem. Méd., 1892, p. 282.
- ⁴⁵ Moureyre: Des Manifestations Nerveuses de la Scarlatine, Thèse de Paris, 1899.
- ⁴⁶ McConnell: Mont. Med. Jour. 1896-7, No. 25, p. 214.
- ⁴⁷ Méry and Halle: Bul. Soc. Méd. des Hôp. de Paris, 1902.
- ⁴⁸ Malone: Med. Press and Cir., 1876.
- ⁴⁹ Nothnagel: Path. u. Ther. Vol. IV, No. 2, 1896, p. 204.

- ⁵⁰ Neurath: Arbeit. a. d. Neurol. Inst. a. d. Wiener Universal, XI.
- ⁵¹ Osler: Practice of Med., 1895, p. 958.
- ⁵² Pepper: Tr. College of Physicians, Phila., 1857, N. S. 3, p. 136.
- ⁵³ Raymond: In Moureyre.
- ⁵⁴ Rhein: Jour. Am. Med. Asso., 1905, March, p. 697.
- ⁵⁵ Roger: Revue de Méd., 1899, pp. 251-361.
- ⁵⁶ Reimer: Jahr. f. Kinderheilk., 1876, Bd. X, p. 20.
- ⁵⁷ Schatten: Berl. klin. Woch., 1888, No. 14, p. 273.
- ⁵⁸ Sufirin: Monatsschrift f. Kinderheilk., 1903-4, No. 2, p. 761.
- ⁵⁹ Sheppard: Med. Times and Gaz., 1868, No. 1, p. 144.
- ⁶⁰ Sano: Jour. de Neurol. de Brux., 1899.
- ⁶¹ Stiebel: Jahr. f. Kinderheilk., 1859, No. 38, pp. 145 and 285.
- ⁶² Steffen: Jahr. f. Kinderheilk., 1887, No. 23, p. 127.
- ⁶³ Southard and Sims: J. Am. Med. Asso., Sept. 17, 1904, p. 34.
- ⁶⁴ Southard and Keene: Am. Jour. Med. Sciences, March, 1905.
- ⁶⁵ Sachs: Cyclopaedia of Diseases of Children (Keating), Vol. IV, p. 525.
- ⁶⁶ Tonkin: Brit. Med. Jour., 1899, No. 1, p. 728.
- ⁶⁷ Thomas: Encyclopedia of the Practice of Med. (Ziemssen), Vol. II, p. 149.
- ⁶⁸ Terrier: Prag. Med., 1900, p. 138.
- ⁶⁹ Tardieu: Barthez et Sauné.
- ⁷⁰ Taylor: Med. Times and Gaz., London, 1880, No. 2, p. 686.
- ⁷¹ Talairach: Arch. de Méd., 1878, No. 30, p. 58.
- ⁷² Thomas: Revue médicale de la Suisse romande, 1891, No. 12, p. 261.
- ⁷³ Willems: Ann. Soc. de Méd. de Gland, 1888, No. 65, p. 2.
- ⁷⁴ Walker: Phila. Med. and Surg. Reporter, 1884, p. 161.
- ⁷⁵ Uhlenburg: Die Nervenkrankh., 1878, Vol. II, p. 220.

SPECIAL ARTICLES

THE PROGRESS OF THE SANATORIUM MOVEMENT IN AMERICA.¹

BY

WILLIAM H. BALDWIN,
of Washington, D. C.

A sanatorium is properly a place for the treatment of patients who are not beyond the hope of cure; and the change in the attitude as to tuberculosis is brought out by the fact that the earliest institutions listed in the admirable directory recently compiled by Miss Brandt for this association and the New York committee are not properly so called. The Channing Home, founded in Boston in 1857, the Cullis Consumptives' Home in 1864, and the House of Rest in New York in 1869 were all intended to receive patients who would probably remain until removed by death. The purpose was humane, but not hopeful, and these cases marked the expected end of persons of whom tuberculosis had once laid hold. Even earlier than these were the Lincoln Home, started in New York in 1839, and the House of the Good Samaritan, in Boston in 1861, but they were not meant for consumptives more than for other incurables.

Next came the two institutions of the Protestant Episcopal Mission in Philadelphia in 1876, intended especially for consumptives, which took patients in all stages and treated them as skilfully as possible, but without much hope of cure until later knowledge showed the way. During its existence this organization has cared for more than 3,500 patients.

Five years later, in 1881, the Brooklyn Home for Consumptives was founded, intended, as its name implies, to shelter those prevented by the disease from caring for themselves or being received elsewhere. This purpose is still carried out, though all along some of those cared for have left the house improved. St. Joseph's Hospital, in New York City, for poor consumptives was started by the Sisters of the Poor of St. Francis in 1882 with much the same object, and it is impossible to discover in the purpose or conduct of any institution up to that time any ray of hope for the consumptive, any expectation of successful treatment. When a so-called cold developed into what was recognized as the beginning of tuberculosis the patient took his chances, sustained himself by stimulants, exercised vigorously, avoided draughts if he remained in this climate and sometimes recovered if able to find refuge in Colorado or California, without knowing that the improvement was due mainly to an open-air life, considered impossible at home. This step, however, was usually taken only as a last resort, and the hardships of the journey and the life there often hastened the end. Many remedies were suggested in the struggle against the disease, but they were without effect, like shots fired in the dark at an unseen enemy.

¹ Read before the Sociological Section of the National Association for the Study and Prevention of Tuberculosis, at its first annual meeting, held at Washington, D. C., May 18 and 19, 1905.

The first real advance in the sanatorium movement in this country, in fact, the first successful attack in the conflict with tuberculosis by modern methods, was made by Dr. Trudeau in Saranac just twenty years ago. Thanks to Koch, the enemy had at last been revealed and located. There was no longer any doubt as to its identity or its manner of working, nor as to the difference between tuberculosis and other troubles which only resembled it; but how to destroy the cause of the disease and restore the patient to health was the question. Some drug which would destroy the bacillus without harm to the patient was sought for, and its discovery expected; but some of us can remember our surprise at hearing that Dr. Trudeau proposed to drive it out by life in the cold air of northern New York. Only the results with which his faith and that of his first patients were rewarded induced others to follow him and proved, slowly at first and then with accumulating rapidity, that his way was the right way, that at last a position in the conflict which need not be abandoned had been found.

If Koch's discovery was the revelation of a new dispensation, this work of Dr. Trudeau's may be considered the first preaching here of the new gospel of which this association is the chief missionary society; a gospel, like the other, first heard with incredulity, but now universally accepted, a proclamation of salvation to multitudes who before were without hope and lost.

Interest in the subject on the part of those studying the treatment of the disease developed rapidly, and as they came to similar conclusions, and living witnesses from various localities proved the efficacy of the new treatment, other sanatoriums were established, until there are, including those assured, 135 institutions of various kinds, new and old, in 33 States and provinces in the United States and Canada where tuberculous patients are cared for; of which a third in number are in New York and Pennsylvania. In all there are accommodations for 8,400 patients, of which 30% are in New York State alone.

In the light of those who need them the situation is disheartening; but when we realize that of these sanatoriums 14 were established in 1902, 24 in 1903, and 21 in 1904, making as many in the last three years as in the 17 which preceded after Dr. Trudeau's beginning, the rapid acceleration of the movement warrants us in regarding the next decade with hope.

To those in charge of many of them I am indebted for information as to the institution and the experience in it, which I hereby thankfully acknowledge. It would be interesting to speak of each and its work, but since time does not permit they must be considered only in connection with the main features of the movement and the general lessons to be drawn from the facts furnished.

Public Sanatoriums.—The first sanatorium to be established by a State or provincial association was the Muskoka Cottage Sanatorium at Gravenhurst, Ont., in 1897, by the National Sanitarium Association, with a capacity of 75. This was for paying patients, and the results were so favorable that another of similar size for people unable to pay was started five years later in the same place. The latter is supported in part by a subsidy of \$1.50 per week for each patient from the provincial government, and is therefore quasiprovincial.

Resembling this in its relations with the State is the Maine Sanatorium established by the State association, opened six months ago. This has received aid from the State, though not under State control, and in a way takes the place of a State sanatorium. Aside from a few free beds the patients are expected to pay what it costs to keep them.

The first State sanatorium was established by Massachusetts at Rutland, 50 miles from Boston, in 1898. This is a large institution for early cases which had last year an average of 257 patients, and has been in every way successful, 73% of the incipient cases, in those discharged in the last few years, having been arrested or the patient apparently cured. Patients are required to pay \$4 per week, the State making up the remainder of the cost, which last year was \$9.36 per week.

The next State sanatorium opened was that of New York at Ray Brook in the Adirondacks on July 1, 1904, for incipient cases, with a capacity for 120. The results so far have been excellent. Admission is granted in the order of applications, with preference to those who are unable to pay, and who, after

being recommended by local authorities who assume the charges up to \$5 per week, are examined by local physicians appointed for the purpose. This system of admission is well planned. The cost so far has been about \$9 per week.

Another opened last year is the provincial sanatorium of Nova Scotia at Kentville. It is beautifully located and attractive in every way. It has a capacity for only 18, but is intended as a demonstration of the advantages of such institutions, and will probably lead to larger provisions. It is supported by the provincial government.

On seven other State sanatoriums a beginning has been made. In Rhode Island at Pascoag the buildings have been completed and an appropriation made for laying out the grounds. Another bill appropriating money for furnishings and for a year's maintenance, which had been held back until the question whether the management should be put into the hands of the State Board of Charities or a special commission was decided in favor of the latter, has just passed the Legislature, and the institution, which will accommodate 240 and is for early cases, will be opened next fall. The State will assume half the expense of patients, and the remainder must be paid by or for them.

In New Jersey a contract has just been let for buildings for a sanatorium to cost \$225,000, exclusive of the equipment, to be erected by the first of the coming year on a tract of 600 acres of mountain land in the northern part of the State at Glen Gardner, purchased two years ago. This will accommodate 100, and is also for incipient cases.

Contrary to expectation, the Minnesota sanatorium will not be opened this year. With \$25,000 received from the State two years ago, the State commission bought 700 acres of land at Walker, on the Great Northern Railroad, and prepared plans for buildings to cost \$100,000. The present Legislature has only appropriated \$50,000 for the purpose, and the commission cannot revise plans and build this year. This unfortunate lack of coordination hinders the \$75,000 from accomplishing any part of its purpose, although the only sanatorium in the State, public or private, can accommodate but 18 of the consumptives who demand attention.

In Ohio, a commission appointed a year ago with an appropriation of \$35,000 to provide a site and make plans, is receiving propositions for a site and preparing the plans for beginning the buildings in expectation of the larger appropriation by the next Legislature, which will enable it to push the work actively.

Two years ago, a bill establishing the State sanatorium recommended by a commission appointed to investigate the subject in an able and exhaustive report, was vetoed by the Governor of New Hampshire as a "doubtful and questionable project." Apparently, he had not read the report. The Legislature which has just adjourned appropriated \$50,000 for the purpose, but it is not available until May 1, 1907, because there seems to be a well-defined expectation that in the meantime private funds to build a more ample sanatorium than this amount will secure will be available. In either case, the sanatorium is assured.

Missouri has just made an appropriation of \$50,000 for a State sanatorium. The agitation begun in Illinois a year ago by the State Medical Society, has been systematic, diligent and effective, reaching the medical profession, the newspapers and 11 State organizations, and leading to the formation of a State society in January, which asked for an appropriation of \$50,000 for a State sanatorium. The bill passed recently, but the amount was cut to \$25,000.

In Michigan, a bill providing \$50,000 to establish a State sanatorium, is being vigorously urged by the State Board of Health, the State medical society, and the medical profession generally, and is likely to become a law. At last accounts, some days since, it was in the hands of the Public Health Committee of the house.

The tuberculosis commission, appointed by the Legislature of 1903 to investigate conditions in Wisconsin, has just made its report, setting forth very clearly the advantages of a State sanatorium. A bill has been presented to the Legislature now in session asking for \$90,000 for the erection of buildings and \$25,000 as annual maintenance for them. It has been approved by the committee on appropriations, and, as the sentiment in

the Legislature is strongly in favor of the movement, it will undoubtedly be passed, and a start made this year.

It may be said, therefore, that in eleven States and one province, State sanatoriums are erected or their establishment assured.

Spread of the Movement.—In the province of Quebec, the State has given two tracts of land, one in the Laurentians and the other in the Lake St. John district, but has done nothing further. There is no provincial sanatorium in Ontario. Provision has been made by the provincial Legislature for giving aid to the extent of \$4,000 to any municipality that erects a suitable sanatorium in accordance with the plans approved by the provincial Board of Health, and in addition to this, for making a further annual grant of \$1.50 per week per patient toward the support of the institution. As yet, no municipality has availed itself of this offer, but there is a movement on foot in several western counties to erect a joint sanatorium, and the town of Peterborough has also under consideration the erection of a building. This plan is a wise one, because it retains the feature of self-government while affording encouragement by the province, but as yet, seems to be somewhat in advance of public opinion. In the other three provinces of Canada, efforts in the direction of a sanatorium have so far failed.

As to the situation in other States, it may be said that while Connecticut has no State sanatorium, it gave \$25,000 toward the equipment of the Gaylord Farm Sanatorium, which cost about \$100,000, the remainder being raised by private subscription, and has given \$5,000 a year toward its support for two years. This institution was opened last year, and the cost so far is about \$11 per week per patient, although the charges to patients are only \$7 per week. This arrangement is apparently the result of an agitation started four years ago for a State sanatorium.

In the District of Columbia, the request made at each of the last two sessions for an appropriation to start a sanatorium was rejected. Except for the Washington Hospital, at which the facilities have within the last year been supplemented by the gift of four tents from individuals, there is no place in this city of 300,000 where one who has tuberculosis can find shelter or care. It is to be hoped the next request will not be refused by those who should realize that the conditions at the national capital, make such an institution a necessity rather than a luxury. If this meeting of the national association so stirs the hearts of its members throughout the various States that they will influence their representatives in Congress to favor the measure at the next session, the meeting will not have been in vain.

In accordance with a resolution passed by the Indiana Legislature, which adjourned March 7, last, a commission to investigate and report to the next Legislature as to a State sanatorium, has just been appointed, with the secretary of the State association as medical member. The governor and others are much interested.

In Kansas, a resolution asking for the appointment of a tuberculosis commission to investigate the desirability and cost of erecting a State sanatorium, passed the house, but failed in the senate, so the matter has gone over.

The commission appointed in Maryland, in 1902, to investigate the general facts in relation to tuberculosis in the State, was reappointed last fall to continue its study and also to report in 1906 as to the "construction, cost, equipment, maintenance and location of a sanatorium for the treatment of tuberculosis." This indicates intelligent and steady progress in Maryland.

In Montana, as in Kansas, the Legislature failed to pass a similar bill and nothing is being done. There is some hope that private means will found a sanatorium, as there is no such institution in the State.

A bill appointing a commission consisting of two physicians and the commissioner of forestry to build two State sanatoriums in Pennsylvania, and making an initial appropriation of \$300,000 therefor, was recently vetoed by Governor Pennypacker, not because of any objection to such institutions for the State, but because the bill was loosely drawn and opened the way for abuses. Did time permit, it would be interesting to point out defects which justified the veto in order to avoid like faults in any efforts made elsewhere. Lack of clear thinking

and of prudent demands resulting in reverses like this, hurts our common cause.

The Governor hints that a well-considered bill may be presented by the health department created by this same Legislature, which also appropriated \$40,000 for buildings and \$60,000 for maintenance for the White Haven Sanatorium, beside amounts for other like institutions. The commission appointed two years ago in Vermont made a report last summer recommending an appropriation of \$50,000 for a State sanatorium, but I cannot learn that anything further has been done.

In Washington, a bill making provisions for a site and for preparing plans for the erection of a State sanatorium, was introduced in the last Legislature, but was crowded out in the closing days of the session. There was no opposition, and as the State Board of Health is very much in favor of the project and is looking up the facts to present with a definite plan to the next Legislature, it is hoped that no time has been actually lost by the failure of the bill.

In Arizona nothing has been done, although there are a great number of tuberculous people scattered throughout the territory who have gone there on account of the climate, and a sanatorium is much needed to care for them, both resident and nonresident, and teach them and others the dangers of the disease. The territorial health officer is alive to the necessity of such an institution and hopes the discussion of the subject in this meeting will help toward it.

In Kentucky a committee has been appointed to bring the matter before the Legislature, which meets next year, and if the proposed new capitol does not absorb all the available funds of the State, some action may be taken.

Although there are no tenements in North Dakota, the Scandinavians and others who live in small and poorly-ventilated houses have tuberculosis badly. Provision is needed for them, but nothing has yet been done. In South Dakota the disease is very prevalent among the Indians, and some pathetic accounts are given of their struggles with it. It is said the Sissetons, peaceful, reliable citizens, living on lands taken in severalty, are likely to be exterminated by tuberculosis. It is the intention to bring the matter to Congress at its next session, but no steps have been taken toward a State sanatorium.

In Texas the subject was brought before the Legislature, which has just adjourned, but nothing was done. In Virginia and West Virginia also bills introduced several years since failed and no efforts are being made at present. The recent California Legislature passed a bill appropriating \$150,000 for a State sanatorium, but the Governor vetoed it.

Arkansas, Georgia, Idaho, Mississippi, Nevada, New Mexico, North Carolina, and Oregon report that nothing is now being done for a State sanatorium, and failure to furnish any information indicates that nothing has been accomplished in the remaining States.

Federal Provision.—In 1898 Surgeon-General Wyman took up the question of a sanatorium for tuberculous seamen, and after various locations had been investigated the old military reservation at Fort Stanton, N. M., was turned over to the Marine-Hospital Service in 1899 for the purpose. The reservation contains 38 square miles, most of it under fence, and the accommodations can be indefinitely extended by adding tents. Much of the food required is raised on the land, making the administration most economical, beside affording occupation for such patients as can help in the work. The cost of the average ration for 1902 was but 30 cents per day per man. The most rigid care is exercised as to infection and results have been excellent; though as only 14% of patients discharged last year were first stage cases, the percentage of those cured or improved was under 60.

There are at present about 200 under treatment. If it were possible to allow civilians to take advantage of the opportunities of the place under proper regulations to protect the interests of the government, the favorable conditions and the economy of subsistence while there might more than offset the expense of sending many patients there.

In 1899, also, Surgeon-General Sternberg established a United States General Hospital for tuberculous soldiers of the United States Army at Fort Bayard, in New Mexico, the most favorable location for treatment he could find. The results

have been very favorable, from 90% to 95% of patients of the first class having been cured or improved, and from 40% to 55% of third-class patients. Soldiers may be sent there directly by the commandant of any army post on a surgeon's certificate. Some civilians are admitted at a moderate charge on authority of the War Department, but these are very few. There were at the end of last year about 250 under treatment.

The navy has not yet established a sanatorium, but since December, 1903, has been experimenting with a camp at the naval hospital at Pensacola, Florida, accommodating 50 in tents, and has 8 officers and 64 enlisted men in the army sanatorium at Fort Bayard. The results have been most favorable, leading to studies of sites and plans for a naval sanatorium, which will no doubt result in definite action on one ere long.

A commission of the National Fraternal Association, with a vast membership back of them, visited New Mexico two months ago to select a site for a large sanatorium for its members, and has just secured the Montezuma hotel and springs with 11,000 acres of land at Las Vegas, to be perpetually maintained as a sanatorium.

Municipal Sanatoriums.—As to municipal sanatoriums, the first one established was the Branch Hospital at Cincinnati, O., in 1897, located just outside the city and accommodating 125, free to residents of the city.

Next came the Tuberculosis Infirmary of the Metropolitan Hospital of New York City on Blackwell's Island, established by the president of this section when he became commissioner of public charities in 1902. This was one of the most important steps taken in the forward movement, and demonstrated that by improving opportunities not entirely favorable, and doing earnestly what is possible according to the best knowledge on the subject, much may be accomplished. The practical results obtained with patients coming from the most unfavorable conditions are remarkable, and show that officials in any city, who are charged with the care of the masses who most readily fall victims to tuberculosis, are not excused from making provisions for them on account of poor climate or the lack of funds to erect expensive buildings. For measuring up so promptly to this opportunity, our chairman deserves the hearty thanks of all who are interested in this cause.

Another municipal institution worthy of notice is the Riverside Sanatorium, established in the following year by New York City on North Brother Island, to which section 139 of the New York sanitary code permits the forcible removal of any consumptive, who, by refusing to comply with the regulations of the Health Department, is endangering the health of those around him. Every city should have such a provision.

In 1903, also, provision was made in the Emergency City Hospital of St. Louis, Mo., for tuberculous patients, and the Tuberculosis Sanatorium of the City Hospital of Cleveland, O., was started the same year in an old building within the city limits, previously used for another purpose. Persistent and well-directed efforts in Cleveland have increased the interest in the subject to such an extent that six months ago the city bought 1,300 acres of land 10 miles from the city, beautifully located, with rolling ground, woods, springs, and fine views, where a tuberculosis sanatorium, on the plans for which the architect is already at work, accommodating 200 patients and taking both chronic and recent cases, will be erected.

Special provision was made for the treatment of tuberculous inmates at the State Almshouse in Rhode Island in 1896. This example has been followed since in the State Hospital at Tewkesbury, Mass.; the Boston Almshouse; the Erie County Poor Farm, at Buffalo, N. Y.; Wayne County House, at Eloise, Mich.; and the Westchester County Hospital, at East View, N. Y., and the subject is under discussion in various other counties. Accommodations in prisons and insane asylums are for special classes of tuberculous patients not here considered.

Mention should also be made of the Henry Phipps Institute in Philadelphia for the study and prevention of tuberculosis, in which only people who are unable to pay and whose cases are considered hopeless are received. The most careful records possible are being taken of each case and the studies made by a corps of physicians under the direction of Dr. Flick will prove invaluable. The establishment of such an institution on this plan, by the gentleman who is furnishing all the funds which

are necessary, is one of the greatest steps which has been taken in the forward movement against this scourge.

Although some children are admitted to several of the sanatoriums and hospitals with other tuberculous patients, nothing whatever was done to provide those suffering from tuberculosis of the joints and similar forms of it with the seaside treatment, which has done so much for thousands of children in the large institutions by the sea in France, until the New York Association for Improving the Condition of the Poor demonstrated the advantage of such treatment in its tent camp at Sea Breeze in the year which has just closed. The results were remarkable, and show clearly that the matter should be taken up in a large way at once, preferably, in the opinion of Dr. Linsly Williams, by establishing a sanatorium by the sea under municipal control.

Dr. Ménard says every large city should have room for a thousand children for each million inhabitants, which would mean 3,500 beds for New York. There is no part of the field today where the issue is more sharply drawn between the suffering and pain of helplessness and deformity projected by neglect into lives just beginning, or happiness and usefulness made possible through all the coming years by even slight attention now. The cry of the children should also arouse us to the danger from tuberculous people in any home where they are found.

What Experience Has Demonstrated.—All this experience with sanatoriums for tuberculosis has demonstrated certain things:

1. Climate is not an essential, or even the most important factor in its treatment. What was once said of whisky applies to air—"Some may be better than others, but none of it is poor." While it is easier to lead an open-air life in a dry, clear climate and general conditions there may be more favorable, almost as good results can be obtained with proper care in locations in almost any State; and the difference does not make up for the lack of those advantages which only care in a sanatorium can give. From California, Arizona, and New Mexico comes a humane protest against longer setting tuberculous patients adrift with slender resources, or none, to fight the disease among strangers. Dr. Norman Bridge, who has had unusual opportunities of observation, and who yields to no one in his praise of California air, declares that he would rather have a patient kept under proper conditions in an eastern city than send him to some better climate to shift for himself. From his experience at Fort Bayard, Dr. Bullock thinks that, other things being equal, the results there are about 10% better than in the East, but more than this is often lost by advanced cases in the journey out.

2. Fresh air, rest, and nourishing food in abundance are necessary, and the patient must be faithful and regular in all his habits in regard to them. It is practically impossible for him to be so outside of a sanatorium. The fight is a long one, in which carelessness of one day may undo all the benefits of faithfulness of the preceding 30 days. Careful directions may be given, but it is asking too much of a man weakened by disease to take all the care which the healthy people about him, by whose standard he measures himself, disregard. After some years' experience with hundreds of employees, a successful rolling mill superintendent said, "when you tell a man to do a thing you are just half done; the next thing is to see that he does it." This is even more true of directions given to the tuberculous; and while the sanatorium is only one part of the armament in this struggle, it will be impossible to make reasonable progress without the care which it alone can properly give.

3. In a sanatorium medical superintendence is the most essential feature. The sanatoriums in this country and abroad which have accomplished most have been directed by men of force and intelligence, who were in love with their work. Some one said that Mark Hopkins at one end of a log in the woods and a student with a book at the other made a college. A doctor whom we know, with one patient in a shanty in a pine forest makes a sanatorium which is bound to grow; and it is fortunate that his example and the possibilities of helping mankind in this movement are raising up other men to follow the same methods.

Assuming, then, that the numerous cases of tuberculosis

can best be handled in sanatoriums, how shall the problem of caring for the hopeful and hopeless cases be solved, and for which class is it most necessary to make provision? Another natural division of each class may be made between the well-to-do and those who have slender means, or none at all. Those in the latter class are far more numerous, and as the former are able to find places in some of the sanatoriums already established, whether near or far away, we need consider here only those who are unable to take advantage of existing institutions, and others which the demand for them will create, in this way.

The fact, that a case is hopeless seems to warrant us in giving our first attention to others who may recover, but the danger of still further infection from the dying consumptive, if not properly cared for, is so great that if we are ever to overtake the disease, it is necessary to care for the advanced as well as for the incipient cases.

The task is one which belongs to society as a whole, not only on grounds of humanity, but of self-preservation and social economy. In approaching it it seems clear that each State ought to do its part by providing at least one sanatorium for incipient cases. The political units by which the poor are now cared for are too small to build and maintain properly establishments for the purpose in the present state of knowledge on the subject, and it would be impossible to find a proper location for such a sanatorium in each, though it may be found in the larger choice which every State affords. The public welfare demands that the State shall make provision for tuberculous patients, just as it does for the insane, the epileptic, or others who require a care for which counties and towns cannot properly arrange. The objection made by Governor Pennypacker to the Pennsylvania bill, that it opened the door for the care by the State of smallpox, bubonic plague, and other dangerous diseases, is the only one not well taken, for all other contagious diseases reach a crisis promptly, while tuberculosis demands long-continued care and support if the danger to the community is to be avoided.

Furthermore, such a sanatorium is an educational institution which the State has the same right to establish as to found a State university or an agricultural experiment station. The knowledge there obtained is a benefit to the citizens of the whole State. People are now infected by tuberculosis through ignorance on the part of those who give and those who receive the infection. Each man whose habits have been corrected by even a short residence in a sanatorium will neither do, nor willingly permit to be done by others acts which before would have seemed perfectly natural. In no more effectual way can the sanitary knowledge necessary for controlling tuberculosis be disseminated, and this educational duty is a perfectly proper one for the State to assume.

It is quite proper that the State, having provided a sanatorium, should not be asked to bear the expense, or all the expenses of supporting the people in it. As in Massachusetts and New York, the patients who are able should pay at least part of the cost of maintenance, and if they are not able, the local authorities in the place from which they come should pay it for them.

Large cities, also, should provide sanatoriums for hopeful cases among their citizens. As a rule, it is hardly possible to find pure air and suitable surroundings within the city limits, and the institution should therefore be outside. If properly conducted, experience shows, as in the case of Rutland, that there is absolutely no danger to any community from the proximity of any such sanatorium. The State should, therefore, interpose no obstacle to the location of such a municipal sanatorium in the surrounding country, under proper supervision, and the relations between the State and its large cities in this respect should be entirely harmonious. It cannot be forgotten that the establishment of the New York City sanatorium, so urgently needed, was prevented by the passage of the Goodsell-Bedell bill; but in justice to all it should be said that notwithstanding the present law, one or more locations can now be secured, and the delay in carrying out this most important project is at present chargeable to the city authorities rather than to the State law.

If a beginning is made by the establishment of a sanatorium for incipient cases by each State and each large city, the advan-

tage of such institutions will be so clearly demonstrated that local authorities will be likely to make any further provision which is needed if they are at all able. If they are not, the need should still be supplied by the State.

In the absence of prompt action by the State it is to be hoped that many local authorities will make a beginning in a modest way from some such constructions as the lean-to at the Loomis sanatorium, the Blackwell's Island tents or others similar to those suggested in the pamphlet on "County and City Care of Consumptives, with Some Methods of Housing," recently published by the New York committee.

An advantageous location for a sanatorium or hospital for the treatment of presumably hopeless cases is not so necessary, and the care of such people who are financially unable to provide for themselves properly devolves upon the authorities who now have the care of the dependent poor. For the sake of others whose health may be endangered by them, as well as for the chance of recovery which intelligent treatment by modern methods holds out to many consumptives formerly considered hopeless, the city or county is warranted in providing and properly maintaining an institution for advanced cases of tuberculosis. The best location possible near the city, or, for a county, within the county, should be secured, and it should not be connected with the almshouse. People who are made poor by this disease (for which they are not responsible), should not be classed with paupers; nor, if they recover, should their weakness be made greater by the feeling that they have been in the almshouse. Any extra cost to the community of suitable care and treatment of poor consumptives in such a separate institution is justified from an economic standpoint by the removal of sources of infection, which are certain to involve far greater expense, to say nothing of the suffering connected with it. Since the proper conduct of such institutions depends rather upon faithful care than upon special medical skill, it seems to belong in the department of charities rather than the health department, but the two should work in harmony in order to secure the best results for those who are sick.

Private Philanthropy.—By such a general division of the field, provision will be made for all patients not otherwise taken care of; but this should not shut out those benevolent institutions which are now doing so much for sufferers from tuberculosis. These deserve the continued and generous support of the public, and so far as they can solve the problem the work is likely to be better done because done from the love of it than if left to the State.

So far as any institution depends upon the public, it is important that those who sustain it should be fully informed as to the way in which the money is spent and the results which it accomplishes. For this reason, and because proper comparison both of the results of treatment and the cost of maintenance in sanatoriums throughout the country will be of great advantage, some simple and yet adequate system of sanatorium reports and accounts might be adopted. The excellence of the object will not excuse any lack of care in business management. The task before us is so great that no resources should be wasted. The sunlight of publicity on all details will be helpful. I remember the peculiar pleasure it gave me to learn that the cost of eggs, milk and laundry and other such items per patient per week for the White Haven Sanatorium had been carefully figured out; and I believe the systems carried out there and at the Henry Phipps Institute have not only aided in the successful management of those institutions, but have gone far toward attracting the support which they have received. Such methods are a protection both to the donor and the manager himself against carelessness in supervision, and the man who gives money is encouraged to give more if he can see at a glance just how it has been spent.

The present uniform system of reports and accounting has done much for the railroads of the country, and this association can help the sanatoriums which we so much need by devising and recommending a suitable and uniform system for them.

Although the disease may in many cases be arrested by a comparatively short stay in a sanatorium, a complete cure requires a long time. If the patient returns too soon to his former surroundings and resumes his occupation, the old influences are likely to cause a recurrence of the trouble. How to prevent

this is the most perplexing question in the treatment of tuberculosis. A man who was asked what he did during the French Revolution replied, "I lived." If those who have tuberculosis were financially able and could be content to do little more until the cure is complete, time would be saved.

Various efforts have been made to find some occupation by which those able to leave the sanatorium could earn a living without interfering with the completion of the cure, but with no general success. At Saranac, instruction in bookbinding and decorating fit some to earn a little. In some sanatoriums the locality affords light work of various kinds for those who leave, but in others there is none. If there is a large farm connected with the institution, patients can, under the careful direction of the physician, as they become stronger, accustom themselves to an increased amount of outdoor farm work, which helps to reduce the cost of the institution; and in some cases a modest subsistence can be gained in this way after leaving the institution. A noteworthy instance of the benefit of such work is furnished by the experience at Wynne State Farm in Texas, where the inmates of the Texas prisons were put to work to their physical advantage and the financial profit of the State. At the Association Health Farm in Denver the problem is being worked out in this way, and at the Muskoka Free Hospital a poultry raising project has been found suitable and profitable.

In the rushing life of this country, however, the man who is not fully equipped for whatever work offers is badly hindered in obtaining any, and this phase of the problem merits our most serious consideration. It has been suggested that this association might maintain an information bureau to aid in furnishing such employment. It will be interesting to hear from those who have had practical experience with this difficulty in other places.

MISCELLANY

THE EARLY DIAGNOSIS OF TUBERCULOSIS.¹

Committee Report to the National Association for the Prevention and Study of Tuberculosis.

The diagnosis of phthisis, of that well-developed stage of pulmonary tuberculosis offers no difficulty whatever, the symptoms are well marked and typical, the pulmonary signs easily discoverable, the expectoration contains bacilli—the clinical picture is so typical that mistakes in diagnosis cannot well be made, even by the superficially trained observer. But this stage of pathologic development in the great majority of cases is reached only after very long periods, during which all signs and symptoms are less typical, less marked from that time on when infection took place. During this time, which marks the true incipency of the malady, and which anatomically is characterized by the formation of few isolated tubercles in lymphatics or lung tissue, no symptoms, or only vague general symptoms exist, none on which to base a positive diagnosis of the disease. Investigation has shown that such infections are of very frequent occurrence, and that only in a comparatively small percentage of these cases does the disease develop further. However, this percentage is sufficiently large to make tuberculosis the most destructive of all diseases, and the demonstration of its frequent and spontaneous arrest and of its curability by certain therapeutic measures at an early period of its development, must induce efforts of recognition long before the stage of phthisis is reached.

The discovery of the tubercle bacillus in the sputum of patients suffering from the disease constitutes a diagnostic means of indisputable accuracy. However, the consideration alone of the fact that tubercle bacilli can appear in the sputum only after the caseation and breaking down of a tubercle situated near a bronchus or bronchiolus makes it certain that tuberculous changes occur previous to the appearance of the bacillus in the sputum. This is borne out also by the clinical observation of a recognizable stage of tuberculous lung involvement

before bacilli are found in the sputum and the adoption of the term "closed," designating this stage, in opposition to "open," i. e., with bacilli found in the sputum, can be recommended for a more general introduction.

From the therapeutic standpoint the diagnosis of pulmonary tuberculosis in its closed stage is of the utmost importance, the chances of permanent recovery diminishing proportionally with the postponement of rational therapeutic measures. These measures being on the whole nothing but a radical change in the patient's mode of life, will also interfere less with the patient's usual occupations the earlier the diagnosis is made. Hence, also, for this reason, the paramount importance of an early diagnosis. The physician who declines to make a positive diagnosis of tuberculosis on account of the absence of the bacillus in the sputum only assumes a very grave responsibility and great caution in this respect cannot be urged sufficiently. Whenever certain signs and symptoms justify a suspicion of the disease, without there being positive evidence, it is wise to instruct the patient carefully as to his mode of life, to watch him closely, and to repeat the examination at stated intervals.

As regards the examination, it may be said in general that a close and careful investigation of constitutional as well as local manifestations by the simplest methods will often reveal sufficient evidence for a positive diagnosis. The search for bacilli in the sputum has unfortunately brought about a neglect of these methods.

The history of the patient may or may not contain useful information; it ought to be carefully investigated in every case. Predisposing factors, such as cases of tuberculosis in the family and among intimates or unhygienic mode of life, dusty and confining occupations, must all be taken into consideration; their absence in one case, on the other hand, must not discourage further examination.

The symptoms of incipient tuberculosis will rarely offer anything typical. We may have a very early hoarseness or a condition resembling that of chlorosis or neurasthenia, of bronchitis or dyspepsia. Cough may or may not be present. Hemoptysis in the absence of other causes among all the symptoms which may be found in the history is one of the greatest significance. Physical signs are sometimes absent for weeks after the hemoptysis. Vague as all these symptoms may be and characteristic for various morbid conditions, they assume diagnostic value only when considered together with the results of a careful physical examination.

Here inspection, first of all, will have to reveal conditions of stature and physical development, which in their deficiencies we know to be indicative, is not of the disease itself, at least of a predisposition to it. Length and weight of body, circumference and degree of expansion of chest, are data of importance and in their correlation give indication of the bodily condition and state of nutrition. Still we must not depend on finding often the classic *habitus phthisicus*, the paralytic thorax, if we are to make an early diagnosis of tuberculosis. However, these data as well as the determination of symptoms are of greatest value, if for nothing else but a guidance in subsequent examinations, and for that reason should not be neglected in any case.

Of great importance is the temperature. Even a slight rise of temperature in the afternoon, if other causes can be excluded, ought to arouse invariably our suspicions. Very often this is overlooked, and to shield against such oversight, great care in the measuring of the temperature is to be recommended. Whenever possible, a two-hourly record for a period of several days ought to be taken, a good thermometer to be placed in the mouth with tightly closed lips, and held there for at least five minutes, the patient in a room of even temperature. It will also have to be remembered that in some tuberculous patients the rise of temperature appears only after some exercise, in women before and at the time of menstruation.

The physical examination of the chest by inspection, palpation, percussion and auscultation, if carefully and properly performed, will give more direct evidence than other methods. It may be said here that the newer methods of examination, notably that with the röntgen rays, cannot, at least in their present state of development, claim superiority over the results obtained by the above-mentioned methods.

Attention shall be called here only to a few signs indicating

¹ Presented at the second annual meeting in Washington, D. C., May 18, 1905.

limited lung involvement. On inspection, very often a retardation in the respiratory movements over the affected lung portion can be observed, especially over one apex. This retardation is more pronounced in a more recent involvement of the corresponding area of the lung. (Turban.) Foci of greater extent diminish the excursions of the diaphragm of the affected side. This can be demonstrated on the fluorescent screen, but equally well and without apparatus by the observation of the diaphragmatic excursions by means of Litten's shadow.

The vocal fremitus in early pulmonary tuberculosis gives little information. It may be increased or decreased over areas of pleural thickening; over pleuritic exudations, it is always diminished.

Painstaking percussion and auscultation of the chest, over all parts and always comparing the two sides, are of the greatest value. The use of the blue pencil for marking the border lines and determining the excursions of the lungs, cannot too strongly be urged. Strong percussion, on the whole, should be avoided. Marked dullness is but rarely found over portions of the lungs in incipient tuberculosis; however, the percussion will elicit sometimes a significant retraction of one apex as compared with the other.

In judging the results of the examination by auscultation, it should always be remembered that many of the signs are subject to considerable variation, depending on the time at which the examination is made. Rales which we can easily discover in the morning will regularly be absent during the afternoon. Also, on damp and rainy days we will find them, when they are absent in dryer weather. Also do we find in women pulmonary signs accentuated at the time of menstruation.

All these circumstances must be considered before a final judgment of the case is given.

Although every portion of the lung (including the lingula over the heart dullness) should be examined with the stethoscope, particular attention will have to be paid to the upper portions of the lungs, and also to the lower borders and the axillary regions.

As the earliest auscultatory sign in early pulmonary tuberculosis we can regard the rough and the slightly diminished respiratory murmur. The former must not be confounded with the sharp (puerile) respiratory murmur, which is more a sign of increased function than of swelling of the mucosa. Both are vesicular murmurs; the rough character is produced by a succession of sounds, following each other too rapidly for aural differentiation. Is the succession less rapid, then we speak of an interrupted respiratory murmur, which suggests much coarser changes. Thus the rough murmur changes the character of the respiratory sound, it loses its "smooth" quality, and becomes "impure and roughened" (Sahli). When these adventitious sounds become audible beside the vesicular murmur, then we can speak of rales. The rough murmur is produced by slight inflammatory changes in the bronchioli, the air passing over an uneven surface and through a slightly narrowed lumen. It is principally audible during inspiration over the apices and below the clavicles. This murmur precedes the appearance of rales (not the case, as a rule, with the puerile murmur), and thus is the earliest auscultatory manifestation of tuberculous involvement of the air passages. Distinct attention should be paid to it, therefore. The appearance of rales over the apices (also in the axillary region) is next to it in importance. Rales indicate catarrhal conditions; with them the intensity of the vesicular murmur is usually diminished, which is also produced by the more pronounced swelling of the bronchial mucosa. In the earliest stages we hear usually fine crackling rales, they can often only be heard directly after the patient has coughed.

Bronchial respiration we hear but rarely in early tuberculosis; when it appears, we have to deal with a more extensive process. By its localization in the apices, and together with other signs, it is, of course, pathognomonic of consolidation. The same may also be said as regards the other deviations from the normal respiratory murmurs, which are indicative of profound tissue changes, to discuss which does not come within the scope of this report. On the other hand, pleuritic friction is often heard at an early period, most frequently in or near the axillary line between the sixth and eighth ribs.

Only passing mention can be made of other diagnostic methods, of which tuberculin is the most important. Although it is well understood that by injection of small doses of tuberculin and by the febrile reaction thus produced in tuberculous individuals, we can diagnose early tuberculosis, the method necessitates great care in its application and an apparatus too complicated for general use, so that it does not lend itself to a more general introduction. The dangers of the preparation in the hands of one well acquainted with the method are very slight, but by applying carefully the other means of observation and examination, a case will rarely be found in which it would add considerably to the information gained.

The fact that certain salts, especially iodine salts, increase catarrhal symptoms and thus make them more perceptible to auscultation, has led to their administration for diagnostic purposes. For similar reasons as the above stated, a general introduction of this method cannot be recommended.

The examination with röntgen rays has the drawback of a complicated apparatus. Beside, its value over the other methods has not yet been satisfactorily demonstrated.

Various other methods have been advocated for the early detection of tuberculosis—inoscopy, sphygmography, sphygmomanometry, serum test, etc.—all apt to increase our knowledge of the disease, but of no practical advantage in the everyday diagnosis of so frequent a disease. The careful and painstaking application of the methods well taught and well understood, with the simplest apparatus, but applied with a broad conception of the pathogenesis of the disease, will bring about much earlier diagnoses than are usually made.

DR. A. C. KLEBS,

DR. F. BILLINGS,

DR. J. H. MUSSER,

DR. J. C. WILSON,

DR. H. R. M. LANDIS.

To cut the school day in the lowest primary grade from five hours down to three and a half, seems a simple enough step on the face of it; but the mere adjustment of a curriculum is not the only problem. The advocates of the change sum up their argument in two words, "Kill frills"—that is, cut out instruction in sewing, drawing, games, physiology, and hygienic exercises. More easily said than done. Were the New York public schools situated in the open country, the plea against keeping the small children shut up would be irresistible. The hour and a half extra of outdoor life would do them far more good than anything they could get from books or teachers. There is today an intelligent and wholesome reaction from the long school day of a generation ago. Educators are finding out that children, with their undeveloped powers of attention, can acquire about as much by fairly steady work for three and a half hours as by dawdling through five. But the city streets are not the country fields; and boys and girls may often go from the schoolrooms to something worse. The "frills," be it noted, attempt to supply that very recreation and physical exercise for which crowded city streets and tenement houses afford little opportunity. In New York, games and calisthenics are not so clearly superfluous as they would be in the little red schoolhouses of Schoharie county.—[*New York Evening Post*.]

Medical Men and Legislation.—I have looked carefully over the congressional directory of the Fifty-seventh Congress and find that the Congress of the United States contains 319 lawyers, 98 business men, 32 politicians, 12 editors, reporters and newspaper writers, 8 farmers, 3 teachers, 1 clergyman, 1 military man, and 3 physicians. Does it not seem strange that the great law-making body of our country should contain so few members of this learned profession? Think for a moment of the amount of legislation in which sanitary matters are involved! It is acknowledged by all that the building of the Panama Canal is more a sanitary problem than it is an engineering one. The men who really build the Panama Canal will be the physicians and health officers who eliminate from that infected locality the germs of malaria and infectious diseases. If the canal fails, it will not be for lack of dredges nor shovels nor picks nor machinery nor money; it will be due to the ravages of cholera, of yellow fever and of other malarial diseases.—[DR. H. W. WILEY.]

THE WORLD'S LATEST LITERATURE

Boston Medical and Surgical Journal.

June 8, 1905. [Vol. CLII, No. 23.]

1. Observations on Ureteral Calculi. ARTHUR TRACY CABOT.
2. The Cases of Renal and Ureteral Calculi at the Boston City Hospital. JOHN H. CUNNINGHAM, JR.
3. Results of Cases Operated upon for Stone in the Kidney, Massachusetts General Hospital from 1897 to 1904, Inclusive. HUGH CABOT.
4. Notes on Operations for Renal and Ureteral Stone. PAUL THORNDIKE.
5. The Diagnosis of Renal and Ureteral Calculi. BENJAMIN TENNEY.
6. The Aids to Diagnosis of Renal Calculi Obtained through the Examination of the Urine. H. F. HEWES.

1.—Observations on Ureteral Calculi.—A. T. Cabot discusses the conditions favoring arrest of the stone. A rounded stone will be carried along more easily than an irregular one and the latter does not dam back the urine so completely, therefore the pressure behind it cannot be so great. There are points of normal narrowing in the ureter, notably where it passes through the bladder wall and slighter ones at the brim of the pelvis and just below the kidney. Strictures may occur after the passage of a stone. Any condition lessening renal activity also favors arrest by diminishing pressure from behind. Stones are arrested most frequently at the lower end. The ureter should in such cases be stripped from above downward through the abdominal wall or the vagina, or in the male through the rectum. If the stone projects into the bladder, it may be dislodged by a catheter or the lithotrite. If this fail, the bladder may be opened suprapubically or a posterior opening may be made as for a rectal cancer; an iliac incision, however, is better. Stones above this point are readily reached through Israel's incision. [H.M.]

2.—Renal and Ureteral Calculi at the Boston City Hospital.—J. H. Cunningham, Jr., presents an analysis of 1 case of ureteral and 48 cases of renal calculi, 19 of which were operated on, with 4 deaths. Of these cases, 37 were in males and 11 in females. There is no record of coexisting evidence of gout. The results in 7 cases which could be followed after operation were excellent. In only 1 did a fistula persist. [H.M.]

3.—Results of Cases Operated upon for Stone in the Kidney.—H. Cabot bases his paper on 26 cases in which the diagnosis was certain. Hematuria was visible to the unaided eye in 9 of these. Pain was the chief symptom. Radiographs were taken in 15 cases and were positive in 13. The average duration before surgical assistance was sought was 6½ years. The mortality statistics are probably higher for this reason. Three nephrectomies were followed by permanent recovery; 27 nephrotomies were done on 21 patients, with 4 deaths. Of 13 patients subsequently communicated with, 10 have been entirely relieved. [H.M.]

4.—Operations for Renal and Ureteral Stone.—P. Thorndike refers to the unsuspected stones revealed by autopsy and the röntgen ray. The surgeon should thoroughly investigate the kidney and upper part of the ureter, delivering the kidney out upon the loin and completely splitting it if necessary. If the stone can be felt it should be removed through as small an opening as possible. After splitting, the parts must be carefully brought together with sutures or gauze packing. [H.M.]

5.—Diagnosis of Renal and Ureteral Calculi.—B. Tenney bases the diagnosis on the location, character, and time of appearance of the pain together with the pain produced during an abdominal and pelvic examination when considered with the results of the separate urines passed after exercise and after rest. When still in doubt the radiograph, ureteral catheter, or cystoscope may decide the question. [H.M.]

6.—Aids to Diagnosis of Renal Calculi through Examination of the Urine.—H. F. Hewes names in the order of their value: 1. The presence of calculi or their fragments. 2. A combined finding of blood, casts and crystals of uric acid or calcic oxalate or cystin, the crystals being of the so-called primary type. 3. The presence of blood and casts or blood alone, with or without crystals of the secondary type. 4. Pus in considerable quantities with some blood. A fixed stone in the kidney or renal pelvis shows, as a rule, no diagnostic sign in the urine. [H.M.]

Medical Record.

June 10, 1905. [Vol. 67, No. 23.]

1. A Contribution to Hemophilia, with Special Reference to the Joint Symptoms of the Disease. FRANCIS P. KINNICUTT.
2. Remarks on the Etiology of Fissure in Ano. J. RAWSON PENNINGTON.
3. On the Early Diagnosis of Pulmonary Tuberculosis. G. R. POGUE.
4. Encephalomeningocele. WILLIAM D. HAGGARD.
5. Is Craniotomy on the Living Child Ever Justifiable? I. MARX.
6. Gunshot Wounds of the Abdomen. JOHN EGERTON CANNADAY.
7. Cushion Diseases. JEROME D. POTTS.

1.—See *American Medicine*, Vol. IX, No. 21, p. 848.

2.—See *American Medicine*, Vol. VIII, No. 22, p. 912.

3.—Early Diagnosis of Pulmonary Tuberculosis.—G. R. Pogue points out the great importance of early diagnosis in pulmonary tuberculosis, both from the standpoint of the patient and of prophylaxis. The knowledge of the disease he is suffering from should not be withheld from the patient, as it is impossible properly to handle such a case and get the best possible results if the patient is not aware of the fact that he has tuberculosis, and much is gained for the safety of his environment by early education in preventive measures. Negative results of microscopic examination of the sputum should not be regarded as evidence either way, as the tubercle bacilli do not necessarily appear very early in the disease. To make an early diagnosis, we must seek to recognize the disease during the period of the first eruption of tubercles that are large enough to produce appreciable physical signs or cause any deviation from the normal standard. Symptoms occurring at this period may be malaise, digestive disturbances, bronchitis, pleurisy, recurring colds, loss of appetite, decrease in weight, occasional night sweats, or irregular development of slight fever. The thermometer is perhaps the most reliable guide in the diagnosis of early tuberculosis.

4.—See *American Medicine*, Vol. IX, No. 3, p. 94.

5.—Is Craniotomy on the Living Child Ever Justifiable?—I. Marx says this is a question of the merits of craniotomy versus cesarean section or symphysiotomy, the advocates of the former theory being considered as conservatives, and those of the latter being classed among the radicals. Other things being equal, considerations of religion weighing strongly and more often than not absolutely determining the result, Marx always favors the mother as compared to the unknown fetus when asked to allow the mother to suffer an increased risk. His years of active experience among all classes, in and out of hospitals, have forced upon him the belief that only in rare cases is a cesarean section upon a woman many hours in labor after manifold efforts to deliver in the presence of a suffering fetus, to be considered as more conservative than a skillfully performed craniotomy. The sphere of craniotomy is limited, but it must and ought to be extended. The positive contraindication to the operation is furnished by absolute contraction of the pelvis either from bone approximation or through obstruction by a tumor mass. The treatment here should be early induction of abortion if the demand is made, or elective cesarean section at or near term.

6.—Gunshot Wounds of the Abdomen.—J. E. Cannaday points out the difference in effect on the tissues between the old style low velocity ball and the modern projectiles, which latter are less apt to be deflected in their course through the body, and produce neat, clean-cut perforations which are easily sutured and heal rapidly. Although the greatest risk of infection in abdominal wounds comes from perforation of the hollow viscera and the subsequent contamination of the peritoneum, there is danger from the projectile itself, for, contrary to common belief, the heat generated in firing does not in any sense destroy bacteria, and the missile easily becomes infected en route by contact with clothing, skin, etc. In these wounds occurring in civil life, when the wound of entrance can be shown to have penetrated the abdominal wall and the services of an experienced surgeon are promptly available, laparotomy indications are imperative as a rule, regardless of symptoms. In war time, however, when operative action often comes late and must be carried out under adverse conditions, it has been found that the conservatism of inactivity is the saner policy.

7.—Cushion Diseases.—J. D. Potts calls attention to the harmfulness of soft, warm, cushioned seats, which he considers

productive of certain disorders of the perineal region. Through modern custom, cushioned chairs, padded with hair or wool, and covered with some impervious material, have come into universal use, and the tubera ischii no longer perform the function for which they were provided. The warmth of the perineal structures in contact with the cushions is increased, and the function of the sudorific follicles and sebaceous glands is stimulated to greater activity. The inability of the secretions to escape by friction or evaporation, must sooner or later result in maceration and exfoliation of the epithelial layer. Since it is a wellknown fact that the epithelial layer is the protective one, it may easily be inferred that infection by some one of the ever-present pathogenic bacteria will result as soon as its integrity is broken. Depletion of the bloodvessels of the parts while under pressure, must be followed by more or less congestion. Deranged nutrition ensues, and the foundation of many disease processes is laid in the injured parts.

New York Medical Journal.

June 3, 1905. [Vol. LXXXI, No. 22.]

1. The Medical and Surgical Treatment of Gastric Ulcer. BEVERLEY ROBINSON.
2. The Medical Treatment of Gastric Ulcer. JULIUS FRIEDENWALD.
3. The Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, Etc. WILLIAM PERRIN NICOLSON.
4. Recurring Subluxation of the Femur as an Unusual Sequel to an Incomplete Fracture of the Neck of the Femur. PRESCOTT LE BRETON.
5. Loss of the Sign Language in a Deaf Mute from Cerebral Tumor and Softening. CHARLES W. BURR.
6. The Prevention of Insanity in Its Incubation by the General Practitioner. J. T. W. ROWE.
7. Inguinal Bubo as a Complication of Malarial Fever: Additional Report. A. C. SMITH.

1.—Gastric Ulcer.—Beverley Robinson takes up the medical and surgical treatment of this condition. He says that the cardinal principles governing the medical treatment of declared gastric ulcer are: 1. Absolute or relative rest, mental and bodily, if possible. 2. The use of rectal feeding in a measure or altogether, and the partial or complete relief of stomachal digestion, at least for a time. Gradual return to feeding, with care and many limitations, should later be counseled and enforced, and whenever anemia is notably a factor in the makeup of the disease, its special treatment should not be ignored. In case of hemorrhage, absolute rest and quiet should be insisted on, and no nutriment permitted except by the bowel. Cold applications to the epigastrium are indicated. Adrenalin chlorid, subcutaneously or by the mouth, several times daily in doses of from 10 to 20 drops of a 1 to 1,000 solution, has given excellent results. In conclusion: 1. Probably no known treatment will prevent the formation of fresh gastric ulcers. 2. Uncertainty of diagnosis often leads to clinical error. 3. Acute gastric ulcer must be recognized clinically, for it usually heals, and the treatment is purely medical. A considerable minority fails to do so and constitutes a share of the chronic ulcers. A chronic ulcer is frequently, if not usually, chronic from its inception. 4. Despite the brilliant results of gastroenterostomy in the treatment of gastric ulcers, it should be remembered that there may be forcible objections to it. 5. Any form of gastroenterostomy is a grave operation, even the most approved and the newest, on account of opening internal organs and stitching them together in unusual positions. 6. Conservative clinical diagnoses, in addition to correctly interpreted autopsy findings, will enable us to form safe judgments of cases of ulcer of the stomach, as to the medical or surgical treatment. 7. In emergency cases, whether of hemorrhage or perforation, frequently no previous symptoms existed which would permit even a probable diagnosis, hence no rational preventive medical treatment could be carried out. [C.A.O.]

2.—Gastric Ulcer.—Julius Friedenwald urges rest in bed and a liquid diet, mainly of milk. Later strained barley, oatmeal or broth may be added. At the beginning of the fourth week solid food in easily digestible form may be given. Hot poultices should be applied to the abdomen for several weeks during the early part of the treatment and 200 cc. to 300 cc. of hot Carlsbad water taken morning and evening. In severe cases, all food by mouth should be withheld for from 5 to 10 days, the patient being fed by nutrient enemata. In mild cases the

ambulatory form of treatment may be undertaken, according to one of three methods. Silver nitrate in solution in $\frac{1}{2}$ gr. to $\frac{1}{4}$ gr. doses for a period of three weeks, or bismuth subnitrate in larger doses three times daily, or olive oil may be taken three times daily from a half to an hour before meals. All perforations and perigastric adhesions produced by gastric ulcer, especially those accompanied by tumor formation, should be handled surgically. Hemorrhages which are very profuse, occurring at short intervals, or even small frequent hemorrhages which are not relieved by medical means, require surgical treatment. In all cases in which there is persistent nausea, vomiting, and pain, not relieved by the rest treatment or by a strict abstinence cure, it is necessary to seek surgical aid. All cases of ulcers of the stomach recurring at shorter or longer intervals notwithstanding a proper rest or abstinence cure, require surgical treatment. [C.A.O.]

3.—See American Medicine, Vol. IX, No. 1, p. 9.

4.—Subluxation Following Fracture of Femur.—Prescott Le Breton reports such a case in a girl of 15. The interesting points are that an unrecognized incomplete fracture had been received, which nature repaired. The girl adopted a position to favor the leg, which finally resulted in a stretching of the capsule of the joint and a tendency to luxation, so that while standing and walking the head of the femur was not in the acetabulum. A short period of immobilization by plaster cured this very marked deformity. [C.A.O.]

5.—Cerebral Tumor in a Deaf Mute.—C. W. Burr reports the case of a deaf mute, a woman of 56, who fell unconscious and was picked up paralyzed on the right side. A few hours later when consciousness returned she regained the power of using the sign language. In all she had four attacks. She permanently and totally lost the ability to use the sign language only after the fourth attack. She regained the power of walking after the first attack, but after each subsequent one the right side was more paralyzed, and after the fourth there was no return of power. She was never paralyzed on the left side. An examination showed the tumor to be a very vascular glioma in the left hemisphere. The area of disease was so great that the case is of no interest in localizing speech, except that it shows that the left hemisphere controls language by signs as it does all other forms of language. [C.A.O.]

6.—Prevention of Insanity.—J. T. W. Rowe maintains that many cases of insanity may be prevented in their incubation by sound advice and careful management on the part of the general practitioner. Cases showing toxemia following abeyance of function, the result of too close application and overwork amid insanitary surroundings should have responded to proper medical treatment. Many other points are mentioned in which the author believes that the family doctor may be a great factor in preventing mental breakdown. [C.A.O.]

7.—Bubo in Malaria.—A. E. Smith reports a case in which the patient had recurring attacks of quotidian malarial fever. In one attack the inguinal glands became acutely tender and swollen with the onset of the fever. The malarial plasmodium was found in the blood. The fever yielded to treatment with quinin and arsenic and the bubo subsided also. The bubo and fever recurred, and again yielded to the antimalarial treatment. There was no indication of any venereal disease. [C.A.O.]

Medical News.

June 10, 1905. [Vol. 86, No. 23.]

1. Mosquitos of Florida. HIRAM BYRD.
2. Suicide: Its Consideration from a Medical Standpoint. RALPH WAIT PARSONS.
3. Immigration—The Medical Examination of Immigrants and What the Nation is Doing to Debar Aliens Afflicted with Trachoma. GEORGE W. STONER.
4. "Sore Throat": As Caused by Systemic Conditions. NATHAN G. WARD.
5. Medical Treatment of Affections of the Thyroid Gland. CHARLES M. GRANDY.
6. A Very Simple Method to Locate the Stomach. MARK I. KNAPP.
7. Drainage after Laparotomy. L. A. EWALD.

1.—Mosquitos of Florida.—H. Byrd has already discovered 22 species. They can reproduce without tasting blood, and in some species the female once fertile is always fertile. The State has 11 species of Culex, and 5 of Anopheles, the malaria carrier. The latter breeds all winter in Florida. *Stegomyia*

fasciatus, the transmitter of yellow fever, is the only representative of his genus, and is widely distributed. [H.M.]

2.—Suicide.—R. W. Parsons notes that suicides have more than doubled in the past 10 years, and the ratio between male and female has become gradually less—in the last three years being 2½ to 1. The married are slightly in excess of the single. He discusses it (1) as the result of an imperative conception; (2) suicide of the sane; (3) suicide of the insane. In the first case the patient should not be held accountable, he should be kept under constant supervision, the treatment should be hygienic. Psychotherapy and hypnotism have been found beneficial. In the second class the law should be allowed to take its course. He lists the forms of insanity in which suicide is most apt to occur, and emphasizes the precautions necessary to prevent it. [H.M.]

3.—Medical Examination of Immigrants.—G. W. Stoner gives a brief outline of the medical work at Ellis Island, the gateway of 75% of our total immigration, quoting the exclusion laws and giving the heavy penalties for their evasion. [H.M.]

5.—Medicinal Treatment of Affections of the Thyroid Gland.—C. M. Grandy classifies conditions into (1) physiologic enlargement; (2) enlargement with decreased secretion, and (3) with increased secretion. In the first case, the only treatment is that directed to the intestinal autointoxication which may be present. In the second condition, administration of thyroid extract and iodine is indicated. In the third class, rest and the administration of blood from thyroidectomized animals should be tried. Children sometimes improve on large doses of arsenic. If these measures fail, and the symptoms demand it, a surgeon should be called in. [H.M.]

6.—A Simple Method to Locate the Stomach.—M. I. Knapp describes a method which will not give the exact size of the stomach, but will tell how far up or down it is. Have the patient drink a glass of cold water, wait about half a minute, and then put a hand on the bare abdomen. The cold region locates the stomach. The abdomen must not be uncovered, as this soon chills it. The physician's hand must not be cold. [H.M.]

7.—Drainage after Laparotomy.—L. A. Ewald agrees with Olshausen, who rejects drainage in almost all gynecologic operations. He advises it in cases of persistent pus focus, and all cases of injured intestines, particularly when the intestinal suture seems not to be trusted. It is not indicated when cyst contents, old hematoceles, etc., are evacuated into the abdominal cavity. Pus of gonorrheal origin is generally sterile after 9 to 12 months. The pus of the pyovarium has a more lasting virulence. Pus situated intraperitoneally, as in the parametrium, is most dangerous. Laparotomy is contraindicated in this condition. In parametric abscess, vaginal incision should be the first step. When malignant tumors are only partially extirpated, or a portion of the cyst wall remains, drainage is dangerous. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Pathology and Therapy of Insufficiency of the Kidneys in Nephritis.—G. Kovesi and W. Roth-Schulz give in a recent publication the most interesting contribution to the physiologic pathology of the kidneys since the original publications on cryoscopy. The central idea is a new conception of the work, or strain (*Leistung*) of the kidney, which cannot fail to have a far-reaching influence on the study and treatment of diseases of that organ. They state that the principal task of the kidneys is not in the old view, merely the secretion of an excessive amount of water on the one hand and of solids on the other, the two being more or less independent, but that the strain lies in secreting a urine differing in osmotic pressure from the blood. This they call the "concentration power," in one relation and the "dilution power," in the other. If a liquid is surrounded by a membrane and pressure applied to it, a liquid will pass

through having the same concentration as the original liquid, and to secrete a liquid of a different osmotic pressure requires a force, easily calculated from known physical data. If we apply this idea to the kidney and accept the usual theory, that water and salt are secreted in the glomeruli and this secretion later concentrated in the tubules, we will see that under ordinary physical conditions, a liquid would pass through the glomeruli having the same concentration as the blood. We find, however, that the normal kidney is able to adapt itself to variations in diet by secreting a urine of greater or less pressure. As the power to dilute resides in the glomeruli, with the secretion of water and the power to concentrate in the canals, it is evident that these functions will suffer in pairs as named. Of course if the kidney has lost the power to concentrate and at the same time its power to secrete water, it will of course lose its power to secrete solids, and vice versa. That the ability to concentrate on the one hand and to dilute on the other, is not merely dependent on the ability to secrete water and solids separately, is shown by the fact that if we decrease the amount of water given to a patient with interstitial nephritis, where the ability to concentrate is lessened, nitrogen will begin to accumulate, although the ingestion of nitrogen is not increased. In parenchymatous nephritis, however, more water can be excreted if the amount of solids is increased, which helps to explain the action of such diuretics as urea and salines. To test the adaptability (*Leistungsfähigkeit*) of the kidneys we therefore cut down the amount of water ingested until the urine reaches its maximum concentration and nitrogen retention begins. We then give increasing quantities of water until the urine reaches its greatest possible dilution. In health we obtain, in this way, urines of extremely low and high freezing-point ranging from -3° to -0.1° in nephritis the range is not more than from -1.5° to -0.5° . As the Δ of the blood must be kept at the normal point, we find that retention of water or solids is always accompanied by corresponding amounts of the other and when retention is so great that the tension of the tissues is overcome, we get edema. If in a patient with edema, an excess of water or solids is given, the urine having been at its maximum dilution or concentration for some time, there can be no compensation for the change and we therefore find the Δ of the urine very constant, in patients with edema. In all diseases of the kidneys, all parts of the organ are more or less altered and therefore the adaptability is affected in both directions. We find in experiment that the flow of water from the kidneys, can always be increased by increasing the amount of blood flowing through the organ and clinically this is increased by hypertrophy of the heart. Thus in those renal troubles which are associated with loss of cardiac power, the flow of water is markedly lessened, as well as the ability to secrete a dilute urine, and in those diseases with cardiac hypertrophy, the power to secrete water is better preserved than the power to secrete solids, note the contrast between the urine in passive congestion of the kidneys from heart trouble and that in interstitial nephritis, which is always associated with hypertrophy of the heart. The experiments on diaphoresis show that in cases without edema only the water elimination is increased, but that when effusions of any sort are present the sweat contains more solids than normal, and thus increases the total nitrogen output. The same is true of catharsis. The main interest of the book centers in the emphasis laid on the inability of the kidneys, in certain diseases, to secrete a dilute urine, which is rather in contrast to many of the textbooks of the present day. This is of as great importance as the loss of power to secrete water. They cite numerous cases in which the kidneys were able to secrete more water if the ingestion of solids was increased. On the other hand the loss of power to concentrate is of great importance in interstitial nephritis and decreased ingestion of salt often causes an increased

excretion of water. The stress laid on the influence of cardiac hypertrophy and the necessity for cardiac stimulation, is also interesting, and may go far to explain the peculiar phenomenon of the increased power of the kidneys to secrete water in interstitial nephritis.

REVIEW OF LITERATURE

Spring Hill Fever.—E. Hirschfeld¹ describes the symptoms of a recent epidemic fever, and discusses its differential diagnosis from typhoid, plague, and scarlet fever. It is a gastric, not a gastroenteric infection. In two cases, glands were excised and found free from bacilli, thus excluding plague. It is distinguished from gastric fever or febricula by running a definite course, with rigor, crisis, rash, and glandular swellings. The writer considers it a visceral form of dengue. Instead of the skin, the mucous membranes are picked out. Thus we see injection of conjunctiva, fauces, pharynx; we presume the stomach is affected similarly on account of the frequent vomiting; we know there must be intense congestion of the mucous membrane of the uterus from the reappearance of the menstrual flow as soon as the disease begins. The strongest corroboration of this view, however, is furnished by the fact that cases with no rash at all simultaneously occur in the same family with cases in which the rash and the pains in the joints are well marked. [H.M.]

Croupous Pneumonia.—T. G. Ashton and H. R. M. Landis² analyze 991 cases of pneumonia occurring in six years at the Philadelphia Hospital. The cases occurred among the physical wrecks common to that institution and put the disease in its gloomiest and most unfavorable aspect, but still valuable as a part of pneumonia as a whole. The mortality was 53 + %, being greatest in the two decades from 20 to 40. The right lung alone was involved in 54%, the left alone in 32%, both lungs in 13%; the apex alone, in one or both lungs, in 14%. Trauma appeared of causative influence in 7 cases. Herpes was noted in 47 cases, a very low percentage when compared with most statistics. Leukocytosis usually ranged from 10,000 to 40,000, a few higher being recorded, the highest 74,800. The course of the cases seems to have been uninfluenced by treatment, though all plans appear to have been employed. [A.G.E.]

Simultaneous Occurrence of Simple Herpes Preceding a Cutaneous Carcinoma and Herpes Zoster.—A. Schmidt³ reports the case of a woman of 62, with mediastinal cancer manifesting itself through enlarged cervical glands, dyspnea, stridor, cyanosis, edema of the upper extremities, dilated and tortuous pectoral veins, dullness on percussion, paresis of right vocal cord, and a shadow behind the manubrium when viewed with the fluoroscope. In the course of this disease she developed a curious skin picture; a chill was followed a week later by a typical herpes zoster along the radial side of the left arm. While this was at its height a new eruption appeared over the right side of the chest between the third and seventh ribs, and another lot of vesicles above the clavicle covering the anterior and lateral part of the neck. The herpes zoster became perfectly well, but the second and third eruptions were only the precursors of flattened cutaneous tumors, firmly adherent to the underlying structures, later ulcerations showing the typical picture of carcinomatous ulcers. The herpetic processes had no other relations excepting that of appearance; the simple herpes evidently being due to local nerve irritation by the malignant mass growing forward. [E.L.]

Diazo Reaction in Tuberculosis.—C. W. Budden⁴ has studied 3,000 cases, comprising various conditions. In 600 healthy persons the reaction was never found. In various forms of tuberculosis it occurred 96 times out of 672. It was found in a high percentage of cases in measles, typhoid and typhus fevers, and puerperal septicemia. In pneumonia and bronchitis it rarely occurred. In tuberculosis it was found to have no prognostic value. Its appearance is too intermittent in character, although it often corresponds roughly with exacerbations, and its disappearance with improvement. Many cases

improve, however, in which the diazo reaction has been present; and others prove fatal, that do not give the reaction on various occasions. It is rarely present in the early stages of the disease. [B.K.]

The Diagnosis of Nasal Sinus Disease.—H. B. Douglass¹ gives the principal points in diagnosis of accessory sinus disease by the general practitioner. The symptoms of frontal sinus affection are, briefly: 1. Unilateral headache over the region of the frontal sinus. 2. Tenderness on pressure at the upper inner angle of orbit. 3. Presence of pus at the eye side of the middle turbinate body on the same side as the headache. 4. If the pus does not escape from usual opening, a fistula may form at the upper, inner angle of eye. Evidences of ethmoiditis are: 1. Pain over the bridge of nose, extending to inner wall of orbit. 2. Slight photophobia. 3. Diffuse and general headache. 4. Constant discharge in middle or superior nasal meatus. Disease of sphenoidal sinus gives rise to (1) occipital headache, (2) pus in superior meatus. Indications of antrum disease are (1) pain and swelling over region of upper jaw, with neuralgia of teeth; (2) pus in middle meatus of nose, increased by bending head forward; (3) disagreeable odor within one nostril; (4) positive diagnosis is made by washing out the sinus. [A.G.E.]

Scarlatinal Suppression in Relation to Uremic Convulsions.—H. N. Leavell² reports a case of suppression with entire absence of convulsions. Bouchard has isolated seven different poisons from healthy urine, one producing myosis, another convulsions, still another headache, and so on. The symptoms will depend on which of these toxins is retained in the system. Flexner has demonstrated that many kidney inflammations are due to bacteria. Might it not have been in this case that the bacterial element which caused the suppression of urine and which caused the scarlet fever, caused the death of the patient? There have recently been reported 200 cases of scarlet fever treated with urotropin. In none of these was there albumin nor any kidney inflammation. [H.M.]

The Importance of Koplik's Spots for the Diagnosis and Differential Diagnosis of Measles.—Koplik's spots, the size of a pinhead, bluish-white in color, and surrounded by a red areola, occur in varying numbers on the mucous membrane of the cheek, opposite the molar teeth, in patients suffering from measles; they are seen usually several days before the exanthem appears and fade in most instances with the appearance of the measles eruption. H. Bruening,³ after reviewing briefly the opinions of many authors of different countries on the subject, reports his observations on 100 cases of measles. Of 48 referred to his institution with the diagnosis and eruption of measles, 19% showed the Koplik spots; of 52, in whom the disease appeared while in the institution, 50 were found to have them. The patients included children of all ages. It was found 3 times on the fifth and sixth days before the eruption, 4 times 4 days before, 7 times 3 days before, 11 times 2 days before, and 25 times 1 day before the eruption came out; in only 17 did they persist long enough to be present at the same time as the actual cutaneous eruption and in only 2 instances did they last as long as the eruption itself. They were usually small, but easily observed as soon as the mouth was opened, diffuse daylight being the best light for their observation. In some cases they were scattered over lips, cheeks, gums, etc., but usually seen opposite Steno's duct. They were not observed by him in any other eruptive fever, such as rubella, scarlet fever, serum exanthemas, so that the author considers them absolutely pathognomonic for measles, advising their use for purposes of diagnosis, differential diagnosis and prophylaxis. [E.L.]

Subphrenic Abscess Diagnosed by Radioscopy.—E. Devic and A. Chalier⁴ report a case with symptoms referable to some disturbance in the left hypochondrium, but without any physical signs whatever. A röntgen-ray examination revealed a dark mass below the diaphragm on the left side; it also showed that the two halves of the diaphragm moved in opposite directions, in a see-saw manner. An exploratory

¹ Australasian Medical Gazette, March 20, 1905.

² American Journal of the Medical Sciences, June, 1905.

³ Archiv für Dermatologie und Syphilis, 1904, lxx, 321.

⁴ British Medical Journal, May 6, 1905.

¹ The Postgraduate, June, 1905.

² American Practitioner and News, March, 1905.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, No. 10, 384.

⁴ Lyon Medical, May 14, 1905.

puncture revealed pus beneath the diaphragm, and an operation was performed, but the patient died. At autopsy, it was found that the abscess probably had its origin in ulceration of the stomach. The case is of value as showing the importance of radioscopy in the diagnosis of subphrenic abscess. In explanation of the curious see-saw movement of the diaphragm, the authors say that the left side of that muscle did not participate in any active movements, but was pushed upward by transmitted motion as the right side descended. This phenomenon can be regarded as a sign of abolished function in a part of the diaphragm, and thus assumes diagnostic importance. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Abdominal Pain.—J. B. Deaver¹ says superficiality is a trait which the abdominal surgeon of all must most shun at the present day. Exploratory laparotomy is justifiable in many cases to determine the extent of a lesion, but the most appalling disasters in surgery are the result of teaching operation for diagnosis. The surgeon should be able to say with at least some degree of certainty whether he will be able to do anything for the patient when the abdomen is opened. This ability comes only from habitual exact attention to the smallest details in studying cases. Deaver thinks little of "last resort" operations and rarely performs them; the responsibility for these cases should remain where it belongs. The reason why a surgeon is called upon oftener to operate than to assist in making a diagnosis is his own fault and the result of the fallacious teaching of exploratory incision. The aim of the good surgeon should be to become a diagnostician as well as operator; the judgment of such men is of great moment in deciding for or against operation as well as in determining the kind of operation. [A.G.E.]

Fractures of the Tarsal Bones.—D. N. Eisendrath² shows by the report of cases the necessity of making a diagnosis early in fractures of the astragalus and calcaneus. Fractures may be due to compression, as in falls; fractures of the neck of the astragalus may follow sudden dorsal flexion; of both astragalus and calcaneus, forced supination or pronation of the foot; fracture of the os calcis may result from forcible action of the calf muscles; fractures may also be due to crushing or gunshot injuries. The signs are swelling of the ankle, obliteration of the normal depressions below and behind the malleoli, crepitus and abnormal mobility, dislocation of fragments, lowering of the malleoli, shortening of the foot, pes valgus or varus. Of the greatest value in diagnosis are palpation of a fragment, pes valgus or varus, the röntgen rays, and the history. In simple fractures without displacement the foot should be immobilized at right angles in a removable cast well padded for eight weeks. Massage should begin on the third or fourth day. In displacement with danger of skin necrosis it is better to convert the fracture into a compound one. If the fragment lies laterally it can be easily removed. If there is detachment of the tendo-achillis, the latter should be sutured to the body of the os calcis. If badly splintered, the astragalus or os calcis may be removed without marked loss of function in the foot. In compound, crushing, and gunshot fractures the same rules apply here as elsewhere. [H.M.]

Trauma of the Mesentery.—J. F. Erdmann³ reports two cases of detachment and one of multiple laceration of the mesentery, two due to wagon wheel compression, the other to crush by a falling wall. All recovered after operation, a second operation for obstruction being necessary in one. Erdmann makes it a rule in all cases of abdominal contusion to do exploratory operation if the patient has abdominal rigidity or pain, with or without evidences of blood by vomitus, rectum, or bladder. He is thoroughly convinced that a "waiting for further symptoms to develop" policy is wrong. Patients seen during the first hour or two are often in such deep shock that some of the symptoms or signs are absent. In these cases

Erdmann explores immediately if the injury was due to fall from a considerable height or to a body of heavy weight. By adhering to this rule he opened the abdomen successfully in three additional cases within four weeks, rupture of spleen, of liver, and of stomach; two colleagues operated successfully on rupture of spleen, and rupture of liver. [A.G.E.]

Cause and Treatment of Pruritus Ani.—In over 90% of his cases of pruritus ani, F. C. Wallis⁴ has found a shallow ulcer between the two sphincters, more often in the posterior segment. In the treatment of his patients, therefore, he stretches the sphincters and applies the electric thermocautery to the ulcer and to the thickened skin around the anus. Vaseline is then applied and a morphin suppository introduced. The bowels are moved on the third night and starch and zinc powder is used locally. When the ulcer practically encircles the bowel, Wallis dissects out the tissue involved and brings the upper cut edge down to the anal margin by a continuous catgut suture. [B.K.]

Surgery of Hydatid Cysts of the Abdomen.—Mabit⁵ says the generally accepted treatment of hydatid cysts is fixation of the opened cyst wall to the margins of the abdominal wound and insertion of a drain. This has many advantages, but possesses two defects, namely, the liability to suppuration and secondary flow of bile. Mabit has in his last 18 cases employed a method which gives excellent satisfaction. He incises over the most prominent part of the tumor, punctures and then opens widely the cyst, irrigates with boric acid solution, being careful to remove all daughter cysts, and then dries it completely with compresses. When the absence of bleeding points and biliary fistulas is determined, the entire portion of the cyst wall not directly attached to the involved organ is resected. The remainder is simply allowed to project into the peritoneal cavity, no attempt being made to cover it. The abdomen is closed without drainage. In only one of the 18 cases did suppuration occur, requiring secondary suture to the wound and drainage. This was a cyst of the liver, which was entirely surrounded by the latter, rendering resection impossible. Notes of the 18 cases are given; 8 were in right lobe, 3 in left lobe of liver, 2 in spleen, 2 omentum, and 2 in the mesentery. [A.G.E.]

Exophthalmic Goiter Reduced by Radium.—R. Abbe⁶ reports the first case in which radium has been applied. On account of the different effect of röntgen rays on ulcerated and unbroken skin surfaces, it occurred to him that while radium outside a goiter would be ineffective, inside it might have striking results. Under cocaine anesthesia he made a small median incision dissecting down to the isthmus of the thyroid. Into this he thrust a small bistoury, making a deep enough incision to bury a sterilized tube of radium at right angles to the skin and an inch deep. It was held in place by dressings and straps, the patient keeping her head fairly quiet for 24 hours. The glass tube was $\frac{1}{2}$ in. in diameter, and contained 10 cg. of Curie radium. At first the gland seemed a little more swollen. In four months it was only a sixth of its former bulk. All unpleasant symptoms, including a sense of suffocation, severe headaches, inability for exertion, tremor, etc., disappeared. Some tachycardia remained. [H.M.]

Renal Tuberculosis.—M. W. Ware⁴ contributes a review of the issues concerned in the diagnosis and treatment of renal tuberculosis. He concludes that a careful study of urine analysis of each kidney is up to the present our best guide; when doubt exists beyond this we may with impunity explore the associate kidney, which will obviate errors due to anomalous conditions of the ureters. Cryoscopy, to be of service, must be performed several days in succession, but this test must as yet be regarded of relative rather than absolute value. The value of the röntgen ray in locating renal tuberculosis is yet *sub judice*, though this method has in some instances proved inaccurate. When operation for renal tuberculosis is contraindicated, amelioration of symptoms may be secured by observance of the hygienic and therapeutic measures practised in pulmonary tuberculosis. [A.G.E.]

¹ Yale Medical Journal, May, 1905.

² Annals of Surgery, March, 1905.

³ American Journal of the Medical Sciences, June, 1905.

⁴ British Medical Journal, May 13, 1905.

⁵ Revue de Chirurgie, May 10, 1905.

⁶ Archives of the Röntgen Ray, March, 1905.

⁴ American Journal of the Medical Sciences, June, 1905.

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

A Possible Spirocheta of Syphilis.—To the recent successful inoculation of anthropoid apes with human syphilis has been added a discovery which appears to be of very great importance in the search for the cause of this disease. We refer to the finding in syphilitic lesions, by Schaudinn and Hoffmann, of a spirocheta provisionally named by them *Spirocheta pallida*. Their first report earlier in the year has been supplemented by a second,¹ in which their previous work is confirmed by eight additional cases, making in all 26 cases in which the organism has been found. In six of the eight recent cases the lesions were four and a half weeks to eight weeks old, without secondary involvement of skin or mucous membranes; the other two had lasted three and a half months to four months. In each of the eight, *Spirocheta pallida* was found in the fluid of enlarged inguinal lymph-nodes; in two the nodes were removed, in the others the fluid was obtained by puncture. This organism is extremely small, 4 μ to 14 μ long, and of practically unmeasurable width, less than a fourth micron, actively motile, and fails to react to ordinary stains, attributes which probably account for its having hitherto escaped attention. It is distinguished from *Spirocheta refringens*, which has been found in other lesions, by possessing a greater number of curves which are sharper and more closely placed and screw-like, and, as the name implies, stains much less deeply. It stains with difficulty, azure-blue and eosin yielding the best results. Schaudinn and Hoffmann do not pretend to assert that the organism in question is the specific cause of syphilis; this point must be determined by further investigation. Of considerable significance in this respect is the report of Metchnikoff and Roux,² to whom Schaudinn communicated his findings before publication. Six of the inoculated apes at the Pasteur Institute were examined, and in four *Spirocheta pallida* was demonstrated; one of the two negative cases was a chimpanzee almost recovered as the result of serum treatment. In one animal the organism was found in large numbers in the fluid from a sore above the eye, its presence in this extragenital inoculated lesion constituting the strongest argument in favor of its being the specific cause of syphilis. Metchnikoff and Roux, like Schaudinn, make no definite claims regarding its specificity, though the former believe it may be utilized as a diagnostic test of lesions produced in animals. For staining the spirocheta, Metchnikoff and Roux employed first the method of Giemsa, which requires 16 hours to 20 hours, but found that more rapid coloration is obtained by Marino's method, using a solution of azure-blue in methyl alcohol and a weak aqueous solution of eosin. The latter does not stain so readily or accurately, but in some instances positive results were secured in 15 minutes. As none of the spirochetes have been cultivated, the determination of the specificity of this latest discovered member of the group will require extended research. At this time its presence in the lesions of syphilis appears to be more than accidental.

REVIEW OF LITERATURE

Hemochromatosis with Chronic Parenchymatous Nephritis.—W. R. Stokes and S. P. Latane³ report a case of hemochromatosis occurring in a man of 52, who died in uremic coma shortly after admission. This is the twenty-fifth case on record and possesses these points of interest: It is one of four in which the urine did not contain sugar; it is the only one giving a definite history of syphilis; it appears to be the only

reported case accompanied by grave kidney lesion. The writers believe that some unknown material causes a change in the blood, the liver cells taking up hemosiderin or altered red cells. Liver and pancreas undergo secondary increase of connective tissue and diabetes often supervenes. The best method for demonstrating iron in the liver is to stain with Van Gieson and then apply the ordinary tests for the Prussian-blue reaction.

Contribution to the Study of Mast Cells.—Fahr,⁴ in a study of mast cells in rats, whose peritoneal fluid is normally rich in these cells, found them as sensitive as are phagocytes. They exhibit negative chemotaxis to bacteria and toxins virulent to the animals, but not to substances for which the animals were refractory. Negative chemotaxis in the mast cells of the peritoneal fluid is shown by these cells passing into the mesentery and omentum.

Comparative Anatomy of the Anterior Cerebral Artery.—W. W. Lessem⁵ presents a well-illustrated article on this subject based on a study of a large number of brains from infants and fetuses of all ages and of the higher animals. In the primates there is but one anterior cerebral artery and this condition was present in 75% of the human fetal and infantile brains examined. In the latter can be traced steps marking the transition from a single to two arteries. In the primates there is no anterior communicating artery; this is invariably present in the human brain.

Action of Alcohol upon the Circulation.—H. C. Wood and D. M. Hoyt,⁶ from elaborate animal experiments, conclude that alcohol does not seriously affect normal animal blood-pressure, elevates the blood-pressure after vasomotor paralysis from section of the cervical cord, increases the rate of the blood flow, and directly stimulates the heart. Therefore, the general action upon the circulation of the moderate dose of alcohol is cardiac stimulation with vascular dilation, due to depression of the vasomotor centers. Two experiments on human beings with the arm plethysmograph were corroborative of the results with animals. In general, the studies indicate that the increased cerebral excitement and activity following ingestion of alcohol are not due to direct action of the drug upon the brain, but to the increased amount of blood in that organ.

Congenital Tuberculosis.—Martha Wollstein⁴ reports the seventh case of undoubted congenital tuberculosis that is recorded. The mother died of advanced tuberculosis six days after the child was born; placenta and uterus contained many tubercles. The child lived 19 days; tubercles were found in lungs, liver and spleen. The infection of the child is assumed to have occurred in this way: The basal decidua was first affected, bacilli then traveling from the sinuses to the villi and causing thrombi in the neighboring intervillous spaces, with destruction of the syncytium, entering the villous stroma and finally reaching the chorion. From the early tubercles in the child, it is believed the fetus was infected shortly before birth.

Joint Affections in Tabes Dorsalis.—V. E. Henderson,⁵ in 71 patients with tabes, found 10 with arthropathies. He names several conditions which, found in combination at postmortem, should suggest tabetic arthropathy and lead to examination of the cord, nerves and structures of joints. These are: 1. Stretched ligaments with enlarged capsules and thickened synovial membrane, and possibly containing a large amount of fluid. 2. General slight enlargement of the ends of bones, or exostoses or lipping of articular cartilages. 3. A dull, velvety or worn appearance of the cartilages of the joints, amounting, possibly, to exposure of underlying bone. Degenerative changes in the sensory nerves or paths is the most important lesion accompanying or preceding the joint changes. Trauma must be considered the exciting cause of the arthropathy.

The Microorganism of Actinomycosis.—J. H. Wright⁶ has isolated branching filamentous organisms from 13 cases of actinomycosis in man and two in cattle. All the included strains formed characteristic club-bearing colonies in the tissues of experimental animals. Wright believes there is but one species in all typical cases of actinomycosis, the preferable

¹ Virchow's Archiv für path. Anat., Band cxxxix, Heft 3, 1905.² The Postgraduate, May, 1905.³ University of Pennsylvania Medical Bulletin, May, 1905.⁴ Archives of Pediatrics, May, 1905.⁵ Journal of Pathology and Bacteriology, Vol. x, No. 3, April, 1905.⁶ Journal of Medical Research, May, 1905.¹ Deutsche medizinische Wochenschrift, May 4, 1905.² British Medical Journal, May 27, 1905.³ Maryland Medical Journal, May, 1905.

name being *Actinomyces bovis*. Branching organisms of wide dissemination and possessing spore-like reproductive elements should be grouped under the name *Nocardia*, and infection by them called nocardiosis. Wright believes *A. bovis* is a normal inhabitant of the buccal and gastrointestinal secretions of man and animals, instead of usually residing outside the body, but can yet offer no proof of this. Accompanying bacteria play an important part in the extension of the disease in some cases.

Endothelial Separation in the Smaller Arteries and Veins.—C. G. Farnum¹ has studied this condition in the tissues obtained at 154 autopsies, endothelial separation being present to some degree in 106 of the series, 65%. It was found in all organs, and in all conditions of the organs, being but slightly more frequent in pathologic than in normal tissue. In order of frequency the organs are kidney, spleen, heart, liver, and lung. The time of the separation and the cause are yet to be determined. The lesion does not appear to be a vital one.

Latent or Dormant Plague.—M. Herzog and C. B. Hare,² from studies made to determine if latent plague exists where the disease is endemic, reach the conclusion that latent or dormant plague does not exist in Manila and find no reason for supposing that it exists in Hongkong. A study of the blood of 245 native Filipinos and Chinese gave not the slightest proof that there is such a thing as latent human plague, with the presence of plague bacilli in the circulating blood, in the absence of clinical symptoms of the disease. The persistence of the disease in Hongkong, ascribed by some to this factor, can readily be explained by the unsanitary conditions there prevailing.

Implantation Tuberculosis of the Peritoneum.—G. Guyot³ says that tubercle bacilli may gain entrance to the peritoneal cavity in two ways, the direct by rupture of a tuberculous focus, and the indirect by way of the lymph stream. The bacilli lodge on the surface in the areas least exposed to mechanical injury, as Douglas' culdesac, upper surface of liver, under surface of diaphragm, and anterior surface of spleen. The chief distinguishing feature is the superficial situation. From the ordinary tuberculous lesion the implantation form differs in being vascular, and in the polymorphism of its histologic constitution. The body cells remain passive, the new formation being composed principally of migrated cells.

Detection of Minute Traces of Sugar in the Urine.—E. L. McEwen⁴ writes briefly of the phenylhydrazin test for sugar in urine, principally for the purpose of showing that it detects minute quantities of sugar in practically all urines. The amount in so-called normal urines is so small as to be of little or no pathologic importance. When phenylhydrazin is added to urine, two forms of crystals appear. One is needle-shaped, and is typical of sugar; the other forms the "thorn-apple" crystal appears in a very large proportion of all urines examined, and is also to be interpreted as indicating sugar, both types being removed by fermentation with yeast. When sugar in increasing quantities is added to urine showing the "thorn-apple" crystals, a point is soon reached at which the typical needle crystals appear.

Humanized Horse Serum for the Identification of Human Blood.—Justin de Lisle⁵ records experiments from which he concludes that the horse, when vaccinated with human blood, will yield a precipitin serum; it is a practical animal for this purpose on account of the large amount of serum yielded, and its power to sustain large injections of human blood. The serum thus produced is sensitive to dilutions of human blood up to, and probably beyond 1 to 1,000. This serum can be kept in sealed tubes without the addition of preservatives, for an indefinite period without losing any of its sensitiveness.

Caffein in Bacteriology: Differentiation of Typhoid and Colon Bacilli.—J. Courmont and L. Lacomme⁶ repeated the experiments of Roth, who found that the addition to cul-

tures of caffein permits typhoid bacilli to develop, but prevents further growth of *B. coli*. They extended their experiments to a number of other bacteria. Their conclusions are: Caffein kills very many bacteria; 10% in bouillon prevents the growth of *B. coli*, but does not interfere with the development of the greater number of varieties of typhoid organisms. Typhoid organisms cultured for a considerable time, as well as such isolated from the blood but a short time, are very sensitive to the action of the drug. In some instances typhoid bacilli from the urine developed well in a stratum containing caffein, while bacilli from the blood of the same patient did not develop. In spite of these irregularities the procedure is of value, as it is the only one known which differentiates the two organisms. As bacilli obtained from stools do not grow in caffein-containing mediums the method cannot be used in the diagnosis of typhoid fever. [E.L.]

Formation of Arterial Infarcts in the Liver.—According to B. Ruczynski,¹ hepatic infarcts may arise from obliteration of branches of either the portal vein or the hepatic artery. On account of the free anastomosis between these two vascular systems, infarcts rarely arise after occlusion of a branch of either system. They occur most frequently when a large branch of the portal vein is occluded, and are least frequent after obstruction of branches of the hepatic artery. The author reports two cases of hepatic infarct. In the first case an embolic occlusion of a branch of the hepatic artery had produced an anemic infarct, in the region of which the portal vein branches were also found occluded by thrombi of more recent origin. The author believes that this latter phenomenon was due to interference with the circulation in the vasa vasorum. In the second case there had occurred an occlusion of corresponding branches of both the hepatic artery and the portal vein. Here the obliteration of the vessels had been gradual, probably the result of an endarteritis obliterans, and a red atrophic infarct resulted, without necrosis of the hepatic cells. [B.K.]

Etiology of Carcinoma.—G. T. Beatson² inclines to the germinal theory of its origin, on account of the remarkable results of oophorectomy on mammary cancer, resulting in increase of the stroma and fatty degeneration of the cancer cells. Unequivocal evidence of extension of anything like polar bodies has not yet been found and the inoculations of rabbits with testes and ovary has so far been without result. Confirmation of the germinal theory has been afforded by Farmer's researches on mitoses in cancer cells. Another evidence that these cells are part of the body tissues is that they are non-irritating. Local secondary growths do not reveal themselves until they attain considerable size. The bodies of cancer patients are sometimes strikingly well nourished. The fat is highly pigmented, reddish-yellow, and at operations sometimes seems oily and fluid. The stimulus to the reduction of the chromosomes and extension of polar bodies in ovaries and testes must be some fluid in the tissue juices. In castrated persons the storing up of fat is due to the diversion of this fluid from its proper end. Farmer showed that cancer cells revealed a reducing division, therefore they might assist or even replace the reproductive cells. When operated on successfully, the patient often puts on fat. This may be due to a cessation of the drain from the tissue of the procreative fluid used up by the tumor. [H.M.]

Epithelial Changes in the Gastrointestinal Diseases of Nurslings.—G. Tugendreich³ examined the gastrointestinal tract of a series of dogs, some of which had been fasting, others eating, the tract therefore being in a state of physical activity. He found a series of histologic changes in the digesting as compared with the hungry dogs, which could easily be taken for pathologic changes. They consisted chiefly of necrotic destruction of the tips of the intestinal villi, more marked in the active than the inactive glands; nuclear changes and epithelial desquamation. How far these changes are due to the fixation process, and how far to the digestion, the author is unable to tell, but he cautions against believing them to be due to pathologic disturbances. [E.L.]

¹ Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. path. Anat., Heft 2, p. 147.

² Medical Press and Circular, March 8, 1905.

³ Deutsche medizinische Wochenschrift, 1905, xxxi, 221.

¹ Journal of Experimental Medicine, Vol. vii, No. 2, April 25, 1905.

² Bureau of Government Laboratories, Bulletin No. 20, Manila, 1904.

³ Virchow's Archiv f. Path. Anat., Band cxcix, Heft 3, 1905.

⁴ American Journal of the Medical Sciences, June, 1905.

⁵ Yale Medical Journal, May, 1905.

⁶ Journal de Physiologie et de Pathologie generale, 1904, vi, 286.

American Medicine

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
HELEN MURPHY

Legal Medicine

JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
CHARLES A. ORR

Pathology

ALLER G. ELLIS

Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Orthopedic Surgery

H. AUGUSTUS WILSON
J. TORRANCE RUGH

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases

J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Dermatology

M. B. HARTZELL

PUBLISHED WEEKLY AT 1321 WALNUT STREET PHILADELPHIA BY THE AMERICAN-MEDICINE PUBLISHING COMPANY

VOL. IX, No. 25.

JUNE 24, 1905.

\$5.00 YEARLY.

Redemption of Dirty Paper Money.—Some time ago we mentioned the possibilities of bacteria-laden paper money in the spread of disease and suggested that the Government should be more liberal in redeeming soiled, as well as mutilated, notes. There is now before Congress a bill to provide for taking dirty money out of circulation. One of its champions is that enthusiastic sanitarian, Commissioner Darlington, of New York City. His arguments in favor of the proposed law are fortified by the results of experiments made to determine the effect upon bacteria of coins and paper money. The results show that the metallic substances in coins, in the presence of moisture, are prejudicial to the life of bacteria, experimentally infected coins yielding no growth at the end of 48 hours. On the contrary, paper money not only gave a growth after the lapse of 48 hours, but in some instances continued to do so at varying intervals for as long as one month. It is to be hoped the proposed measures, if they promise effectiveness, will become a law. As suggested recently by a correspondent, physicians can do much in eliminating the danger from dirty money by asking at banks for new in exchange for soiled bills, and explaining the reason therefor. Bank officials will thus come to know that such requests, instead of being fads, are based on principles of preventive medicine.

Marriage and divorce laws in the Philippines are worrying the Manila newspapers and probably always will, for the sexual habits of the lower races are natural phenomena which defy human law. The American negro has accepted the letter of our marriage law, but not its spirit, and we must expect the same result in the Philippines. Polygamy, polyandry, and concubinage, each in its turn, were necessary customs in every race at some stage of its growth, but have outlived their usefulness among the highest and have been so long abandoned that those who practise them become outcasts for defying the moral views of the great majority. The concubinate is still a respectable institution among even the highest classes in Japan, though in deference to the moral sentiment of western nations it is made unobtrusive. Among the Filipinos the concubine or *querida* (friend) is as respectable as she was in ancient Israel. The average Malay woman has not the slightest objection to becoming a *querida* if she is sure that she

can provide for her children and will not be abandoned. It is a marriage to her mind and her proverbial fidelity, love, honor and obedience are a rebuke to many a married white woman. Genealogies of the best mestizo class cannot be traced back too far, as we would be shocked at the large number descended from *queridas*. These are cruel facts, but must be faced by the puritanical who live in too great ignorance of the lower races.

The moral standard of the women of a race is largely a result of selection. In the higher races there is such personal freedom that girls are subjected to great temptation. The weak or abnormal pass into prostitution and are eliminated from the child-bearing class. On account of alcoholism the average life of a prostitute is very short, being variously estimated at from five to nine years. The number yearly eliminated is appalling, yet the moral tone of the normal woman must be rising at a tremendous rate, when only the strong survive. In southern Europe the women have no freedom, and there is no chance for the weaklings to be eliminated. The type may be beautiful, but it has been compared to a statue of clay molded of all the material, while the northern type is like one of granite made beautiful by chiseling off and rejecting the unsightly parts, and it will resist adverse conditions which destroy the molded clay. Already in England there are not enough of the weak native women left to supply prostitution, which is recruited from southern Europe, and this foreign female element is London's present family skeleton. In the south of Europe infidelity is blamed on the man, but in England it is presumed that the woman has power to resist and the women themselves ostracise those who fall. The Malay woman has unbounded contempt for the prostitute or Marguerite, so that the system does not exist, nearly all the prostitutes of the Philippines being white women or Japanese. The Malays naturally think that our system is the worst, and perhaps it is for them.

Monogamy is a recent social necessity which has come upon us too quickly to have eliminated all traces of former marriage instincts. Something had to take their place and that was prostitution. We are not at all sure that we can destroy this dreadful system in many generations, though it may disappear through the

elimination by venereal diseases of the men who keep it alive. It is our family skeleton. The recent disappearance of polygamy clearly explains why the women of such families defend it and are perfectly contented. They are merely reverting to what was normal a few centuries back—a matter which is so hard for other women to understand. It is unnatural like every other atavistic variation and is bound to perish for that reason. The system which is best for the Filipino, after he has become more drilled in civilized customs, is for the future to decide. Some knowledge of lower races and our past history, mixed with a little charity, is not a bad thing to acquire before making suggestions. For the present we should not throw stones at him, because there is too much glass in our own houses. It will not hurt us to follow the great Leader's advice, and let the guiltless races throw the first stone.

Monogamy is a result and not a cause of our social state. Men do not generally give posterity a thought when they marry. It has been the custom of medical writers on this topic to assert that child bearing is the sole reason for the survival and present state of our marriage customs, whereas it is but one of a multitude of beneficent purposes, all of which are also found in more or less degree among savages. There is the need of home, companionship and cooperation of labor, but above all, the male mind with its egoistic practicality must be checked and complemented by the altruistic emotions of the female mind. Each is defective and unsafe. The complete mind is that of a married couple. No wonder monogamy survived. Love itself is not a matter of children, but infinitely more—it is a sociologic necessity. Those who marry for animal procreation are the royal families, and their matrimonial bliss does not bear scrutiny. The absence of love necessitates morganatic unions. Imperative need forced monogamy upon society before men and women were physically adjusted to it, and the adjustment is now going on. It has been boldly stated that prostitution is kept alive by married men over 40, whose wives can no longer bear matrimonial burdens, and the men are not yet angels. The least angelic are being eliminated so fast that we can confidently predict perfect adjustment to monogamy in time. Such facts may not be pleasant to think of, but they must be faced in law making. Legislators approach the subject too lightly, for it is most complicated, and as a result no two States can agree as to the proper laws.

Marriage by mutual consent is the normal method in lower races, though some kind of a ceremony is usually performed. It is a racial matter and not due to laws. Formerly the large fees charged by priests who were the only ones authorized to perform Christian marriages, not infrequently compelled the Malay couple to resort to their native custom. Instead of stigmatizing these unions it would seem wisest to recognize them as we have in the case of our Indians, and as most of the States have in the case of all people. This course was necessary owing to the impossibility of securing the services of a clergyman or justice in sparsely settled

places. It would be remarkable if we were to refuse to the Malay what we grant to ourselves in this matter. The outcry against these marriages is therefore pharisaical, for they are moral and respectable to the native and can be legalized without disturbing the home conscience. It no doubt shocks the native to be told he is a moral leper, so we must deal with him as nature made him. Simply recording the unions is all that is necessary. Whether they can be prevented is an open question, and it is still more doubtful whether it is wise to attempt to eliminate them or the querida system either. Particularly ridiculous is the present law which prevents marriages of women less than 21 unless the parents consent.

Divorce became unnatural when the family established itself as the basis of society, for the only surviving families were those who were opposed to divorce and raised their children. Laws restricting divorce merely express the moral view of the majority of our race. It is not at all evident that this rule can fit the Malay race, which is not yet out of the patriarchal stage of organization in which children are carefully reared, even if divorces occur. Yet the absence of all provision for divorce must be wrong, if it is not the evil it is in later stages of culture. Separations are not at all common, yet they might be legalized without disturbing racial customs too radically. Too much tampering with the whole matter might result in such conditions as are found among the negroes of the West Indies, who live under European laws, with the result that more than half the births in some places are illegitimate. In the Philippines illegitimacy is relatively rare. In the whole matter it is better to go as slowly as we have with the Indian. It is a strain upon our ideals to be sure, but ideals are generally smashed when we come in contact with the lower races and learn of their ways of thinking. They can be and must be enforced to conform to civilized methods of living in larger affairs dealing with the safety of life and property, but in matters of morality it will be impossible. The clergy have too long tried to regulate such matters without regard to racial needs. Civilized law is merely the will of the great majority; it has never created morality, but morality creates the law. Law cannot make the Malay white, nor make white men angels.

The increase of suicide gives evidence of the characteristics of the degenerate Roman days. One may leave out of view those due to the disappointments and problems of romantic love, which troubled the Romans little, but which with the modern centuries have been powerful causes. "The play is over, ring down the curtain" is more and more the only words that give a clue to the psychology. Life is looked upon as a play or game, not a serious and moral act. A crime the deed undoubtedly is, but one the nature of which seldom permits of punishment. When the criminal by his blunder fails to commit his crime, it would seem at least useless to sentence him. The noteworthy fact is the increasing prevalence of the crime among the so-called "better classes;" six suicides recently occurred in

Denver in one day. Often the plea of insanity can no longer be urged in their behalf. For instance: A woman piqued by a rebuke from her husband, kills herself calmly, and two young men in the same town give as their reason that they were "tired of life." A traffic manager of a great railway suddenly takes a notion to kill himself. Despairing as to the higher education of his children, a father dynamites his whole family. "They would better die than live in a subordinate position." "Had had enough" was the excuse of a "successful" business man, who wound up his business in a detailed will, and who went away to drown himself in the ocean in order to save the bother of a coroner's investigation, a burial, etc. Not a few seem dominated by the reverse of such solicitude, and kill themselves in such a way as to throw suspicion upon others, resulting in long trials for homicide. A thousand such stories are appearing in all the newspapers.

Causes of the Increase in Suicide.—Ill-health is becoming more and more the reason given by many who commit suicide. Last week, a well-to-do woman, suffering from "nervous dyspepsia," a shameless term of the laity as well as of professional writers, eluded her two nurses, and killed herself in a fit of despondency over her disease. There have recently been chronicled four cases of suicide owing to the passing of a supposed period of usefulness or working age. The fear of morbidity or of old age, may itself easily become morbid, and wise physicians are careful not to encourage this disease. It seems clear that the real cause of the suicidal era upon which we appear to be entering and encouraging, lies the illogical and senseless overvaluation of wealth and success. In a generation when ill-health has been reduced over 50%, and the means of healthy living increased, if they were only utilized, a hundred-fold, the despair due to disease is highly absurd. The truth is that true disease does not lessen the desire for life. It is the sham disease, the unnecessary and imagined illness, the assumed invalidism, the diseases of the will that naturally and rightly end in self-killing. In the same way it is the false evaluation of the goods of life that brings the bankrupt minds to prefer death to living. Success, and the wild hunt for it, either by means of money, or by means of egotistic ambition begets in the crude minds of poor imitators a sense of failure, and they do not see that such ideals of life are really false, that such expensive "goods" are almost necessarily cheap evils. Luxury and fashion are things to be cursed, not prized, of course, and where they are sought as avidly as by us nowadays, there is no logic can convince the failures that suicide is a blunderer's stupidity and a coward's crime.

Physical Labor and Suicide.—Throughout the literature of suicide one will find that the attitude toward wage-earning and work is a larger factor in shaping motives. The dread of being forced to work after a period of leisure, the mad desire to get money by trickery and gambling devices, the scorn with which manual labor is regarded by the "successful," is emphasized by the stories of the newly-rich become suddenly poor, and who then deftly escape into the unknown and

live on pensions and polite beggary. But nothing is surer than that work is the very primal condition of health, and of love of life. It is the do-nothing, the fashionable, the "retired," the woman freed from necessities and duties, that are the disease breeders and the miseries. The attitude of the fashionable doctors who minister to this unspeakable class is not infrequently blameworthy. They are often encouraged by our rest cures, our flatteries and attentions. The effort to escape from drudgery is as old as civilization and as ancient as savagery. The investigator sent to study the problem of putting the native African negroes to useful work finds that they simply will not work. Those among the Canadian Doukhobars who would work found that the malingerers and lazies were about half, and they preferred to live out of the common treasury supplied by the workers—until the latter determined to abolish the common treasury, and to receive and spend their own wages as other individualists do. Our civilization, economically, is largely a device of the cunning and the lazy to establish a common treasury. The "failure of democracy" is largely the failure to outwit the tricksters.

Materialism and Suicide.—The crude and banal rage for ease, money, and success is but a sorry result of another materialism which is its foundation. This other materialism is falsely called philosophic, and impertinently labeled science. The great apostle of this pseudo-religion has just said that "man has no soul," mind calmly committing suicide in vehemently stating that there is no mind. The error that tells a weak person that some of the tools of civilization—health, wealth, and mechanics—are all that is of value, is but the logical and inevitable result of philosophic and scientific materialism. Both figuratively and really it is sensationalism. In reaction from its silly vogue we find among the ignorant and untrained the equally absurd counterpart in the pitiful exhibition of faith cure, spiritualism, eddyism, and all the rest of such pestiferous sects that are springing up so luxuriantly. They are the products of false theorizing as to the nature of life and matter, of our nonmedical and unscientific science. For how much of this is the profession responsible? Some escape from the blind alley of materialism by this stupid psychologic trickery, but certain others can only logically do so by suicide. If life is a material product and there is "no soul," then must the failures cry, "Ring the curtain down!" Still another method of escape is that of the pseudoprofessional, the medical man who uses his professional knowledge and corporate power for purely selfish ends, the "grafter" among the doctors, the seeker after honors and success and degrees, the osteopath, the commercial medical journalist, the therapeutic nihilist, the scorner of functional disease, the hunter and the still hunter for "success," the one who cultivates the newspaper and its reporters, who scorns new medical truth unless it is popular, or bound speedily to become so.

Music Gives Hospital \$2,500.—Creators' Italian Band played in Chicago last week for the benefit of the Columbus Roman Catholic Hospital. As a result, the management estimated that \$2,500 was realized. The money will be used for the charity ward.

AMERICAN NEWS AND NOTES

GENERAL.

Plans for Panama Sanitation.—In order to facilitate the sanitation of Panama, the chief sanitary officer of the canal zone has divided the city into eight districts, each in charge of a local physician who will report any suspected cases of yellow fever. All the houses in Panama are being fumigated.

Philippine Hospital Corps.—Questions have been sent out from the Surgeon-General's office of the War Department to Manila to be used in examination of candidates for appointments as sergeants first class of the hospital corps. These questions are sent to the Philippines in advance so that the examination may be held in this country and in the Islands on September 11. There are about 25 vacancies in the position now, and there are likely to be more by the time the appointments are made.

Canal Zone Conditions.—The army surgeons who have just returned from the Isthmus after an inspection of the sanitary conditions say that it will require only about a month to put Panama in healthy order. It will take much longer to effect this result in Colon, where the work is impeded by the prevalence of swamps in the vicinity. The surgeons say that it would be difficult to get Americans to stay on the Isthmus in a clerical capacity without extra compensation, and that the greatest thing to combat will not be the yellow fever, but the tropic malaria, which, while not as fatal, is more obstinate.

French and Americans in the Canal Zone.—A comparison of the health conditions of the French laborers at Panama during the first year of their work, 1881, with prevailing health conditions in the canal zone is made in a report dated April 21, 1905, of the chief sanitary officer. There were 9,000 employees on the rolls on the last of March, with 301 admissions to hospital during the month, 11 deaths, and 153 remaining sick at the conclusion of the month, giving yearly an admission rate of 401.28, a constant sick rate of 17, and a death rate of 14.66 per mille. Under the French the admission rate for the first year was 630.38, and the death rate 66.80 per mille. An extension throughout the year of the American rates for March would give 3,612 cases of sickness and 132 deaths, whereas, for the same number of men and the same length of time, the French had 5,850 men taken sick, with 620 deaths.

War on Cut-rate Druggists.—The persistence of drug firms in various parts of the country in cutting prices on proprietary medicines, despite frequent efforts on the part of the manufacturing chemists to prevent such action, has resulted in a combination of the manufacturers. The distributor will be required to sign an ironclad contract not to sell the goods in question at a less rate than that fixed, and in the event of a violation of this contract, not only will his supply be cut off, but he will be liable to suit for damages of \$50 for each breach of contract. An instance of what the enforcement of the contracts will mean is given in the example that \$1 preparations now selling at 69 cents will be fixed at a minimum rate of 83 cents. About 50% of the business of the average retailer is in proprietary medicines. It is estimated that about \$2,000,000 worth of proprietary medicines are handled in Philadelphia alone every year. By an indexing system, the manufacturers are now enabled to trace every bottle of goods, and the first man who reduces the price. Each bottle and the package is now numbered and must be accounted for.

Personal.—The Jacksonian prize of the Royal College of Surgeons of England has been presented to **Herbert J. Paterson.**—The Hanbury gold medal of the Pharmaceutical Society, London, has this year been awarded to **Professor Ernst Schmidt**, professor of pharmaceutical chemistry in the University of Marburg.—**Dr. William Welch**, professor of pathology at the Johns Hopkins University, sailed for England on May 27, to be absent until September.—**Dr. Allan McLaughlin** has been appointed head surgeon of the Marine Hospital at Naples, in the service of the United States.—**Professor Bernhard Proskauer** has been appointed head of the chemist department of the Institute for Infectious Diseases at Berlin.—**Dr. Ernst Küster**, professor of surgery at the University of Marburg, will deliver the principal address at the unveiling of the memorial to von Esmarch, at Tönning, his birthplace, which will take place on August 6.—**Dr. A. R. Ferguson**, senior assistant to the professor of pathology in Glasgow University, has been appointed professor of pathology in the Medical School, Cairo.—The seventieth birthday of **Professor Cesare Lombroso** will be celebrated in connection with the sixth International Congress of Criminology, which meets at Turin next year.—**Professor Russell H. Chittenden**, director of the Sheffield Scientific School, has been invited to deliver the annual Shattuck lecture before the Massachusetts Medical Society.—**Professor A. Jacobi** has been appointed to represent the faculty of medicine of Columbia University at the International Congress of Medicine to be held in Lisbon in April, 1906.—**Dr. William Osler** sailed for Liverpool on May 20, to assume the duties of the regius professorship of medicine at Oxford.

EASTERN STATES.

The American Laryngological, Rhinological, and Otological Society.—At the eleventh annual meeting, held in Boston, Mass., June 5, 6, and 7, 1905, the following officers were elected for the ensuing year: President, Dr. James E. Logan, Kansas City, Mo.; vice-presidents, Drs. Thomas H. Halsted, Syracuse, N. Y., William L. Ballinger, Chicago, Ill., H. Bert Ellis, Los Angeles, Cal., and Henry L. Myers, Norfolk, Va.; secretary, Dr. Wendell C. Phillips, New York; treasurer, Dr. Ewing W. Day, Pittsburgh, Pa.; council, Drs. Frederic C. Cobb, Boston, Mass., James F. McKernon, New York, and H. W. Loeb, St. Louis, Mo.

NEW YORK AND VICINITY.

Smallpox Epidemic in Passaic, N. J.—The Passaic county authorities are becoming alarmed over the spread of smallpox. The health board physicians have recently discovered seven more cases. None of the patients had been attended by a physician. All were colored people.

Fire in a Hospital.—Fire in a barrel filled with oily sawdust was discovered one morning last week in the nearly completed annex to the Willard Parker Hospital for Contagious Diseases, and was put out with a couple of hand chemical extinguishers without alarming the patients in the occupied sections of the hospital.

Suture of the Heart.—A case of suture of stab wound of the right auricle is reported from the Harlem (N. Y.) hospital, the surgeons operating being S. G. Burns, L. A. Parmenter, and A. Hazard. The patient, an Italian, was stabbed in a brawl in a saloon, and walked 12 blocks to the hospital. Hope is entertained for his recovery.

Hospital for Tuberculous Patients in Paterson, N. J.—Everything is now in readiness for beginning of work on the new tuberculosis hospital building. The amount, \$5,000, which was recently appropriated by the Board of Aldermen, has been turned over to the health department, and the work of constructing the building will be pushed rapidly.

Seaside Hospital Open.—St. John's Guild has opened the twenty-fifth season of its Seaside Hospital at Staten Island. In the 24 seasons past there have been treated in the hospital 31,163 children and their mothers from among the very poorest of the city, and without cost to them. The hospital is arranged and equipped for the care of children needing prolonged treatment.

Medical Department of Cornell University.—At the seventh annual commencement 74 students were graduated, of whom 62 received hospital appointments. The annual prize, established in memory of John Metcalfe Polk, to be presented at graduation to the three students who have obtained the highest marks for the four years of their work in the college, was awarded to Rollin Hills, who obtained first place with a total of over 92%; to Milton Goodman Wasch, who obtained the second place; and to Otto Louis Goehle, who obtained the third place.

Disease from Electricity.—Dr. Millener, of Buffalo, recently presented the results of investigation of 19 cases in power houses on the Niagara frontier, to show that continued employment there is injurious. In the immediate presence of high voltage, alternating current generating or transforming machines, there uniformly results a grave disturbance of the digestive organs, loss of appetite, distress after eating, and whitening of the complexion to almost the color of chalk. The cause is the chemic influence of either electric rays or some ray yet unknown. He considers it a new problem for the medical profession to solve.

Auto Casualties.—The automobile is becoming an important element in our civilization. The record of accidents from its use is becoming appalling. Since January 1 there are said to have occurred in New York City and vicinity no less than 793 automobile casualties, 62 of them fatal and over 60 more rendering their victims cripples for life. If this can happen in one city it is not pleasant to think of the possibilities for the whole country. We do not vouch for the figures—which would seem to justify a popular uprising—but, even if exaggerated many fold, they demand action. Much of this record, if not all of it, may be credited to high-speed automobilism, and there seems to be a tendency among chauffeurs, unconsciously it may be in some cases, to take excessive risks in this particular way. Many who are arrested for going beyond the speed established by law indignantly claim, but with apparent sincerity, that they have kept well within the limits, though the facts are all against them. The newspapers have spoken of a sort of automobilomania or speed intoxication to which automobilists are specially liable. Whether such exists or not, it is certain that men supposed to be honorable citizens in other respects are all the while imperiling the lives of their fellowmen, to say nothing of their own, by reckless speeding on the public highways, and this apparently without any conscience or scruples. One New York millionaire is reported to have 13 accidents to his credit, two of them fatal and nine causing permanent injury. As physicians are beginning to use automobiles very largely, we hope and trust that our profession will keep its record clean in this matter.—[*Journal of the American Medical Association.*]

PHILADELPHIA, PENNSYLVANIA, ETC.

Correction.—In the article by Julius H. Comroe, published June 17, figures 3 and 4 should be marked "lupus vulgaris before and after treatment," and should be credited "Treated in the Philadelphia Polyclinic laboratories under the direction of Jay F. Schamberg, M.D."

Must Support Insane.—Orders for the support in the Norristown Hospital for the Insane of eight patients heretofore paid for by the county as paupers have been made by Judge Bregy on relatives of these patients. Nearly 100 persons had been subpoenaed for examination as to their ability to support relatives in the hospital, but not more than 20 responded.

Donation to the Harrisburg (Pa.) Hospital.—In appreciation of the services rendered by the Harrisburg Hospital to the injured and dead in the recent wreck on the Pennsylvania Railroad near Harrisburg, the officials of the company have given \$10,000 to the hospital without restrictions as to the manner of its use. The gift was accompanied by a letter expressing the gratitude of the company.

No More Maniacs in Jail.—As the result of the visit to Pottsville, Pa., of a member of the State Board of Charities, the confinement of persons of unsound mind in prison will cease. The county authorities had protested against the jailing of lunatics, but as the asylums were overcrowded, technical charges were made against such persons, and the prison warden was compelled to receive them.

Typhoid in Orphanage.—Typhoid fever in mild form has invaded the Methodist Episcopal Orphanage of Philadelphia, 25 out of the 118 children being infected. The physician in charge said that in his opinion the outbreak is the result of drinking impure milk. The water used in the institution is supplied by the Belmont filtration plant. Abbott, of the Bureau of Health, had some of the water analyzed, but no traces of typhoid germs were found in it.

Hospital for Italians.—The Italian Federation, an organization of the more prominent Italian residents of Philadelphia, has taken steps toward founding another hospital for their compatriots, to be located in the Italian quarter, as the present Italian Hospital, at Tenth and Christian streets, is inadequate to care for the rapidly-increasing population of that nationality in the city, especially in the second, third, and fourth wards. A considerable amount of money has been subscribed for the purpose.

Advisory Board for the State Health Commissioner.—Governor Pennypacker has announced the following Advisory Committee to act with State Health Commissioner Samuel G. Dixon: Dr. Samuel T. Davis, of Lancaster, former member of the Assembly and president of the State Board of Health, that went out of existence recently; Dr. Leonard Pearson, Philadelphia, State Veterinarian and veterinary lecturer at the University of Pennsylvania; Dr. Adolph Koenig, Pittsburg, president of the Pennsylvania State Medical Society and editor of the *Pennsylvania Medical Journal*; Dr. Charles B. Penrose, of Philadelphia; Dr. B. H. Warren, West Chester, the head of the State Dairy and Food Department; and Lee Masterson, Johnstown, civil engineer. The law required at least four of the board to be graduated of a wellknown college of medicine and one to be an engineer. There are yet to be appointed ten district commissioners in various parts of the State, but this cannot be done until the State is districted by Dr. Dixon.

The New Health Commissioner.—Samuel G. Dixon, president of the Academy of Natural Sciences, has been appointed Commissioner of Health by Governor Pennypacker. The position is the most important created in the bill passed by the last Legislature providing for a State Department of Health, to take the place of the State Board of Health. Dr. Dixon's salary will be \$10,000 a year. The Department of Health consists of an advisory board of six members, four of whom are to be physicians and one a civil engineer. They are to serve without salary, but may collect expenses incurred in discharge of the duties of the office. Under the provisions of the act the State is to be divided into 10 health districts, each of which is to be in charge of a physician of five years' experience, who is to receive a salary of \$2,500. It would seem peculiarly fitting that use be made, for a time at least, of the services of Dr. Lee, for so long time secretary of the Board of Health. His experience should be very valuable. It is said that three of the advisory board have already been selected in the persons of Charles B. Penrose, State Veterinarian Leonard B. Pearson, and Pure Food Commissioner H. B. Warren.

SOUTHERN STATES.

Decision of District of Columbia Medical Board Reversed.—The District Court of Appeals has reversed the decision of the board of medical supervisors against Sigmund A. Czarra, claiming that Congress has the power to regulate the practice of medicine and surgery in the District of Columbia and to define what shall constitute unprofessional or dishonorable conduct, but that it has failed to do so.

Johns Hopkins University.—The following appointments have been announced: Dr. William Osler becomes honorary professor of medicine. Other promotions in the faculty follow: Associate to become associate professor—Dr. Florence R. Sabin, anatomy; Instructors to become associates—Dr. William S. Baer, orthopedic surgery; Dr. Charles H. Bunting, pathology; Dr. Thomas R. Boggs, medicine; Dr. Richard H. Follis, surgery; Dr. William W. Ford, bacteriology; Dr. J. Morris Slemmons, obstetrics; and Dr. George Walker, surgery. Assistant to become instructor—Dr. J. Hall Pleasants, medicine. At the thirtieth annual commencement, last week, degrees were conferred upon 53 doctors of medicine.

Medical Society of the State of North Carolina.—The fifty-second annual meeting was held May 23-25 in Greensboro. The secretary's report showed the membership at present to include a little more than 1,100 of the 1,300 legal physicians of the State; 90 of the 96 counties are now organized. More than 45 papers were read. The annual address of the president, Dr. D. T. Taylor, was a timely and an eloquent plea for the small hospital in the small city. The following officers were elected: President, Dr. E. C. Register, Charlotte; first vice-president, Dr. H. L. McBrayer, Asheville; second vice-president, Dr. W. H. Cobb, Jr., Goldsboro; third vice-president, Dr. W. O. Spencer, Winston; secretary, Dr. J. Howell Way, Waynesville; treasurer, Dr. G. T. Sikes, Grissom. The councillors elected in 1904 hold over two years. The session of 1906 will be held in Charlotte, N. C.

WESTERN STATES.

The State University of Iowa has made a new departure in establishing a lectureship on tuberculosis in connection with the medical department of that institution, and has appointed Dr. J. W. Kime, superintendent of the Boulder Lodge Sanatorium for Tuberculosis, at Fort Dodge, as lecturer.

The University of North Dakota will open a medical college in the autumn of 1905. Until the clinical advantages are adequate the medical course will extend only through the first and second years of the four-year curriculum. Students who have completed the work at the University of North Dakota will be received into the junior year of the medical schools with which articulation is arranged.

Increased Vote for Charities.—The Winnipeg, Manitoba, city council has increased its appropriation for the City Hospital from \$20,000 to \$30,000. The amount actually voted to the hospital in past years has been \$10,000, but an additional \$10,000 had been granted later in the year. In the Winnipeg institution the cost per day per patient is \$1.15. In the Royal Victoria Hospital, Montreal, it is \$1.56; in the Montreal General, it is \$1.37; and the average in 16 large American institutions is \$1.71.

Holds Cocain not a Poison.—On the testimony of City Chemist Hugo Jone, of Chicago, that it would take nearly a pound of cocain to kill a man, Justice Dooley discharged Arthur Howard, accused of selling cocain. Instead of being booked under the section of the city code relating to the selling of cocain, he was booked under a section forbidding the sale of poisonous drugs without a prescription. His attorney declared that cocain was not a poisonous drug.

Closed by Smallpox.—By order of the Board of Health, all schools and churches in Grand Rapids, Mich., have been closed on account of the alarming spread of smallpox, which has taken on the nature of a dangerous epidemic. All commencement exercises and other entertainments connected with the annual closing of the schools will be omitted. Figures given out by the Board of Health show that there are 75 cases now in the city. Of these, 44 were reported the last three days of last week, while 7 cases were reported on Sunday.

Elections to the University of Chicago Faculty.—It is announced that Dr. Nicholas Senn has been elected professor of surgery, and Dr. Frank Billings, professor of medicine in the University of Chicago, and will lecture before the respective classes at the university. Dr. Senn will be in charge of the clinical teaching of surgery during the fall semester. Dr. John B. Murphy has been elected professor of surgery in Rush Medical College, and with Dr. Arthur Dean Bevan, will have charge of the administrative details of the department of surgery during the remainder of the year.

Mortality of Michigan during May.—The total number of deaths reported to the Department of State for the month of May was 2,700, a decrease of 322 from April. The deathrate was 12.5 per 1,000 population, as compared with 14.4 for the preceding month. By ages, there were 456 deaths of infants under 1 year, 140 deaths of children aged 1 to 4, and 837 deaths of elderly persons aged 65 and over. Important causes of death were as follows: Tuberculosis of the lungs, 204; other forms of tuberculosis, 28; typhoid fever, 22; diphtheria and croup, 28; scarlet fever, 5; measles, 20; whoopingcough, 16; pneumonia, 171; meningitis, 43; cancer, 147; accidents and violence, 181. There were also 13 deaths from smallpox, 1 in the city of Detroit, 1 in the city of Big Rapids, Mecosta county, 1 in Walker township, Kent county, and 15 in the city of Grand Rapids.

FOREIGN NEWS AND NOTES

GENERAL.

A New Means for Disease Convection.—A French military surgeon in Algiers has, according to a writer in *Harper's Weekly*, recently found that spray driven ashore from a stormy sea can effectively transmit disease germs. Carrying on his investigations at Bab-el-oued, near Algiers, at a point where a number of sewers discharged into the sea, he found that the spray, which was driven some 150 feet ashore and high into the air, contained three times the number of germs ordinarily present in the air. This spray forms a mist, which permeates the houses near to the water's edge, and in it a number of virulent bacilli were found. When a gale is blowing off shore the effect is still more pronounced and the proportion of germs increased, and the investigator is convinced that steps should be taken to protect shores from sewage pollution.

The smallpox situation in Shanghai seems to have improved considerably during the past few weeks. Only one vessel has been reported as having carried the disease from that port. It is not thought necessary to continue the vaccination of the steerage passengers and crew as heretofore. Smallpox continues to make its appearance at various places throughout the islands, but by promptly sending vaccinators to the affected districts, it has so far been possible to keep the disease under control. The disease from such sources is conveyed to Manila from time to time by the interisland vessels. The detection of a case on board the steamer Colon last week amply justifies the continuance of the inspection of interisland vessels at this port, because Manila is now comparatively free from the disease and it is undesirable to introduce fresh foci of infection.

OBITUARIES.

David, D. Stewart, aged 47, June 15, after an operation for appendicitis, at his home in Philadelphia. He was a graduate of Jefferson Medical College in 1879. While not known to the general public his scientific attainments and reputation were well known to the members of his profession both in America and Europe. He was an authority on diseases of the stomach and kidneys, having introduced a number of original methods in their treatment. He conclusively demonstrated that thoracic aneurysm could be greatly relieved or even practically cured by the insertion of a gold wire of sufficient length, so that it would coil up within the sac, and combined with the passage of an electric current through the wire. He commenced the practice of medicine in 1885 and had achieved an enviable position as practitioner, author, teacher and consultant. He served as physician to St. Christopher's Hospital for Children, St. Mary's Hospital, and the Episcopal Hospital. He was chief of the medical clinic of Jefferson Medical College Hospital; lecturer on diseases of the nervous system; lecturer on medicine in Jefferson Medical College; professor of clinical medicine with special reference to diseases of the stomach and intestines in the Philadelphia Polyclinic; and at the time of his death was senior physician on the staff of the Episcopal Hospital. He was a fellow of the College of Physicians of Philadelphia; member of the American Association of Physicians; Philadelphia County Medical Society; Pathological Society and Neurological Society; American Medical Association, and many other local societies. He had recently been appointed a corresponding member of the Edinburgh Society of Physicians, an honor conferred on but few American physicians.

Joseph M. Wishard, aged 77, May 31, from the effects of a fall which dislocated his thigh, at his home in Greenwood, Ind. He was a graduate of the Medical College of Ohio, Cincinnati, in 1857. He was said to be the oldest member of the Johnstown County Medical Society and one of the oldest members of the Indiana State Medical Society. During the Civil war he served as surgeon of the Fifth Indiana Volunteer Cavalry, and was a prisoner for several months in Libby Prison.

Benjamin Knight, aged 68, June 2, after a long illness following influenza, at his home in Santa Cruz, Cal. He was a graduate of Harvard University Medical School, Boston, in 1869. He was a veteran of the Civil war and for many years local surgeon of the South Pacific Coast and Southern Pacific railroads. He was State senator in 1883 and president pro tem. of the Senate.

M. W. Donavin, aged 67, June 4, from Bright's disease, at his home in Baltimore, Md. He was a graduate of University of Maryland School of Medicine, Baltimore, in 1866. He held the office of coroner of the southern district for several years; was a member of city council; police magistrate, and member of the State Legislature.

Chanucey S. Burr, aged 65, June 4, three days after a surgical operation, at his home in Chicago, Ill. He was a graduate of Long Island College Hospital, Brooklyn, N. Y., in 1865. During the Civil war he served as major and surgeon of the Twenty-third Illinois Volunteer Infantry, and was first mayor of Mitchell, S. D.

James D. Taylor, aged 70, May 28, at his home in Richmond, Mo. He was a graduate of St. Louis Medical College in 1861. During the Civil war he served as surgeon of the First Missouri Cavalry, C. S. A. He had practised medicine in Richmond for 40 years.

E. L. Newhall, aged 88, June 12, at his home in Lynn, Mass. He was a graduate of Harvard Medical School in 1848, and then completed his course of study in the universities of Dublin and Paris. He was one of the best known physicians in Lynn, having practised there for over fifty years.

Harry H. East, aged 45, of Xenia, Ill., June 2, while suffering from melancholia, cut his throat at the Alexian Brothers' Hospital, St. Louis. He was a graduate of Barnes Medical College, St. Louis, in 1890.

Vivian E. Zimmerman, aged 27, of Concordia, Kan., May 21, from tuberculosis, at the home of his father near Jamestown, Kan. He was a graduate of the University of Nashville, medical department in 1901.

Whitfield L. May, aged 53, May 25, formerly of Lyons, Kan., from heart disease, at his home in Eureka, Cal. He was a graduate of Wisconsin Eclectic Medical College, Milwaukee, Wis., in 1896.

William J. Sheppard, aged 62, of Cleveland, May 29, from cancer, at the Lakeside Hospital. He was a graduate of the University of Wooster, medical department, Cleveland, Ohio, in 1870.

Francis A. Day, aged 78, May 24, from nephritis, at his home in Louisville, Ky. He was a graduate of the University of Louisville, Tuley medical department, in 1850.

James C. Hummer, aged 72, June 16, from a complication of diseases, at his home in Baltimore, Md. He was a member of the Masonic and Odd Fellows fraternities.

William K. Spiller, aged 60, May 25, at his home in Bridgeport, Ala. He was a graduate of the University of Nashville (Tenn.), medical department in 1874.

William Isaac Goodin, aged 68, May 31, from gastritis, at his home in Cincinnati. He was a graduate of the Medical College of Ohio, Cincinnati, in 1874.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 17, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
Dist. of Columbia:	Washington.....	June 8-10.....	2	
Florida:	Jacksonville.....	June 3-10.....	1	
Illinois:	Danville.....	June 1-8.....	5	
Indiana:	South Bend.....	June 3-10.....	16	
Louisiana:	New Orleans.....	June 3-10.....	16	
Massachusetts:	Lowell.....	June 8-10.....	1	
Michigan:	Detroit.....	June 8-10.....	2	
	Grand Rapids.....	June 8-10.....	44	2
Missouri:	St. Joseph.....	June 3-10.....	5	
	St. Louis.....	June 3-10.....	3	1
Nebraska:	Omaha.....	June 3-10.....	1	
New York:	New York.....	June 3-10.....	1	
Pennsylvania:	Lebanon.....	June 3-10.....	1	
	York.....	June 3-10.....	3	
South Carolina:	Charleston.....	May 20-June 10.....	2	
Tennessee:	Memphis.....	June 3-10.....	3	
Wisconsin:	La Crosse.....	May 28-June 10.....	2	
	Milwaukee.....	May 26-June 3.....	5	
SMALLPOX—FOREIGN.			Cases	Deaths
Brazil:	Rio de Janeiro.....	Apr. 23-May 7.....	26	12
	Santos.....	Apr. 9-16.....	1	
Chile:	Valparaiso.....	May 10.....	15	daily
China:	Shanghai.....	Apr. 30-May 6.....	7	
Ecuador:	Guayaquil.....	May 11-18.....	1	
France:	Paris.....	May 20-27.....	12	1
Great Britain:	Birmingham.....	May 20-27.....	4	
	Bristol.....	May 20-27.....	2	
	Cardiff.....	May 20-27.....	1	
	London.....	May 20-27.....	1	
	Newcastle-on-Tyne.....	May 20-27.....	11	
	Southampton.....	May 20-27.....	1	
	Imported from South Africa			
	South Shields.....	May 20-27.....	1	
Italy:	General.....	May 11-19.....	40	
Turkey:	Constantinople.....	May 14-21.....		2

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Apr. 23-May 7.....	96	35
British Honduras:	Belize.....	May 24-June 1.....	4	4
Ecuador:	Guayaquil.....	May 11-18.....		3
Guatemala:	Livingston.....	June 10.....	1	
Honduras:	Puerto Cortez.....	May 25-29.....	5	3
Panama:	Colon.....	Jan. 23-May 31.....	19	6
	Panama.....	Jan. 1-May 31.....	70	23

CHOLERA.

Russian Empire:	Ashabad.....	May 2-4.....	1	
	Zarazyn.....	May 2-4.....	1	

PLAGUE—FOREIGN.

Africa:	East London.....	Apr. 29-May 6.....	1	
	Fort Beaufort.....	Apr. 29-May 6.....	2	1
	King Williams Town.....	Apr. 29-May 6.....	2	2
	Port Elizabeth.....	Apr. 29-May 6.....	1	

Brazil:	Rio de Janeiro.....	Apr. 23-May 7.....	1
	Sao Paulo.....	Apr. 16-23.....	1
Egypt:	Port Said.....	Apr. 29-May 6.....	1
	Tukh.....	Apr. 29-May 6.....	4
Peru:	Callao.....	Apr. 30-May 10.....	1
	Chiclayo.....	Apr. 30-May 10.....	2
	Lima.....	Apr. 30-May 10.....	2
	Mollendo.....	Apr. 30-May 10.....	4

Changes in the Medical Corps of the U. S. Army for the week ended June 17, 1905:

BRUNS, First Lieutenant EARL H., and GIBNER, First Lieutenant HERBERT C., assistant surgeons, will proceed to the Sequoia and Yosemite National Parks, respectively, reporting to the commanding officers of troops in those parks for duty, to relieve First Lieutenant Henry S. Klersted, assistant surgeon, and Major Frederick P. Reynolds, surgeon, who will return to their proper stations, the Presidio of Monterey and the Presidio of San Francisco, respectively.

RICHARDS, First Lieutenant ROBERT L., assistant surgeon, is relieved from further temporary duty at Fort Mason, and as attending surgeon and examiner of recruits, and will proceed to Vancouver Barracks for duty.

STRONG, THOMAS J., contract surgeon, is relieved from duty at the Army General Hospital, the Presidio of San Francisco, and upon the arrival of the Twenty-third Infantry at San Francisco, Cal., will report to the commanding officer of that regiment for duty to accompany the command to Madison Barracks, and upon the completion of this duty will proceed to his home, Burlington, Vt., for annulment of contract.

GORGAS, Colonel WILLIAM C., assistant surgeon-general, STRAUB, Captain PAUL F., assistant surgeon, and SHIMER, Captain IRA A., assistant surgeon, are appointed a board of officers to meet at Ancon, Canal Zone, Isthmus of Panama, July 17, for the examination of officers of the medical department for promotion or advancement.

LYSTER, First Lieutenant THEODORE O., assistant surgeon, will report after July 17 to Colonel William C. Gorgas, assistant surgeon-general, president of the examining board at Ancon, Canal Zone, Isthmus of Panama, for examination for advancement.

The following-named officers will report on July 17 to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board at the Army General Hospital, the Presidio of San Francisco, for examination for advancement: First Lieutenants Sanford H. Wadhams, William J. L. Lyster, Elbert E. Persons, William N. Bispham, Edward F. Geddings and Henry H. Rutherford, assistant surgeons.

The following-named officers will report on July 17 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement: First Lieutenants Chandler P. Robbins and Harry L. Gilchrist, assistant surgeons.

REILLY, First Lieutenant JOHN J., assistant surgeon, orders of June 3 so amended as to relieve him from further duty at Jackson Barracks.

YOST, First Lieutenant JOHN D., assistant surgeon, orders of April 20, 1905, amended to read that he will proceed from Honolulu, H. T., to San Francisco, Cal., on the army transport sailing from Manila about June 15, 1905, and report on July 17, or as soon thereafter as practicable, to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board at the General Hospital, Presidio of San Francisco, for examination for advancement to the rank of captain, and after the completion of his examination will return to his station at Honolulu on the army transport sailing from San Francisco about July 31.

ALLEN, First Lieutenant JOHN H., assistant surgeon, is granted leave for ten days.

WATKINS, VICTOR E., contract surgeon, is relieved from further duty with Troop M, Fifth Cavalry, in the field near Fort Duchesne, and will return to his proper station, Fort Apache, for duty.

MCCORD, DONALD P., contract surgeon, will proceed from St. Louis, Mo., to Fort Rodman for duty.

BRADLEY, Major ALFRED E., surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Sheridan for duty.

SNYDER, Major HENRY D., surgeon, is granted leave for three months, to take effect when in the opinion of the commanding general, department of Texas, his services can be spared.

The following-named officers are detailed to represent the medical department of the Army at the annual meeting of the American Medical Association, to be held at Portland, Ore., July 11-14: Major Rudolph G. Ebert, surgeon; Major Charles E. Woodruff, surgeon, and First Lieutenant James Carroll, assistant surgeon.

PATTERSON, First Lieutenant ROBERT U., assistant surgeon, having reported his arrival at San Francisco, Cal., will report at the Presidio of San Francisco, for duty with Company B, Hospital Corps.

HALLORAN, First Lieutenant PAUL S., assistant surgeon, now at San Francisco, Cal., will report at that place to the commanding officer, Twelfth Cavalry, for duty, to accompany that regiment to Fort Ogilthorpe, and upon the completion of this duty will proceed to Fort Leavenworth for duty.

MARSHALL, JOHN S., examining and supervising dental surgeon, is detailed to represent the Dental Corps of the Army at the Lewis and Clark Dental Congress, July 17-20.

BEALE, GEORGES E., sergeant first class, Fort Sam Houston, will be sent to the depot of recruits and casuals, Fort McDowell, Cal., at such time as will enable him to report to the commanding officer and be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about June 30.

SENECAL, HENRY C., sergeant first class, now at Fort McDowell, will be sent to Vancouver Barracks for duty.

WEBER, EUGENE, sergeant first class, now on temporary duty at Fort Wright, upon the arrival of Sergeant First Class Henry C. Senecal at Vancouver Barracks, will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I., for assignment to duty.

GUITTARD, VIRGIL D., sergeant first class, now at Fort McDowell, will be sent to Columbus Barracks to relieve Sergeant First Class Forest E. White. Sergeant White will be sent to the depot of recruits and casuals, Fort McDowell, Cal., reporting to the commanding officer, who will send him to Manila, P. I., for assignment to duty.

VAN POOLE, First Lieutenant GIDEON MCD., assistant surgeon, is granted leave for one month from about June 10.

WYTHE, STEPHEN, contract surgeon, is relieved from further duty at the Presidio of San Francisco, and will proceed to Fort McDowell for duty at the depot of recruits and casuals.

GIBSON, Major ROBERT J., surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Logan for duty.

OWEN, Major WILLIAM O., surgeon, is relieved from duty at Fort Logan, and upon the expiration of his present sick leave will proceed to the Presidio of Monterey for duty.

MCCULLOCH, Major CHAMPE C. JR., surgeon, so much of orders of May 27, as direct him to proceed to the Presidio of Monterey for duty, are revoked, and Major McCulloch will upon his relief from duty at Fort Hancock, proceed to Fort Meade for duty.

ALLEN, First Lieutenant JOHN H., assistant surgeon, having reported to the military secretary of the army, will return to his proper station upon the expiration of the leave granted him June 9.

Changes in the Medical Corps of the U. S. Navy for the week ended June 17, 1905:

PRYOR, J. C., surgeon, detached from the Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty as a member of the naval and medical examining boards, Washington, D. C.—June 10.

SHOOK, F. M., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—June 12.

OLSEN, G. M., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—June 12.

GUTHRIE, J. A., surgeon, discharged from treatment at the Naval Hospital, New York, N. Y., and granted sick leave for three months—June 14.

SUTTON, R. L., assistant surgeon, discharged from treatment at the Naval Hospital, New York, N. Y., and ordered to Washington, D. C., June 22, for examination for retirement and then home to wait orders—June 14.

BOGAN, F. M., passed assistant surgeon, ordered to the Naval Hospital, Yokohama, Japan, for duty—June 14.

RODMAN, S. S., passed assistant surgeon, detached from the Ranger and ordered to the Rainbow—June 14.

WIKES, G. L., assistant surgeon, detached from the Solace and ordered to the Naval Station, Cavite, P. I.—June 14.

OHNESORG, K., passed assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 20, and ordered home to wait orders—June 15.

Changes in the Public Health and Marine-Hospital Service for the week ended June 14, 1905:

STIMPSON, W. G., passed assistant surgeon, granted leave of absence for five days from July 5—June 13, 1905.

ROSENAU, M. J., passed assistant surgeon, detailed to represent the Service at meeting of American Medical Association, at Portland, Oregon, July 11-14—June 8, 1905.

BLUE, RUPERT, passed assistant surgeon, granted leave of absence for sixteen days from June 22, 1905.

SPRAGUE, E. K., passed assistant surgeon, granted leave of absence for one month from June 27—June 10, 1905.

CUMMING, H. S., passed assistant surgeon, detailed for duty on special Revenue Cutter Service Board—June 8, 1905. Detailed to represent the Service at meeting of American Medical Association, at Portland, Oregon, July 11-14—June 8, 1905.

FOSTER, M. H., passed assistant surgeon, granted leave of absence for one month from June 11—June 10, 1905.

WILSON, R. L., passed assistant surgeon, granted extension of leave of absence for seven days—June 14, 1905.

FRANCIS, EDWARD, assistant surgeon, granted leave of absence for seven days—June 8, 1905.

ALTREE, G. H., acting assistant surgeon, granted leave of absence for thirty days from June 10—June 9, 1905.

BAILEY, C. W., acting assistant surgeon, department letter of May 10, granting him leave of absence for twenty-six days, amended to read ten days from June 5—June 13, 1905.

BLAIN, A. C., acting assistant surgeon, granted leave of absence for fourteen days from June 14—June 9, 1905.

DREW, A. D., acting assistant surgeon, granted leave of absence for five days, under paragraph 210 of the regulations.

HUNTER, W. R., acting assistant surgeon, granted leave of absence for ten days from June 11—June 9, 1905.

SIMONSON, G. T., acting assistant surgeon, granted leave of absence for two days from June 11—June 12, 1905.

WALKLEY, W. S., acting assistant surgeon, granted leave of absence for two days from June 10—June 14, 1905.

WIGHTMAN, W. M., acting assistant surgeon, granted leave of absence for two days, under paragraph 210 of the regulations.

CARLTON, C. G., pharmacist, granted leave of absence for one day from June 9, 1905, under paragraph 210 of the regulations.

BIERMAN, C. H., pharmacist, department letter of May 19, 1905, granting him leave of absence for thirteen days from June 7, 1905, revoked—June 13, 1905.

Board Convened.

Board convened to meet at the Marine Hospital, New Orleans, June 13, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon A. C. Smith, chairman; Assistant Surgeon F. H. McKeon, recorder.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting Held at Washington, D. C., May 16 and 17.

[Specially reported for *American Medicine*.]

[Concluded from page 974.]

Xanthelasma and Chronic Icterus.—T. B. FUTCHER (Baltimore) reported three cases of multiple xanthomas in patients with chronic icterus. All three were women, the ages ranging from 39 to 42. In two the jaundice was caused by gallstones, in the other by hypertrophic cirrhosis. In one of the first group, the xanthomas disappeared after operation. The relation between jaundice and xanthomas is shown by the fact that four-fifths of cases of the latter occur in cases of jaundice or in liver affections without jaundice.

A Report of a Case of Lymphatic Leukemia in a Child of Three.—JOHN LOVETT MORSE and HARRY C. LOW (Boston) described the findings in this case. The duration of the disease was five months. The blood picture, while suggesting leukemia, was not characteristic of that condition during the first four months. At the end of three months a lymph-node was removed, but histologic examination did not justify the diagnosis of leukemia, the appearance being more suggestive of sarcoma. At the end of four and a half months a node exhibited typical hyperplastic changes and the blood during the last month was that of lymphatic leukemia. The atypic blood and lymph-node pictures during the early months are the most important features of the case. The writers do not draw any general conclusions other than to emphasize the chaotic condition of our knowledge regarding the leukemias and allied diseases involving lymphoid tissue.

Discussion.—T. FORCHHEIMER (Cincinnati) mentions a case of leukemia occurring in a child of 8 months, death ensuing in 10 weeks. The age of the child, the rapidity of the course, and the marked lymphemia were the prominent features. The leukocyte count reached 151,000, with 99.6% of small lymphocytes. L. F. BARKER (Chicago) asked if there is any evidence that the lymphocytes in the blood in these cases are derived from the lymph-nodes. A view now gaining ground is that proliferation of lymphoid cells in the spleen and lymph-nodes does not necessarily give rise to an increase of similar cells in the blood, as these organs can expend and retain the newly-formed cells. On the other hand, if the marrow cells proliferate, the capacity of that tissue is soon reached, and the excess is poured into the blood. W. S. THAYER (Baltimore) has seen several cases which ran a clinical course similar to the one reported by Morse. First the lymph-nodes enlarged, simulating Hodgkin's disease, later the blood picture of leukemia developed. These occur both in adults and children. W. H. WELCH (Baltimore) said there is great confusion as to the nature of the various types of enlargements of the lymph-nodes. At the present time, however, three characteristic histologic pictures can be distinguished: (1) That of Hodgkin's disease; (2) the lymphoma of leukemia; (3) sarcoma. The last is, of course, the easiest. This knowledge makes it of the greatest importance that a careful histologic examination of the lymph-nodes be made in every case in which it is possible. He believes the term lymphosarcoma should be abandoned. Lymphatic leukemia is regarded as of bone marrow origin. In closing, MORSE said he believed the pathologists of Boston were not so ready to recognize a specific picture of Hodgkin's disease, and other conditions as was indicated by the remarks of Welch for Baltimore investigators.

FOURTH SESSION.

A Lantern-slide Demonstration on the Stages of Calcareous Degeneration.—J. GEORGE ADAMI and OSKAR KLOTZ (Montreal) gave this demonstration, their investigations having led to the following conclusions: 1. The earliest change in cells which later undergo calcareous degeneration is one of cloudy swelling or coagulation necrosis. 2. Following this, fatty changes are noticeable and by means of proper reagents, soaps with potassium, sodium, and presumably ammonium bases, can be detected. 3. Such soaps and albumins form a combination which is insoluble in water or salt solution. 4. Soaps and fatty acids have an affinity for the calcium salts in solution in the body fluids and form with them an insoluble compound. 5. Later, judging from the fact that phosphate and carbonate of lime are formed, and the deposit gives no reaction for fats, the fatty acid moiety of the calcium soap is replaced by the more powerful carbonic and phosphoric acids. The studies of the writers, both experimental and on human tissue, were made possible by the use of Sudan III and silver nitrate solutions. A most significant feature of the study was the demonstration that there is calcareous change in the medium of the aorta of practically every person past 30. This change also occurs in much younger individuals, marked calcification being found in the aorta of a boy of 17. Their observations point to the possibility of the medial change first occurring in the elastica. Another fact demonstrated is the presence of fat in areas of caseation in tuberculosis. Osmic acid fails to detect its presence, but it is clearly shown by Sudan III.

Experimental Arteriosclerosis.—RICHARD M. PEARCE and E. M. STANTON (Albany) showed specimens of aortas from rabbits in which conspicuous lesions had been produced by repeated intravenous injections of adrenalin. The drug was given every other day for 10 days or up to several weeks. After about six doses the earliest lesion appears, consisting of focal degenerations in the muscle fibers of the medium. After 10 or 12 doses, changes appear in the elastica. These appear to be mechanical in nature, and consist of swelling and elongation of the fibrils, with later fracture and curling. Still later, in four to six weeks, the aorta assumes a condition analogous to arteriosclerosis in man. The vessel is rigid, brittle, dilated, and the intima is irregularly elevated. In many instances there are irregular dilations of the vessel that justify the name of aneurysm. The process appears to include degeneration of the media with calcareous change and repair of the media and also of the intima. The lesions support the view of Thoma that arteriosclerosis begins in the media. Pearce is not prepared to make definite statements as to the cause of the lesions thus produced. Mechanical and toxic factors are to be considered; it is probable that it is toxic in nature first, and later, especially as regards the elastica, mechanical. Studies, yet incomplete, of ganglion cells near the aorta in one case show changes in those cells.

Phlebosclerosis.—C. F. MARTIN (Montreal) reported the results of studies concerning this condition, about which but little has been written. He finds it extremely common in young persons, nearly all under 35 showing it to some degree. The veins of the lower extremity are affected chiefly, but all parts of the body may be involved. In essentially all the cases studied there was absence of arteriosclerosis and also of a history of alcoholism. The condition is more common in males. No local conditions were found to account for the change in the veins.

Observations on Metabolism in a Case of Acute Leukemia and a Case of Purpura Hemorrhagica.—D. L. EDSALL (Philadelphia) found in the case of leukemia remarkable tissue destruction, essentially the same being true of the case of purpura. The conditions in the latter indicate that hemorrhage is not an important feature in the production of the great nitrogen loss in either class to which the cases belong. Differences in metabolism in the cases indicated differences in the character of the conditions producing the tissue loss. This also indicates the varied nature of hemorrhagic lesions, and is an argument against the ideas advanced by Magnus Levy.

The Influence of the Röntgen Ray on Metabolism in Leukemia.—J. H. MUSSER and D. L. EDSALL (Philadelphia) gave the results of studies in two cases. One patient rapidly improved under the treatment, the other was uninfluenced and soon died. In the first case the treatment was immediately followed by a remarkable increase in the excretion of nitrogen, phosphorus, uric acid, and xanthin bases. In the fatal case there was a slight rise at first, but the excretion soon became as before treatment or even lower; just before death the excretion became very low. Edsall interprets these results to show that the effect of the röntgen-ray is a reaction of the individual and not the direct action of the ray itself. The most probable explanation is that the autolytic processes of the body are stimulated. The result indicates that the process is comparable to resolution in pneumonia, the involution of the uterus after labor and similar processes. They show the röntgen ray may have a profoundly dangerous effect, though temporarily benign in its influence and account for cases of nephritis and other lesions following exposures. The röntgen ray is to be used extensively, but not in the unthinking way so often employed; accurate dosage is at least necessary. The cases reported suggest the possible beneficial effect of such treatment in cases of general lowered metabolism, but no effect has been observed in two cases of diabetes. Very suggestive, however, was a case of unresolved pneumonia lingering for weeks which cleared up entirely under daily exposures for a week. Nothing positive can be claimed from this one instance.

Discussion.—L. F. BARKER (Chicago) spoke of the very great aid to be derived from catalysis in experiments on metabolism; the speed of autolysis may be largely a matter of this process.

Chronic Acetanilid Poisoning.—D. D. STEWART (Philadelphia) furnished notes of a case at first suggesting pernicious anemia. Later it was found that the patient had taken daily for several years about 40 gr. of acetanilid contained in a secret nostrum that was used. The blood condition was like that of similar cases which have been reported. Rapid improvement followed discontinuance of the drug.

A Brief Report on Recent Researches in the Writer's Laboratory on Bacterial Toxins and Immunity.—V. C. VAUGHAN (Ann Arbor) has found that when bacterial cellular substance is heated at 78° with a dilute solution of sodium hydrate in absolute alcohol the cell substance is split into two portions. One portion is soluble in absolute alcohol and contains the poisonous group of the cell. This poisonous group has been studied, having been obtained from the colon, the typhoid, and the anthrax bacillus and the micrococcus of pneumonia. A similar, if not identical poisonous substance may be obtained in the same way from certain proteid bodies, such as egg albumen and peptone. Animals may be immunized with this toxic body, the immunity thus induced not being specific, or at least not markedly so. The part of the cell substance not soluble in alcohol is soluble in water and with this a specific

immunity can be obtained. This second portion also contains a hemolytic body. The studies indicate that the same poisonous body is in both living and dead cells; it possibly belongs to the neurin group. Vaughan believes if we ever get a curative for typhoid fever it will not be a serum, but the nonpoisonous residue of bacteria. This ought to bring about in the body in 6 days what nature does in 28 to 40 days in those spontaneously recovering from typhoid.

Discussion.—W. H. WELCH (Baltimore) questions our ability to explain the phenomena of infection by what we know from cultures of bacteria. The real character of the process in typhoid fever includes the cause of the lesions in Peyer's patches, in the lymph-nodes, in the bone marrow, and other tissues. These lesions no one has yet produced by cultural products of bacteria. It is questionable if specific poisons in large amounts are in bacteria. We must still believe that bacteria in the body produce materials not present in cultures. The indications are that a specific, positive, lasting immunity cannot be produced by the use of killed cultures of bacteria. Another difficulty with the views announced is, they carry the idea that bacteria are doing harm when dead but not when living, a conception that has never appealed to him.

Report of a Case of Akromegaly.—CHARLES L. GREENE (St. Paul) reported a case in which the features were: 1. Coincidence of symptoms of myxedema and undoubted akromegaly with enlargement of the thyroid gland. 2. Disappearance of all symptoms of myxedema associated with shrinking of the thyroid gland under the administration of thyroid tabloids. 3. The shifting of the site of abnormal bony growth. 4. The long period of observation, eight years. The first enlargements were of the hands and feet and the upper jaw. After five years, enlargement of the clavicles, scapulas, and ribs began, and has progressed steadily up to the present time. The jaw and the larynx have not increased in size since 1898. Treatment with thyroid has not been necessary during the past 18 months. During the last 12 months the patient has shown progressive weakness, no pain, no disturbance of special sense, nor of the general nervous system.

The Nature of Cirrhosis of the Liver.—A. O. J. KELLY (Philadelphia) in a study of a series of cases of cirrhotic liver, has been able to confirm the previous work of Kretz and also that of MacCallum. The changes found indicate that cirrhosis of the liver is primarily a degenerative process involving the parenchyma of the organ. In addition to changes in the cells, they become arranged irregularly as regards each other and the central vein; in some lobules the vein cannot be recognized. This degenerative change is followed by reparative processes on the part of the parenchyma, as well as by hyperplastic changes in the connective tissue. Clinical observations of the size of the liver in 110 patients with cirrhosis, showed that in 40% the liver was enlarged, this being true even of some cases accompanied by ascites. In a number of cases the cause of ascites was evidently peritonitis rather than the condition of the liver itself.

Pathologic Anatomy of Exophthalmic Goiter.—W. G. MACCALLUM (Baltimore) presented a brief preliminary report of the findings in 28 cases of this condition. Constant changes in the thyroid were found, consisting principally of budding or proliferation of the alveoli of the gland. The changes, though constant, were not always of equal intensity. In the nine cases in which they were studied, the parathyroid glands were practically normal; they probably have nothing to do with the disease. As to the nature in general of the affection, it seems probable there is first an injury of some sort, which later is followed by acute thyroiditis.

Newly-elected members of the association are A. B. McCallum, Toronto; David Riesman, Philadelphia; Adolph Meyer, New York; J. L. Miller and R. H. Babcock, Chicago; Thomas McCrae, Baltimore; S. S. Adams, Washington.

Associate Members Elected.—Amendment to the constitution created a class of "associate members," elected for five years, and limited in number to 25; from them active members may be elected. These associate members shall enjoy all the privileges of honorary members, and each of them shall pay annual dues amounting to half the annual dues of an active member. Those elected to associate membership are: J. D. Steele and Joseph Sailer, Philadelphia; Joseph A. Capps, Chicago; Henry Christian, Boston; A. E. Taylor, San Francisco; L. A. Connor and Theodore Janeway, New York.

Officers for the ensuing year are: President, Frank Billings; vice-president, F. Kinnicutt; secretary, Henry Hun; recorder, Solomon Solis Cohen; treasurer, J. P. Crozer Griffith; councillor, T. Mitchell Prudden.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, Held at Niagara Falls, May 25, 26, and 27, 1905.

[Specially reported for *American Medicine*.]

[Continued from page 974.]

Arteriosclerosis of the Uterus as a Factor in Uterine Hemorrhage.—PALMER FINDLEY (Chicago) dealt exclusively with the so-called essential or idiopathic hemorrhages, the cause of which was not definitely determined. He argued that arteriosclerosis of the uterus was not the prime factor in bring-

ing about these obscure hemorrhages. In his opinion muscular insufficiency was the underlying cause, and the sclerosed vessels were but contributing factors. He drew the following conclusions: 1. Metritis, as a primary lesion and independent of infection, is not accorded the consideration which the frequency of its occurrence and its clinical significance would warrant. 2. The muscular fibers of the uterine wall have an important function in controlling the caliber of the blood-vessels, and hence in regulating the blood supply to the uterus, as evidenced in the relaxed condition of the uterine wall during menstruation, in postabortion, and postpartum hemorrhages, and in the free bleeding which accompanies curetage when the uterus has relaxed under the irritable influence of the curet. In all these conditions the hemorrhages are controlled by the contractions of the uterus. 3. Any event which lowers the muscular tone of the uterus may occasion an abnormal loss of blood into the endometrium and uterine cavity. 4. Prominent among the factors which contribute to muscular atony in the uterus are the wasting diseases, anemias, and acute febrile diseases, which are not infrequently accompanied and followed by uterine hemorrhages as the result of weakened support to the vesical walls. 5. Fibrosis uteri is a far more common cause of muscular insufficiency. The building up of connective tissue in the uterine wall at the expense of the muscular elements is the result of long-continued passive congestion, which in turn is due to numerous general and local lesions, such as an incompetent heart, obstructions in the lungs, liver, kidney and spleen, abdominal swellings, varicose veins of the pelvis, and uterine displacements. 6. The walls of the blood-vessels share in these hyperplastic changes, in that the media and adventitious coats of the vessels are thickened. In this manner the elasticity of the vessel walls is impaired, and if the lumen of the vessels is not narrowed by contraction of the vessel walls, and thickening of the intima, there will be added reasons for various engorgements of the uterine wall and capillary oozing at the endometrium. In such cases the prime factor in the causation of uterine hemorrhages is the muscular incompetency; the thickened vessel walls and the remote embarrassments to the circulation are but contributory factors. 7. This condition of the vessel walls is to be distinguished from the arterioobliterations of the normal senile uterus, in which the vessels are partially or wholly obliterated by the thickened intima. In such patients, hemorrhages do not occur, for the reason that the blood supply is greatly diminished. 8. In none of the recorded cases were hemorrhages seen to come from ruptured bloodvessels, nor were aneurysms of the arteries seen in the uterine wall. On the contrary, the escaped blood was farthest removed from the sclerosed vessels and more evidently capillary. We are, therefore, not justified in ascribing the hemorrhages directly to the sclerosed vessels. 9. The diagnosis can only be made by first excluding all other possible causes, such as polyps, carcinoma, and fibroids. 10. Hysterectomy has been frequently resorted to after repeated curetments have failed. Palliative methods—rest, ergot, styptic applications to the bleeding surface, and finally tamponading the uterine cavity—may be resorted to, but have repeatedly failed.

Symposium on the Relation of the Appendix to Pelvic Disease or to Pregnancy.

The Relation of the Appendix to Pelvic Disease.—REUBEN PETERSON (Ann Arbor, Mich.) presented the following conclusions, based upon the clinical and microscopic study of 85 appendices removed during the course of operations for pelvic disease: 1. In the first series of 200 cases, reported last year by him, a little over 50% of the appendices was found microscopically to be normal. In the present series, 49.3%, or practically 50% was found normal. The same microscopic classification was adopted as last year, namely, (1) negative; (2) chronic inflammation; (3) doubtful significance; (4) former inflammation; (5) acute inflammation; and (6) periappendicular inflammation. The only change in the classification was that groups one and three were practically united, and with the exception of two cases were placed in the negative group. This was a minor detail of classification, however, as in each series the appendices in both groups were considered normal. 2. In both series practically half of the removed appendices were microscopically normal, while the remainder showed evidences of acute or chronic inflammation, or the results of former inflammation. 3. The average length of 79 appendices was 9.99 cm. In the first series the average length was 8.25 cm. 4. The appendix was found adherent in 20 out of the 85 cases, or in 23.4%. This was 5% higher than in the last year's series, but both series show that the appendix was adherent twice as frequently in those cases where microscopic examination showed past or present disease. A certain proportion of adherent appendices was, however, perfectly normal microscopically. 5. Abnormalities in shape were noted in 27 out of 85 cases. The appendices were found to be club shaped, constricted, or bent upon themselves in 10 of the 27 cases, yet microscopically such appendices were normal. Hence, the same conclusions arrived at last year held good for the present series. Mere shape of the appendix cannot serve as an index of its normality or disease. Appendices may be club shaped, constricted, or bent upon themselves and yet be perfectly normal. 6. There were fecal concretions noted in 14 out of the 85 cases. This gave a percentage of 16.4, and was double that noted last year. This might be explained by the more accurate observa-

tions made in the present series of cases. It did not take into consideration microscopic concretions, but only the palpable forms. In seven, or half the cases, the appendices with fecal concretions were normal; hence, as noted in the first series, their existence did not denote disease. 7. Exactly 50% of the 34 patients in the present series with chronic disease of the appendages showed accompanying disease of the appendix. 8. The following conclusion would hold good for both series: In chronic disease of the appendages, adhesions of the accompanying appendices are present in nearly 50% (47%, second series) of the cases where microscopic examination shows the latter to be diseased. In a certain proportion of cases, however, although the appendix may be adherent, it is also perfectly normal. 9. Of the 17 normal appendices accompanying chronic disease of the appendages, 9 were noted as changed in shape, or contained fecal concretions; hence, in chronic disease of the appendages the appendix, which is club shaped, constricted, or contains fecal concretions, is not necessarily diseased. 10. There were 21 cases of uterine fibromas among the 85 patients. Of these, 48% had accompanying disease or evidence of former disease of the appendix. The percentage was in the first series practically the same. 11. There were 8 cases of large ovarian cystomas in the second series. Of these, 50% had accompanying disease of the appendix, 20% less than in the first series.

[To be continued.]

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Philadelphia, June 1, 2 and 3, 1905.

[Specially reported for *American Medicine*.]

Officers for the ensuing year are: President, Henry L. Stedman, Boston; vice-presidents, Henry M. Thomas, Baltimore, and George W. Jacoby, New York; secretary and treasurer, Graeme M. Hammond, New York; councillors, Wm. G. Spiller, Philadelphia, and Walter Channing, Boston.

Address of President.—WILLIAM G. SPILLER said that disturbances in the associated movements of the eyes afford a sign of localizing value in lesions of the brain and yet this subject has received comparatively little attention. He had had an opportunity to study four cases in which paralysis of lateral associated ocular movements occurred and nine cases in which paralysis of upward or downward associated ocular movements was a striking sign, including three of the four cases referred to above. He had examined microscopically the material obtained from four of these cases. His remarks were devoted chiefly to the upward and downward associated palsies. Paralysis of lateral associated ocular movements is indicative of a lesion of the posterior longitudinal bundle near the sixth nucleus. The evidence that can be obtained regarding the existence of a cortical center for associated movements and paralysis of this form when resulting from a cortical lesion is transitory. We have little anatomic or pathologic evidence that is really valuable concerning the existence of a cortical center for upward or downward associated movements, but in reasoning from analogy we must assume that such a center or centers exist. All the pathologic evidence that Spiller had been able to obtain in cases of persistent palsy of associated upward or downward movement was indicative of a lesion near the aqueduct of Sylvius. It is extremely doubtful whether a lesion confined to the corpora quadrigemina and causing no pressure on the surrounding parts ever causes paralysis of the associated ocular movements. Cases have been reported in which the corpora quadrigemina had been destroyed in man without disturbance in the movements of the eyeballs. The oculomotor nucleus, as shown by recent investigations, is merely the place for the transference of impulses, and, according to Siemerling, we are not in a position to state which parts are concerned in the innervation of the individual muscles. It is very common to have a palsy of one or more branches of the oculomotor nerve in association with paralysis of associated upward or downward movement and this is more easily explained by a lesion of the ocular motor nucleus than by a cortical lesion. Cortical centers control associated movements, not isolated muscles. The lateral associated ocular movements can be explained by the connection formed by the posterior longitudinal bundle between the nucleus of the branch and the internal rectus muscle and the nucleus of the sixth nerve of the opposite side. It is reasonable to suppose that certain fibers connecting different parts of the ocular motor nucleus with one another or connecting the group of nerve cells innervating the inferior rectus with the nucleus of the trochlear never have a coordinating function similar to that of the posterior longitudinal bundle and that this function may be disturbed by a small lesion. It is striking that the paralysis of downward associated movement necessitating the implication of two separate nuclei of ocular muscles without paralysis of upward associated movement is exceedingly rare, far more so than is the isolated paralysis of upward associated movement. Spiller had studied 38 cases of paralysis of upward or downward associated movements reported in the literature, and this, together with his own 9 cases, made a series of 47. As a result of his studies, Spiller believed that persisting paralysis of associated lateral movement indicates a lesion of the posterior longitudinal bundle, that persistent paralysis of associated upward or

downward movement indicates a lesion in the vicinity of the oculomotor nucleus and that paralysis of associated ocular movements is not the result of a lesion of extracerebral nerve fibers. Lesions of the cerebral cortex may certainly cause paralysis of lateral associated movements, and possibly of upward or downward associated ocular movements. But cortical paralysis of associated ocular movements is transitory, except, possibly, when the center on each side of the brain is destroyed. Paralysis of associated ocular movements may be caused by hysteria. Any case in which associated ocular palsy is persistent and is of organic nature is unsuitable for operation unless the operation is merely palliative, as the lesion is probably within the posterior part of the pons or cerebral peduncle, according to the form of the associated palsy, or such causes or pressure upon the dorsal portions of these structures. The paralysis of associated ocular muscles may be produced by inflammatory lesions or lesions of a similar character (alcohol, syphilis) as well as by tumor and may disappear later in the course of the disease. Syphilitic ependymitis and cellular infiltration must always be considered in diagnosing the lesion causing paralysis of associated ocular movements.

A Fatal Case of Neurasthenia.—THEODORE DILLER (Pittsburg) reported the case of a man of excellent habits, who at the age of 36, after 25 years of incessant activity, became profoundly neurasthenic, with many morbid fears. Repeated examination of his organs and secretions by various observers failed to discover organic disease. The patient died of collapse at the age of 49, having exhibited a few weeks before his death some loss of power in his legs and occasionally loss of control of the bladder. No autopsy was held, and although admitting that organic disease might have been present which escaped his notice, Diller inclines to the tentative opinion that the patient died of a progressive loss of vital tone which had produced the clinical picture of neurasthenia. He mentioned a second case accounted one of neurasthenia, in which the vital tone for a time was so low that death was feared, but in which recovery subsequently ensued.

Discussion.—GEORGE W. JACOBY (New York) asked whether such cases can have a fatal issue. Grawitz has reported many cases of this kind which have been fatal. Our clinical examinations should be very minutely carried out so as to exclude other diseases if we would arrive at the diagnosis of neurasthenia. This case proves that every possible kind of examination should be made in any patient in which there is doubt as to diagnosis. LANGDON agreed with Sachs and Jacoby in reference to the case reported, which he thinks should be considered one of incomplete diagnosis. He has met with such cases, and has called them prepernicious anemia. Should the patients have died in that stage, the diagnosis of hysteria or neurasthenia would have been made, although it later developed into well-defined pernicious anemia. He did not accept the diagnosis which Diller had made. JOSEPH COLLINS (New York) said he hesitated very much to enter into the discussion of this paper because the question of diagnosis had been raised. He said that it would be a stigma of impotency to allow this diagnosis to go unchallenged. He thought Diller's description would fit in very well with arteriosclerosis, and believed that the autopsy would have revealed hardened bloodvessels, contracted kidney, and other lesions of arteriosclerosis. PHILIP C. KNAPP (Boston) said that a diagnosis should not be attempted on the evidence produced. F. X. DERGUM (Philadelphia) said that great care must be exercised in deciding what we should term neurasthenia. He makes a diagnosis of some other disease, except when he can feel certain that the case is one of neurasthenia. DILLER, in closing, expressed his obligation for the individual views expressed. He considered his diagnosis correct. He had been careful to avoid saying that there did not exist some disease of an organic nature which was at the bottom of the neurasthenia, though such disease, if it existed, had escaped his observation. He had excluded tuberculosis, arteriosclerosis, and Bright's disease.

A Study of Two Brain Tumors of Endothelial Origin.—One a Multiple Cylindroma, One a Neuroepithelioma.—HERMAN C. GORDINIER and H. H. CAREY (Albany) gave a detailed report of the symptoms and pathologic findings of these cases, dwelling upon the histologic structure of the tumors. Both tumors were incorrectly diagnosed antemortem. The first case was one of multiple cylindroma which involved the second, third, fourth and eighth cranial nerves and produced symptoms similar to those of tumor of the corpora quadrigemina. The tumors were of hyaline material and the basement substance was much in excess of the cellular elements. The nuclei were quite variable in size. The tumors could not be connected in origin either with the cerebral cortex or the pia mater. The authors conclude that the tumor was of congenital origin and that the cells were originally intended to enter into the formation of bloodvessels. In this way they account for a tumor as neuroepithelioma which involved the choroid plexus of the fourth ventricle, extending dorsally and giving rise to their tendency to do so in the tumor. The tumor was not very malignant. The other case was in a boy of 10. The symptoms of tumor of the cerebellum by pressing upon the vermis. The patient suffered from headache, vertigo, double optic neuritis and much disturbance of gait. The cerebellar tissue itself was not invaded. The authors believe that the tumor had its origin in the ependyma of the fourth ventricle.

[To be continued.]

ORIGINAL ARTICLES

THE BROMIDS IN EPILEPSY.¹

BY

FREDERICK PETERSON, M.D.,
of New York.

General Consultant, Craig Colony for Epileptics; Clinical Professor of Neurology and Psychiatry, Columbia University.

The element bromin was discovered in 1826. Dr. Radcliffe was, I believe, the first to use a bromid in epilepsy (1858), claiming for it that it was the remedy upon which most dependence could be placed.² Shortly afterward the recommendations of Hughlings Jackson, Brown-Séquard, and others led to its general employment as the chief agent in the alleviation of this disorder. The bromids have continued to this day to occupy in the minds of most general practitioners the foremost place as an antiepileptic drug.

Furthermore, I may state on the authority of Dr. Spratling, the superintendent of the Craig Colony, that the bromids are the chief ingredients in all the quack remedies advertised to cure epilepsy. This general confidence in the bromid preparations is undoubtedly based upon the fact that in a considerable number of cases the frequency of attacks is lessened by their use.

On the other hand, I am convinced that a great many more epileptic patients have been injured than have been benefited by bromids. And this is the *raison d'être* of this brief paper.

The disease has been known to be intractable since it was described by Hippocrates. There is a general, though erroneous impression among medical men that it is incurable. Brown-Séquard advocated heroic doses in its treatment. The result has been that when an epileptic applied to a physician for treatment he was given a bromid prescription to take indefinitely. I am sure that most neurologists will agree with me that epileptics have, as a rule, been thoroughly brominized before they seek the specialist. Yet, so long ago as the early sixties, the bad effects of the indiscriminate use of bromid preparations were well known. Here are some of the symptoms described at that time:

A dirty, yellow color; hollow eyes, fixed look, expressionless face, emaciation, tottering limbs, trembling hands, general cachectic state, loss of appetite, bromid acne, foul breath, engorged and dry throat, loss of sensibility of the palate, constipation, pulmonary catarrh and cough, drowsiness, loss of memory.

How common a picture is this of the epileptics we see from day to day, even at the present time! It is a fair description of most of the thousands of patients that I have seen admitted to the Craig Colony from the almshouses, or appearing at the Vanderbilt clinic for treatment. I have often seen bromid dementia, and there are cases in which the administration of this drug induces actual toxic insanities, melancholia, mania, or paranoid conditions.

My object in bringing this subject before the profession is to rouse a general antipathy to the indiscriminate use of this drug in epilepsy. I believe I am not overstating the matter when I say that, as a rule, this drug is worse than the disease. I believe the sum total of comfort, happiness and wellbeing of the epileptic would have been greater if the bromids had never been discovered. When the drug is to be employed, use it in small doses, combined with some of the harmless remedial agents, like antipyrin, tincture of simulo, and horse nettle, or prescribe instead of the bromin salts, some preparation of brominized oil, which is less powerful and less noxious.

The large experience of the Bielefeld and Craig Colonies for Epileptics, is in favor of very small doses of

bromids when used. Far better would it be for the family physician to prescribe only some mild stomachic and laxative in the way of drugs, and point out to the patient that diet and an outdoor active life will bring about 50% of amelioration of the disease. He can count on an average reduction of half in the number of his attacks, by attention to diet and exercise. Send such patients to one of the colonies for epileptics, or to farms, where simple food, regular hours and a strenuous use of the muscles will accomplish so much, and inspire hope in him and in his family.

Do not assert he is incurable. Let him know that the statistics of Bielefeld and Craig Colonies prove that many patients recover. Dr. Turner, in England, has shown that 10% may be cured, and perhaps the coming years will demonstrate that a still larger percentage of success may be attained by the colony method, which is altogether new.

PRACTICAL POINTS CONCERNING THE TECHNIC OF COLOSTOMY.¹

BY

SAMUEL G. GANT, M.D., LL.D.,
of New York.

Professor of Diseases of the Rectum and Anus, New York Postgraduate Medical School and Hospital; Rectal Surgeon to the Postgraduate, St. Mary's and Newport Hospitals, etc.

In this brief paper it is impossible to enter into a detailed description of colostomy and the various methods and modifications of performing this operation. This paper is written with the object of calling attention to and eliciting a general discussion upon certain features in the technic which, in my opinion, are all important, but which are not sufficiently understood or appreciated by surgeons generally. Notwithstanding the fact that colostomy has been so bitterly opposed by general practitioners, many surgeons, and some rectal specialists, the operation is gradually working its way into popular favor and is being performed far more frequently than in former years.

In the past the establishment of artificial ani was but rarely practised and only as a palliative measure to alleviate the most distressing symptoms in incurable conditions, such as cancer or stricture, but at present the operation is frequently resorted to, not only in these conditions, but also for the relief and cure of otherwise unrelieved tuberculous, syphilitic, dysenteric, or catarrhal ulceration of the rectum and sigmoid; congenital malformations of the lower bowel; disseminated polyps, causing obstruction, ulceration, bleeding, and exhausting discharge; otherwise incurable rectovesical, rectourethral, or rectovaginal fistulas; obstinate chronic hypertrophic or stenosing coloproctitis, or any condition of the colon, rectum or adjacent structures which produces dangerous manifestations of obstruction, and in any disease in which it is imperative to give the bowel rest and to protect it from the irritation caused by the feces. It is also resorted to as a means of preventing infection in cases in which a capital operation, such as excision or resection of the rectum, is to be performed.

Lumbar colostomy, with its many disadvantages, has become practically obsolete, and, therefore, will not be discussed.

In a vast majority of instances, when a patient is to be colostomized for disease in the lower sigmoid or rectum, or both, the bowel is opened in the left inguinal region, but if the disease involves the colon higher up, the transverse colon may be opened in the median line, or if necessary, the ascending portion in the right inguinal region, but the opening must be above the diseased section of the bowel.

Authors in describing colostomy lay great stress upon

¹ Read before the American Therapeutic Society, May 4, 1905, at Philadelphia.

² Lectures on Epilepsy, Philadelphia, 1866.

¹ Read before the American Proctologic Society, Pittsburg, Pa., May 6, 1905.

the location of the incision, making it at a certain place in the left inguinal region, but, in fact, it is not important to select a definite point, provided that it is made below the umbilical level and between the outer edge of the rectus muscle, and at least an inch internal to the anterior superior spine of the ilium. An incision three inches long is usually sufficient to enable the operator to bring the bowel up, but the cut should be extended if there is difficulty in locating the desired portion of the colon, or if for any reason a more thorough exploration of the abdomen is necessary. In closing the wound about the bowel, however, it is very important that the opening left is neither too small nor too large, because in the former case a strictured condition may result, and in the latter there is a tendency to proclivencia. The distance between the angle sutures should be about two inches, which is sufficient to permit the exit of solid feces without discomfort.

As yet no method has been devised by which the involuntary passage of gas and liquid feces can be prevented, but much has been accomplished toward enabling these patients to retain solid fecal matter, and to empty the bowel at less frequent intervals than formerly. The method of entering the abdomen by separating the fibers of the various muscles rather than cutting them, was a step in this direction, but much more has been accomplished by the methods of Bailey, Witzel, Weir, Bernays, Wyeth, Gersuny, von Hacker, Tuttle, myself, and others, whereby an attempt is made to provide additional control by producing angulations in the gut, by the establishment of sphincteric power, by placing a length of the gut between the layers of muscles, or muscles and skin, so that pressure can be made upon it as suggested by Bailey, or by leaving a loop of the bowel above the artificial anus to act as a reservoir for the accumulation of feces. Of these various procedures, those which carry out the principles laid down by Bailey have given the best results.

Formerly great stress was laid upon the formation of a proper spur and securing the legs of the loop in a parallel position, so that the wellknown double-barreled shotgun effect is obtained, the object being to prevent any of the feces from passing down into the rectum. In order to accomplish this result, methods have been suggested by Maydl, Allingham, Weir, Kelsey, Bodine, Mathews, and others. These procedures are rendered unnecessary, however, by the Bailey operation and its modifications, in which the bowel is carried for a distance between the muscles or muscles and skin, because the structures through which the bowel passes hold the legs of the loop parallel until adhesions have formed.

Great importance has been given to that step of the operation in which the parietal peritoneum is brought up and sutured to the skin before the intestine is fastened in the wound in order to bring the parietal and visceral layers into contact. In my opinion this is usually unnecessary, because firm adhesions quickly form between the visceral layer and the sides of the abdominal incision.

There have been differences of opinion as to the length of gut to be brought up and later amputated in those patients in whom a long mesocolon permits several inches of the bowel to be withdrawn through the incision. I pull the bowel up from below and down from above until it is taut, as suggested by Allingham, and very frequently amputate 5 in., 10 in., and sometimes 15 in., of the gut. This removal of a considerable length of the colon does not increase the mortality or difficulty of the operation, but does possess the advantage of materially lessening the tendency to subsequent proclivencia.

Except in cases of obstruction, accompanied by urgent symptoms and enormous distension, the bowel should not be opened immediately, because of the danger of infection and increased mortality. The bowel may be punctured in 24 to 36 hours in cases in which there

is moderate distension causing considerable pain, but if the patient is fairly comfortable it is best to wait at least three and not longer than seven days before removing the isolated gut. I never employ any form of anesthesia in amputating the gut, as the operation does not require more than three minutes and the only pain produced is when the mesentery is severed.

Dr. J. P. Tuttle has suggested the opening of the gut by a T-shaped incision so that the triangular flaps may curl up like dried leaves. He says that by this method no portion of the intestinal wall is sacrificed, and when it becomes advisable the artificial anus can be closed by simply suturing the edges of the T-shaped wound together without opening the peritoneal cavity. I have resorted to this procedure in two cases; in one the flaps seemed to have atrophied, and in the other they would not uncurl so that his operation could be performed.

The quickest and simplest method of removing the loop of intestine is to make a slit in its top with the scissors and insert the finger, which is then used as a guide, while the gut is rapidly cut away not less than a quarter inch from the skin; no attention is given the hemorrhage, which is always profuse, until the entire mass is excised. Then the vessels are quickly clamped and ligated and the oozing controlled by the application of compresses wrung out of very hot water. The healing and smoothing of the artificial anus is hastened by touching the cut edge daily with a 4% solution of silver nitrate and proper dressing. These patients are given full diet after the bowel is amputated, are allowed to sit up on the tenth day, and are discharged from the hospital at the end of the second or third week.

Because of the irritation caused by the wound, the actions are frequent at first, but as the soreness disappears and the patient is taught how to care for himself properly, the movements occur at more regular intervals.

Closure of artificial ani, where the serous surfaces of the legs of the loop of the intestine have grown together, forming a spur, is much more difficult than that of a simple fecal fistula, because the bridge of tissue formed by the adherent legs of the original intestinal loop and mucosa covering them must be destroyed before continuity of the intestine can be restored.

Dupuytren was the first surgeon to suggest destruction of the spur by clamping. For this purpose he devised an instrument known as the enterotome. This instrument was later modified by Gross. Dupuytren first successfully accomplished the closure of an artificial anus by means of his enterotome in 1815, and in 1828, before the French Academy of Medicine, he reported 41 cases treated by his method. In 29 of these patients a complete cure was effected, while in 9 a fistula persisted and 3 patients died from the operation.

The Dupuytren and Gross enterotomes and other clamp forceps used for destroying the spur are heavy and cumbersome and project from the abdomen, rendering it difficult to apply dressings and causing the patient great annoyance. In order to avoid the objectionable features of these instruments I have devised a special fenestrated clamp, which is similar in every respect to my fenestrated "valve-clamp," except that it is larger. The weight of this instrument is imperceptible to the patient, and when in place, the shank, which is bent at an angle to the clamp, lies flat on the abdomen. The jaws of the clamp are fenestrated and are about an inch broad and two inches in length. It is applied by means of Gant's clamp applicator or forceps, as follows: It is placed in the applicator or strong angular pressure forceps and so adjusted that its jaws are open to the fullest extent. The parts have been thoroughly cleansed; the spur is carefully stripped with the fingers in order to remove any coil of the small intestine which may be included in its angle. The clamp is then applied, one blade in each opening, and pushed down sufficiently to include the entire spur, when it is released from the instrument. It

is allowed to remain in situ until it comes away unaided, which is usually after six to nine days, depending upon the amount and character of the tissue to be destroyed. The clamp causes slight soreness, but no acute pain. To avoid complications, the patient must remain quietly in bed until it sloughs out. When the spur has been successfully destroyed, the skin and edges of the opening should be freshened and closed with catgut or silk sutures. When there is considerable tension, the parts should be drawn together and supported by well-adjusted adhesive straps. I have performed this operation in two cases, and both were successful. This method of closure is not so desirable after the Bailey operation as when the loops of gut have been brought out directly through the parietes.

The clamping operation is preferable, but when for any reason it is contraindicated, the most satisfactory manner of closing the artificial anus is to reestablish the normal channel by resection and anastomosis. The technic of this operation is as follows: After the parts have been thoroughly cleansed and the opening in the bowel closed with continuous catgut suture, to prevent the feces from soiling the wound, the skin about the opening is divided by semicircular incisions, and the gut carefully dissected from its attachments and brought well up through the incision. That portion of the bowel included in the spur is then excised, and a lateral or end-to-end anastomosis made by means of the Murphy button, circular enterorrhaphy, or by means of any of the various devices used for this purpose. I have obtained the best results when the Murphy button has been used. In three instances I have allowed the bowel to remain outside on the abdomen until union occurred, when it was cleansed, dropped back into the cavity and the incision closed.

Another method suggested for dividing the spur is the silk ligature. This has not met favor because the spur is simply divided and no tissue removed. The ligature is introduced through the spur as deeply as is safe by means of a needle; it is then tied and allowed to slough out. I would suggest that if a ligature is used at all, it should be of India rubber, adjusted, tightened, and secured by means of a perforated shot; this is preferable because silk is but slightly elastic, and sometimes fails to cut its way out. The ligature having sloughed out, the operation is completed by closing the opening in the same manner as in the clamping operation. A few plastic operations have been suggested for closing artificial ani, but have met but slight favor, and for this reason they have not been discussed in this short paper.

THE TREATMENT OF INCONTINENCE OF URINE IN CHILDREN.¹

BY

NOBLE P. BARNES, M.D.,
of Washington, D. C.

Evacuation of the bladder is a physiologic reflex act in early infancy. A distended bladder forces a drop of urine into the urethra; stimulation of this mucosa is followed by relaxation of the vesical sphincter, contraction of the detrusor urinæ, rhythmic contraction of the ejaculator urinæ and finally a twitching of the levator ani and neighboring muscles.

The sphincter vesicæ being a continuation and thickening of the unstriated circular muscular fibers of the bladder is involuntary. The second sphincter, the depressor urethræ of striped muscular fibers is not yet under control, or if under control there is no will or mental development to govern its action.

The age at which this function is made subject to the higher nerve centers is variable and delay beyond the

period of dentition marks it as an abnormal condition, termed enuresis.

Inherited weakness, intercurrent diseases, bad feeding, bad hygiene and lack of training may prolong this infantilism. These children are usually but not always unhealthy. They are irregular in diet and habits and have a most profound suspension of the cerebral centers during sleep. A full bladder is sufficient to stimulate the more active spinal centers but not stimulant enough to awaken the child.

Enuresis usually persists from infancy, although it may appear after some exhausting disease. Many children have nocturnal enuresis with every indisposition, whether it be due to cold, exhaustion, overfeeding or slight infection.

The condition is more common than generally supposed, for it is only the continued cases that come under treatment. Careful inquiry in dispensary and asylum clinics has proved that 10% of these children from 3 to 5 are bed-wetters.

Since enuresis is a symptom of one or more disorders and these disorders vary from perverted dispositions to genuine nervous diseases, the successful treatment depends upon the determining of the etiologic factors. The prescribing of drugs at random is as disappointing as unscientific.

For convenience and brevity the following table of causes is offered:

CAUSES OF ENURESIS: ORGANIC AND FUNCTIONAL.

Organic: Anomalies, injuries and diseases.

1. Malformation: Fistula, contracted bladder, ureter opening into urethra.
2. Of the Urinary Tract: Nephritis, pyelitis, pyelonephritis, hydronephrosis, cystitis.
3. Of the Nervous System: Spina bifida, idiocy, imbecility, epilepsy, paresis, etc.; meningitis, spinal or cerebrospinal, rheumatic chorea.
4. Of Nutrition and Metabolism: Marasmus, diabetes, scorbuts, rachitis.

Functional: (The pathology is not always demonstrated, but some morbid process or condition is usually present.)

1. Uneducated and Untrained: Habit, fear, laziness.
2. Undevelopmental state: (Infantilism or eccentricities of development, resulting in defective inhibitory power.) (a) Degenerative state, inherited or acquired. Ancestral neuroses, syphilis, tuberculosis, alcoholism, rheumatism; (b) antecedent diseases, resulting in general weakness, backwardness, and atonicity of the sphincters; inanition and diseases of the digestive tract; infection or the infectious diseases; uncinnaria, anemia, etc.
3. Autointoxication or toxemia: Incomplete digestion, carious teeth, catarrhal conditions, adenoid vegetation, ragged tonsils, and conditions that permit of slow infection, and sub-oxidation.
4. Neuroses: Fright or shock (punishment, excitement, examination). Hysteria (enuresis may be the only symptom).
5. Hyperemia or Irritability of the Lumbar Cord: Chilling of the surface of the body, sleeping cool, lying on the back, feather bed, stimulating foods and drinks.
6. Local Reflex Irritations: (a) Of the hypogastric plexus (vesical irritation). Urine acid or irritating from any cause; polyuria, phosphaturia, indicanuria, lithuria, lithuresis, vesical calculus, colon bacillus in bladder. Undescended testicle, uterus or tumor pressing bladder; (b) of the pudic nerve and sacral plexus; phimosis, confined clitoris, contracted meatus urinarius, urethritis, vulvovaginitis, local eczema, pediculi pubis. Rectal fistula, fissure, polypus. Constipation, colitis, oxyuris vermicularis, masturbation.
7. Remote reflex irritation: (Always associated with a weakened or deranged system. These remote reflexes contribute to the cause of enuresis in some instances; they are not actual causes, they aggravate but cannot originate the condition). Nasopharyngeal catarrh. Hypertrophied tonsils and adenoids. Cervical adenitis. Otitis. Defective vision.

The first consideration in the management of enuresis is the finding of the cause, its removal, or alleviation. The multiplicity of causes emphasizes the care to be exercised in the differentiation. Every avenue must be scanned, every organ and reflex carefully studied, and the urine and feces repeatedly examined. These children must be dieted, managed, and kept under observation with diligence and without ceasing.

The majority of these cases yield to proper diet, hygiene, and training. Mental and physical irritation should be reduced to a minimum. A quiet, salubrious,

¹Read before the American Therapeutic Society, Philadelphia, May 5, 1905.

country place is desirable. In short, they should be trained disciples of the "simple life." Regular habits are imperative. This applies not only to diet, exercise, and sleep, but evacuation of the bowel and bladder. Children should be taught to hold the urine for a considerable time during the day, and be awakened and made to urinate at a regular hour each night. Few adults could retire at seven o'clock in the evening, after ingesting a meal largely liquid, and rest 12 hours without emptying the bladder. Exercising in the open air and sunshine is always beneficial. Special exercises directed to strengthening the local muscles can be undertaken with older children. The bath is another hygienic measure often misused. Warm baths are relaxing and frequently followed by colds. The gradually cooling shower or tub bath, followed by brisk rubbing develops vim, vigor, and virility. The cold spinal douche gives pleasant results in some instances.

A generous diet of easily digested food agrees with most children. They should never be overfed. Sometimes a polyuria is associated with an excessive starchy diet, and a moderate antidiabetic diet relieves the condition. In other cases heavy meats and fish have to be eliminated. Stimulating foods and drinks, and liquids of all kinds should be omitted as much as possible before retiring. In some instances the urine is irritating because of its concentration; in these limiting the liquids would aggravate the enuresis. More frequently the urine is abundant, of low specific gravity, and almost neutral reaction. Many of these children have chronic intestinal indigestion, and must be treated accordingly. Emptying the bowel before retiring is good practice.

A hard bed and moderate covering should always be instituted. Elevation of the foot of the bed, and appliances attached to the child to prevent lying on the back, are rational measures.

Medical treatment alone is usually negative, unless the enuresis is due to highly acid or irritating urine, or infection and inflammation of the urinary mucosa. Then lithium salicylate, potassium citrate, hexamethylenetetramin, and similar drugs give prompt relief.

For the general atonic conditions and weakness of the sphincters, strychnin, quinin, and ergot are of first value. Iron and arsenic should be added when needed.

Atropin is the drug most commonly prescribed. It influences the muscular and reflex activity by lessening the contractile power of the bladder and diminishing the hyperesthesia of the spinal centers. When depending upon this drug it must be given, like quinin for malaria, for effects: 'Gradually increasing doses continued until the enuresis is controlled, or the full action of the drug is obtained. The atropin treatment must be pushed for weeks or months, and when a cure is established the dose may be gradually lessened and the drug slowly withdrawn.

When masturbation is practised, gelsemium to full physiologic effects may be given alone or with sodium bromid. Circumcision here is a most excellent procedure. The passing of sounds, vibratory massage, or the interrupted current often stimulate a weakened sphincter, not to mention the stimulating effect produced upon the inhibitory centers. Epidural injections, while producing anesthesia of the spinal centers, undoubtedly produce hyperesthesia of the cerebral centers.

Irritating the urethra with cantharides or silver nitrate is reported as beneficial in many cases, regardless of the fact that posterior urethritis and prostatitis sometimes induce an uncontrollable enuresis. Bladder washing and stretching are important when there is vesical contraction. The salicylates and iodids should be used when indicated.

Most important of all in the treatment of incontinence of urine in children are diet, hygiene, habit, and training. Rewarding the child for good conduct, and appealing to its pride, are preferable to punishment of any kind.

THE TREATMENT OF APPENDICITIS IN THE PRECARIOUS STAGE.

BY

JOHN G. SHELDON, M.D.,

of Telluride, Colo.

The cases of appendicitis most dangerous to the patient, and most difficult to treat properly, are those in which the inflammatory process has extended beyond the walls of the appendix, in which there is no reason to believe that nature is walling off infection, or arresting its progressive extension. Pathologically, the infection has spread to the surrounding peritoneum and may have involved the entire peritoneal cavity. Adhesions are not present, and no localized collections of pus are found. Clinically these patients are in a serious condition. They have been sick usually from two to five days, they show marked general symptoms of toxemia, with local findings that strongly suggest a general peritonitis. They are in a hazardous condition, and the method for treating them is undetermined. Appendicitis in this stage is extremely dangerous, and too often impresses even experts with the fact that they are not masters of the situation regarding the indications for treatment.

In this paper I shall, for the sake of brevity and for want of a better term, designate these dangerous and uncertain cases as "precarious cases of appendicitis," or "appendicitis in a precarious stage."

The treatment is well settled in all cases except those at a precarious stage. There is no question that operation is positively indicated if the infection has not spread beyond the walls of the appendix. It is also generally admitted that operative treatment is positively indicated in all cases in which localized suppuration has occurred. The treatment of appendicitis limited within the walls of the appendix, or localized by the structures of the peritoneal cavity, is unquestionably a safe and certain procedure, and there is no reason to believe that anyone today would consider anything but the operative treatment. The conditions are quite different, however, in treating precarious cases of appendicitis. Today there are two recognized methods for dealing with these patients: One, the nonoperative method, advocated and recommended by Ochsner and others, which consists in relying upon the resistance of the patient to localize the infective process; the other, advocated and practised by Murphy and many others, may be designated the operative method. These men advise immediate operation in all precarious cases of appendicitis. A careful study of the reported cases of those who practise one method exclusively, or who have given both methods a fair and quite extensive trial, by no means convinces one that either method should be employed in treating all patients. One's personal experience is quite as indefinite as the reported cases of others. Personally, when I have lost a patient by treating with one method I have thought that the outcome would have been different if the other method had been resorted to. My personal experience has led me to believe that neither of these methods has solved the problem of treatment in the precarious stage, and that we cannot advise for all of these patients either the operative or the nonoperative method.

The advantages of the nonoperative method are that the limiting powers of the peritoneum are not interfered with, that infection is not disseminated mechanically, and that the patient is not subjected to the shock of anesthesia or operation. The danger of this method is that many times the infection is so virulent that nature cannot limit its extension, and the patient succumbs.

The advantages of the operative method are, drainage at the seat of infection and removal of the primary focus. This, in all probability, does much to limit the

extension of the infective process. The dangers of this method are that in attacking the appendix through an anterior incision, more or less risk of dissemination of the infected material is incurred. This is not only true at the time the operation is performed, but is true during drainage from the infected area through the field occupied by the small intestines.

As said before, it is impossible to say that one method is more effective than the other in treating all patients. It is probable that each has a certain field of usefulness, and that neither completely solves the problem.

In the *Annals of Surgery*, September, 1904, under the title of "A Posterior Incision in Certain Appendicitis Operations," I described and recommended an incision that up to this time I had practised with satisfaction, and that in my hands has proved a very efficient method in precarious cases of appendicitis. The operation that I described at that time was made as follows:

The appendix is reached through Petit's triangle. A vertical incision is made along the outer border of the latissimus dorsi, and extends from the crest of the ilium upward. This exposes the outer border of the quadratus lumborum and the lumbar fascia and aponeurosis of the transversalis, which extend anteriorly from the outer border of the muscle. The second incision is made transversely, close to the iliac crest, through the lumbar fascia and transversalis, exposing the parietal peritoneum directly over the ascending colon and cecum.

Theoretically, operations through this incision for appendicitis during the precarious stage, accomplish the object of those who advocate the operative method; that is, it efficiently drains the infected area, and at the same time does away with the most important risk incurred by operating through an anterior incision. The appendix is attacked through the posterior incision, without interfering with the small intestines, without a chance of disseminating the infection and without destroying adhesions, if any are present. It drains with the aid of gravity, drains in the most dependent part and does not drain through important structures. This operation meets all the indications of the operative method more efficiently than does an operation through an anterior incision, and, at the same time, reduces to a minimum the dangers attending the operative treatment in precarious cases. On the other hand, it offers no serious objection to the thorough carrying out of the rest, or nonoperative method. As the small intestines have not been interfered with, there is no reason why the nonoperative method should not be as efficient in assisting nature in limiting the infection, with a posterior incision for drainage, as it would be if no incision had been made.

I have obtained very satisfactory results, indeed, by subjecting all precarious cases of appendicitis to a posterior incision, removal of the appendix and drainage, and, at the same time, employing the rest treatment, with gastric lavage and rectal feeding. Since I have used this method, I have only treated nine patients with appendicitis that could truly be said to be in the precarious stage. Four were in a very serious condition. There were local and general findings that suggested involvement of the entire peritoneum. All, however, made a rapid and complete recovery.

I do not claim that this incision solves the problem of treatment in precarious cases of appendicitis; neither do I claim that it puts the treatment on as definite a footing as when the condition is limited to the appendix, or when localized suppuration is present; I do believe, however, that the method is more efficient in dealing with these hazardous cases than is operative treatment done through an anterior incision, or the nonoperative treatment without drainage during this stage. From theoretic considerations and from practical observations, I feel justified in recommending the posterior operation in all cases of appendicitis, and especially in those cases that may be properly called precarious.

THERAPEUTIC VALUE OF ERGOT IN LABOR.*

BY

J. C. APPLEGATE, M.D.,
of Philadelphia.

Professor of Obstetrics, Department of Medicine, Temple College; and
Obstetrician to the Samaritan Hospital, Philadelphia, Pa.

Conflicting opinions and the rather confusing status regarding the therapeutic value and proper usage of ergot in labor have prompted me to select this subject for consideration. While cognizant of the fact that no definite routine rule can be established with reference to its application, on account of the varying individual idiosyncrasies to the drug, together with uncertainty as to the time necessary for its absorption during the process of labor, a better understanding as to its proper place or real merits should be arrived at by the profession.

Varying statements and conflicting opinions as to its proper place and application give rise to the open question: Which is the right and which is the wrong course to pursue? Textbooks on therapeutics classify it with the most valuable remedies for uterine inertia; some of them unreservedly, others supplementing this by the statement that the cervix must be fully dilated and that there be no pelvic dystocia nor other obstruction in the birth canal, to prevent the speedy completion of the labor, while textbooks on obstetrics generally condemn its administration under all circumstances, until after complete evacuation of the contents of the uterus. Practitioners likewise maintain contradictory opinions as to its proper place in obstetric practice; one still adheres to the theory that it is safe and sane to prescribe ergot during the first stage of labor for the purpose of exciting uterine contractions in delayed labor or uterine inertia; another advocates its administration immediately after the birth of the child in order that absorption may take place and its physiologic effects be produced at the time when most needed, viz., at the termination of the third stage of labor; another condemns its administration altogether until after the termination of the third stage; and still another has abandoned its use altogether as routine practice. With these conflicting facts it is not surprising that some confusion should exist as to when, and under what circumstances, it should be administered in labor, if at all.

Whether ergot produces contraction of the uterine muscular fibers by vasomotor stimulation directly, or by dilation of the veins and arterial anemia, according to the theory of Wernich, Schlesinger, Mayer, etc., the fact remains the same—that its physiologic effects on the uterus are specific—producing uniform uterine contractions, less intermitting, more continuous, and in this respect unlike those produced by normal labor, if sufficient is administered to obtain the physiologic effects. In normal labor, as is well known, the rhythmic contractions of the uterus are accompanied by gradual thinning and relaxation of the cervix, while under the influence of ergot the predisposition is to constriction and rigidity, particularly of this portion of the uterus, and the fact that it is valuable, or even safe, in uterine inertia cannot be substantiated. If rest for a time, friction over the fundus, stimulation with strychnin or quinin, fail to establish the normal first stage, it is far better and safer to complete the dilation manually and deliver instrumentally, than to prescribe ergot prematurely, with its attending dangers.

That it is somewhat of a temptation to the beginner to prescribe ergot during the first stage of labor, when long drawn out, there can be no question, because of its positive effects in producing contractions; besides, the act would be entirely consistent with certain rules laid down in literature on therapeutics. The dangers here are threefold and self-evident: (1) Rupture of the

* Read before the Philadelphia Obstetrical Society, November 3, 1904.

uterus; (2) asphyxiation of the child or paralysis of the fetal heart from compression; (3) retention of the placenta and membranes.

Complete rupture of the body of the uterus, in my judgment, rarely occurs from its premature administration, but extensive lacerations are not so rare.

Retention of the placenta and membranes is a natural sequence, but the more serious aspect is, to jeopardize the life of the infant by subjecting it to the more continuous pressure and interference with the fetal circulation, as it necessarily does, whether the head has passed the cervical canal or not.

The theory that if ergot is prescribed at the end of the second stage of labor, for the purpose of obtaining its physiologic effects when most needed, at or about the time of the expulsion of the placenta, is well founded, but practically unsafe, by reason of the fact that we have no knowledge of the time necessary for its absorption during the process of labor, a state of physiologic disorganization, nor have we any knowledge of the time necessary for placental expulsion.

The rule of 20 minutes to a half hour for the absorption of ergot, and 15 minutes to 20 minutes for placental expression, has many exceptions and should not be a guide. Adherent placenta, the so-called postpartum hour-glass contraction or exaggerated Bandl's ring, rarely occur except under faulty mechanism of the third stage of labor, when the placenta is not expressed after the Credé method or when traction is made on the cord. Such conditions do arise however, infrequently, when least suspected and are no doubt aggravated when ergot has been previously administered; particularly is this true with adherent placenta. Until it is definitely ascertained that descent or partial protrusion of the placenta through the cervical canal has taken place, the administration of ergot should be regarded as premature, notwithstanding the opposite opinion held by some well-known authorities.

While it is true that a woman may bleed to death while the effects of ergot administered late are being realized, if this alone is depended upon, it is also true that postpartum hemorrhage is attended by emesis in a large percentage of cases; ergot here not being well borne by the stomach, adds insult to injury by this method of administration and the drug is rendered valueless. A dram of the fluid extract administered immediately after the termination of a long, tedious labor, or when uterine inertia has been a factor, is unquestionably of value as a preventive measure, since slow involution inevitably follows such a labor, but for the control of established hemorrhage its effects are indicated at once, and far better results can be obtained by the administration of aseptic ergot hypodermically. The labor speedily terminated by vigorous pains and contractions quickly succeeding themselves is ordinarily followed by speedy contraction and retraction of the uterine muscles, very rarely by postpartum hemorrhage, and ergot is seldom indicated at all. A distinction, however, should be made between private and hospital practice; remote patients, particularly in rural districts, should have the benefit of the safeguard which a dram of the fluid extract of ergot at the end of labor insures against primary or secondary hemorrhage, while in hospital practice, with competent residents to compress the uterus in the proper way and manner, to pack in an emergency, or administer ergot hypodermically, together with trained nurses to administer a hot vaginal douche, temperature 110° F. or 115° F., ergot is rarely needed as a preventive measure. Ergot is also of undoubted value following placenta prævia, for the purpose of closing the sinuses of the abnormal placental site, both for preventing too free bleeding and septic infection, and it is invariably demanded following the reposition of an inverted uterus.

For the sole purpose of preventing septic infection with a normally situated placental attachment, the

bleeding and exudate from the open sinuses toward the exterior and the uterus, safeguarded by nature's method, the formation of venous thrombi, I cannot conceive of how it can be of any value. If the labor has been conducted aseptically and the uterus normally contracted under the influence of compression, it certainly can be of no value; if septic, the too complete closure of the sinuses, the locking of the secretions with ergot, arterial contraction and dilation of the veins disturbing the thrombi, rather favor the retention of blood and excreta intended to be liberated, and thus aid in the absorption of septic material.

We have evidence of the ability of the uterus to safeguard itself against puerperal infection in the animal kingdom; nor is it rare for a certain class of women to give birth to children with no examination before, during, nor after labor; no ergot; to get up and go about, more like "the beasts of the field;" and rarely, if ever, do they have septic infection when let alone.

The therapeutic value of ergot is not here underestimated. It has its official place, with no equivalent as a substitute; but its place is not during the first stage, because of the danger to both mother and child; not during nor at the end of the second stage, as the object for which it is prescribed at this period will very often more than be defeated by seriously interfering with the progress of the third stage.

To obtain the greatest therapeutic value of ergot in labor, it should be limited to, or near, the end of the third stage, administered by the mouth when indicated for the prevention of hemorrhage, and hypodermically when indicated for the control of hemorrhage.

GUNSHOT WOUNDS OF THE STOMACH: REPORT OF TWO CASES.¹

BY

W. M. JORDAN, M.D.,
of Birmingham, Ala.

Surgeon to St. Vincent's and Hillman Hospitals; Formerly Assistant Surgeon U. S. Marine-Hospital Service.

Much has been written in recent years in support of the nonoperative treatment of gunshot wounds of the abdomen, statistics being brought forward to show that better results are obtained by this method than by operative treatment. These statistics, which are based upon reports of army surgeons on duty at the front, are said to be misleading in some respects, but this is a question which civilian surgeons are not competent to pass upon. It is certain, however, that the army statistics relating to abdominal wounds are of no value as applied to similar wounds received in civil life. The wounds of war are usually inflicted by small caliber, steel-jacketed rifle bullets, of high velocity, which produce correspondingly small wounds with clean-cut edges, whereas the wounds of civil life are commonly produced by soft lead pistol bullets, of low velocity. The resulting wound is more or less lacerated, and is larger than that produced by the army bullet.

When the stomach or intestine is perforated, the mucous membrane prolapses into the wound, and may plug it completely if the wound is a small one. This is nature's method of treating wounds of the bowel, but as Klemm has shown by experiments on animals, it can only occur when the perforation is less than 0.5 cm. in diameter. A wound of this size may be produced by the small caliber army rifle, but will rarely be met in civil life. On the contrary, even when the wounds are produced by the small parlor rifle, the bowel perforations are frequently larger than the bullet which made them. This is probably due to the tendency of the lead bullet to turn sideways. It is thus seen that gunshot wounds of the

¹ Read before the Southern Surgical and Gynecological Association, Birmingham, Ala., December 15, 1904.

abdomen as met in civil practice occupy a separate class from similar wounds received in war, and are not to be governed by the same rules of treatment. Whatever may be the practice among army medical men, in civil life it should be a fixed rule to operate in all cases of gunshot wound of the abdomen.

If a wound of the stomach is suspected, the incision should be made near or through the skin wound, as it is likely that the stomach wound will be found directly under it. If this is the case it will save much harmful handling of the organ. The stomach is not able to change its position materially, as the intestine is, and hence the perforation will be found close to the point where the bullet entered the abdominal wall. There are usually two perforations, a wound of entrance and a wound of exit. The wound of entrance is nearly always on the anterior surface, but the wound of exit may be either on the anterior or posterior surface, depending upon the direction of the shot and the position of the stomach at the time of the injury. There may be only one perforation, as in my first case, and in a case reported by Dr. Williams.¹ This occurrence may be explained on the supposition that the bullet struck the stomach on the edge of a fold.

The wound of entrance having been located and closed by suture, the remainder of the anterior surface is gone over in the search for the wound of exit. It should be remembered that not infrequently the wound of exit, as well as the wound of entrance is on the anterior surface, and failure to observe this detail may result in useless exploration of the posterior surface, as in my second case. If the wound of exit is not found on the anterior surface, the gastrocolic omentum is incised and the posterior surface explored. If the wound is near the lesser curvature it can be better exposed by opening the gastrohepatic omentum. The presence of a perforation on the posterior surface constitutes a positive indication for drainage of the lesser cavity of the peritoneum. Drainage is here indicated, not so much on account of the stomach wound as on account of probable injury to the pancreas or left kidney. In other words, the wound of the posterior wall of the stomach is taken as presumptive evidence of injury to these organs. Positive evidence to the contrary can scarcely be obtained at the time of operation.

For closing perforations of the stomach, I would recommend the purse-string suture. Objection has been urged against its use in closing intestinal wounds, on the ground that it may constrict the lumen of the gut, but this objection cannot apply to wounds of the stomach. The great advantages of this suture are the rapidity with which it can be applied, and the strength of the closure. It is well to reinforce the first suture with a second one, to add strength as well as to increase the area of approximated surfaces.

If the stomach is full at the time of operation, it would be well to siphon out its contents by means of a tube passed through the bullet wound. This procedure would no doubt add to the safety and comfort of the patient, and could be more conveniently carried out than could ordinary lavage of the stomach.

The after-treatment of stomach wounds is extremely important, the main object being to limit peristaltic action. Hence, nothing whatever should be given by the mouth during the first week, the patient being sustained in the meantime by nutrient enemata. In this connection, the fact should not be forgotten that the stomach does not absorb water to any appreciable extent. Water is therefore counterindicated in the first few days after operation, as it must excite peristalsis in order to leave the stomach. The needs of the patient may be supplied by rectal and subcutaneous injections of normal salt solution. In one of the cases reported below the patient got water only in this way for six days.

Morphin is useful in the first few days after operation. The benefit following its use is due not only to its inhibitory influence over peristaltic movements, but also to its power of checking gastric secretion.

Following is a brief report of the cases:

CASE I.—J. J., aged 21, white, was shot in the abdomen with a 38-caliber pistol, about 10 p.m., June 13, 1904. He was taken at once to the Hillman Hospital, where he was examined by me shortly afterward. I found a bullet wound in the epigastrium, midway between the ensiform and umbilicus. He was somewhat under the influence of alcohol, but his general condition was otherwise good. He stated that he had eaten nothing for several hours. He consented to immediate operation, and the anesthetic was begun two hours after receipt of the injury. The incision passed through the bullet wound, and extended a short distance above and below it. On opening the abdomen, a wound of the left lobe of the liver was observed, but as it was not bleeding, it was not thought necessary to suture it. The anterior surface of the stomach was then examined, and a ragged perforation found near the lesser curvature. This was closed at once by a purse-string suture of silk. The gastrocolic omentum was then incised, and the posterior surface explored for the wound of exit, but none could be found, nor could any other perforation be found on the anterior surface. I was therefore, forced to conclude that only one perforation was present, and that the bullet had probably struck the edge of a fold, the wounds of entrance and exit being continuous. Having satisfied myself that only the one perforation was present, I reinforced the original suture with a second suture of silk, after which the gastrocolic omentum was sutured with catgut, the peritoneal cavity flushed out with large quantities of salt solution, a wick drain inserted under the left lobe of the liver, and the incision partially closed. Nothing was given by the mouth for six days, nourishment being given by enema, and water by rectal and subcutaneous injection. As the man was an alcoholic, whisky was added to the rectal injections. Hypodermoclysis was given once or twice daily. At the end of the first week water and liquid nourishment were given by the mouth. The drain was removed on the sixth day. Convalescence was slow, but finally ended in complete recovery, the patient being discharged in five weeks. The interesting feature of this case is the single perforation of the stomach.

CASE II.—E. B., a colored laborer, was shot in the abdomen about 1 a.m., June 16, 1904. He was brought to the Hillman Hospital about 8 a.m., and I saw him shortly afterward. He had a bullet wound in the upper part of the left linea semilunaris, near the costal margin. Operation was begun at 9 a.m., eight hours after the injury was received. Under ether anesthesia, an incision was made in the upper part of the left linea semilunaris, and on opening the peritoneum, a quantity of foul-smelling gas escaped. A perforation was found near the middle of the anterior surface of the stomach, and was closed by a purse-string suture of silk. Another very large perforation was found on the anterior surface, close to the cardiac orifice. This perforation would admit two fingers, and was closed with great difficulty, owing to its depth. The peritoneal cavity was flushed out with salt solution, a wick drain passed under the left lobe of the liver, and the incision partially closed. The patient vomited considerable blood during the operation and was in a condition of profound shock when he left the operating table. He never reacted, and died four hours later.

Defective School Pupils.—The statistics brought to light by the investigations of the 45 inspectors detailed on the work, in New York City, are appalling. About 30% of the 7,186 children examined were suffering from defective eyesight. More than 3,000 were in need of medical treatment. Nearly 2,000 had bad teeth. The cases of bad nutrition numbered 632. The pupils with "bad mentality," by which the inspectors mean those mentally unfit to be enrolled in the regular classes, were 650 in number, and a supplemental series of tests indicated that their unsoundness of mind in most cases was due to disease or unhealthy surroundings. The department's functions include the examination of all school children, with a view of determining whether they are likely to become victims of acute maladies, and whether their general health, considered broadly, is good enough to warrant their enrollment.

Rush Medical College Adds Fifth Year.—It is announced that commencing with the session of 1905-1906 a fifth year will be added to the curriculum of the Rush Medical College, which for the present will be optional. For the present year the work will be that of (a) a fellowship in one of the departments of the college, or (b) an internship in the hospital under the following conditions: 1. Each student taking such work will be under the supervision of the faculty, by whom the hospital in which the internship is taken must be approved. 2. The student must present evidence of thorough clinical work and, if possible, an exhaustive study of a selected group of clinical cases involving original work. 3. He will be required to pass a special examination at the end of the year. On the successful completion of this fifth year he will receive the degree of doctor of medicine cum laude.

¹ Boston Medical and Surgical Journal, and quoted in Progressive Medicine for June, 1901.

SPECIAL ARTICLES

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,

of New York.

The twelfth meeting of the Society for Experimental Biology and Medicine was held in the laboratory of clinical pathology of the Cornell University Medical College, on Wednesday evening, May 24. The vice-president, Edward K. Dunham, was in the chair.

MEMBERS PRESENT.—Atkinson, Auer, Brooks, Burton-Opitz, Crampton, Davenport,¹ Dunham, Emerson, Ewing, Field, Flexner, Gies, Herter, Levene, Levin, Lusk, Meltzer, Mendel,¹ Morgan, Noguchi, Norris, Oertel, Opie, Richards, Salant, Sweet, Torrey, Wallace, Wolf.

MEMBERS ELECTED.—Joseph Erlanger, Otto Folin, E. O. Jordan.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.²

"Contributions to the study of sulfur. 1. The metabolism in brombenzol poisoning." W. MACKIM MARRIOTT and C. G. L. WOLF.

Baumann and his pupils investigated the effect of the administration of the halogen derivatives of the hydrocarbons, and found that one of the results in the disturbance which followed was the elimination of halogen aromatic mercapturic acids, which he regarded as derivatives of cystin. Later, Friedmann investigated these compounds and was able to confirm Baumann's view. The mercapturic acids are derivatives of cystein, the reduction of product of cystin.

This study is a part of an investigation of cystinuria, the view, which has been advanced by previous observers, being taken that the process in brombenzol poisoning is an experimental cystinuria. Dogs were used in these experiments, and were fed on a uniform diet. The animals were catheterized once a day. Analyses of the urine, as complete as possible, were made. The feces were examined for nitrogen and fats.

During the period of administration of the brombenzol the nitrogen and urea were somewhat increased. The urea followed the total nitrogen closely. The preformed ammonia remained at a level below that of the fore period. The kreatinin estimations did not give results of any distinctness.

The investigation of the partition of sulfur led to the result that, while the total sulfur excretion was not increased during the experiment, there was almost complete suppression of the alkali sulfates. The excretion of neutral sulfur, represented for the most part in this case by parabromphenylmercapturic acid, was increased 400%. The curves representing the alkali and neutral sulfur were antipodes. The ethereal sulfates rose markedly during the feeding period. In one experiment it was shown that during the first two days of the administration the total sulfur excretion remained constant, while the total sulfate-sulfur fell rapidly. This period is being made the subject of closer study.

The chlorin and phosphorus excretion remained practically constant during the experiment. There was increased nitrogen and fat elimination in the feces.

On section, the animals showed ulceration of stomach and intestines. Microscopically, the liver and kidneys were markedly degenerated. The investigation is being continued.

"On experimentally produced variations in the energy of tumor growth." LEO LOEB. (Presented by James Ewing.)

Inoculations of different tumors (sarcomas of the thyroid, mixed tumor of the submaxillary gland) through several or many generations have shown that, under the influence of experimental conditions, the energy of the tumor growth varies in a definite way. The rate of growth is relatively slow in the animal originally affected with the tumor; after the inoculation into the first generation there is a certain latent period, after

which the tumor begins to grow. The growth of the first generation is more rapid than it has been in the original animal. After the inoculation into the second generation the latent period is abbreviated, in some cases more, in others less, and the succeeding growth is likewise more rapid than the growth in the original animal, or in the first generation. From now on, a further shortening of the latent period, or an increase in the rapidity of tumor growth, does not take place in the succeeding generations. Duration of the latent period and rapidity of growth may remain stationary through many generations, or the energy of the tumor growth may even somewhat decline.

These facts permit the conclusion that transplantation of a tumor has a tendency at first to increase the energy of tumor growth, and that this increase may be cumulative. That this increase does not continue in succeeding generations may perhaps be explained by the existence of counteracting influences, the actual existence of which can be demonstrated, as shall be shown later.

The energy of tumor growth can be increased directly, and not only indirectly, merely by removal of the tension of the surrounding capsule or by better conditions of nourishment. Such a direct stimulating effect of the wound upon the cell growth causes probably a phenomenon not infrequently observed by surgeons, namely, the increase of malignancy in recurrent tumors.

It is also possible to diminish the energy of tumor growth. In the course of tumor inoculations it not rarely happens that certain tumors remain stationary or even retrogress apparently spontaneously. This is especially found in the course of later inoculations, and it probably indicates that after many inoculations one or several of the factors determining a vigorous tumor growth become gradually weakened. In such cases one can observe that even a long time after the expansive growth of such a tumor piece has ceased, many mitoses are present in the cells of the stationary or retrogressive tumor.

It is possible to diminish the virulence of tumor cells directly by subjecting them to certain physical or chemical conditions. By heating tumor cells up to 43° C. or 44° C. for half an hour outside the body, or by leaving them before inoculation in glycerin for 12 to 24 hours, and washing them afterward in 0.85% sodium chlorid solution, or by keeping them one or two days in $n/700$ KCN solution, before transplantation, we are able to diminish considerably the energy of the succeeding tumor growth and to increase the period of latency. In the author's recent tumor inoculations of a salivary tumor, a similar action of glycerin in increasing the period of latency was found to occur. Frequently such tumors remain stationary after a short preceding period of growth. In the first experiments of this kind in rat tumors, it was found that a temperature of 45° C. during half an hour kills the tumor cells. Jensen found a similar sensitiveness of his mouse tumors. Sticker's lymphosarcoma could be heated up to 45° C. without being killed. The power of resistance of different varieties of tumor cells varies somewhat, therefore, and the means to be adopted to obtain a diminished virulence in the growth of an inoculated tumor will vary accordingly. In this connection it might be mentioned that these facts may perhaps find a practical application insofar as pieces of tumor previously subjected to such treatment might be used to procure active immunity against tumor growth. That such active immunity is possible, at least in the case of certain tumors, is especially indicated by the observations of Sticker.

If we now wish to analyze the cause of this decrease in the rate of growth of tumor cells we have to consider several possibilities. It might be that the physical or chemical means employed kill most of the cells, and leave only a few cells alive able to give origin to the developing tumor. Two facts speak against such an interpretation. In the case of any tumor transplantation, the growth starts from a relatively small number of cells, insofar as the central part of the transplanted piece becomes necrotic. In his first series of tumor transplantations the author obtained well-growing tumors after injection of cystic tumor-fluid into rats. In such cases one or very few cells must have given rise to the tumor growth, and these tumors developed in a few cases quite rapidly. Such an explanation is, therefore, improbable. Further, we would have to consider

¹ Nonresident member.

² The authors of the reports have written the abstracts. The secretary has made a few abbreviations.

the possibility that the means employed to decrease the virulence of tumor cells are favorable to the growth of bacteria, and that they inhibit in this way the development of tumors. It is certain that bacterial toxins frequently act unfavorably upon the growth of tumors. Against this explanation, however, the objections can be raised that tumors with experimentally diminished virulence did not show any sign of putrefaction, nor did they, after inoculation, cause a formation of abscesses, occurrences which are frequent after transplantation of infected material.

It is, therefore, most likely that the cause of this decrease in virulence is the result of the direct decrease of the vitality of the tumor cells as expressed in their energy of growth. It is, however, desirable to further analyze these facts in future experimental work on tumors, especially as the character of such work limits of necessity the number of experiments a single observer can make. With this restriction it may be stated that the observations here recorded point to the conclusion that it is possible to cause an experimental increase or decrease in the energy of tumor growth, and that these variations may be caused by a direct stimulating or depressing influence upon the tumor cells, and that such a stimulation effect may be cumulative.

"Demonstration: Photographs and plumage-charts of hybrid poultry:" with remarks. CHARLES B. DAVENPORT.

Dr. Davenport exhibited photographs and plumage-charts of four hybrids between different races of poultry, and also of their parents, and remarked on the nature of the inheritance illustrated by each example.

"Experimental cirrhosis of the liver:" RICHARD M. PEARCE. (Presented by Eugene L. Opie.)

The experimental studies upon which this communication is based were suggested by an investigation of the necrosis produced in the liver of the dog as the result of injecting hemolytic immune sera of high hemagglutinative power.¹ These necrotic lesions, which are due apparently to an obstruction of the circulation by thrombi composed of fused red blood-corpuscles, vary in position and extent, according to the dose of serum administered. Small doses cause more or less isolated lesions which may occupy any portion of the lobule; large doses produce a diffuse necrosis which spares only the tissue about the larger portal spaces. The uniformity of this necrotic lesion suggested the importance of a study of the repair process which would naturally follow in animals recovering from the acute toxic effects of the injected serum. The extent of the destruction precluded complete regeneration of liver parenchyma, and if the defect was repaired by connective-tissue proliferation, the resulting histologic picture would be, except for a difference in the relation between the new tissue and the remainder of the lobule, analogous to cirrhosis in man.

METHODS.—Dogs were injected either in the smaller branches of the femoral vein, or in the abdominal cavity, with serum obtained from rabbits which had received repeated injections of red blood-corpuscles of the dog. The dose usually employed was 1 cc. of serum to 500 gm. to 800 gm. of body-weight, and the animals were killed at intervals varying from 48 hours to 36 days.

RESULTS.—A majority of the animals die after intervals varying from 4 minutes to 48 hours. In those surviving, hemoglobinuria was a constant phenomenon usually appearing within 18 to 24 hours, persisting 3 to 4 days, and followed for several days by the presence of bile pigment in the urine. The first evidence of repair was mitosis of the liver cells lying at a slight distance from the necrotic areas. The earliest period at which this was seen was 38 hours after injection. At 48 hours the proliferation of endothelial and connective-tissue cells was evident, and this increased so rapidly that by the fifth day the necrotic tissue was largely replaced by young granulation tissue in the midst of which dividing liver cells could be found in considerable number. The young tissue later assumes a more fibrous appearance, the new bloodvessels become prominent, and newly-formed bile ducts appear in the midst of the stroma. A development of liver cells from these new bile ducts is readily demonstrated. Multinucleated liver cells containing

4 to 12 nuclei are very abundant in the late stages. An interesting phenomenon is the englobing and removal of the hyaline remains of necrotic liver cells by large multinucleated masses of protoplasm. These giant cells, essentially foreign body giant cells, are derived in part from endothelial cells, but many have all the characteristics of true hepatic cells and are, undoubtedly, multinucleated liver cells with phagocytic properties.

The oldest lesion obtained (thirty-sixth day) presented an appearance analogous in histologic structure to early cirrhosis as seen in man, differing only in that the new connective tissue surrounded the island of liver tissue, persisting about the portal spaces, instead of having a distinctly peribular arrangement. Macroscopically, this liver was much firmer than normal, deeply bile stained, and had a finely granular surface. Thus we have a form of experimental cirrhosis affecting the liver in a diffuse but uniform manner, and more typical than any previously described in the literature.

The observations thus briefly outlined, while of importance in explaining the histogenesis of cirrhosis, and incidentally of various processes of repair in liver tissue, do not aid in the elucidation of the etiology of cirrhosis in man, nor do they explain the peculiar arrangement of the connective tissue in human cirrhosis. They demonstrate, on the other hand, however, that cirrhosis may follow extensive primary destructive lesions, a view not yet fully accepted, and thus support the contention of Kretz that cirrhosis is essentially the result of a series of repair processes following repeated injuries of liver parenchyma.

The earlier lesions closely resemble acute yellow atrophy of the liver in man and appear to be of considerable importance in explaining the pathogenesis of this process.

"Experimental arteriosclerosis:" RICHARD M. PEARCE and E. McD. STANTON. (Presented by J. E. Sweet.)

Within the past two years several French and German writers (Josué, Erb and others) have described under the various names of calcification, atheroma or arteriosclerosis, a lesion of the aorta of rabbits produced by the intravenous injection of adrenalin. These experiments have been repeated for the purpose of making detailed histologic studies and in the hope of throwing some light upon the histogenesis of arteriosclerosis in man.

METHODS.—Rabbits have received injections of a 1 to 1,000 solution of adrenalin in the ear vein. An initial dose of 3 m. repeated every other day has been the usual procedure. In other instances, the dose has been gradually raised until a dose of 20 m. to 25 m. was given every day. The animals have been killed after periods varying from a few days to eight weeks.

RESULTS.—The vascular lesions produced are limited to the aorta and exhibit a more or less definite sequence. Rabbits receiving five to six injections show no gross lesions, but histologically important changes in the media are evident. These consist of focal areas of degeneration in which the muscle fibers are destroyed without alteration of the elastica. Later the degeneration is more extensive and involves the greater portion of the middle zone of the media. At this time changes in the elastic tissue appear; the fibers become swollen, stain irregularly and in some places appear to be fused together. Special stains show a small number of minute fat droplets in such areas. After 12 to 15 injections very definite lesions are evident macroscopically. The aorta is more or less distorted in shape, rigid and nonelastic. Irregular dilations alternate with elevated brittle areas of calcification. Distinct atheroma with ulceration is seldom seen. In the experiments continued for six to eight weeks, the process becomes very diffuse and small dilations of the thinner portions of the aorta assume the appearance of aneurysms. At this stage the destruction of the elastic fibers is extreme and all degenerated areas are infiltrated with lime salts. Cellular infiltration and repair about such areas have been seen in a few instances, and experiments are now under way to determine the frequency and extent of this reparative process.

The changes in other organs include enlargement of the heart, edema and congestion of the lungs, and degenerative changes in the liver and kidney, and occasionally in the heart and other muscles.

¹ Journal of Medical Research, 1904, xii, 329.

Whether the vascular changes are due to a primary toxic action of the adrenalin or whether they are the result of the increased arterial tension which it causes, cannot be determined from these experiments. This question of etiology must be settled by other methods of investigation. The chief value of the studies herein briefly summarized lies in the application of this comparatively simple series of changes to the more complicated vascular lesions occurring in the arteriosclerosis of man.

"On the chemical and physiological properties of ricin:" with demonstrations. THOMAS B. OSBORNE and LAFAYETTE B. MENDEL.

A chemical study of the castor bean has indicated that this seed contains proteins of the same character as the other oil-seeds which have been examined, namely, (1) a considerable quantity of a globulin which can be obtained in octahedral crystals; (2) a much smaller quantity of an albumin, coagulating at about 60° to 70°, the temperature at which it separates depending to a large extent on the rate of the heating and other conditions; (3) proteoses which appear to belong to several of the now recognized groups of this class of substances. The satisfactory separation of the various types of proteids was accomplished largely by the use of fractional salt precipitation and dialysis.

The toxic constituent of the castor bean has been investigated under Kober's guidance by Stillmark, who applied the name *ricin* to proteid material which he separated. The product which Stillmark regarded as relatively pure must have been a mixture of proteids and have contained only a small proportion of the toxic compound. Cushny made a more careful study of ricin and obtained a substance of sufficient toxicity to produce death in animals with a dose of 0.04 mg. per kilo of body-weight. He regarded the toxic compound as proteid in nature. Among subsequent investigators, Jacoby has denied the proteid character of ricin. He digested his toxic preparations with trypsin and obtained solutions which retained their toxicity although apparently no longer giving proteid reactions. Brieger, however, failed to prepare toxic preparations free from proteid material.

The efforts of the authors have been directed especially to the possibility of isolating the toxic constituent of the castor bean and determining its chemical nature. The toxic action has been found to be associated wholly with the preparations containing the coagulable protein and never with those free from the albumin already mentioned. The toxicity of the products consisting chiefly of this albumin was extremely great, the most active preparation proving fatal when administered subcutaneously to rabbits in the small dose of 0.0005 mg. per kilo of body-weight. Each sample of ricin prepared by the authors showed characteristic agglutinating properties in its behavior toward blood erythrocytes, in marked degree; and the pathologic findings after intoxication were typical. The other proteins of the seed are devoid of the properties noted for ricin, thus demonstrating the applicability of the methods or separation employed. The toxicity of the active preparations is proportional to their content of coagulable albumin, the purest specimens containing, as their analysis shows, little else than proteid. Thus far their determinations have shown that the ricin prepared by the authors does not differ from ordinary proteins in composition, heat, coagulation, color reactions, precipitation reactions, specific rotation, or in the state of combination of its nitrogen. By tryptic digestion the agglutinating power of pure ricin may be greatly impaired or destroyed. The experience of the authors lends no encouragement to the attempts to "purify" such toxins by methods designed to eliminate proteid substances from the active materials.

"On a method of determining indol:" with demonstrations. C. A. HERTER and M. LOUISE FOSTER.

The method described by the authors constitutes a rapid and accurate means of determining indol. It is based on the fact that indol, in slightly alkaline solution, readily condenses with naphthoquinon sodium monosulfonate, and forms a blue crystalline compound which is only very slightly soluble in water and is readily extracted by chloroform from a watery solution or suspension. The condensation compound results from the union of two molecules of indol with one of the naph-

thoquinon sulfonate. The union does not occur as in the case of compounds with amines, with the elimination of the sulfonic acid group, but occurs between one of the carbonyl groups of the naphthoquinon compound and the imid group of the indol. The new compound is, therefore, a di-indyl-naphthoquinon monosulfonate. The solubility of this substance in chloroform is about one part in 4,000 of the solvent, and is sufficiently great to permit a rapid and thorough extraction of the substance. Chloroform containing the di-indyl compound has a red color, very like that of hemoglobin. Owing to this circumstance, the condensation compound in chloroform can be approximated colorimetrically in a convenient manner by comparing the tint of the solution with that of the orange-red glass scale of the Fleischl hemoglobinometer. When more accurate results are desired, the chloroform is evaporated and the residue of the di-indyl compound weighed.

It was found that the method here indicated serves for the recovery of a very large percentage of indol from peptone solutions or bouillon. From solutions containing a little proteid, the indol may be recovered almost quantitatively. The presence of a large proportion of proteid may cause the retention of considerable indol. The distillation should be carried on directly, without steam, from the acidified fluid. The presence of indol in a small fraction of distillate is best ascertained by boiling the acid solution with a few drops of a 2% alcoholic solution of di-methyl amido-benzaldehyd.

Skatol forms an homologous and similar compound with naphthoquinon, but this substance is violet rather than blue.

"Anesthesia produced by magnesium salts:" a preliminary communication with demonstrations. S. J. MELTZER and JOHN AUER.

The authors exhibited to the society two guineapigs, which were deeply narcotized by injections of magnesium sulfate. One of these animals had been similarly narcotized twice before, and fully recovered each time. In their physiological and toxicological studies of magnesium salts, the authors found that by subcutaneous injections of certain quantities of sulfate or chlorid of magnesium, animals can be brought into a state of deep anesthesia, during which any operation can be performed upon them without the least resistance. If the dose of the salts is not too large, heart-beat, blood-pressure and respiration remain nearly normal. It was tested on dogs, cats, rabbits, guineapigs, white rats and frogs. A gram and a half of magnesium sulfate is about the effective dose for most of the animals. The chlorid has to be used in smaller doses in proportion to its smaller molecular weight. Particulars will be reported later. The authors wish to emphasize the fact that these salts are very poisonous when certain maximum doses are exceeded.

"Enzymes and anti-enzymes of inflammatory exudates:" EUGENE L. OPIE.

Exudates obtained by injecting suspensions of aleuronat into the pleural cavities of dogs and rabbits were subjected to autolysis. The Kjeldahl method was used to determine the nitrogen of coagulable proteids converted by digestion into soluble form.

Inflammatory exudates removed one or two days after injection of the irritant undergo very little change, while those removed three or four days after the onset of inflammation exhibit appreciable though slight autolysis. There is no relation between the amount of digestion and the number of cells which are present. If the cells are separated by centrifugalization from the serum and suspended in normal salt solution, wellmarked autolysis is demonstrable. By recombining cells and serum it can be shown that the serum inhibits this autolysis. When this inhibitory action is prevented by heating serum to 100° C., leukocytes acting upon the coagulated serum cause very active digestion. In the following summary nitrogen of uncoagulable substances is represented by cubic centimeters of $\frac{1}{N}$ sulfuric acid:

	cc. $\frac{1}{N_{10}}$ H ₂ SO ₄ .
5 cc. suspension of cells at 37° C., 5 days.....	9.30
Control.....	3.60
5 cc. serum.....	7.25
5 cc. cells + 5 cc. serum, at 87° C., 5 days.....	10.95
Control.....	10.85
5 cc. cells + 5 cc. coagulated serum, at 87° C., 5 days.....	23.10
Control.....	10.85

The antienzymotic action of the serum is unaffected by a temperature of 65° C., but is destroyed at 75° C. The proteolytic ferments of the leukocytes act both in an acid and in an alkaline medium, but are most efficient in the latter. The antienzymotic action of the serum is favored by an alkaline reaction, but is completely lost in an acid medium. The serum of the exudate contains a proteolytic ferment, which is active only in an acid medium. These facts are illustrated by the following summary of an experiment, in which 5 cc. of a suspension of cells with serum, of cells with heated serum, and serum alone were kept at 37° C. for five days:

	Cells + serum. cc. n/10 H ₂ SO ₄	Cells + co- agulated serum. cc. n/10 H ₂ SO ₄	Serum. cc. n/10 H ₂ SO ₄
With 0.2% sodium bicarbonate ...	8.0	35.15	6.25
Reaction unchanged	9.9	27.00	4.60
With 0.2% acetic acid.....	33.8	26.30	13.75

The antienzymotic power exhibited by the serum of the inflammatory exudate is possessed by the serum of the blood, from which it doubtless passes into the exudate. In the later stages of inflammation produced by aleuronat, and in exudates caused by bacteria, there is some diminution of the antienzymotic action.

"Shallow well waters of Brooklyn:" JAMES P. ATKINSON.

Many streets of Brooklyn are without a public water-supply and a sewage system. The residents of these streets are therefore dependent upon wells for their water-supply, and upon privy vaults and cesspools to remove the sewage and waste water of their homes. The soil is uniformly sandy and water may be had by driving a pipe or digging a few feet below the surface. The water obtained is to a certain extent surface water. The underground water is necessarily influenced by the sea water. This influence is very marked in some instances, as is shown by the high chlorin content, accompanied by the low contents of other constituents, which could indicate sewage contamination.

The following tables present average analytic data regarding condemned shallow wells, also regarding wells considered to be of a suspicious quality and wells which are passed as being of fair quality. Very few of the latter class were considered to be of good quality, and some might possibly have been classed as suspicious upon their high nitrate contents, considered with the proximity of the sources of contamination.

A.—82 CONTAMINATED WELL WATERS.

	Cl.	NO ₂ .	NO ₃ .	Free NH ₃ .	Alb. NH ₃ .	Total solids.	Loss on ignition.	Depth of well.	Distance from source of contamination.
A	4.64	.0018	0.70	.0236	.0045	31.92	5.20	29 ft.	47 ft.
L	0.70	.0001	0.30	Trace.	.0004	12.30	1.20	15 "	10 "
H	9.00	.0100	3.60	.4900	.0400	60.80	17.00	65 "	150 "

B.—59 SUSPICIOUS WELL WATERS.

	Cl.	NO ₂ .	NO ₃ .	Free NH ₃ .	Alb. NH ₃ .	Total solids.	Loss on ignition.	Depth of well.	Distance from source of contamination.
A	5.33	.0006	0.634	.0057	.0035	34.82	5.49	27 ft.	45 ft.
L	0.80	.0004	Trace.	Trace.	Trace.	7.90	0.40	8 "	20 "
H	32.00	.0025	2.400	.0875	.0180	222.90	34.40	45 "	75 "

C.—297 UNCONTAMINATED WELL WATERS.

	Cl.	NO ₂ .	NO ₃ .	Free NH ₃ .	Alb. NH ₃ .	Total solids.	Loss on ignition.	Depth of well.	Distance from source of contamination.
A	2.94	Trace.	0.582	.0026	.0031	28.41	4.86	27 ft.	48 ft.
L	0.40	None.	Trace.	Trace.	Trace.	7.50	0.30	6 "	10 "
H	12.10	.0003	3.600	.0190	.0270	101.50	39.50	52 "	100 "

D.—14 UNCONTAMINATED DEEP WELL WATERS FOR BREWERY AND FACTORY USE.

	Cl.	NO ₂ .	NO ₃ .	Free NH ₃ .	Alb. NH ₃ .	Total solids.	Loss on ignition.	Depth of well.	Distance from source of contamination.
A	5.60	Trace.	0.800	.0010	.0020	50.20	15.00	100 ft.	.....
L	0.50	None.	0.040	Trace.	Trace.	13.70	4.90	55 "	.....
H	17.00	.0002	0.400	.0030	.0065	101.90	30.70	227 "	.....

A, average figure. L, lowest figure used in average. H, highest figure used in average.

The highest and lowest figures which enter into the averages are also given. These figures do not represent any par-

ticular analyses, but are selected from the different analyses from which the averages are made. Table D gives the average data for deep wells that supply water for manufacturing purposes, and they may be used as a standard in judging the purity of wells whose waters are used for domestic purposes.

Tables giving averages and high and low figures of analyses of 438 shallow wells in Brooklyn, N. Y., which are used for domestic purposes, and a table of deep wells used for manufacturing purposes. The figures represent parts in 100,000. 67.9% were considered to be of good quality; 13.4% were considered to be of suspicious quality; 18.7% were considered to be contaminated and unfit for domestic purposes.

It was found impossible, as a rule, to use the figures for chlorin and ammonia contents of these Brooklyn waters in judging their purity. The nitrates might give some clue to the condition, but it was mainly upon the nitrites that one had to depend. There was in each case of condemnation ample chance of pollution through privy or cesspool, and in many cases other sources, such as stables for horses and cows, pig sties, chicken yards, etc.

When the nitrites were as high as .0010 parts per 100,000 the water was condemned. When the nitrites ranged between .0003 and .0010 parts per 100,000, the water was considered to be of suspicious quality and warning was given to boil before using for domestic purposes.

In Brooklyn and Queens there are waters of known purity which show nitrites as high as .0003 parts per 100,000. Therefore, when nitrites amounting to .0003 parts per 100,000 were found, with other constituents of the water suitably low, such waters were passed as fit for domestic purposes.

It will be noticed in comparing the average figures of tables A, B, and C, that nitrite decreases with ammonia, and that the figures for nitrate are about the same in each table. The average chlorin in table C is much lower than in tables A and B, while the average depth of the wells and their average distance from the sources of contamination are about the same. The nitrogen averages of Table C approach those of table D. If one takes the nitrogen figures of the deep wells as a standard, the conclusion may be drawn (1) that the sandy soil of Brooklyn cannot be relied upon as a safe filter; (2) that Brooklyn soil, so far as the author's evidence goes, seems to be nearing the saturation point with sewage; (3) that, consequently these shallow wells are in growing danger of pollution.

"The influence of the external temperature upon the viscosity of the blood:" RUSSELL BURTON-OPITZ.

It was proved by a series of determinations that the viscosity of the "living" blood can be greatly influenced by changing the temperature of the surrounding medium. The viscosity was markedly increased if the dogs used in the experiments, were immersed in water at 25° C. Warm water bath (42° C. to 45° C.) produced a corresponding decrease in the viscosity. The specific gravity of the blood was changed in a corresponding manner.

"The changes in the viscosity of the blood during narcosis:" RUSSELL BURTON-OPITZ.

Determinations of the viscosity of the "living" blood were made during deep and light ether and chloroform narcosis. It was found that the viscosity is increased by deep and lessened during light narcosis. The specific gravity of the blood also shows regular variations. It is increased by deep and lessened by light ether narcosis. Chloroform, on the other hand, produces a slight decrease during deep and an increase during light narcosis. Hence the specific gravity cannot be regarded as an accurate index of the viscosity.

"Studies of the effects of radium on plants and animals:" with demonstrations. Communicated by WILLIAM J. GIES.

The various studies of radium included in this communication, and all of which are still in progress, were carried out at the writer's suggestion and under his general direction. They were made possible by the generosity of Mr. Hugo Lieber, who gave the writer an abundant supply of radium preparations for each series of experiments. Professor William Hallock also encouraged the work by permitting the use of some of his valuable preparations. Dr. G. B. Pegram has given advice freely on physical matters connected with radioactivity. The studies included in this plan were the following (I-V):¹

I. "Preliminary notes on the effects of radium rays on plants." C. STUART GAGER (New York Botanical Garden).

The radium (bromid) has been employed in several forms, and in degrees of activity ranging from 10,000 to 1,500,000. Experiments so far indicate that the effect is the same in kind, whether the plants are stimulated with gamma rays only, or with alpha and beta rays as well. When three kinds of rays are employed the effect, within the same time, seems to be increased. The results already obtained justify the following statements:

The rays of radium act as a stimulus to plants. For this stimulus there are minimum, optimum, and maximum points, depending upon the proximity of the radium to the plant, the strength, quantity, and condition of the radium salt, the time of exposure, and the nature and condition of the tissue.

The early stages of seed germination are accelerated, if stimulation ranges between the minimum and optimum points, otherwise they are retarded. Seeds are less sensitive to the rays when dry than when soaked. When seeds are stimulated during germination, subsequent growth is retarded; but radium rays acting through soil in which plants are growing accelerate both germination and subsequent growth of the shoot.

The growth of plants is retarded in an atmosphere of decaying radium emanations, such as may be drawn from tubes lined with Lieber's "radium coating."² Development of leguminous tubercles is retarded when a glass tube of radium bromid (10,000 activity) is in the soil. Experiments to obtain radiotropic response have so far given negative results. Alcoholic fermentation is accelerated by radium rays.

Chloroplasts, under the influence of the rays, change their position in the cell, as when exposed to too intense sunlight. Plastids are soon over-stimulated, and their activity completely inhibited, causing etiolation and other attendant effects. Gemmae of *Lunularia*, exposed for six days, failed to develop thalli. Meristem (embryonic tissue) of the hypocotyl is destroyed by prolonged exposure to the rays.

II. "The action of radium rays on *Amoeba proteus* and upon other microorganisms." LOUIS HUSSAKOF (Laboratory of Zoology, Columbia University, and the American Museum of Natural History).

These experiments were intended primarily to show the influence, if any, of radium rays on the protoplasm of *Amoeba proteus*. Other microorganisms (*Vorticella*, *Paramoecium*, etc.) were also subjects of experiment. Radium bromid preparations of 600, 1,000, 10,000, and 1,500,000 activity (in thin glass tubes) were used, and several celluloid rods covered with Lieber's "radium coatings" of 10,000 to 25,000 activity were also employed. The radium container was held in the water within from 1 mm. to 3 mm. of the organism under observation.

Under these conditions no visible effects were produced, by even the strongest radium preparations, during periods of observation of about an hour. The water surrounding the animal may have prevented radiant effects.

III. "The effects of intravenous injections of radium bromid." R. BURTON-OPITZ and G. M. MEYER (Physiological Laboratory, Columbia University).

These experiments, dealing principally with the effects of radium bromid upon the circulation and respiration, were performed upon dogs weighing from 4 to 5 kilos. Light ether-narcosis was employed. The solutions injected contained 1.8 mg. of radium bromid, per cc. of distilled water. Preparations of radium bromid of 240, 1,000, and 10,000 activity were used. The facial vein was selected for the injections.

The results were of a very uniform character, whether radium bromid of a high or low activity was employed. The injection was always followed, after a latent period of about five seconds, by a gradual and wellmarked increase in blood-pressure, this rise evidently being caused by general vasoconstriction. Soon, however, a marked decrease in the frequency of the heart, accompanied by a pronounced irregularity, causes a fall in pressure. Contractions in which the diastolic phase is extremely conspicuous interchange with a series of forcible preeminently systolic beats. It need hardly be men-

tioned that under these conditions the variations in blood-pressure are extreme. These effects of radium occur also after both vagi have been divided.

These circulatory changes are accompanied by a gradual decrease in the frequency of respiration, terminating finally in complete respiratory paralysis. This effect precedes the total inhibition of the heart.

Much more rapid and precise effects were obtained with radium bromid of high activity (10,000) than with that of lower activity. In general 0.5 mg. of the 10,000 activity (per kilo of body-weight) sufficed to produce as decided an effect as 5.0 mg. of the 240 activity (per kilo of body-weight).

Practically all preparations of radium salts contain barium. In order to check the effects of such impurities, the authors carried out a number of comparative experiments with pure barium bromid. It was found that the effects of radium bromid preparations of low activity (240 and 1,000) differ only quantitatively from those of barium bromid. Certain amounts of such radium preparations produce effects that can be obtained only by correspondingly larger amounts of barium bromid. The influence of barium in causing pronounced irregularity of the heart is not evidenced by the preparations of radium bromid of 10,000 activity; only a decided inhibition results, which is accompanied by a decided rise in blood-pressure.

IV. "The radioactivity of the different organs after intravenous injections of radium bromid." GUSTAVE M. MEYER (Laboratories of Physiological Chemistry and Physics, Columbia University).

The radioactivity of the different organs of dogs experimented upon was determined by two methods. For an approximate estimation of radioactivity, the gold leaf electroscope has been found very serviceable. In this case, it is only necessary to thoroughly dry the finely divided organ and note the rapidity with which the charged gold leaf descends. The use of the quadrant electrometer admits of a more exact valuation of the radioactivity. The organ is incinerated and the radioactivity of the ash determined.

The determinations thus far made have been entirely upon the dogs used in the experiments of Burton-Opitz, and Meyer (III). The following parts have been examined: Blood, liver, lungs, kidney, spleen, pancreas, brain, and muscle. Of these, the blood showed the greatest activity, while the brain has so far given negative results.

Injection as well as feeding experiments are in progress.

V. "The influence of radium bromid on metabolism in dogs." WILLIAM N. BERG and WILLIAM H. WELKER (Laboratory of Physiological Chemistry, Columbia University).

The experiments are being carried out on dogs in nitrogenous equilibrium. Radium bromid preparations of 240, 1,000, and 10,000 activity have been employed. Thus far introduction has been by mouth only. One animal (6.6 kilos) has been fed 1.100 gm. 240 activity, 0.250 gm. 1,000 activity, and 0.125 gm. 10,000 activity in small amounts daily (during 12 days), without the appearance of any gross symptoms, except diarrhea, during the period of administration of the preparation of 240 activity with its large content of barium. Protein metabolism did not appear to be materially affected. Total sulfate (SO_4) in the urine was markedly increased, especially during the period following the administration of the preparation of highest activity, and when diarrhea as well as constipation was entirely absent.

In control experiments with barium bromid, much larger quantities per os (as much as 0.5 gm. daily to a dog weighing only 4.5 kilos) were without any gross symptoms whatever. In the case of barium, also, protein metabolism was practically unaffected by the quantities used. The quantity of total sulfate in the urine, unlike the result with radium, appeared to be practically unaffected by the barium bromid.

Other determinations are being made, and injection experiments are in progress.

¹ Each of the collaborators has written a report of his own share of the investigations.

² Proceedings of this Society, December 21, 1904.

A New Tuberculosis Cure.—Professor Guiseppe Levi, of Milan, it is said, will soon make a trip to Paris to demonstrate before the Academy of Medicine his new cure for tuberculosis by means of iodine injections, the composition of which is a secret.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 10, 1905. [VOL. XLIV, No. 23.]

1. Differential Diagnosis between Coxa Vara and Other Static, Inflammatory and Traumatic Affections of the Hip-joint. NICHOLAS SENN.
2. Chorioepithelioma Malignum: With Report of a Case. P. BROOKE BLAND.
3. Proprietary Therapeutics. HORATIO C. WOOD, JR.
4. Federal Control of Vaccine Virus. JOHN F. ANDERSON.
5. The Advantages of Expeditious Surgical Work. ROBERT T. MORRIS.
6. Treatment of Psoriasis by the General Practitioner. DR. DREUW.
7. What is Dyspepsia? FENTON B. TURCK.
8. Puerperal Arthritis. EDWARD E. MORSE.
9. The Sequence of the Pathologic Changes in Appendicitis: A Study of the Significance of the Lesions Found in Different Stages of Appendicitis, Based on the Pathologic Findings in a Series of Operative Cases. E. MACD. STANTON.
10. Renal Calculus. W. H. AXTELL.
11. Syphilitic Epilepsy. J. T. MOORE.

1.—See *American Medicine*, Vol. IX, No. 6, p. 221.

2.—**Chorioepithelioma Malignum.**—P. Brooke Bland, taking as a text the report of a case successfully treated, reviews the literature of this form of malignant growth at considerable length. The chief clinical symptoms are bleeding, not controllable by ordinary methods, later, pain of a crampy, boring character in the lower portion of the abdomen, anemia and wasting, and as the disease advances all these symptoms become more pronounced with marked malignant cachexia. The uterus is somewhat enlarged, and the tumor is almost invariably situated in the fundal portion and posterior wall of the uterus; it may be firm at first, but later becomes soft and friable; in the latest stages only a scooped-out sloughing ulcer will be found. With due attention to the clinical history and physical signs, and finally with microscopic examination, the diagnosis should generally be easily made. The prognosis is grave, and the usual only recourse is as prompt removal of the tumor as is possible. In cases of hydatid mole, however, precautionary measures should be taken. After a molar labor, the uterus should be thoroughly cleaned out and packed, in order to induce contraction of its muscle and to restore its normal consistency and thickness. Bonnaire and Findley also advise swabbing with creasote or zinc chlorid, and, after an interval of from 10 or 15 days, cureting. If metrorrhagia then persists, malignant inoculation should be considered probable and the organ removed.

3.—**Proprietary Therapeutics.**—H. C. Wood, Jr., considers that the increasing use of proprietary drugs is exceedingly detrimental to the best interests of medicine. He refers more particularly to nostrums or mixtures, and not to definite chemie compounds which may be the property of some manufacturing druggist. While these may not be an unmixed blessing, whatever objections he has to them are based on essentially different grounds. The great fundamental objection to nostrums is that to all set and unalterable formulas, they must necessarily be a misfit in the ever-changing aspects of disease. Another is their secret or semisecret nature, and this is all the more dangerous when it is masked by a deceptive show of frankness. There is no universal assurance that even the alleged composition is the true one, and some of those that publish a formula attempt to obscure the real nature of their mixtures by using uncommon names of wellknown drugs or including some unfamiliar ingredient which may be assumed to have some special virtue. A common defense of these nostrums is that of their value as property. Wood asks: How have the manufacturers acquired such valuable property rights? Have they hired men to be sick to prove the virtues of their compounds, or has the medical profession been willing to utilize human suffering for the benefit of the nostrum vender? The reasons why these nostrums are so profitable to their manufacturers are, Wood thinks, the imperfect therapeutic instruction given in our medical schools and the extremely lavish and often very shrewd advertising they receive.

4.—**Federal Control of Vaccine Virus.**—J. F. Anderson, gives an account of government inspection of vaccine virus, under the regulations that have been in force for nearly two years. At present there are eight firms licensed to engage in the manufacture and interstate sale of vaccine. They are:

Parke, Davis & Co., Detroit; H. K. Mulford Co., Glenolden, Pa.; H. M. Alexander Co., Marietta, Pa.; Fluid Vaccine Institute, Milwaukee, Wis.; Pocono Laboratories, Swiftwater, Pa.; National Vaccine Establishment, Washington, D. C., Frederick Stearns & Co., Detroit; and the Cutter Analytical Laboratory, San Francisco. These establishments are rigidly inspected, without notice, by the government inspector, with special attention to sanitary conditions, laboratory methods, details of manufacture, etc., and monthly tests are made of samples purchased in the open market at the hygienic laboratory of the Public Health and Marine-Hospital Service at Washington. These tests include the making and testing of cultures, animal experimentation and actual vaccinations. At present, pathogenic streptococci or staphylococci are very rarely found, and no case of tetanus contamination has been observed. One precaution is mentioned as perhaps still advisable, that is, that special care be taken as regards exposure to temperature in the transportation of vaccine material.

5.—**Expeditious Surgery.**—R. T. Morris remarks that, with modern methods and anesthetics, perhaps too little importance is attributed to expedition in surgical operations nowadays, and suggests that this may be to the disadvantage of the patient. The better the natural resistance, the better is infection combated, and a patient usually retains a great fund of natural resistance during the first 15 minutes of an operation, no matter what is being done; but he is usually depressed after an hour of operative procedure, even simple in its nature. It seems to him well, therefore, to attempt to approach as nearly as possible to the 15-minute standard. It is not desirable to operate against time, but it is worth while to make every move count and not unduly to prolong the operation. He had, after a little discussion on the subject, the next dozen of his operations timed, including several rather serious ones, and reports them in brief detail, giving time and results, as illustrating his point. The time occupied by the operation ranged from 7 minutes in an interval appendicitis case to 31 minutes in a case of preliminary ligation of the carotid and removal of the superior maxillary and other bones through the classic incision. The operative results were good. Except in two of the cases, the instruments used were usually a pair of scissors, a needle, a single-hook retractor, and two pairs of artery forceps. With the use of scissors there seemed to be less oozing of blood from the smaller vessels, and fewer instruments were required. The charge that primary union may not follow the use of scissors is answered by these cases without reference to further statistics.

6.—**Psoriasis.**—Dreuw, assistant at Unna's clinic, Altona, Germany, reports that he has used with great success the following ointment, the formula of which was first published by him in 1903, in the treatment of psoriasis:

Acid salicylic	3iiss	10
Chrysarobin		
Ol. rusci. (birch tar), aa.	3v	20
Sapo virid.		
Vaselin, aa.	3viiss	25

This combination contains, he says, keratolytic reducing as well as macerating and antipsoriatic remedies in rather large doses. His method of using it is as follows: For from four to six days the ointment is applied by the aid of a stiff brush to the affected area (after this has dried somewhat it is well to apply a starch or zinc powder). On the fifth or sixth day, the patient starts taking hot baths daily for from one to three days, and after the bath, vaselin is to be well rubbed in from one to three times a day. This treatment, which covers eight days, may be repeated several times, according to the severity of the disease, but, as a rule, the psoriasis patches disappear soon after the first treatment. The ointment causes a marked scaling of the entire plaque, and the black crusts which become closely adherent after five or six days' treatment gradually loosen after a few days of bathing and inunction with vaselin or with zinc sulfur ointment. The application of this ointment causes an intense feeling wherever psoriasis exists, and Dreuw considers it an indicator of areas of psoriasis. It also limits the chrysarobin irritation exclusively to the diseased area and causes no diffuse staining. For the best effects, the solid constituents of this ointment must be thoroughly rubbed together. For pro-

longed use with this ointment, he has prepared a material called mull, and finds it practically unirritating. The use of these preparations is not limited to psoriasis, but they can be employed in other conditions where a special macerating effect is desired with the smallest possible amount of irritation. He has used it thus in trichophytosis and in local circumscribed dry eczema. It can be kept on six or eight days, after which any mild ointment may be applied.

7.—Dyspepsia.—F. B. Turck considers dyspepsia one cause of national decay, hence its importance, not only to the individual, but to the State. He describes the mechanism of digestion and shows how it depends on proper fulfilment of the functions of gastric secretion and motility and how these depend on the general integrity of the splanchnic circulation, which itself may be deranged by disorders of the gastrointestinal tract, thus producing the vicious circle seen with many intestinal and gastric lesions. This connection of the circulation is very important in the treatment. The quantity and quality of the food, the times of eating, etc., are specially important in this connection, and in the treatment must be first considered. When dietetic measures fail, however, either on account of infection of the stomach from pyorrhea or nasopharyngeal catarrh, for example, other measures must be resorted to. The stomach may also be overloaded, and its muscles lose their power, with consequent stagnation and fermentation, and the various cardiac and other general symptoms of the condition. Here lavage may be directly remedial in removing the load and in stimulating the gastric peristalsis. When the mucosa is colonized with germs, however, simple lavage, or even gastric douching, may not suffice to remove them. He advises the use of a double stomach-tube for this purpose, the inlet tube with fine perforations, and the outlet with larger ones, thus projecting jets with considerable force against the gastric walls and allowing a free outflow through the larger tube.

8.—Puerperal Arthritis.—E. E. Morse reports a case of arthritic symptoms following delivery in a young primipara with a previous history of recent gonorrhea, and taking this as a text, discusses the general subject of puerperal rheumatism. He holds that the view that there are two forms of the disease, one septic and one distinctly rheumatic, with no particular relation to sepsis, is erroneous and that all cases are properly septic and should be so recognized and treated accordingly. Rheumatism itself is coming to be generally considered as an infectious disorder, and in the puerperal state there are specially favorable conditions for infection by any one of the various infective germs. These may attack the joints. In any case, whether of simple arthritis or of suppurating inflammation, the symptoms are septic in character and constitute a true sepsis.

9.—The Pathologic Changes in Appendicitis.—E. MacD. Stanton has studied the pathologic changes in the peritoneum in 185 cases of appendicitis, and of the appendix in 188 cases, all occurring in the Albany Hospital during the last six years, the notes and sections of which are on file in the Bender laboratory. The histologic changes in appendices removed during the first few days of the disease were essentially similar and consisted in a severe diffuse inflammation, accompanied by focal areas of hemorrhage and necrosis. These latter may increase in extent during the first few days and give rise to macroscopic areas of gangrene or they may remain microscopic and be quickly repaired. The various anatomic varieties, gangrenous, perforative, and ulcerative are due to the extent and distribution of these necroses. Evidences of repair are seen as early as the third day, and the process is distinctly reparative in nongangrenous cases by the fifth day. Even in cases with macroscopic evidences of gangrene, unless a later acute process is engrafted on the original one, the repair processes predominate by the sixth or seventh day. Evidence of recurrence was observed in 10% or 15% of the cases after the first week. Repair is rapid during the second week of the attack, fibroblasts, new-formed bloodvessels and lymphocytes forming the principal features of the picture. The rapidity of repair depends largely on the amount of damage done and on the presence or absence of a periappendiceal exudate. By the end of the second week in most cases repair is so complete that new connective tissue may be the only evidence of previous inflammation, but in cases

with extensive exudates, signs of active organization of the exudate itself are still in evidence. After the second week, except in cases with extensive periappendiceal lesions, the histologic changes are seen chiefly in the more fibrous nature of the new connective tissue which is still recognizable. In cases operated on a month or more after an acute attack, 78% were cases of chronic interstitial or obliterative appendicitis, frequently accompanied with adhesions. In 6% the appendices were apparently normal, and in 16% the changes were confined to the mucosa. In no instance were the changes confined to the mucosa in the cases examined during the first ten days of the attack. In this series of cases, purulent fluid was found outside of the appendix in 51% of the patients operated on from the third to the tenth days. After the tenth day the number of cases with abscesses steadily decreased while the number of those with adhesions and without pus rose correspondingly.

10.—Renal Calculus.—W. H. Axtell reports a case of renal colic, with severe shock and collapse, and the final spontaneous voidance of a calculus seven-eighths of an inch long by three-quarters of an inch wide, by the patient, a young woman aged 22. The special points of interest noted in the case are: 1. The low temperature (95.8°) and extreme shock. 2. The unusual size of the calculus voided spontaneously. 3. The stone after leaving the pelvis of the kidney completely obstructed the ureter; the accumulation of the urine above it gave a definite outline of the ureter and showed the approximate location of the stone. 4. The roughness of the stone and its large size not producing hematuria. 5. The entire absence of pus. 6. The unusual feature of the almost complete crystallization of the urine in testing it with nitric acid.

11.—Syphilitic Epilepsy.—J. T. Moore gives an account of a case of epilepsy occurring in a man of 35, who had suffered from an alleged fracture of the right frontal bone about five and a half years before, the epilepsy dating back about three years. Syphilis was denied. The convulsions began on the right side of the face and extended from there over the rest of the body. The focal symptoms did not warrant operation, and as there was some roughening of the tibia and some enlarged glands, he was given potash iodid in gradually increasing doses. The attacks, however, became more frequent and severe, in spite of the use of bromids, chloral, etc., and in a few days he was put on $\frac{1}{16}$ gr. doses of mercuric chlorid, with the result of rapid improvement and complete cessation of the attacks. Syphilis was suspected in this case because of the age at onset, the other symptoms strengthening the suspicion, which was fully confirmed by the results of treatment.

Boston Medical and Surgical Journal.

June 15, 1905. [Vol. CLII, No. 24.]

1. An Experimental Study of the Accuracy of Modern Clinical Methods for the Diagnosis of Disorders of the Stomach. HENRY F. HEWES.
2. Individual Factors in Hygiene. R. C. CABOT and P. K. BROWN.
3. The Effects of Tobacco upon the Throat. S. W. LANGMAID.
4. Studies on Epilepsy. ARTHUR MORTON and MORGAN E. HODSKINS.

1.—Diagnosis of Disorders of the Stomach: Gastrectasis.—H. F. Hewes considers gastrectasis an indication of cancer or ulcer. He reports the examination of stomach contents in 180 cases, made not less than 12 hours after eating. Of these, 26 were diagnosed as gastrectasis from the stomach contents, and in 21 who came to operation or autopsy, the diagnosis was confirmed. Of the four distinguishing characteristics, the presence of an abnormal food residue, sarcinal, lactic acid, yeast fermentation, the first is the most constant, occurring in 24 cases. None of these characteristics are present in other conditions of the stomach than stasis, and the finding of even one is diagnostic. The sarcinal or yeast test may be applied without fasting to stomach contents after a meal or to vomitus. Stasis is not generally associated with cancer or ulcer, unless the lesion is at the pylorus. [H.M.]

2.—Individual Factors in Hygiene.—R. C. Cabot and P. K. Brown point out that hygiene finds its ultimate warrant in the ideals of the individual. Averages are not a useful guidance. Race, climate, occupation, age, and sex demand radically different rules. The Caucasian takes his sleep in one dose and his food in several; the American Indian often takes his sleep in

divided doses and his food in one. In some persons the brain, in some the stomach, wakes first; some persons wake all at once. The "no breakfast" idea is due to the fact that in some metabolic processes cannot be awakened except by work. Work is a great factor in keeping us well. To take away a man's work may be almost as serious as taking his food. To have strong muscles and to be healthy are not equivalent. The exercise you enjoy is that which is beneficial. That done for exercise directs attention to self and the good is largely neutralized. Food and drink can be intelligently chosen only by the individual himself. Some persons may be considered well if they eat, sleep, and feel well. For others these tests are not sufficient. It is the layman, who with general guidance, must work out his own salvation. [H.M.]

3.—The Effects of Tobacco on the Throat.—S. W. Langmaid believes that in acute and chronic nasopharyngitis smoking must be abandoned or the cure is delayed. The hyperemia may be due to irritation from the smoke, but probably also to poisonous effects on the nervous centers. Susceptible persons, however, are affected by breathing air in which there is much tobacco smoke. Beside the nicotine, incomplete combustion gives rise to poisonous aromatic compounds. Too little attention has been paid to the large quantity of carbon monoxide set free and inhaled, especially in cigaret smoking. The writer refuses to treat singers and public speakers who will not discontinue tobacco. Deep voices are not so easily affected as the tenor and soprano. [H.M.]

4.—Studies on Epilepsy.—A. Morton and M. B. Hodskins report that in their hospital service the best results were obtained with sodium bromide hypodermics, 30 gr. to the ounce, injected just below the scapula. The amount necessary varied from 60 gr. to 180 gr. Their most useful purpose is in aborting threatened attacks. After two successive convulsions, the patient is given 10 hypodermics of 20 m. each, in this way getting about 12 gr. For larger injections an antitoxin syringe is used. Lumbar puncture is practised only after bromide and other agents fail. Four cases showed marked improvement after withdrawal of 10 cc. to 15 cc. of cerebrospinal fluid, while in others there was little if any permanent effect. A. Morton finds the reflexes increased or diminished, according to the degree of irritation or exhaustion produced by a given convulsion in the cortical motor cells. M. B. Hodskins thinks exhaustive paralysis in children occurs to some degree after every hard fit. He reports four cases. A. Morton states that when sodium bromide is substituted for sodium chloride in the food, only about half the usual quantity is needed. He gives a table indicating the results in 95 patients. It has little or no effect on the general nutrition. It is apt to cause constipation. It does not furnish salt enough to satisfy the patient's craving. It may be used with success with intelligent patients, but is practically useless with those who have neither the desire nor the will-power to carry it out. Equal parts of sodium bromide and chloride may be used with the idiotic and demented. [H.M.]

Medical Record.

June 17, 1905. [Vol. 67, No. 24.]

1. The Carbon Factor in Gout: "Hyperpyremia." FRANCIS HARE.
2. Removal of the Lens in Myopia. JUSTIN L. BARNES.
3. Rectal Injections of Large Doses of Sodium Salicylate in Cerebrospinal Meningitis. A. SEIBERT.
4. The Medical Phases of the Immigration Legislation. VICTOR G. HEISER.
5. Masturbation in Childhood. AUGUST ADRIAN STRASSER.
6. Saw Palmetto. I. L. VAN ZANDT.

1.—The Carbon Factor in Gout: Hyperpyremia.—Francis Hare presents a new view on the nature of gout, his theory being that the retention in the body of carbonaceous material is largely concerned in the causation of the disease. Normally, there must be a systematic equilibrium between the carbonization of the blood from the body's carbon intake and its decarbonization, but the author believes that at times this balance may be disturbed and carbonaceous material accumulate in the blood to an ultraphysiologic or pathologic degree. To this hypothetical state he applies the term hyperpyremia, and to the normal state, the term pyremia. The exact nature of the hyperpyremic load is undetermined, but we have a right to suppose that it is carbonaceous, and it certainly is not a hyper-

glycemia. The means by which hyperpyremia may be dispersed are numerous, and include bilious attacks, migraine, gastralgia with anorexia, asthma, major epilepsy, and acute articular gout. Some of these operate through increased expenditure, others through restricting the intake, and their action is called by the author, carbonization. In order to prove that acute articular gout depends upon hyperpyremia, he draws upon evidence obtained by a consideration of the action in gout of such factors as the dietetic treatment, exercise, temperature, fat formation, plumbism, hemorrhage, etc., and he then shows that the paroxysms represent an acarbonizing process. The mechanism of acute articular gout, according to this supposition, involves an interdependence between hyperpyremia and uricemia through which the kidneys at times become more active in excreting uric acid; that is, the renal disability depending on hyperpyremia is terminated by acarbonization of the blood. He summarizes as follows his view of the steps in acute gout: 1. Hyperpyremia from excess of carbonaceous income or deficiency of carbonaceous expenditure. 2. Progressive accumulation of uric acid in the blood: uricemia. 3. Deposition of a portion of the uric acid in a joint. 4. Acute arthritis. 5. Pyrexia involving increased combustion. 6. Acarbonization of the blood. 7. Free renal elimination of uric acid retained in the blood. 8. Recovery by the blood of its solvent power for uric acid. 9. Reabsorption of the extravascular articular deposits of uric acid. Thus the acute gouty paroxysm may be regarded as a "pathologic function"—as a conservative reinforcement of inadequate physiologic function; and uric acid may be regarded as an essential instrument therein.

2.—Removal of the Lens in Myopia.—J. L. Barnes describes a case in which the bilateral operation was followed by very happy results. The patient was a girl of 16, presenting a degree of myopia amounting as nearly as could be estimated to not less than 25 D. One lens was removed by direct linear extraction, though the author says that he would not today use this method. Some months later the second lens was also removed by the same method, but with a slightly different technic. Now, about a year later, her vision remains 38, which is in both eyes two and a third times what was obtained before the operation. She can read Jager No. 1 at eight inches with her nearly emmetropic correction, and also without glasses. She still presents a convergent strabismus, which supervened after the operation, and which the author suggests may be explained by the new effort at accommodation (aphakic) operating, as in all accommodation acts, with the associated convergence in all eyes. He considers at length the history of the operation, its indications, contraindications, effects, and results, and comes to the conclusion that there is a wide diversity of opinion as to its advisability. It appears, however, that the large majority, particularly of European ophthalmologists, believe that ablatio lentis, in spite of its not being ideal in all respects, is within certain limitations indicated, and that it constitutes a very marked advance in eye surgery. It is generally believed that myopia and many of its attendant pathologic lesions are by such operations corrected and subjects restored to independence. About 2,500 cases have been reported from abroad, while the author has found records of not quite 50 cases done in this country, so that American statistics do not afford a basis for any conclusive opinion. Fukala deserves the credit for bringing the operation into prominence, and his method, that of free dissection with linear extraction, is now the well-established plan of operating.

3.—Rectal Injections of Large Doses of Sodium Salicylate in Cerebrospinal Meningitis.—A. Seibert believes that the administration of large doses of sodium salicylate, given by rectum to avoid gastric disturbances, forms the most satisfactory plan of treatment for this disease. Tapping the spinal canal by lumbar puncture may be of great value in some cases by relieving pressure, but it is not curative, and injections of antibacterial fluids into the spinal canal never reach the organisms they are intended to destroy. An effective remedy for cerebrospinal meningitis must travel the same road which the infectious germ has taken through the blood current. Salicylates have been used before in this condition, but in doses that are entirely too small. Five cases are described

in which the use of large doses of the drug appeared to exert a very powerful curative effect. According to the age of the patients, sodium salicylate was given by rectum in 15 gr. doses dissolved in a tablespoonful of water, at intervals of from one hour to eight hours, the salicylization being gradually reduced as improvement followed. In one case, that of a boy aged four and a half, who had had the disease for seven weeks some months previously, and presented numerous sequels, such as contractures, hemiplegia, strabismus, etc., very remarkable improvement followed the treatment, though it was begun only at so late a date. In a tuberculous case the salicylate did not appear to be effective. The author urges those who have charge of large numbers of cases of the disease to give a trial to this plan of treatment, which he is convinced is of value in all cases where serous, not purulent, exudate forms.

4.—The Medical Phases of the Immigration Legislation.—V. G. Heiser says that the act of 1891 was the first under which immigrants suffering from certain mental or physical conditions were absolutely excluded, and the law provided for the first time for the medical examination of all arriving aliens. The medical features of the immigrant legislation consist of two simple divisions, the first for those suffering from afflictions for which they are absolutely excludable, and the second for those suffering from conditions which may cause them to be likely to become a public charge. From year to year it has been found desirable to augment the list of afflictions that come under both divisions of the law, and the last act pertaining to immigration, passed in 1903, still further increased the list of absolutely excludable diseases. In discussing the maladies on the absolutely excludable list which give rise to the greatest number of rejections, the author says that trachoma easily ranks first, and favus is also of importance. Leprosy, active syphilis, and cases of tuberculosis with bacilli in the sputum, are also on the list. Epileptics, idiots, and the insane are specifically mentioned by law. The second class of diseases is very long and includes such conditions as valvular disease of the heart, hernia, chronic rheumatism, nervous affections, malignant tumors, defective eyesight, senility, etc. Persons suffering from temporary conditions are cared for until well in hospitals at the expense of the transportation company bringing them in. Heiser is in favor of the enforcement of the medical clauses of the immigration law in the Philippines, both from a humanitarian and a practical standpoint.

5.—Masturbation in Childhood.—A. A. Strasser says that unfortunately this vice is not so rare in childhood and even in infancy as it might seem, and he describes an extreme case. The patient was a little girl of 10, who had practised masturbation from her fourth year. In spite of all efforts to restrain her she continued the habit until the orgasm could be elicited by purely psychic efforts 50 to 60 times in 24 hours. She finally succumbed to marasmus and pyemia, accompanied by the symptoms of dementia senilis. Treatment consists mainly in prophylaxis and moral suasion, proper mental exercise, and hydrotherapy, rather than the sedative and tonic drugs usually advocated.

6.—Saw Palmetto.—I. L. Van Zandt reports excellent results in the treatment of enlarged prostate by means of dram doses of the fluid extract of saw palmetto given three or four times a day. He has also used the remedy with good effect in chronic inflammations of the throat and tonsils, spasmodic croup, etc.

New York Medical Journal.

June 10, 1905. [Vol. LXXXI, No. 23.]

1. The Modern Doctor. A. JACOBI.
2. Hypodermoclysis. W. PAGE MCINTOSH.
3. Observations on the Diagnosis and Treatment of Herpes Zoster. DAISY M. ORLEMAN ROBINSON.
4. The Therapeutic Value of Marmorek's Antituberculous Serum. ARTHUR J. RICHES.
5. Orbital Sarcoma: With Report of a Case and a Discussion of Radical Operation, Röntgen-ray Therapy, and Electrochemic Sterilization. G. ORAM RING.
6. The Detection of Methyl Alcohol. HEYWARD SCUDDER.
7. The Experiments of Sauerbruch in the Field of Esophageal Surgery. DEWITT STETTEN.
8. A Case of Traumatic Aphasia. CHARLES PHELPS.

2.—Hypodermoclysis.—W. P. McIntosh speaks personally as to the value of hypodermoclysis in hemorrhage,

shock, uremia, puerperal eclampsia, typhoid fever, pneumonia and anemia. In poisoning from illuminating gas, ether, and opium, this procedure is highly recommended, as it dilutes the poison and favors elimination. In diseases attended with great loss of body fluids, such as cholera, cholera infantum, enterocolitis, the remedy is of great service. It is also one of our best remedies in septicemia. On account of the leukocytosis it produces, saline solution should be used in puerperal sepsis. The remedy is recommended in diabetic coma, restoring consciousness and prolonging life. The author has had excellent results in several cases of rheumatism, both muscular and articular; in one case the pains disappeared at once. [C.A.O.]

3.—See *American Medicine*, Vol. IX, No. 22, p. 892.

4.—See *American Medicine*, Vol. IX, p. 892.

5.—Orbital Sarcoma.—G. O. Ring reports the case of a girl of 6, in which the growth extended along the roof of the orbit from the internal to the external border. It also reached well down to the orbital floor posteriorly, making enucleation of the eye absolutely necessary when the growth was removed. As a matter of precaution röntgen-ray applications were begun at the end of the third week after operation and continued at varying intervals for eight months with no evidence of recurrence. The author cites several other cases and says in conclusion that the difficulty in accurate diagnosis under certain conditions entirely justifies an exploratory excision with removal of a section of growth for microscopic study, said exploration likewise serving to determine the ramification of the tumor. If unsuccessful in removal of the growth, the virulence of the latter will probably be decreased and the dangers of metastasis lessened (Leonard). If the sarcoma is encapsulated, operative intervention without orbital evisceration promises a successful outcome. In view of the almost constant recurrences after orbital evisceration, the removal of the growth itself is regarded as sufficient unless the periosteum or bony wall is involved. [C.A.O.]

8.—Traumatic Aphasia.—Charles Phelps reports such a condition in a boy of 13 who was suffering from a compound depressed fracture of the vertex, fissured anteriorly and posteriorly, with one anterior fissure extending into the left middle basic fossa. The aphasia developed on the fifth day of the injury. On the sixth day his mental condition was good, he understood speech and musical tones, as well as printed and written words, could call to mind objects named, could comprehend simple gestures, and had some power of speech, which progressively diminished through the day. He had total sensory anomia. He could recognize various objects, but could give to none a name. The condition continued for six days. Phelps believes that the condition was due to cerebral contusion. The escape of the auditory and visual word centers from implication was probably due to a limitation of the lesion to the inferior portion of the zone, and failure of the edema to rise to their level. [C.A.O.]

Medical News.

June 17, 1905. [Vol. 86, No. 24.]

1. The Value of Lumbar Puncture: With Particular Reference to the Diagnosis of Tuberculous Meningitis. EUGENE P. BERNSTEIN.
2. The Bacterial and Cellular Examination of the Spinal Fluid in Fifty Cases of Cerebrospinal Meningitis. T. W. HASTINGS.
3. Report on Gallbladder Surgery, with Especial Reference to Early Diagnosis and Early Operative Interference in Cholecystectomies, with Brief Summary of Twenty-eight Cases, including Six Cholecystectomies. FRANK MARTIN.
4. Adulteration and Substitution. GEO. C. DIEKMANN.
5. Colds and the Prevention of Colds. NEWTON JAMES.
6. The Carbohydrate Reactions of the Paratyphoid or Paracolony Group (Preliminary Communication). W. W. FORD.

1.—Lumbar Puncture in Diagnosis.—E. P. Bernstein states that normal fluid is absolutely colorless and this is true in all cases not due to inflammation of the meninges. In tuberculous meningitis it is slightly opalescent, in purulent meningitis yellowish, from old blood it is brown. In tuberculous and purulent meningitis the fibrin net is seldom absent after 6 to 12 hours, while in tumor, abscess, thrombosis, hydrocephalus, etc., it never forms. In healthy persons there is little or no albumin ring. The albumin increases in inflammatory and other diseases. A glucose-like substance is present in health, absent in purulent, and, according to the writer's observations, also in

tuberculous meningitis. As a rule, a mononuclear leukocytosis goes with tuberculous, and a polynuclear leukocytosis with purulent meningitis. Technic and patience have much to do with the varied statistics as to bacteriologic findings. The nearer to the agonal period the fluid is withdrawn, the higher the positive percentages should be. There is no advantage in cultivation over inoculation, since time is hardly saved thereby. [H.M.]

2.—Bacterial and Cellular Examination in Cerebrospinal Meningitis.—T. W. Hastings collects the fluid in two or three sterile, preferably centrifuge tubes. If bleeding is pathologic, and not due to the puncture, the second and third tubes will show a blood color and cloudiness similar to the first tube. The writer's 50 acute nontuberculous fluids were turbid, varying from a fine opalescence to a coarse suspension of fibrin flakes and leukocytes. The five tuberculous fluids were without opalescence and clear, except for a delicate veil-like coagulum. During centrifugation, this coagulum carries down the bacteria. Albumin bodies thrown out by heating will also carry them down. Of the 55 cases, 42 were due to the meningococcus, 5 to the pneumococcus, 5 to the tubercle bacillus, and 3 to unidentified organisms. The fluid was examined 3 to 10 days after onset, and in only two cases at this time was it impossible to make a diagnosis. In the meningococcus cases, polynuclear cells varied from 68% to 100%. The mononuclear cells increased as convalescence approached, and later were in excess. The pneumococcus fluid differed only in its bacterial content. In the tuberculous fluid, mononuclears varied from 68% to 100%. [H.M.]

3.—Gallbladder Surgery.—F. Martin believes in surgical interference in cholelithiasis, whether there are symptoms or not. These are present in only 5% of the cases. Scarcely another disease changes its character so suddenly. Stones in the common duct keep up a constant irritation, setting up a cholecystitis which causes contraction of the gallbladder with adhesions to surrounding organs. Jaundice is absent in 80% to 90% of operative cases. It is important to learn whether jaundice appeared with the first cramp, in order to differentiate stone impaction from tumor obstruction. Fourteen percent of gallstone sufferers develop cancer. When the stools change from putty color to brown we should examine them for a stone. In a beginning cholecystitis there is a marked increase of leukocytosis. Tuberculosis, nephritis, and cardiac disease are among the terminal infections due to biliary disturbances. The incision in operation should enable one to inspect thoroughly the gallbladder and the common duct. When the former is badly infected or gangrenous, with adjacent liver necrosis and local peritonitis, it had better be removed. Generally, cholecystotomy followed by drainage is the operation indicated. To prevent consecutive hemorrhage due to blood changes from the prolonged jaundice, dram doses of calcium chlorid may be given several days prior to the operation. [H.M.]

4.—Adulteration and Substitution.—G. C. Diekman, of the New York State Board of Pharmacy, gives statistics showing that pharmacists as a class do not dispense impure or adulterated drugs. [H.M.]

5.—Prevention of Colds.—N. James believes colds are commoner in cold weather because more impure air is breathed at that time and because the skin is kept tender with overclothing. People who live close to nature are exempt. As far as atmosphere goes, a healthy person thrives about as well in the city as the country. The indoor air, however, is foul and the percentage of moisture is below normal, causing too rapid evaporation from the body, with dilation of the vessels. The writer advises the daily cold bath, ribbed or meshed cotton, linen or ramie, not woolen underwear, plenty of ventilation, light weight bed coverings and the abolition of steam radiators. [H.M.]

6.—Carbohydrate Reactions of the Paratyphoid or Paracolon Group.—W. W. Ford records experiments showing, among other things, the readiness with which the bacillus of hog cholera can be differentiated from other members of the group. The paracolon bacilli normal to the intestines can be distinguished from those of general infections. The action of Type A and Type B on milk is paralleled by their action on xylose. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Sporadic Endemic Dysentery.—The term dysentery is employed in our climates to describe a variety of diarrheal conditions. A. Albu¹ says that the term should be restricted to those cases characterized by profuse liquid stools with blood and mucus, tenesmus, intestinal colic, and loss of flesh and strength. Mild diarrheas may at times be accompanied by the presence of amebas in the stools, but these organisms are of the harmless variety termed *Entamoeba coli*. This variety is distinguishable in form and structure from *Entamoeba histolytica*, regarded as the cause of true tropic dysentery. Cases of the latter are very rare in Germany, which fact prompts the author to report an additional one. His patient was a female adult, who presented the typical symptoms of the disease. Examination of the feces revealed large numbers of extraordinarily large amebas, containing the detritus of red blood-corpuscles. The notable features in the course of the disease were the repeated relapses, a bilateral necrotic angina, a permanent profuse flow of saliva and mucus from the mouth and throat, and the fatal outcome, due solely to the amebic infection. At autopsy the whole large intestine was found to be the seat of countless deep ulcers with undermined edges. The general impression of the intestinal wall was that of a very porous sponge. The ulcers were often continued as clefts between the submucous and muscular coats, which frequently ended in abscess cavities. The glandular epithelium was almost entirely destroyed and the tubules were hyperplastic and cystic. The walls of the ulcers and abscess cavities were the seats of marked round-cell proliferation, in the midst of which the large amebas were frequently found. [B.K.]

Cerebrospinal Meningitis Produced by the Pfeiffer Bacillus.—G. Mya² finds 16 cases of meningitis the result of the influenza bacillus recorded; he is able to add another, proved to be such by bacterial investigation. A very anemic child of a year fell and struck its right occipitoparietal region sufficiently forcible as to produce a slight linear fracture, and over it a large hematoma. Nothing of any importance developed thereafter until 25 days later, when symptoms of pneumonia were discovered. On the fourth day of the pneumonia the patient suddenly collapsed, but recovered under stimulation. Clonic left-sided and later right-sided convulsions made their appearance; the patient began to vomit, Kernig's and Babinski's symptoms appeared, the reflexes became exaggerated; other signs also appeared, making the diagnosis of meningitis a certainty. It was thought to be due to the bacterium, which had produced the pneumonia; the hematoma evidently had been affected first, the disease spreading from there to other parts of the meninges. A lumbar puncture revealed purulent fluid, puncture of the hematoma, thick pus, and puncture of the pneumonic focus, bloody fluid, from all three of which Pfeiffer's bacillus was isolated; from the latter in pure culture, as evidenced by staining, cultural and experimental evidence. The autopsy confirmed the clinical findings in every respect. [E.L.]

Splénomegalic Polycythemia without Cyanosis.—F. Parkes Weber³ reports an additional case of that syndrome, chronic cyanotic polycythemia with enlarged spleen. In this case, however, the cyanosis was omitted. The patient had suffered from erythromelalgia, but had recovered from this affection before the polycythemia was discovered. Although there was no cyanosis, the cutaneous bloodvessels were somewhat overfilled, and the tongue was a bright red with a bluish tinge. The subjective symptoms were tinnitus aurium, occasional headache, and slight vertigo. The spleen was moderately enlarged. Beside the enormous increase in red cells and hemoglobin, the blood showed a leukopenia with a high percentage of polymorphonuclears. The estimation of the blood volume by Haldane's carbon monoxid method, showed that it was greatly increased. The specific gravity was 1.072, and the vis-

¹ Zeitschrift für klinische Medizin, Bd. lvi, p. 482.

² Die Medicinische Wochenschrift, 1905, vi, No. 16, 121.

³ The Lancet, May 13, 1905.

cosity was very high. The author believes these cases are due to a pathologic activity of the bone marrow in producing erythrocytes. There is no evidence pointing to their diminished destruction. Cyanosis, which was here absent, is probably due to inadequacy of the compensatory changes that usually occur to a certain extent. The pathologic activity of the bone marrow still lacks an adequate explanation, as does also the splenic enlargement. [B.K.]

Study of the Metabolism of a Vegetarian.—J. M. Swan¹ made a study of the ingestion and excretion of a vegetarian of 20, a student, whose parents and grandparents were also vegetarians. The study showed that for the individual under consideration, such diet was not calculated to produce a properly nourished and mentally and bodily active person. He believes that strong and robust persons who live on a very simple diet are the exception rather than the rule. The literature advocating vegetarianism, so far as he has been able to consult it, contains no accurate scientific analysis of the requirements of the human organism, and the arguments advanced for the adoption of such a regimen are pseudoscientific or sentimental. [A.G.E.]

Unusual Dilation of the Heart.—G. Müller² reports a case of mitral stenosis, in which death occurred with the usual picture of cardiac insufficiency. At autopsy a heart was found having over twice the normal weight. Beside a hypertrophied right ventricle, an enormous dilation of the left auricle was found, this chamber holding over 2½ liters of blood. Although mitral stenosis often does lead to dilation of the left auricle, the stenosis in this case was not so marked, and could not have produced this enormous dilation alone. The other and more important factor was doubtless a chronic myocarditis, leading to atrophy of the parenchyma and its replacement by connective tissue; for the auricular walls were found to be entirely lacking in muscular tissue. It is evident that the left auricle did not participate in the contractions of the heart. A remarkable feature during life was the almost undisturbed regularity of the heart's beats. This fact tends to disprove Radasewsky's theory that irregularity of the pulse is due to auricular degeneration. It also appears to be contrary to the accepted theory that the contraction impulse passes as a wave from the auricles to the ventricles along His' muscular bundles, which were entirely wanting in the left auricle of this heart. The author reconciles these facts by supposing that, as long as the conduction exists between auricle and ventricle, an arrhythmia results from any pathologic changes in the conducting paths. But if this muscular communication is completely interrupted, the ventricle can assume control of the cardiac rhythm, and regularity is restored. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Functional Infirmities following Articular Traumatism.—Mally and Richon³ say that in every functional infirmity following an articular traumatism it is always necessary to think of a spinal affection, closely associated with the joint condition, reflex amyotrophy being the best known of these manifestations. The symptoms of this condition are atrophy, paresis, spasmodic phenomena, diminution of electric excitability without reactions of degeneration. All degrees exist, from simple paresis to absolute paralysis. The principal spinal lesion consists of a diminution of the large motor cells in the anterior cornua. Corresponding to this there are found degenerations of isolated fibers in the nerves and muscles. A milder degree of medullary lesions also exists, not perceptible by our present methods of investigation, and capable of recovery. This concept of reflex amyotrophy of articular origin explains the pathogenesis of a large number of surgical affections, such as passive dislocation of the humerus, genu valgum of ado-

lescents, scoliosis of adolescence, etc. There is no fixed relation between the intensity of the articular affection and the gravity of the reflex amyotrophy, but the duration of the former is of considerable influence. The reflex amyotrophy is always more serious in the lower extremities. The prognosis depends to a considerable extent on the curability and rapidity of recovery of the causative articular lesion, but a more or less extensive permanent disability always remains. The benign forms may be faradization or franklinization. When spasmodic symptoms predominate, this treatment is dangerous and should be replaced by a sedative form of static electricity. The spasmodic variety also contraindicates all active maneuvers directed toward the joints or atrophied muscles. [B.K.]

A Case of Cervical Rib, with Symptoms Resembling Subclavian Aneurysm.—J. B. Murphy¹ states that cervical rib does not usually develop until adult life. In patients requiring surgical attention, it usually arises from an individual ossific center. It increases in diameter with its distance from the spine. In some cases it develops beneath and behind the branches of the brachial plexus, and carries the nerve trunks forward with the subclavian artery above it, so that the pulsation of the latter is the first conspicuous sign of trouble. The end of the rib compressing the nerves or artery against the lower portion of the scalenus anticus, causes in the former case severe pain and occasionally paralysis of the brachial plexus, and in the latter an endarteritis or thrombosis, with gangrene or aneurysm. Edema is absent, as the vein is not compressed. The supernumerary rib exists on both sides in 67% of the cases found. The relation of the scalenus muscle to the artery, nerve and rib, and its effect as a counteracting force, have not, up to this time, been appreciated. The case reported is interesting on account of the severity of the symptoms before operation, and their prompt subsidence after removal of the rib. All patients should be operated on as soon as diagnosed. The periosteum should be removed with the rib, otherwise the latter might be reproduced. [H.M.]

Surgical Treatment of Hydatid Cysts of the Abdomen.

—The operation for hydatid cysts that is generally adopted consists of direct incision, followed by fixation of the cyst walls to those of the abdomen, and drainage. According to Mabit,² this method has certain disadvantages, principally dependent on secondary infection as a result of the prolonged drainage. He has substituted another operation, which consists in removing as much of the cyst wall as possible, after emptying its contents and flushing it out with boric acid solution. Care must be taken, of course, to protect the peritoneal cavity from infection with the daughter cysts. Only that part of the mother cyst wall is left which is included in the parenchyma of the organ. After carefully cleaning and drying this part, it is returned to the abdominal cavity, and the wound is closed without drainage. The author has performed this operation in 18 cases, with almost invariable success. In only one case was it necessary to reopen the abdomen and establish drainage. The dangers of hemorrhage and of biliary fistula are avoided, and peritoneal infection was never observed. [B.K.]

Functional Impotence Secondary to Articular Trauma.

—Mally and Richon³ close an article, running through several numbers, with their conclusions and a table of 36 cases. They assert that reflex amyotrophy of articular origin should occupy an important place in general surgical pathology. It explains the pathogenesis of many articular affections, such as passive dislocations, painful flat-foot, genu valgum of adults, scoliosis, and others. The functional impotence is secondary to spinal lesions, which result from the articular trauma and consist of diminution of motor cells in the anterior horns. Later, the nerves to the joints undergo partial degeneration and muscle fibers atrophy. Trophic centers which preside over the nutrition of periarticular tissues, are probably involved also. Reaction to electric currents serves to establish prognosis. Early cases are usually curable, chronic, incurable. In the incurable patients, static electricity will relieve pain and spasm, faradization being contraindicated. [A.G.E.]

¹ American Journal of the Medical Sciences, June, 1905.

² Zeitschrift für klinische Medizin, Bd. lvi, p. 520.

³ Revue de Chirurgie, March-May, 1905.

¹ Annals of Surgery, March, 1905.

² Revue de Chirurgie, May, 1905, Vol. xxxi, p. 587.

³ Revue de Chirurgie, May 10, 1905.

INDEX

- Abdomen**—cysts of, 284, 1036; eyeglasses in, 427; exploring, 52; gunshot wound of, 794, 1002; hydatid cysts of, surgery of, 1006; opening, choice of method, 588; pendulous, 793; upper, certain common symptoms in, significance, 91; upper, disease in, diagnosis, 203; wounds of, 230
- Abdominal**—aneurysm, thoracic, 70; aorta, ptosis of, 164; contusions without intestinal injuries, 836; crises, 163, 581; herniation of gravid uterus, 208; muscles, infantile paralysis of, 415; nephrectomy, 709; operations, results of, 866; organs, ptosis of, 137, 412; pain, 830, 1006; pregnancy, 957; route in uterine fibroids, 754; section, eserine salicylate after, 539; section, exploratory, 411; section, treatment after, 9, 323; supporters, therapeutic uses, 412; tumor, 627, 932; viscera, and penetrating wounds, 80; viscera, malposition of, 958; viscera, upper, acute perforations of, treatment, 95; wall, injury to, and traumatic rupture of intestine, 328; wall, adenoma of sebaceous glands of, 167; walls, injuries of, subcutaneous, 540
- Abnormality, ocular and spasmodic torticollis**, 557
- Abortion**—239; tubal, 209
- Abortifacient**, convicted, 505
- Abrams, Albert**: The vertebral concussion reflexes, 640
- Abscess**—apendicular, diagnosis of, 541; brain, 27, 81, 126, 263, 374; hepatic, 146; traumatic, 81; of tongue, 263; perinephric, 681; postpharyngeal, and cardiac collapse, 76; postpythoid ovarian, 222; rectal, and gonococci, 788; subphrenic, 230, 375, 588, 1005; temporal, of otitic origin, 541; tubal, on position of ureter, 827; peritonitis, opening of, 793
- Absorption**—in small intestine, 790; rate from intramuscular tissue, 585; suprarenal extract, effect on, 243
- Accident insurance, immediate disability in**, 502
- Accidents**—132, 258; and defective rails, 342; in United States, 594, 760
- Accommodation, subnormal—and premature presbyopia**, 103; in young, 189
- Acetanilid poisoning**, chronic, 955, 1016
- Acetone**, antitoxinification from, 790
- Acetonuria in phloridzin diabetes of dog**, 840
- Acetozone treatment of typhoid**, 963
- Acid**—boric, therapeutic uses, 473; hippuric, 924, 958; hydrochloric, therapeutic uses, 924; intoxication and chemical conditions, 374; lactic, formation, and stomach, 22; salicylic, intravenous, diagnostic value, 798; uric, 128, 453; glycuronic, 451
- Acne**, treatment, 498, 714
- Act**—Pennsylvania, creating a department of health, 384; midwives, of England, 504
- Actinomyces**, study of, 544, 1007
- Adami, J. G.**: Adaptation and tuberculosis, 683
- Adenocarcinoma of liver**, 707
- Adenoids**, adult, 851
- Adenoma**—of endometrium, 584; of sebaceous glands of abdominal wall, 167
- Adenomyoma of uterus**, 10
- Adhesions**—bile tract, 539; peritoneal, 52, 527; post-operative, 323
- Adipolysis**, defective, 399
- Adiposis dolorosa**, 78
- Adnexa**, uterine, inflammatory disease, 957
- Adrenalin therapy**, 415, 588, 756, 832
- Adrenals**, tuberculosis of, and nail changes, 832
- Adulteration**—280, 343, 585, 676, 1085; food, 6, 7, 46, 883, 478, 686, 664, 678, 765; of drugs, 724
- Aerophagia and flatulence**, 749
- Agglutination test**, defects of, 707, 840
- Agglutinins**, 249
- Agricultural anthrax in Great Britain**, 923
- Ailurophobia**, 651
- Air**—carbonic acid in, 837; ethics of, 703, in veins during operation, 792
- Akinnesia algera**, 672
- Akromegaly**, 1017
- Alabama State Medical Association**, 678
- Albumin**, ring test for, 264
- Albuminuria**—711; Bence-Jones, 330; in appendicitis and hernia, 458; in renal palpation, 794
- Albumosuria**, myelopathic, 370
- Alcohol—and circulation**, 1007; and insanity, 134, 228, 502; and narcotics, 211; as food, 709; in disease, 690, 709; teaching, and children, 211; wood, poisoning by, 122
- Alcoholic—insanity**, 767; lesson of Japanese war, 631; medicine, Maine's executive in trouble over, 596; old, mental deterioration of, 631
- Alcoholic—chronic**, among Russians, 631; obscure, involving irresponsibility, 672
- Alexander operations**, 626, 796
- Algae**, destruction by copper, 802
- Alger, Ellice M.**: A case of spasmodic torticollis apparently dependent on an ocular abnormality, 557
- Alimentary canal**, movements and innervation of, 881
- Alimentation**—rectal, 187; subcutaneous, 234, 245
- Alkaline beverages**, therapeutic uses, 920
- Alkaloids**, Lloyd reaction for, 868, 905, 947
- Allen, John H.**: Fatal case of cerebellar abscess, 27
- Allyn, Herman B.**: The diagnosis of tuberculous cavities in the lung, 190
- Alopecia and dermatitis seborrhoica**, 880; areata, 989
- Altitude**—high and pneumonia, 356; in blood-pressure, 134
- Amaurosis**, tabetic, retina in, 293
- Amberg, Emil**: The fifth practical year, 222
- Amblyopia**, 367, 966
- Amebas**—cultivation and etiologic significance, 245; infecting the human intestine, 854, 897, 936
- Amebiasis**, tropic, 624
- America**, sanatorium movement in, 995
- American—Medical Association Council on Pharmacy and Chemistry**, 380, 386; Medical Association, membership and membership of unethical local society, 297; Medical Association, organization plan of, criticism of, 255; medicine 28; physician in Philippine service, 513; physician of European birth, most eminent, Krackowizer, 740
- Amidnitrogen**, 933
- Amputation**, 266
- Amyl nitrite**, uses, 662
- Amyloid—degeneration**, 738, 766; tissue, technic of iodine sulfuric acid reaction on, 588
- Amyolysis**, defective, 399
- Anachronisms**, sanitary, should be abandoned, 675
- Anal fissure**, 78
- Anastomosis**—intraabdominal, 607; end to end intestinal, 121; intestinal, Connell suture, 243; intestinal, end to side, 35; intestinal, soluble button for, 793; vesicocutaneous, 244
- Anatomy**—act, Forbes, 27, 295; of atmoausis, 705; pathologic, 175; pathologic, of plague, 586
- Anders, J. M.**: Cholodithiasis as a complication of lobar pneumonia: with a report of three cases, and remarks on icterus in pneumonia, 431
- Anemia**—and atrophy of gastric mucosa, 710; anesthesia, and operation, 373; in old age, fatal, 881; in Porto Rico, 213, 369, 370, 509; operations, 289; pernicious, 123, 626, 709; retinal embolism, hemianopsia, and optic neuritis, 294; secondary, following nasal hemorrhage, 449; splenic, 94, 960; treatment, 84; tropical, 982
- Anesthesia**—and corneal reflex, 374; and operation on anemic patients, 373; by water injection, 624; capital operations without, 367; difficulties of, 37; ether, 629, 713; infiltration, in general surgery, 922; in anemic patients, 289; local, prostatectomy, 284; local, by cataphoresis and mechanical pressure, 499; local, in ear operations, 707; surgical, in childhood, 336
- Anesthetic**—141; and narcotic, 525; ethyl chlorid as, in general practice, 336, 457; general, 285; pneumonia, 753
- Aneurysm**—femoral, 692; subclavian, 1036; thoracic abdominal, 70; ulnar, 541
- Angia**—pecoris, 205, 665; Vincent's, 921
- Angioma**—of ovary, 420; treatment, 336
- Angioneurotic edema and abdominal crisis**, 581
- Angiosclerosis**—of extremities, 919; of gastric ulcer with perforation, 279
- Angiospasm**, mal'rial, 957
- An lin**, action of, 504
- Animal**—diseases and Congress, 383; industry, bureau of, report, 339; tissues, extraction of mixed alkaloids from, 948
- Ankle-joint**, sprains of, 369
- Ankylosis**—arthritic and traumatic, of elbow, 95; osseous, tuberculous, 752
- Ankylostomiasis**, 34, 554, 711
- Anomalies**, fetal, cause in ovum, 753
- Anthrax**, 462
- Anthrax**—426, 469, 697, 763; agricultural, in Great Britain, 923; external, treatment, 793; serum, 42
- Anthropology and psychiatry**, 103
- Anthropometric investigation of hospital patients**, 392
- Anticarcinoma serum**, 247
- Anticlgaret crusade**, 720
- Antidiphtheric serum**, 838
- Ant**—expectoration ordinances, 422
- Antisepsis**, 37
- Antiseptics**, 142
- Antispitting signs**, 678
- Antistreptococcal serum**, 209, 413, 755, 881
- Antitetanic serum**, 798
- Antitoxin—and meningitis**, 343; and toxin, fatigue, 587; diphtheria, 410, 451, 664, 713, 772, 881, 924; dysentery, 588; hay fever and toxin, 885; treatment, 145, 208, 200, 924, 956
- Antituberculous serum**, Marmorek's, 461
- Antivaccinatio n bill vetoed**, 596
- Antivaccinationists win**, 48
- Antrum**, chronic, empyema of, 540
- Anuria**, postoperative, 419
- Anus**—fissure in, 291, 890; toilet of, 541
- Aorta**—abdominal, ptosis of, 164; atheroma, after adrenalin injection, 588; regurgitation and tuberculo sis, 452; rupture of, 794; tuberculosis of, 452, 500, 858
- Aphasia**, traumatic, 1034
- Apomorphin**, 498
- Apparatus for narcosis**, 629
- Appendectomy**, 11, 81, 228, 752
- Appendicitis**—228, 338, 766, 923, 958; albuminuria in, 458; and colitis, 794, 961; and erythema exudativum multiforme, 414; and general peritonitis, 588; and hematemesis, 416; and typhoid, 50, 923; diagnosis, 541; etiology, 334, 961; fulminating, 832; in pregnancy, 208; in women, 137; larvata, and palpation of appendix, 629; operation for, 81, 334, 372, 752, 794; pathology, 1032; perilous calms of, 327; precarious stage, 1022; prevention, 375; simulating cholelithiasis, 439; subphrenic abscess complicating, 588; treatment, 81, 334, 369, 372, 456, 459, 538, 752, 794, 958, 1021; unique case, 498; work, changes of view in, 919
- Appendix**—caucer of, 888; decapsulation of, 663; in an inguinal hernia, 162; in tropic dysentery, 469; intussusception, 67, 556; irrigation of colon through, in chronic dysentery, 539; palpation of, 629; pelvic disease, 1017; removal of, 11, 81, 228, 752; should it be removed in operations, 7, 83
- Applegate, J. C.**: Therapeutic value of ergot in labor, 1023
- Appropriation bills**, 510, 553
- Argyrol**, staining skin by, 966
- Armstrong, S. T.**: Cuban sanitation and life insurance, 768
- Army**—camps and typhoid, 506, 507; diet fund, 594; French, medical statistics of, 596; medical corps, favor bill to organize, 342; medical corps examination, 300; medical department, admissions to, 845; medical reserve corps for 370, 758; undue sickness in, 759; U. S. and medical corps, our duty to, 137
- Arsenic**, 84
- Arnell, James Rae**: Infection of the urinary tract by the colon bacillus, simulating uremia, 819
- Arterial**—infarcts in liver of, 1008; tension in lead-poisoning, 39
- Arteries**—cold, effect upon, 206; common carotid, ligation of, 82; endothelial separation in, 1008; ulnar, aneurysms of, 541
- Arteriosclerosis**, 251, 666, 1016
- Arteritis**, rheumatic, 959
- Artery**—anterior cerebral, anatomy of, 1007; femoral, aneurysm, 682; femoral, suture of, 53; pulmonary, atresia of, 415; superior mesenteric, embolism of, 325
- Arthritic ankylosis**, treatment, 95
- Arthritis**—deformans, 451; gonorrheal 832; infectious, multiple, 708; plastic, 752; puerperal, 1032; rheumatoid, 249, 714, 882; streptococcus, artificial, 248; tuberculous, treatment, 245
- Arthrodesis**, for flat-foot, 725
- Arthropathies**, gonorrheal, 125
- Arthrotomy**, 137
- Articulations**, pelvic, 956
- Ascites**—chylous, 327, 861; clinical significance, 766
- Asepsis**, 93, 335
- Asiatic cholera**, inoculation against, 585, 791
- Asphyxia**, traumatic, 245
- Asthma**—adrenalin for, 832; and ethmoidal inflammation, 957; epinephrin, therapeutic uses, 460, 832
- Astigmatism**, 25
- Astragalofibular articulation**, bone union at, 652
- Ataxia**—locomotor, 368; sensory, of ocular muscles, 906
- Atheroma of aorta after adrenalin**, 588
- Athletics in professional schools**, 425
- Atlas**, dislocation of, 378
- Atmoausis**, anatomy of, 705
- Atmospheric pressure**, diminished, and blood, 546
- Atresia**—of follicles, lutein cell proliferation in, 707; of pulmonary artery, 415
- Atrocities in Cuba**, 421
- Atrophic rhinitis**, treatment, 545
- Atrophy**—infantile, etiology and treatment, 808; muscular, and tabes dorsalis, 670; of bones and syringomyelia, 672; of gastric mucosa and anemia, 710; of liver, acute yellow, 411
- Atropin**, 207, 210, 200, 542
- Auditory canal**, epithelioma of, primary, 263
- Aural affections in children**, 499
- Auscultation**—103; transmanual, 641
- Autoinfecti n and mental disorders**, 121
- Antitoxinication from acetone**, 780
- Automatic wandering**, 501
- Automobile and doctor**, 255
- Autopsy findings in epilepsy**, 748
- Average or normal**, tendency to be, 908
- Axilla**, care of after excavations for malignant or infective lesions, 44
- Azoimid**, physiologic action, 250
- Babies**, premiums for, 846
- Baby**—farms, 133; hospital, Waltham, 598; how shall we treat and feed?, 766
- Bachelors**, to tax, 134
- Bacillera**, tuberculous, 252

- Bacillus**—*aerogenes capsulatus* in septicemia, 546, 795, 796; *aureus* feidus, 791; colon and typhoid, differentiation, 1008; coon, infection, simulating uremia, 819; colon, toxin, 707, 748; diphtheria, 250, 886; dysentery, 248, 791; Elberth, in ovarian cyst after typhoid, 840; Pfeiffer, and cerebrospinal meningitis, 1035; pseudodiphtheria, 248, 250, 886; pyocyanus septicemia and blastomycetic growth in primary wound, 81; Shiga, 186, 331; tubercle, homogenized cultures of, 647; tubercle, human and bovine, 836, 839; tubercle, infection with, 839; tubercle, toxin of, 587; tuberculosis in man and animals, 178; typhoid, 186, 249, 250, 275, 587, 839; xerosis, 250
- Back, examination in general diagnosis, 499
- "Backache," 88, 430
- Bacteria**—in air and snow, 6; in water, copper in, 803; saprophytic, and bacillus typhosus, 249; toxins of other species of bacteria, 248
- Bacterial**—element in catharsis, 945; examination in cerebrospinal meningitis, 1035; toxins and immunity, 1016
- Bactericide** for diphtheria, dichondra, 413
- Bactericidal reaction** of blood-serum in typhoid, 456, 881
- Bacteriologic**—diagnosis of diphtheria, 581; examination of water, 247
- Bacteriology**—and eye diseases, 905; caffeine in, 1008
- Bacterium**, chromogenic, infection from, 791
- Bainbridge, William Seaman**: A case of extensive carcinoma of the tongue and neck, presenting points of special interest, 477
- Balantidium coli**, 5-7
- Baldwin, J. F.**: Intussusception of appendix vermiformis, 556
- Baldwin, William H.**: The progress of the sanatorium movement in America, 995
- Baldy, J. M.**: Kidney diseases requiring surgical interference, 271
- Ball, Clarence F.**: A simple method of cleansing the blood pipet, 264
- Balsam of Peru**, 714
- Barbers and osteopaths**, 706
- Barker, Arthur E.**: A short note on subcutaneous alimentation, 234
- Barnes, Noble P.**: Treatment of incontinence of urine in children, 1021
- Barnett, Charles E.**: Pathologic changes resulting from prostatic enlargement, 574
- Basedow's disease**, pathogenesis of, 588
- Bates' project** for Panama Canal, 674
- Bath**—and alternating sinusoidal current, 416; and moist dressings, 462; ocean, 624; public, 636; various, blood-pressure, cardiac work, and vascular tone, 963
- Battle**, recent naval, lesson of, 925
- Beck, Carl**: On peritoneal adhesions, 527
- Bee stings**, 125, 294
- Beebe, S. P.**: Chemical examination of the fluid from a case of chylous ascites, 865
- Belastungslagerung**, 289
- Bell, James Finley**: Chylous ascites, 861
- Hence-Jones albuminuria**, 330
- Benedict, A. L.**: Classification of gastric ulcers, 277
- Benefactions of 1904**, 132
- Benevolence**, taxation and penalization of, 507
- Beriberi**, 791, 805
- Betaucauin**, injection, 714
- "Betsy and I are out,"** 589
- Benzoylacetyleperoxid**, therapeutic uses, 42
- Bezold's mastoid disease**, 236
- Bile**—duct disease, 412; toxicity of, 974; tract adhesions, 539
- Biliary**—colic without gallstones, 162; duct surgery and gallbladder, 373, 688; passages, syphilis, and fever, 752
- Biliousness**, treatment of, surgical, 713
- Bill, pure food**, trying to kill, 44
- Billard, C. L.**: Two cases of Landry's paralysis; one terminating in recovery, the other in death, 679
- Billstein, Emma L.**: There are no women of genius; women of genius are men, 558
- Biology**, experimental, and medicine, society for, 72, 744, 1026
- Birth**—fractures of skull, 419; insurance unknown, 677; marks, 989; rates, and deathrates, 327, 673; rate, Britain's low, 427; rate, diminishing, 673; rate, gonorrhea, and syphilis, 450; rate on Fifth avenue, 585; registration of, 762; repeated anencephalic, 584; still, certificate, new form, 565
- Bitter medicine** for digestion, 797
- Bitter homicides**, 501
- Black, Carl E.**: Foreign bodies in the esophagus, 155
- Bladder**—extrophy of, 830; hernia of, 418; resection in carcinoma of uterus, 289; rupture of, 267; sarcoma of, primary, 207; severe hemorrhage from, during pregnancy, 83
- Blastomycetes**—in urine, 838; growth in primary wound, 81
- Blastomycosis**, generalized, 251
- Blind**, employment of, for massage, 749
- Blindness**—color, 670; word, congenital, 965
- Block system**, 132
- Blond, brunets**, and disease, 529
- Blood**—affections and röntgen rays, 332; and diminished atmospheric pressure, 546; changes and ether anesthesia, 629; changes in pneumonia, 497; clots in joint, 981; coagulation of, 583, 586; corpuscles, red, in spleen, destruction of, 781; counts in gynecologic disease, 82; cultures, 750; examination in surgical diagnosis, 539; fluke, new Asiatic, of man and cats, 821; human, identification, 1008; in body, distribution under thermic stimulation, 881; in carcinoma, 587; in stool, occult, 711; living, staining and results, 544; myelocytes in, 251; normal, leukocytes in, 35; of portal vein, opening of new side paths for, 167; pipet, cleansing, 264; platelets, 250, 545, 546; pressure, altitude in, 134; pressure, and baths, 968; pressure, clinical measurement of, 38; pressure in cerebral arteriosclerosis, 666; pressure, effect of infusion sodium bicarbonate, 458; pressure in disease, 123; racial differentiation of, 503; reaction and typhus fever, 204; serum in typhoid, bactericidal action of, 455, 587, 881; supply, interrupted, and intestinal strictures, 628; tobacco smoke, action of, 503; staining, chromatic zones in, 546
- Blunders**, typographic, 928
- Bock, F. W.**: Simple gouter treated with boric acid, 473
- Bombay**, health in, 679
- Bone**—cavities, treatment of, 374, 664, 879; in tonsil, growth of, 243; marrow, therapy, 548; plug, Moorhof's, 94; sarcoma of, 268; transference, 456
- Bones**—and joints, surgery of, 231; atrophy, in syringomyelia, 672; tarsal, fractures of, 95, 1006
- Books**, medical, reviewing, 929
- Borax and boric acid** as food preservative, 169
- Boric acid**, therapeutic uses, 473
- Boston**, medical charity in, 464
- Bougies**, 723
- Bovée, J. Wesley**: The treatment of cancer of the cervix uteri in advanced stages, 20
- Bowels**—cancer of, 229; partial stenosis and perforation, 405; movements produced in stomach by, 77; obstruction by gallstones, 777; sarcoma of, spindle-cell, 286
- Boys**, growing, heart strain in, 790
- Brachial arteritis**, 959
- Brachycephaly and position of child's head**, 796
- Bradyphagia**, 216
- Brain**—abscess of, 27, 126, 263, 374; cyst of, 329; of eminent men, 47; hemorrhage, 829; seizures, 328; tumors, 9, 207, 328, 451, 1018
- Bread lines**, uncharitable charity, 550
- Breast**—carcinoma of, 269; female, primary tuberculosis of, 432; male, hypertrophy and inflammation of, 336; sarcoma of, 268
- Brewer, George Emerson**: Intussusception of the appendix vermiformis, 67
- Bright's disease**—etiology and pathology, 445; in high official circles at nation's capital, 895; treatment, 79, 441
- British**—colonies, cancer in, 676; Medical Association, public health bill of, 653
- Bromids** in epileptics, 767, 1019
- Bronchiectasis**, pathogenesis of, 249
- Bronchopneumonia**, 474, 662
- Bronchoscopy**, therapeutic uses, 335
- Bronchus**, foreign body in, 263, 286
- Brothers, Samuel F.**: A chronology of the treatment of postpartum hemorrhage, 305
- Brown-Séquard's paralysis**, 244
- Brown-tail moth eruption**, 161
- Brush, Edward N.**: The physician as a citizen, 872, 915
- Bubo** in malaria, 1003
- Bulbar**—complications in angina, 665; symptoms and carcinoma outside nervous system, 670
- Bullet** in ear, 451
- Bullitt, James B.**: Comparison of röntgen-ray and surgical treatment of tuberculosis, 62
- Burdick, Gordon G.**: Radiotherapeutic nihilism, 116
- Burial**—by machinery, 845; materials, "\$100 worth of," 382
- Bursitis**, chronic, 831
- Burtenshaw, James Hawley**: Iodin in the treatment of postoperative sepsis, 407
- Button**—for intestinal anastomosis, soluble, 793; Murphy and McGraw elastic ligature, 784
- Cabin**, Cragmor, 935
- Cachexia**, 434, 479, 521, 751
- Cactus grandiflorus**, 957
- Caffein**, 713, 1008
- Calcareous degeneration**, 1016
- Calcium**—chlorid, 126, 449; hydroxid, in water purification, 177
- Calculus**—in submaxillary glands, 330; renal, 243, 286, 1002, 1032; ureteral, 243, 1002; vesical, 207
- Calisthenics**, and jiu-jitsu, 675
- Canal**—zone, dengue in, 160; zone, diseases of, 121; zone, earlier conditions of, 220; zone, health of, 468, 1012; zone, hospitals for, 509; what is being done to render it healthy, 179; of Nuck, hydrocele of, 407
- Cancer** (see also Carcinoma)—47, 48, 427; about mouth, early diagnosis of, 662; and gallstones, 834; birthrates, and deathrates, 327; curing, hindered by law, 172; gastric, 161, 580, 790; growth of, 839; hospital for Heidelberg, 303; in British colonies, 676; inoperable, hypodermic treatment, 126; laboratory, New York State report of, 543; mammary, unusual case of, 518; morphology and parasitic theory, 838; nonulcerative, and toxic symptoms, 834; of appendix, primary, 838; of bowel, 229; of cervix, 20, 209; of rectum, 229; of stomach, 161, 580, 790; of tonsils, tongue, and jaws, 662; of uterus, 10; research, recent, 543; treatment, 457, 787
- Canteen**, army, 342, 719
- Capital**, nation's, and Bright's disease, 895
- Carbon bisulfid poisoning**, acute, 871
- Carbonic acid**—and gouty state, 416; in air, 837; poisoning, 125
- Carcinoma** (see also Cancer)—and Paget's disease, 188; blood in, 587; cutaneous, and herpes, 1005; early diagnosis of, 834; etiology, 1008; implantation, 544; mammary, 269, 336; morphology of, and parasitic theory, 416; of ciliary body, 292; of ileum, primary, 375; of pleura, primary, 541; of rectum, 584; of spine, 793; of tongue and neck, 477; of ureter, 288; of uterus, 289; outside nervous system, and bulbar symptoms, 670; patients, metabolism in, 921; prostatopelvic, diffuse, treatment, 163
- Carcinomatous gastrocolic fistula**, 834
- Cardiac**—collapse, 76; complications in angina, 665; disease, and degenerative changes of myocardium, 248; disease, fear in, 411; dyspnea, 88; insufficiency, 39; medication, 665; murmurs, conduction in thorax, 165; neuroses, 965; sequels of typhoid, 38; work, and baths, 963
- Cardiopsis** and enteropsis, 709
- Cardiopulmonary signs**, 193
- Cardiospasm**—932; dilation of esophagus, 370
- Cards and notices in newspapers**, 506
- Carotid arteries**, ligation of, 82
- Carroll, James**: Yellow fever: a popular lecture, 907
- Cartilages**—semilunar, displacement of, 979; slipping in knee-joint, 417
- Caseins**, digestion of, by infants, 412
- Caseous matter**, tuberculosis, 252
- Castration of imbeciles**, 469, 684
- Casualties**, auto, 1012
- Catapnoresis**, local anesthesia by, 499
- Cataract and struma**, 965
- Catarrh**—cervical, 83; chronic nasal, 767; gastric, acute and chronic, 924
- Catarrhal ulcers**, 278
- Catgut**—iodized, 207; sterilization, 285; sutures in patellar fractures, 373
- Catharsis**, bacterial element in, 945
- Cathartics** in acute intestinal conditions, 366
- Catheter**, ureter, uses, 453
- Catheterization**, ureteral, and endovesical separation, 456
- Cats**—experimental drainage of peritoneal cavity of, 121; power to be conscious of, 851; *Schistosoma catotii* of, 821
- Cattell, Henry W.**: Vicious legislation, 600
- Cattle**, Japanese, and tuberculosis, 13
- Caustics**—and obliteration of stomach, 52; chemic and thermic erosions by, 278
- Cauterization**, therapeutic uses, 35
- Cavities**—bone, treatment of, 661, 879; tuberculous, in lung, 190
- Cecity and tabs**, 375
- Cells**—embolic placenta, 754; exudate, morphology of, 837; isolated, structure of vaccine bodies in, 586; mast, 1007; mononuclear, in inflammations, 545; protozoan-like in kidney and parotid gland, 837; types of, 836
- Cellular examination** in meningitis, 1035
- Celluloid plates**, 9
- Census**, sanitary, 595
- Centenarian**, notable, Manuel Garcia, 465
- Century's criminal alliance** between quacks and newspapers, 340
- Cerebellar**—abscess, fatal case of, 27; cysts, 329; functions, 329; seizure, 323; tumors, 328, 329, 368
- Cerebral**—abscess, 81, 374; arteriosclerosis, blood-pressure in, 666; artery, anterior, anatomy of, 1007; lesions and eye movements, 1018; palsies in children, 37; pia arachnoid, fibrous nodules in, 669; tumor in deaf-mute, 1003
- Cerebrospinal**—fluid, cryoscopy of, 285; fluid, and phosphorus, 670; fluid, cytodagnosis, 837, 1035; meningitis, 425, 451, 468, 469, 509, 519, 548, 549, 598, 627, 663, 664, 677, 708, 748, 762, 772, 788, 804, 831, 920, 1033, 1035; meningitis in cattle, 626; meningitis, man shares with lower animals, 548; meningitis, symptoms and diagnosis, 626; sclerosis, multiple, 672; system, and hereditary syphilis, 669
- Certificates**, death, value of for statistical purposes, 501
- Cervical**—esophagotomy, external, 752; region, operation wounds of thoracic duct in, 81; rib, and symptoms of subclavian aneurysm, 1036
- Cervix**—artificial dilation, in obstetrics, 810; cancer of, 20; catarrh of, 83; uteri, and vaginal hysterectomy, 209
- Cesarean section**, 93, 114, 498, 797, 879
- Ceylon**, dysentery in, 248
- Chancroid of eyelid**, 966
- Chancro of lip**, 367
- Chapin, Henry Dwight**: Some new views on infant feeding and their practical application, 354
- Charge**, was it exorbitant?, 600
- Charitable institutions**, State, politics in, 464
- Charities**—plans, 971; State aid for, 127; State board of, 174
- Charity**—bread lines, uncharitable, 550; medical, abuse of, 497; medical, at Massachusetts General Hospital, 497; medical, regulation of, 497
- Chaulmoogra oil**, 461
- Chemistry**—and Pharmacy, Council on, of A. M. A., 380, 386; of drug action, 78; physiologic, pathology, and psychiatry, 101
- Chest**, penetrating wounds of, 80
- Chicago**—decreasing mortality in, 674; drainage canal, failure of, 968
- Child**—labor, 133, 885; papillomas, syphilitic, occluding nostrils, 536; the defective, 1025

- Childhood—cystitis in, 710; surgical anesthesia in, 336; tuberculosis and mortality in, 454
- Children—acute otitis in, 586; and teaching of alcohol, 211; and tenements, 867; aural affections in, 499, 586; backward, eyestrain in, 866; cerebral palsies in, 37; convulsions of, and epilepsy, 165; diarrheal diseases, 766, 791; diet in, after one year, 195; eczema and impetigo in, treatment, 880; fatigue of, symptoms, 927; gonococcus infections in, 582, 666; hernia in, radical cure, operation, 497; idiopathic gangrene in, 30; incontinence of urine, 584, 1021; intussusception, 962; lobar pneumonia in, 849; lymphatic leukemia in, 1016; masturbation in, 1034; mental deficiency, prognosis, 672, 1025; school, eyes of, 886; school, fatigue of, 927; school, scoliosis of, etiology of, optic and ocular factors in, 562; subnormal accommodation of eye in, 180; syphilitic synovitis in, 157; tuberculous stenosis of small intestine in, 468; typhoid of, perforation in, 890; urinary incontinence in, 584, 1021; vulvovaginitis among, 582, 666
- Chimpanzee, syphilitic infected, further inoculation of, 545
- Chlorid—exchanges in chronic nephritis and dechlorination treatment, 993; retention in nephritis, 974
- Chlorobromid of sodium, therapeutic uses, 582
- Chloroform—and ether, 40; at sixty, 337
- Cholecystectomy, 186
- Cholecystenterostomy, 186
- Cholecystitis, 222, 625, 646, 664, 808
- Cholecystocele and hepatoposis, 415
- Cholecystostomy, 185
- Choledochotomy, 186
- Cholelithiasis, 336, 396, 430, 431
- Cholera, 175, 425, 585, 791
- Cholin and epilepsy, 204
- Chorea—fatal, 691; treatment, 498
- Chorioepithelioma, 247, 419, 796, 1031
- Christian hospital fraud, 171
- Christie, R. J.: The McGraw elastic ligature for gastroenterostomy secondary to Murphy button; operation with description of technic, 784
- Chromatic zones in vital blood staining, 546
- Chronic diseases, treatment of, 530
- Chronicity and treatment, 713
- Chylous ascites, 827, 861
- Cicatricial—contractures, skin-grafting in, 882; stricture of esophagus, 452
- Cigaret—law, 132, 554, 763, 971; smoking, 747
- Circulation—and alcohol, 1007; and heart massage, 76; failure, 767; in pulmonary tuberculosis, 957; mammalian, and ergot, 767
- Circumcision, 766
- Cirrhosis, hepatic, 39, 125, 340, 786, 960, 1017
- Cities, large, milk supply in, 179
- Citizen, physician as, 872, 915
- City—and country practice, rivalry and competition in, 800; disease in, 799; dust and patent medicine advertisements, 364; health authorities, examination of milk by, 486
- Claudication, intermittent, 919
- Claudius' method of sterilizing catgut, 285
- Cleft palate and hare-lip, 496
- Climates, temperate and tropical, and mortality, 16
- Clinical examination, position for, 474
- Clinography, 879
- Cloetta's soluble digitoxin (digalen), 882
- Club-foot, nondeforming, 162
- Coagulation of blood, 583, 586
- Cobb, J. O.: Is the common house fly a factor in the spread of tuberculosis?, 475
- Cocain, 90, 384, 503, 1013
- Coffee—amblyopia, 966; consumption, 509
- Cotitus and traumatism, 667
- Cold—effect upon arteries, 206; prophylaxis, 1035
- Colic—and ent-ralgia, 204; bilious, without gallstones, 162; mucous, 849; pathogenesis, 960
- Colitis and appendicitis, 794, 961
- Collapse, physiology and treatment, 752
- Collargol, 371
- "Collective investigation," hypothetic case of, 254
- Colles' fracture, 206, 457
- Colon—bacillus, and typhoid, 1008; bacillus in water, and copper foil, 276; bacillus, infection of urinary tract, simulating uremia, 819; bacillus toxin, 707, 748; irrigation through appendix in dysentery, 539; malposition, 126
- Color blindness, 670, 829
- Colostomy, technic of, 1019
- Colpocomy in prolapsus uteri, 816
- Coma, diabetic, epileptic convulsions in, 881
- Combes, Charles M.: A lethal dose of sodium chlorid, 340
- Combustion, spontaneous, 653
- Commercialism, and medical profession, 43
- Committee in national uniformity of curriculums, report, 660
- Comroe, Julius Hiram: The present status of roentgen-ray therapy in dermatology, 985
- Concussional reflexes, vertebral, 640
- Congenital—atony of muscles, 671; deformities at knee, 374; dislocation of hip, 75, 122, 703; hyper-tonia, 669; lesions of kidneys, 586; malformations of heart and acute endocarditis, 585; tuberculosis, 1007; word blindness, 965
- Congress and animal diseases, 883
- Conjunctiva—bacteriology of, 965; pigment tumors of, 292; syphilitic primary lesion on, 293
- Connective tissue, dermoid cyst of, 420
- Connell, F. Gregory: The radical treatment of gastric hemorrhage, with a review of a personal case and 99 collected from the literature since 1900, 606
- Connell, J. C.: Arts, degrees and professional education, 222
- Conner, Chandos Burton: Reciprocity in medical licensure, 347
- Constipation, 334, 455, 542, 792
- Consumptives, city of, 804
- Contagious diseases, 163, 636
- Contract practice, 768
- Contraction, Dupuytren's, of palmar fascia, 792
- Convulsions—epileptic, in diabetic coma, 881; of children and epilepsy, 165; uremic, and scarlatinal suppression, 1005
- Cook County Hospital, dysentery in, 942
- Cook, Henry Wireman: The early recognition of hypertension, 65
- Cook, John R.: Gunshot wounds and their treatment, 785
- Cooks, training-school for, 748
- Coon, Clarence E.: Some results with the high-frequency current, 472
- Cooper, Charles Miner: A position for clinical examination, 474
- Copper—in water purification, 275, 802, 808, 837; proper dose for destruction of algae, 802; sulfate, 161, 177, 802; therapeutic uses, 86
- Corbusier, Harold D.: Notes on dust infection, 53
- Cord—spermatic, recurring torsion of, 882; transplantation in radical hernia, 712
- Cornea, transplantation, 293
- Corneal—erosion, 293; opacities and myopia, 291; reflex and anesthesia, 374
- Corning, J. Leonard: Erotomania; considerations on its manifestations and pathogenesis, with the history of an instructive case, 100
- Coroner's office, work of, 7
- Corpuscles, blood, red, destruction of, 781
- Correspondence method, 379
- Corrigan, S. H.: Instruction in public health, 490
- Corset, the, 88, 638
- Coryza, acute, treatment, 963
- Cotarnin hydrochlorid, 413
- (Cotarnin phthalate) styptol, 63
- Cotton—carrier, new, 919; wool, therapeutic uses, 714
- Counteroxidation, 525
- Country—and city practice, rivalry and competition in, 800; disease in, 799; practice, and specialism, growth of, 799
- Coxa vara and sthenic inflammatory and traumatic affections of hip-joint, 221
- Coxitis, typhoid, 240
- Craig, A. B.—death of, 421, 496; memorial to, 593, 804
- Craig, Charles F.: Observations upon amebas infecting the human intestine, with a description of two species, *Entamoeba coli* and *Entamoeba dysenteriae*, 854, 897, 936
- Cramps and neuritis, 593
- Cranial injury, severe, 335
- Craniotomy on living child justifiable, 1002
- Cremation in Great Britain, 344
- Cretins, 260, 789
- Criminal—epileptic, 867; in fashionable philanthropy, 803; insane, and alcohol, 502; life, truancy, and physical defects, 969; responsibility of inebriates, 537
- Criminology and psychiatry, 102
- Cripple, life, verdict for, 6
- Crises, abdominal, 168, 591
- Crook, James K.: Remarks on the causation and diagnosis of hepatic cirrhosis, 736
- Cr up due to staphylococcus, treatment, tracheotomy, 543
- Croupous pneumonia, 1005
- Crutcher, Howard: An unusual case of mammary cancer, 518
- Cryoscopy of cerebrospinal fluid, 285
- Cuba—and Panama, 179, 505; and proprietary medicine, 260; and sanitary progress, 47; condition of, 178; sanitation and life insurance, 694, 768; sanitation in, 213, 243, 748; sanitary conditions of, 221, 242, 296, 388; tetanus neonatorum, suppression, 885
- Cui bono?, 422
- Cultures, blood, 750
- Cumston, Charles Greene: The surgical treatment of prolapsus uteri, with special reference to the operation of colpocomy, 816
- Curare, therapeutic uses, 299
- Curetage of uterus, 137, 202
- Current, continuous uses, 760
- Curriculums—medical college, national uniformity of, 660, 757
- Cushion diseases, 1002
- Cutaneous—carcinoma and herpes, 1005; complications of rheumatism, 454; diphtheria, 959; eruptions, and pilocarpin, 461
- Cyclic metho' in syphilis, 542
- Cyclindroma, 1018
- Cysts—chylous, 284; dermoid, 93, 420; hydatid, 1006, 1036; of cerebellum, 829; of mesentery, 77; of pancreas, 95, 782; ovarian, 390, 460, 840; par-ovarian and ovarian, 583; subcortical, treatment, operative, 377
- Cystinuria, 332
- Cystitis in childhood, 710
- Cystoscopy, 126, 163, 324, 335, 453, 890
- Cystodiagnosis of pleural and cerebrospinal fluids, 837
- Cytologic examination of exudates and transudates, 251
- Damages—against magnetic healers, 503; against railroads, 503
- Dana, Charles L.: Psychiatry in its relation to the other sciences, 97
- Davis, N. S., memorial, 510
- Death—by lightning, 467; by strangulation, 503; certificates for statistical purposes, 501; fear of, 787; from violence, 134; physical and legal, 686; premature, of physicians, 888; registration, 762; sign of, 91, 249; sudden, following embolism, 121
- Deathrate—48, 91, 138, 425, 426, 645, 971; among physicians, 170; and birthrates, 327, 673
- Deaver, John B.: Hysterectomy for fibroids of the uterus, with a report of 250 operations, 601
- Decapsulation—of appendix, 663; of kidney, 837
- Dechlorination treatment, 751, 933
- Defective—mentally, 85, 1025; speech, 4
- Deformities—fetal, etiology of, 753; of knee, congenital, 374; septum, operation in, 206; spade and silver fork, 919
- Degeneracy, degenerate twaddle about, 266
- Degeneration—amyloid, 766; annular, and pseudo-systemic disease, 670; calcareous, 1016; fatty, and fat, 888; malignant, of cervix, 962; myocardial, 413; of pyramidal tracts, 669; senile, and chronic eczema, 616
- Degrees, arts, and professional education, 43, 222
- Delirium and hallucinations of digitalis, 489
- Delivery—and inoperable carcinoma of rectum, 584; date of, in pregnancy, 420; forceps, 144, 754
- Deneen, Charles S., inauguration as governor of Illinois, 128
- Dengue, 36, 160, 930
- Dennis, Frederic S.: The history and development of surgery during the past century, 139, 181, 227, 265
- Deodorant, copper sulfate alone and with lime, 161
- Dermatitis seborrhoica and alopecia, 830
- Dermatology, 985
- Dermoid cyst of pelvic connective tissue, 420
- Deserters, treatment of, 674
- Deterioration, mental—in tropics, 421; of old alcoholics, 631
- Determinism, and medicine and criminals and their restraint, 544
- Detwiler, B. H.: Tuberculosis; its pathology and treatment, 307
- Detwiler—Geheimrath Dr., 202; foundation, 342
- Devine, Edward T.: A working program for associations for the prevention of tuberculosis—national, State, local, 826
- Diabetes—and pancreas, 396, 397; coma, epileptic convulsions, 881; gangrene, 244; glycosuria, 201, 396, 833; insipidus, treatment, 81; mellitus, 371, 415, 833; mellitus and islands of Langerhans, 164; mellitus and mastoid disease, 236; mellitus and stomach disorders, 891; mellitus, glycosuria, and trauma, 833; phloridzin, of dog, acetosuria in, 840
- Diagnosis—clinical, of diphtheria, 558; clinical, of intrathoracic diseases, 416; early, 933; general, back examination in, 499; in diseases of urinary tract, 52; lumbar puncture in, 1034; of appendicular abscess, 541; physical, 641; rabies, 663; rapid bacteriologic, of diphtheria, 581; surgical, blood-examination in, 539
- Diagnostic—aids, new, 142; value of microscopic examination of fasting stomach contents, 625
- Diagnosticon, Ficker, 371
- Diaminonitrogen, 833
- Diaphragm—hernia, 333; penetrating wounds of, 80; phenomenon, Sitten's, 236; rupture of, 94
- Diarrhea—and dysentery bacilli, 833; chronic, 935; infantile, 628, 756, 791
- Diathesis, 434, 479, 521
- Diazo reaction—in enteric fever, 415; in tuberculosis, 1005
- Dibothriocephalus latus and pernicious anemia, 626
- Dichondra, therapeutic uses, 413
- Diet—and hygiene, 533; in nephritis, 625; in rheumatism, 756; in rheumatoid arthritis, 882; in typhoid, 726; proteid, 993; year old infants, 195
- Dietetic use of predigested legume flour, 959
- Digalen, 882
- Digestants, 714
- Digestion—and anilin dyes, 711; and bitter medicines, 797; chemic processes of, 880; disorders, 122; disturbance and fats, 78, 371; of caseins and infant feeding, 412; fluids, proteolytic power, 205; preparations to enhance, 570; starch, in young infants, 751
- Digitalis—delirium and hallucinations of, 489; indications for, and methods of using, 755
- Digitoxin, Cloetta's soluble (digalen), 882
- Dilation—and gastropostosis, 70; gastric, 95, 681; of cervix in obstetrics, 810; of esophagus, cardiospastic, 370; of heart, unusual, 1036
- Diller, Theodore: Two cases of Landry's paralysis; one terminating in recovery, the other in death, 579
- Diphtheria—887; antitoxin, 451, 664, 713, 772, 881; bacillus of, 250, 836; bacteriologic diagnosis, 581; chronic, 751; clinical diagnosis of, 558; cutaneous, extensive, 959; false, 87; infection in Minnesota, and institutional epidemics, 219; laryngeal, 767; paralysis, 79, 664; poison, dialyzed, 711; toxemia, heart failure, death, 372; toxin effect of fluorescent substances, 252; toxin, power of liver to destroy, 249; treatment, 146, 210, 413, 924, 956; wards and scarlatina, 596
- Directory of institutions and societies dealing with tuberculosis, 6, 171
- Disability, by accident insurance, 502
- Disease—and heredity, 546; and parasitic protozoa, 838; and school methods, 662; and water drinking, 203; blonds and brunets, susceptibility of, 529; blood-pressure in, 123; chronic, treatment of, 530; convection, new means for, 1014; cushion,

- 1002; electricity causing, 1012; in city and country, 799; in isthmian zone, 121; infectious, 788, 827; in upper abdomen, diagnosis, 203; treatment by music, 305; trypanosome, 665; undiagnosed, 696
- Disinfectants—disinfection, 177; copper sulfate alone and with lime, 161; formaldehyd, 423, 599; house, 302; of school books, 177; of vessels, 344
- Dislocation—of atlas, 378; of hip, congenital, 75, 122, 798; of hip, traumatic, double, 81; of patella, 458
- Dispensary and hospital in tuberculosis, 824
- Displacements, retrourine, 934
- Distention, mechanical, and etiology of appendicitis, 961
- Diverticulum—Meckel's, 168, 327, 417; vesical, treatment, 51
- Divorce—and marriage in the Philippines, 1009; unnatural, 1010
- Doane, L. L.: Some observations upon astigmatism, 25
- Doctors—and automobiles, 255; distrust of, 214; Indian, 280; names, object to use, 677; Russian, demand reform, 596
- Dolichocephaly and position of child's head, 796
- Douglas, Richard: Is cesarean section ever justifiable in the management of placenta previa?, 114
- Dowie, divine healing by, 339
- Drainage—after laparotomy, 1004; biliary, 688; canal, Chicago, failure of, 968; experimental of peritoneal cavity, 121; gauze, peritoneal, 919
- Drake, Wilbur A.: Permanent cure by surgical interference of aneurysm of the superficial femoral artery, 682
- Dressings, moist, new formula for, 462
- Druggists, cut-rate, war on, 1012
- Drugs—action, physics and chemistry of, 78; adulteration of, 724; combine in, 536; grown in America, 47; in heart disease, 767; pure, no more?, 174
- Drunkards, combination of jail and hospital for, 758
- Drunkenness and immorality in Russian army, 841
- Duct—biliary, operations, drainage in, 688; common gallstones in, 766
- Duke's fourth disease, 372
- Duodenal ulcer, 229, 417, 455
- Dupuytren's contraction of palmar fascia, 792
- Dust—car, dangers of, 509; city, and patent medicine advertisements, 364; infection, 53
- Dyes, anilin, and digestion, 711
- Dyscrasia, 434, 479, 521
- Dysentery—bacillus group, 248, 751, 791; chronic appendicectomy, 559; in Ceylon, 248; in Cook County Hospital, 942; in Manchuria, 287; serum therapy of, 460; Shiga bacillus in, 381; sporadic endemic, 1035; toxin and antitoxin, 586
- Dysmenorrhea, treatment, 137, 419, 823
- Dyspepsia—1092; and gastric ulcer, 203
- Dyspnea, cardiac or pulmonary, and rhythmic mechanical compression of thorax, 83
- E**ar—bullet in, 451; complication of scarlatina, 367; diseases, and radium, 164; middle, transplantation of skin flap, 588; operations, local anesthesia, 707; suppuration of, 831
- Eclampsia, 581
- Economics, 3, 97
- Ectopic pregnancy, 429, 459, 572
- Eczema, 82, 616, 880
- Eddy, Mrs., 843
- Eddysm, 423, 843, 844
- Edebohl's operation, 289
- Edema, treatment, 460
- Edger, Benjamin J.: Some medical and sanitary experiences in a portion of the Philippines, 261
- Edsall, David L., and Miller, Casper W.: Some further experiments upon rectal alimentation, 187
- Edsall, David L.: Some further experiments upon rectal alimentation, 187
- Education—higher, and physical decay in women, 367; medical, 884, 955
- Edwards, William M.: Treatment of disease by music, 305
- Effusions—serous, 767; synovitic, 981
- Egbert, Seneca: Typhoid fever in relation to the urban and rural population of the United States, 649
- Einhorn, Max: Further remarks on isochromy and its treatment, 893
- Elatium, 460
- Elberon, Garfield at, 118
- Elbow-joint, excision of, in ankylosis, 85
- Electricity—causing disease, 1012; therapy, 77, 94, 143, 470, 532
- Elephantiasis of scrotum and truss pressure, 785
- Eliot, President, and football, 301
- Embolic placenta cells, deported, fate of, 754
- Embolism—of superior mesenteric, 325; retinal, 294; surgical intervention, 121
- Embryotomy, 796
- Endermetrium, adenoma hæmorrhagica of, 584
- Empyema—interlobar, 832; of antrum, 540
- Encephalitis and scarlatina, 991
- Encephalomeningocele, 94
- Endarteritis, and acute rheumatism, 958
- Endocarditis—acute, and heart malformation, 585; and gonorrheal septicemia, 808; chronic, and fever, 805; infective, pseudomalarial types, 454
- Endothelial separation in smaller arteries and veins, 1008
- Endovesical separation, and ureteral catheterization, 456
- England, midwives act of, 504
- English, blunders in, 928
- Enlargement, prostatic, 574, 625
- Entamoeba—coli, 854, 855, 897, 936, 941; dysenterize, 854, 897, 936, 941
- Enteralgia and colic, 204
- Enteric fever, 563, 415, 888
- Enteritis in newborn, 542
- Enteritis, 88, 709
- Enterostomy, 577
- Eneucleation, of prostate, 457
- Enuresis, 77
- Enzymes, physical properties of, 711
- Eosinophilia, and chyloous ascites, 327
- Epidemics, 48, 210, 598, 762
- Epigastrium, chronic compression, and gastric ulcers, 123
- Epilepsy—221, 242, 317, 343, 833; and convulsions of children, 165; and gastrointestinal conditions, 664; and glutony, 202; and hysteria, 787; and pseudoangina pectoris, 670; and puberty, 920; and State, 242; autopsy findings in, 748; bromids in, 767, 1019; cholera in, 204; idiopathic, 597; senile, 788; syphilitic, 1032; treatment, 9, 204, 452, 713, 767, 1019, 1033
- Epileptic—convulsions in diabetic coma, 881; criminal, 367
- Epileptoid tremor, and flaccid paraplegia with exaggerated reflexes, 671
- Epinephrin, 460
- Epiphysis of femur, lower compound traumatic separation of, 581
- Epistolar misadventure, 970
- Epithelial changes in gastrointestinal diseases of nurslings, 1008
- Epithelioma—643, 986; human, and rats, 247; of auditory canal, primary, 263; of uvula, 789; upon lupus soil and diabetes, 205
- Epityphlitis, pneumococcal, 712
- Equity: Injustice in medical legislation, 11
- Ergot, 767, 1023
- Ergotin, 210
- Erotomania, manifestations and pathogenesis, 109
- Eruption—brown-tail moth, 161; cutaneous, and pilocarpin, 461
- Erysipelas—and excessive production of fibrin, 708; treatment, 413
- Erythema—exudativum multiforme, 414; infectiousum, 287; pernio, tuberculous disease?, 462
- Erythrocytes, 585, 835
- Eserin, 207, 539
- Eskimos of Labrador, physician among, 969
- Esophagitis, 291
- Esophagotomy, 752
- Esophagus—cardiospastic dilation, 870; stricture, 334, 452, 737; foreign body in, 155, 919; malformation and traction diverticula, 837
- Ether—and chloroform, 40; anesthesia, 629, 713; narcosis, by rectum, 708
- Ethereal sulfuric acids, 451
- Ethical, strictly, 381
- Ethics, medical, 765
- Ethmoidal inflammation and asthma, 957
- Ethyl chlorid in general practice, 34, 336, 457
- Eucain lactate, 84
- Eumydrin, therapeutic uses, 755
- Euthanasia and Osler, 886
- Evans, T. Horace: A sign of value in splenic and hepatic disease, 950
- Evolution, 718, 719
- Evolution and tuberculosis, 749
- Examinations, State, impersonation at, 549, 550
- Excision—of elbow-joint, 95; of ureter, 711
- Excretion in typhoid, 540
- Execution, 384
- Exercise, 533
- Exodin, active substances in, 755
- Expert testimony, so-called, scope of, 162
- Extirpation—for intractable prolapse, 289; of gas-serian ganglion, 94, 580; of scapula in osteomyelitis, 456; of supranals, 840; of uterus and placenta in extrauterine pregnancy, 572
- Extrauterine pregnancy, 429, 459, 572
- Extremities—angiosclerosis of, 919; gangrene and infectious diseases, 629
- Exudates—and transudates, cytologic examination, 251; morphology of cells, 837; pleuritic, displacement of heart, 808
- E**ye—abnormality, and spasmodic torticollis, 557; and adrenal, 292; and astigmatism, 25; and cerebellar tumor, 329; and general amyloid degeneration, 738; and glazed paper, 174; and ophthalmic suggestions, 957; carcinoma of ciliary body, 292; centers of pupillary reaction, 294; color blindness, 670; conjunctiva, syphilitic primary lesion, 293; conjunctival bacteriology, 965; conjunctival irritation from animal emanations, 966; corneal erosion and neuralgia, 293; corneal reflex, and anesthesia, 374; disease and bacteriologic examination, 965; disuse of, loss of sight from, 367; extraction of cataract, 273; factor in scoliosis, 562; function, and slanted handwriting, 708; galvanization, 291; glaucoma, 203; gonorrheal ophthalmia, 293, 294; hemianopsia, 294; hemorrhage into vitreous, 294; injuries, medicolegal relations, 504; loss of sight, damages, 504; movements of, and cerebral lesions, 1018; muscles, graduated tenotomies, 285; muscular incoordination, 293; mycosis of, 565; myopia and corneal opacities in, 291; neuritis in anemia, 294; neuritis in paratyphoid, 294; navi pigmentosi, 292; ophthalmic suggestions, 957; optic hemiplegia, 294; orbital sarcoma, 1034; premature
- presbyopia, 108; "pressure bandage" in, 298; reflexes, (psychoses), 163; retina in tabetic amaurosis, 293; retinal detachment, 966; removal of lens, 292, 1033; school, and spinal column, 996; school children's, 886; sclerosis, 966; "snow," 258; strabismus, 157; strain, 707, 787; strain and katabolism, 518; strain and reflex phenomena of nasal origin, 366; strain and spinal curvature, 366; strain, effects of, 294; strain in backward children, 966; strain in functional nervous disease, 366; strain, influence on nervous system, 557; strain, when should it be suspected?, 966; struma and cataract, 965; subnormal accommodation, 103, 180; symptoms and cerebrospinal meningitis, 627; trachoma, röntgen ray, 966; transplantation of, 293
- Eye-glasses, 367, 540
- Eye-lid, chancroid of, 966
- F**acial—neuralgia, 94; paralysis, 712
- Fairbairn, Henry A.: The nonsequitur in medicine, 488
- Faith cure teaching, 423
- Fales, Louis H.: The American physician in the Philippine civil service, 513
- Family—desertion, sociologic problem of, 673; proper size of, ultimate survival of, 673
- Fashionable philanthropy, criminal in, 803
- Fast of 21 days, 888
- Fat—and fatty degeneration, 838; necrosis, 390, 832; pathology and degeneration, 545; percentage, and disturbance of digestion, 371
- Fatigue—of school children, 927; toxin and antitoxin, 587
- Favus, 463
- Fear in cardiac disease, 411
- Feces examination, 252, 791
- Federal control of vaccine virus, 1031
- Fee—British doctors, 345; division of, 128; excessive, 429, 474
- Feeble-minded, 86, 759
- Feeding—at public crib, 169; children, after one year, 195; infant, 150, 219, 354, 831, 918
- Femoral—artery, aneurysm, 682; artery, suture of, 53; hernia, radical cure, 166
- Femur—fracture of, 920, 1003; separation of epiphysis, 581
- Ferometer (Jolles') findings, 587
- Ferrous sulfate in water purification, 177
- Fetterolf, Daniel W.: The Lloyd reaction for morphin and other alkaloids, 888, 905, 947
- Fetus—anomalies, cause in ovum, 753; development, excessive, 76; in utero, demonstration by röntgen rays, 208
- Fever—cerebrospinal, 519; in chronic endocarditis, 808; in gallstone disease, 832; infection, in pulmonary tuberculosis, 454; old buildings, spread, 903; paratyphoid, 613; spring hill, 1005; treatment, 519, 959
- Fibrin, excessive production of, and erysipelas, 708
- Fibroid, uterine—abdominal and vaginal routes, in removal, 754; after ablation of appendages, 10; treatment, 287, 401, 601; unoperated, mortality of, 403
- Fibrolipoma of pharynx and larynx, 199
- Fibroma, treatment, operative, 377
- Fibromas of vulva, 368
- Fibromyoma of pregnant uterus, 419
- Ficker diagnosticum, 214, 371, 583
- Filix mas, extracts of, active components of, 83
- Filtrates, typhoid, in typhoid, 714
- Filtration effect on bacteriologic complement, 251
- Financial aims and practices in nurse's life, 591
- Fingers, chalky deposits in, 818
- Finsen light, 37, 143
- Fish, diseases of, 303
- Fissure—anal, 78, 630; metacarpal, 919
- Fistula—carcinomatous gastrocolic, 834; of sacrococcygeal region, 93
- Fittest, origin, not survival of, 718
- Flutulence, and aerophagia, 749
- Flick, Lawrence F.: The hospital and the dispensary in the warfare against tuberculosis, 824
- Flat-foot, treatment, 725
- Florida, mosquitoes of, 1003
- Flour, predigested legume, dietetic use of, 959
- Fluorescence, therapeutic use of, 252, 580
- Fluoroscope, 54
- Follicles, atresia of, lutein cell proliferation in, 737
- Food—adulterations, 6, 7, 16, 46, 383, 478, 664, 676, 678, 709, 765; experiments, 132; impure, 930; influence, 303; laboratories, 424; legislations, hindrances to, 675; law, pure, 44, 424, 887; preservatives, 108, 450, 676; pure, fight, 468; pure, violations, 595
- Foot—club, nondeforming, 162; intractable pronated, 652; painful affections of, 161
- Football, 174, 384
- Forbes, Dr., tribute to, 888
- Forces—deliveries, 144, 764; new tube, 919
- Foreign body—bronchoscopy in, 335; in abdomen, 425; in bronchus, 263, 286; in ear, bullet, 451; in esophagus, 155, 919; in joints, 834; swallowed, removed by cotton wool, 714
- Forensic medicine in Russia and women, 846
- Formaldehyd—disinfection, 423, 549, 790; therapy, 462
- Formic acid and muscular system, 587
- "Forty-year limit," 632
- Foster, E. Agate: New method of making ring test for albumin, 264
- Foshay, P. Maxwell: The ideals of the medical profession, 495
- Fourth disease, Duke's, 372

Fracture—at base of skull, 167; Colles', 206; compound, 233; gardener's spade and silver fork deformity, 919; of femur, 920, 1003; of mandible, 413; of patella, 922; of skull, 202, 134, 419; of tarsal bones, 95, 1006; patellar, catgut sutures in, 373; tear, of tubercle of tibia, 456; treatment, 95, 202, 413, 456, 918, 922

Francine, Albert Philip: Acute carbon bisulfid poisoning, 871

Franklin, and physics of lightning, 466

Freezing, therapeutic uses, 798

Frog, brainless, 6

Froneczak, Francis Eustace: Poisoning by potassium bichromate, 313

Fumigation of vessels from southern ports, 301

Furniss, Henry Dawson: On cystoscopy, 324

Gaines, Lewis M.: An unusual case of postpartum temperature, 306

Gallagher, F. W.: Influence of eyestrain on nervous system, 557

Gallbladder—surgery, 373, 688, 777, 1035; infections of, 122

Gallstones—185; and cancer, 894; biliary colic without, 162; disease, 759, 832; in common duct, 768; in posttyphoid cholecystitis, 222; obstructing bowels, 777

Galvanization, ocular, 201

Ganglion, gasserian, extirpation of, 580

Gangrene—carbolic acid, 286; diabetic, 214; idiopathic, in young, 84; of extremities after infectious disease, 629; of intestine, 230

Gangrenous ulceration, 278

Gant, Samuel G.: Practical points concerning the technic of colostomy, 1019

Garcia, Manuel, 465

Gardens, public school, 45

Garfield at Elberon, 118

Gas—bacillus and septicemia, 546, 795; illuminating, 502, 955; in condensed milk, 136; poisoning by, 502

Gasserian ganglion, extirpation of, 94, 580

Gastrectasis, 1032

Gastrectomy, 185, 608

Gastric (see also Stomach)—cancer, 580; catarrh, 924; dilation, 95, 681; function, clinical tests of, 666; hemorrhage, 77, 606, 960; neuroses, 965; perforation, infection by, 922; secretion, effect on salt solutions, 839; ulcer, 277, 455, 1003; ulcer and dyspepsia, 203; ulcer and hematemesis, 891; ulcer, angiosclerotic, 279; ulcer, diagnosis, 264; ulcer perforating, 80, 279; ulcers, trauma and compression of epigastrium, 123; ulcer, treatment, 41, 80, 279, 391, 958, 963

Gastrocolic fistula, carcinomatous, 894

Gastroduodenostomy, improved method for doing, 76

Gastroenteritis in infants, acute, treatment, 372

Gastroenterostomy, 161, 167, 201, 784

Gastrointestinal—conditions and epilepsy, 664; diseases of children, 766, 1008; tract, and constipation, 834; tract, tuberculosis of, 405; type of measles, 838

Gastropneumosis, 71, 183

Gastrotomy, 183

Gaultheria poisoning, 504

Gauze in surgical work, 206

Gelatin, neutral red reaction on, 838

Genital—organs, and nasal conditions, 789; region, scars in, and syphilis, 418; tract, female, tuberculosis along, 459

Genitourinary surgery, 163, 286, 696

Genius, women of, are men, 558

Geography and practice, 709

Gies, William J.: Society for Experimental Biology and Medicine, 72, 491, 744, 1026

Gigli's method, pubic osteotomy by, 420

Glands—Blandin's and submaxillary, calculi in, 330; lacrimal and salivary, mixed tumors of, 711; lymph, enlargement in, Hodgkin's disease, 880; "of pregnancy," described by Opitz, 420; parathyroid and exophthalmic goiter, 954; parathyroid, function of, 626; sarcoma of, 288; sebaceous, of abdominal wall, adenoma of, 167; thyroid, diseases of, 1004

Glasses, prescription of, 367

Glaucoma, and excision of sympathetic ganglion, 203

Glaucosuria—and adrenalin, 396; diabetes mellitus, and trauma, 888; diabetic and nondiabetic, 201; in pregnancy, 285; morphin, nature and causes, 840

Glycronic acids, 451

Glinny, 202, 339

Gopp, R. Max: Postgraduate work in Philadelphia, 538

Goiter—exophthalmic, 39, 934, 960, 1006, 1017; near, Thibet, 129; treatment, 266, 473, 791, 815

Gonorrheas—infection, acute, 769; infection, general, 453; infections, in children, 582; in vulvovaginal region, 664

Gonorrhea—and birthrate, 450; arthritis of, 832; arthropathies, 125; micrococcus, 414; ophthalmia, metastatic, 293, 294; prostatitis, chronic, 748; rectal, infantile, 796; septicemia and endocarditis, 808; treatment, 210, 284, 835

Gordon, Alfred: On the pathogenesis of lead intoxication approached the pathologic findings in a case, 700

Gould, George M.: Subnormal accommodation and premature presbyopia, 103; The discovery of the subnormal accommodation in the young, 180; The optic and other factors in the etiology of the sclerosis of a school children, 562

Gout—748; and carbonic acid, 416; and meat diet, 415; and uric acid, 371, 453; carbon factor in, 1023; neuritis of, 756

Government clerks must pay physicians, 344

Great Britain—agricultural anthrax in, 923; food adulteration cases, 46; hygiene and temperance in, 760

Greenland, population and morbidity of, 132

Grenfell, Willard, in Labrador, 969

Griffith, J. P. Crozer: A case of chorea, fatal, apparently from excessive muscular action, 691; Diet after the age of one year, 135

Grip, serious complications of, 766

Griserin, 963

Groves, A.: Intraabdominal anastomosis, 697

Growth, malignant, origin and treatment, 765

Gruels, 328

Grulee, C. G.: Dysentery in Cook County Hospital, 942

Gumma of heart, 331

Gun, brain behind, 925

Gunshot wound—in Russian war, 134; of abdomen, penetrating, 794, 1402; of intestines, 368; of stomach, 1024; of trachea, 94; treatment, 785

Guthrie, C. C. and Stewart, G. N.: Newspaper "enterprise" in medicine, 600

Gymnastics, 533

Gynakomasty, 208, 420

Gynecologist—and general surgeon, 789; problems presented to, 50

Gynecology—82; and obstetrics, 663; blood counts in, 82; disease, 832; modern methods in, 663; superstitions, 220

Hagism, popular and scientific, 256

Hall, H. O.: The delirium and hallucinations of digitalis, 489

Hall of Fame, medical heroes for, 127

Hallucinations and delirium of digitalis, 489

Hand—loss of, 504; sterilization, 40

Handwriting and school hygiene, 708

Hare, Francis: Treatment of hemoptysis, 528

Harelip and cleft palate, 496

Harland, W. G. B.: Papillomas in syphilitic child, occluding both nostrils, 536

Harris, C. M.: Strabismus and its treatment, 157

Harvard Medical School, new, 717

Harvey Society, 887

Havana—conditions of, 178; sewerage of, 213

Havard, Colonel V.: Is mortality necessarily higher in tropical than in temperate climates?, 16

Hay-fever toxin and antitoxin, 835

Head—child's, position of, brachycephaly and dolichocephaly, 796; shot wound of, 378

Health—and water-supply, 623; as investment, 892; authorities, city, examination of milk, 486; bill, public, of British Medical Association, 663; department of, Pennsylvania act creating, 364; inspector, status of, 180; of factory employees, 133; of Florida, 344; of Mexico, 300; of London, 263; of nation, 158; of Panama, 970; of Philippines, 871; public, 48, 170, 430, 677, 975; State Boards of, 845; State Commissioner, 1013; State Department of, new, 720; tests for, quantitative, 581

Heart—congenital malformations, 585; degenerative myocardium changes, 248; disease and mental symptoms, 672; disease and pregnancy, 289; diseases, treatment, 767; failure in diphtheric toxemia, 372; failure in acute myocarditis, 291; gumma of, 331; in pulmonary tuberculosis, 967; massage and circulation, 76; muscle, diseased, functional test for, 921; neurotic, 890; primary valvular tumor, 372; rhythmic lateral displacement, 808; strain, in growing boys, 790; surgery of, 182; syphilis of, 206; unusual dilation of, 1036; wounds, suture of, 12

Hematemesis—and appendicitis, 416; and gastric ulcer, 891; treatment, 167

Hematoma of ovary, 93

Hematuria and hydronephrosis, 286

Hemianopsia, 286, 294

Hemipia, transient, functional, 707

Hemiplegia, ocular, 204

Hemmer, John C.: Advances in the physiology and pathology of the pancreas and their application to the diagnosis of pancreatic diseases, 393

Hemochromatosis and chronic parenchymatous nephritis, 1007

Hemoglobinuria, experimental, renal changes in, 252

Hemolysis and agglutination of streptococci, 840

Hemometer (Fleischl) findings, 687

Hemophilia, 455, 848

Hemoptysis, treatment, 528

Hemorrhage—brain, 829; from bladder, 88; gastric, 77, 606, 960; incising and suturing liver, 220; into vitreous, 294; intramuscular, from muscular action, 243; nasal postoperative, 449; postpartum, 305, 618; uterine, 93, 1017

Hemorrhagic—malaria fever, 924; pancreatitis, 542

Hemorroids, 36, 123, 126, 180, 242, 452

Hendersop, Wm. T.: Suture of the femoral artery, 59

Henry, Frederick P.: Medical treatment of gastric ulcer, 391; Remarks on mitral stenosis, 809

Henry, John Norman: Paratyphoid fever with a report of six cases, 613

Hepatic—abscess, 146; cirrhosis, 89, 736; disease, sign of value, 96; insufficiency in pregnancy, 624

Hepatocolangioenterostomy, 712

Hepatoptosis and cholecystocele, 415

Hereditary—periodic paralysis, 871; syphilis and cerebrospinal system, 669

Heredity—434, 479, 521; and disease, 546; and interesting tumor, 533; and subkatabolism, 526; in renal pathology, 545

Hernia—228; albuminuria in, 458; femoral, 166; in children, radical cure, 497; inguinal, 162, 418, 499; intraabdominal, 628; multiple, 628; of bladder, 418; Richter's, 373; strangulated, in the old, 279; transplantation of cord, 712; traumatic diaphragmatic, 333; umbilical, and abdominal pain, 891

Herniation, abdominal, of gravid uterus, 298

Heroism of physicians, 496

Herpes, 205, 1005

Hessler, Robert: A study of reprints and clinical reports of proprietary medicine, 951; backache, 430; city dust and patent medicine advertisements, 364

Hey's internal derangement of knee-joint, 418

Hiccoughed for 96 hours, 678

High-frequency current, some results with, 470

Hill, H. W.: Clinical diagnosis of diphtheria, 558

Hip—disease, radiocopy in, 243; disease, mechanical treatment, 241; dislocation, congenital, 75, 122, 792; dislocations, double traumatic, 81; joint, sthenic inflammatory and traumatic affections, 221

Hirst, B. C.: Case of posttyphoid ovarian abscess and a case of posttyphoid suppurative cholecystitis with a gallstone and an intraperitoneal abscess, 222; methods of inducing labor, 723; removal of the appendix, 11

History, medical, 716

Hodgkin's disease, 544, 546, 880

Hog, tuberculous, 298

Hoke, Michael: A cure by operation of an intractable pronated foot, in which the head of the astragalus had been abducted and fixed in this position by bone union at the astragalofibular articulation, 652

Holmes, Hodge, and Meigs concerning puerperal fever, 683

Home and hospital, 591

Homicides, Bitzer, 501

Homogenized cultures of tubercle bacilli, 647

Horsley, J. Shelton: A method of uniting intestines of very small or of unequal caliber, 692

Hospital—American, in Korea, 91; and dispensary in tuberculosis, 824; and home, 591; and jail for drunkards, 754; and medical schools, 505; bill, State, 740; building, United States, for Rock Island Arsenal, 383; Christian, fraud, 171; connections, 717; Cook county, dysentery in, 942; expenditures upon schools justifiable, 505; in cities of 100,000 or less, 137; kindergarten, 383; local, village, or town, 800; maternity, and division of fees, 970; national, for paralyzed and epileptic, 596; new, in Philippines, 468; patients, anthropometric investigation of, 332; private and public, 497; radio d, 47; records, legal use, 504; stip, need of, 918; special, and specialism in nursing, 592; village and town, 886; Waltham, baby, 593

Hospitalization among nurses, 591

House fly, and spread of tuberculosis, 475

Huber, John B.: Occupations with relation to tuberculosis, 112

Hull, McH., Marion: Lobar pneumonia in children, 849

Human—erythrocytes, elliptic, 835; intestine, amebias infecting, 854, 897, 936; race, improvement of, 867; trypanosomes and sleeping-sickness, 124

Hunner, Guy L.: The significance of urinary examination in women, 559

Hunt, J. Ramsay: A contribution to the pathology of sciatica, 620

Hydatid cyst, 375, 1036

Hydrastin, 948

Hydrocele, 207, 756

Hydrochloric acid, therapeutic uses, 924

Hydrochlorid, cotarnin, 413

Hydronephrosis and hematuria, 286

Hydrophobia, 165, 249, 839

Hydrops and sodium chlorid, 288

Hydrotherapy, 531, 959

Hygela sporosa, 675

Hygiene—ancient, 172; and diet, 538; and temperance in Great Britain, 760; individual factors in 1032; social, 219; take out of "politics," 127

Hygienic talisman: Cuban quarantine electric shield, 296

Hyoscin hydrobromid, 503

Hyperalgesic areas after pistol shot wound of head, 378

Hyperchlorhydria, 500, 801

Hyperemia, inflammatory, pathogenesis of, 546

Hyperpyrexia, 1033

Hypersecretion, continuous in ulcer at pylorus, 894

Hypertension, recognition of, early, 65

Hypertonica, congenital, or Little's disease, 609

Hypertrophy—of male breast, 336; of pylorus in infants, 710; of tonsils, 681; prostatic, 36, 243, 334, 335, 417

Hypnotic, new, trichlorisopropylalcohol, 582

Hypnotism and rheumatism, 469; legal restraint of, 504

Hypodermic medication, 126, 713, 798

Hypodermoclysis, 1034

Hypophysis, 697

Hypothetic case of "collective investigation," 254

Hypodosis needle, how to unstop, 600

Hysterectomy—231, 601, 706; and sexual function, 36; supravaginal, 962; vaginal, 209

Hysteria—and epilepsy, 787; long standing, 831

Hysterical joints, 181

Ice, therapy, 956
 Ichthargan, 294
 Icterus, 38, 431, 1016
 Ideals of medical profession, 495
 Idiocy, treatment, 85, 86
 Idiosyncrasy, 434, 479, 521
 Ileum, carcinomas of, multiple primary, 375
 Ileus and paresis, 323
 Hilman, G. Morton: The etiology and treatment of acute and chronic rheumatism, 409
 Illustrations, ownership of, 253
 Imbeciles, castration of, 469, 634
 Immigrants—892, 1004; legislation, medical phases of, 1004
 Immorality and drunkenness in Russian army, 841
 Immunity—and bacterial toxins, 1016; and infection, 414; in typhoid, 855
 Impetigo in children, treatment, 880
 Implantation carcinoma, 544
 Incontinence of urine, 1021
 Indian doctors, 280
 Indigestion, 335, 808
 Indol test, improved technic, 136
 Inebriety, 537, 542
 Infancy—diarrhea in, 628, 756; feeding in, 150, 219, 354, 412, 831, 978; fracture of femur in, 920; gastroenteritis, 372; hypertrophy of pylorus, 710; intussusception in, 413; lobar pneumonia in, 133; mortality in, 239, 244; nervous exhaustion in, 331; osteomalacia in, 287; pyloric stenosis in, 918; starch digestion in, 751; vulvovaginitis and rectal gonorrhea in, 796
 Infarcts, arterial, in liver, formation of, 1008
 Infected milk in sickness, 626
 Infection—acute, bone marrow treatment, 543; and immunity, 414; and insanity, 378; and tonsils, 454, 789; by gastric and intestinal perforation, 922; common and pregnancy, 962; diphtheria, in school children in Minnesota, 219; dust, 53; fatal, by chromogenic bacterium, 791; gonococcus general peritonitis, 769; in tuberculosis, 585, 839, 890, 892, 960; malarial, and multiple neuritis, 904; of gallbladder, 122; of human intestine, 454, 897, 936; of respiratory tract, 880; of tissues, latent, 251; of urinary tract by colon bacillus, 19; paratyphoid, and mixed typhoid, 165; puerperal, 795, 962; route in pulmonary tuberculosis, 165; sources of, 177; streptococcus, 160, 290; through tonsils, 789
 Infectious—diseases and gangrene of extremities, 629; diseases and leukemia, 38; diseases, notification of, 927; diseases, treatment, 788; endocarditis, pseudomalarial types, 454
 Infectivity and scarlatina, 414
 Infiltration anesthesia in general surgery, 922
 Infirmities, functional, and articular traumatism, 1036
 Inflammation—acute septic of throat, 168; ethmoidal, and asthma, 957; mononuclear cells in, 545; of appendix, 958; of male breast, 836; pancreatic, 806
 Inflammatory—affects of hip-joint, 221; disease of uterine adnexa, 957; exudates, 750; hyperemia, pathogenesis, 546; stricture of rectum, 245
 Influenza, 134, 308, 511
 Infusion, sodium bicarbonate, effect on blood-pressure, 458
 Ingals, E. Fletcher: Fibrolipomatous tumor of pharynx and larynx, 199
 Inhalation therapy, 210, 797
 Injection—"fever" in pulmonary tuberculosis, 454; intramuscular, in syphilis, 750; intratracheal, 539; hypodermic, caffeine, 713; strychnin, 84; tuberculin, failure in insurance sanatoriums, 923; water, anesthesia by, 624
 Injuries—knee, 979; röntgen-ray, 787; subcutaneous, of abdominal walls and viscera, 540
 Inoculation—and Asiatic cholera, 585, 791; further, of syphilitic infected chimpanzee, 545; of animals with precise amounts, 249
 Insane—as witnesses, 842; asylum horrors, 637; care of, 377; criminals, and alcohol, 502; one keeper for, 90, 980; persons, and railroads, 503; rich, 762; relatives must support, 1013; what New York is doing for, 709
 Insanity—133, 763, 887, 1003; alcoholic, 134, 223, 767; and neurofibrillar changes, 377; and operation, 182; and toxemia, 668; "burden of proof in, 501; infections, and toxemia, 378
 Insects in disease, 286
 Institutions, private charitable, appropriations, 169
 Instruction in public health, 70
 Insurance—accident, immediate disability in, 502; birth, unknown, 677; Cuban, and sanitation, 768; life, question, 715, 716
 Insured, misstatement of, 504
 Interlober empyema, 332
 Internal hemorrhoids, 36
 Intestine—acute conditions, cathartics in, 366; amebas infecting, 854, 897; anastomosis of, 35, 121, 798; atropin, effect on, 290; gangrene of, 230; gunshot wounds of, 368; hemorrhages, postoperative, 960; ileus with strangulation, 883; indigestion, 808; injuries without abdominal contusions, 336; obstruction, 168, 229, 452, 457, 820; of very small or of unequal caliber, uniting, 692; osteoma of, 541; paresis, postoperative, 207; perforation, infection by, 922; perforation in typhoid, 229, 793; physiology of, 416; poisons generated in, pathologic role, 38; rupture of, 230; small, absorption in, 790; small, tuberculous stenosis, 167; strictures and interrupted blood-supply, 628; toxemia originating in, 919; traumatic, and injury to abdominal wall, 328; Trichomonas intestinalis and disease of, 500

Intoxicating liquors (nostrums) selling without license, 171
 Intoxication—acid, 374; lead, pathogenesis, 700
 Intraabdominal—anastomosis, 697; hernia, 628
 Intraarticular transplantation of skin, 588
 Intracorporeal stage of trypanosome, 252
 Intracranial—tension, 182; tumor, 834
 Intrahepatic cholelithiasis, 336
 Intracranial hemorrhage, 243; injections in syphilis, 750; tissue, rate of absorption from, 585
 Intraocular conditions in cataract, 273
 Intraperitoneal abscess, 222
 Intrapleural—complications in pulmonary tuberculosis, 329; lipoma, 807
 Intrathoracic diseases, clinical diagnosis of, 416
 Intratracheal injections, 539
 Intussusception—in infant, 413, 962; of appendix vermiformis, 67, 556; of Meckel's diverticulum, 417
 Inversion of uterus, 459
 Iodin therapy, 407, 791
 Iodipin, 42
 Iodoform wax filling in bone cavities, 664
 Iritis and bee sting, 294
 Iron, therapeutic uses, 84
 Irresponsibility and alcoholism, obscure, 672
 Isochymia—and its treatment, 834; and ulcer at pylorus, with hypersecretion, 894
 Islands of Langerhans and diabetes mellitus, 164
 Isolation and modern sanitation, 801
 Isthmian—canal zone, diseases of, 121, 160; circumlocution office, 463; hygienic problem, 1; malaria question, 2; medical service, 1; mosquitos, 1
 Jacobi, A.: The most eminent American physician of European birth, 740
 Jamaica, cost of living for physicians in, 348
 Japan—and surgery, 886; Ankylostoma duodenalis in, 711; army mortality, 301; army rations for, 893; cattle and tuberculosis, 13; juggler, qualities of, 674; native, wonderful endurance of, 506; sanitary work, 596; soldier, physical endurance of, 506; to make taller, 361; war, alcoholic lesson of, 631
 Jaws, tonsil and tongue, cancer of, 682
 Jefferson Medical College, medical research at, 768
 Jejunostomy, value of, 882
 Jiu-jitsu, 674, 675
 Johns Hopkins University, valedictory address at, 411
 Johnson, F. M.: Lithemia; its diagnosis and local treatment, 68
 Johnston, George Coffin: A new and safe fluoroscope, 54
 Joint—affects in tabes dorsalis, 1007; and bones, surgery of, 231; blood clots in, 981; foreign bodies in, 834; sensitive, or hysterical, 981; symptoms and hemophilia, 848; traumatism of, and functional infirmities, 1036; tuberculosis of, resection in, 51
 Jordan, W. M.: Gunshot wounds of the stomach; report of two cases, 1024
 Journal, Spanish-American, 762
 Judicial pronouncement, dangerous, 24
 Jurisprudence, medicine and surgery, 285
 Jury of drinkers, 888

Kahn, Maurice: Supplying newspapers with information, 390
 Kala-azar, 544, 751
 Karpeles, M. J.: Pancreatic cyst; report of a case, 782
 Katabolism, 434, 479, 518, 521
 Kemp, Robert Coleman: Mucous colic, 349
 Kempf, E. J.: American medicine, 28
 Kidneys—congenital lesions of, 588; decapsulation of, 629, 837; diseases, diagnosis of, 453, 681; diseases, treatment, 166, 207, 271, 288, 328, 412, 453, 1004; exploratory operations, 453; horseshoe, operation on, 457; insufficiency of, 1004; movable, 207, 288, 412, 709; operations on, 166, 267, 271, 288, 328, 412; poisons, and toxins, effect on, 248; prolapse of, 126; protozoan-like cells in, 837; ptosis of, 412; stone, 52, 126, 932; surgical diseases of, 453; syphiloma of, 748
 Kieffer, Major Charles F.: The mortality of pneumonia in high altitudes, 356
 "Kinesipathy," 298
 Kitasato S.: The behavior of the native Japanese cattle in regard to tuberculosis (perlsucht), 13
 Klinker Louis T.: False certificates of vaccination, 96
 Knee—congenital deformities, 374; injuries, 979; joint, cavity of, form of, 80; joint, Hey's internal derangement, 418; joint, slipping cartilage in, 417; joint, tuberculosis, 333; joint, traumatic synovitis of, 10; sprains of, 369; tuberculosis, 457
 Knockout drops and picrotoxin, 258
 Knott, John: Spontaneous combustion, 653
 Knowledge, seeking, at first hand, very great gain from, 298
 Kober, George M.: Association of American Medical Colleges; report of the committee on national uniformity of curriculums, 660
 Koch impersonator, 695
 Koplik's spots and measles, 1005
 Korsakoff's symptom-complex, 671
 Krakowizer, most eminent American physician of European birth, 740
 Kraemer, Henry: The efficiency of copper foil in destroying typhoid and colon bacilli in water, 275

Labor—and cystic tumors of ovaries, 459; and hemorrhage from ruptured mesenteric vessel, 208; and lacerations of perineum, 753; and suspensio uteri, 10; cesarean section for placenta previa, 114, 879; craniotomy on living child justifiable?, 1002; ergot in, 1023; extrauterine pregnancy, full term, 572; hemorrhage after, 618; lochia after and streptococci, 796; methods of inducing, 723; microscopic examination of the lochia, 795; normal, perineal stage in, 749; physical, and suicide, 1011; postpartum hemorrhage, 303; postpartum temperature, 306; repair of perineum in, 96; -saving organization needed for research work, 718
 Laboratory—diagnosis of smallpox, 707; findings in surgical diseases of the kidneys, 453
 Labrador, Eskimos of, physician among, 969
 Labyrinthine disease, and tabes with laryngeal implication, 671
 Lacerations of perineum, 96, 753
 Lacrimal glands, mixed tumors of, 711
 Lactic acid formation and stomach, 22
 Landry's paralysis, 359, 579
 "Landing" patients, 382
 Langerhans, islands of, of pancreas, 395
 Lapham, Mary E.: The Lapham tuberculosis test, 517
 Laparotomies—after-care of, 167; drainage after, 1004; therapy, 229
 Laryngeal complications of typhoid, 958
 Larynx—diphtheria of, 767; fibrolipomatous tumor, 199; implication, and tabes, 671; tuberculous inflammation, treatment, 290
 Lavage, renal, and cystoscopy, 880
 Law, natural, matrimonial selection governed by, 968
 Lawlessness, professional, 928
 Lead poisoning, 39, 34, 585, 700, 829
 Leale, Medwin: Chronic eczema as a complication of senile degenerations, 616
 Lecithin in biologic activity of radium and röntgen rays, 756
 Leg ulcer, 375, 961
 Legislation—and medical men, 1001; food, hindrances to, 675; medical, injustice in, 11; recent and the governor, 677; vicious, 547, 600
 Leiser, J. J.: Modern treatment of spinal curvature, 306
 Leishman-Donovan bodies of cachexial fever and kala-azar, cultures of trypanosomes in, 544
 Lent and health, 425
 Leprosy, 11, 47, 132, 258, 301, 455, 461
 Lesions, kidney, 166, 586
 Leukemia—and infectious diseases, 38; lymphatic, 1016; metabolism in, 1016; myelogenous, 210; splenomedullary, 638; treatment, 210, 288, 630, 797
 Leukocytes in normal blood, 35
 Leukopenia of cachexial fever and kala-azar, 751
 Licensure, medical—examinations, practice to count in, 264; reciprocity in, 347; revocation of, 503
 Lichty, J. A.: Tuberculosis of the gastrointestinal tract; report of a case of perforation and partial stenosis of bowel, 405
 Life insurance—and Cuban sanitation, 634, 768; question, 715, 716
 Ligaments, laceration of, sprains with and without, 979
 Ligation of both common carotid arteries, 82
 Ligation, McGraw elastic, 784
 Light, tropic, and pigmentation of human skin, 801
 Lightning, 465, 466, 467
 Lillenthal, Howard: Cholecystitis, 646
 Lime, therapeutic uses, 161
 Lip, chancre of, 367
 Lipoma, intrapleural, 807
 Lipomatose douloureuse (adiposis dolorosa), 78
 Liquid sunshine, 883
 Lithemia, diagnosis and local treatment, 68
 Lithiasis, pancreatic, 921
 Litholapaxy, 267
 Lithotomy, 267
 Litten's "diaphragm phenomenon," 286
 Little's disease, 669
 Liver—adenocarcinoma of, 707; arterial infarcts, 1017, 1008; atrophy of, 411; cirrhosis of, 340, 960; hilum of, operations at, 792; incising and suturing, in hemorrhage, 220; power to destroy diphtheria toxin, 249; primary sarcoma, 125; suprarenal rests in, 251; surgery of, 185, 221, 340, 792, 960; syphilis of, 627, 791; tumors of, 206
 Living, cost of, for physicians, in Jamaica, 348
 Lloyd reaction for morphin and other alkaloids, 868, 905, 947
 Lochia, 795, 796
 Locomotor ataxia, treatment, 368
 Long distance debating society methods, 464
 Long, J. W.: Enterostomy, 577
 Loveland, H. H.: Postpartum hemorrhage, 618
 Lumbago, traumatic, 459
 Lumbar puncture in diagnosis, 1034
 Lumbicoid worms, strangulation by, 503
 Lung, cavities in, tuberculosis, 190
 Lung—surgery of, 183; syphilis of, 710; tuberculosis, 190, 250, 749; tumor primary malignant, 330
 Lupus—erythematosus, 34; vulgus, 462, 643
 Lutein cell proliferation in atresia of follicles, 797
 Luxury and glutony, 339
 Lydston, G. Frank: Briefs on genitourinary surgery, 696
 Lymph-glands, superficial, enlargement of, and Hodgkin's disease, 880

McGirk, Charles E.: New method for immediate repair of perineum, 96
 McGraw ligature, 784
 MacCallum, W. G.: Parathyroid therapy and the relation of the parathyroid gland to exophthalmic goiter, 934
 Macdonald, G. Childs: Three interesting cases—gastroptosis and dilation; chronic tenosynovitis; thoracic abdominal aneurysm, 70
 Macdonald, T. L.: Bright's disease in high official circles at the nation's capital, 895
 Magnesium salts, therapeutic uses, 462
 Magnet for surgical purposes, 343
 Magnetic healers, damages against, 503
 Malachite green against Nagana trypanosomes of white rats, 500
 Malaria—and Red Cross, 763; and trypanosomiasis, 124; and yellow fever, 836; angiospasm, 957; bubo in, 1003; diagnosis by pigmented white corpuscles, 414; estivoautumnal, 244; etiology, 161; hemorrhagic, 921; infection and neuritis, 904; in Italy, 117; on Isthmus, 2; paralysis following, and sciatic neuritis, 77; spleen in, rupture of, 712; treatment, 209, 682
 Malignant—degeneration of cervix after hysterectomy, 962; disease, treatment, 35, 160, 288; growths, origin and treatment, 765; pustule, 588; tumor of lung, primary, 330; tumors, 268
 Malposition—of abdominal viscera, 953; of colon, 126
 Malpractice in röntgen ray use, 502
 Malta fever, 511
 Mammary cancer, 518
 Man and cats, *Schistosoma cattoi* of, 821
 Manchurian dysentery in, 287
 Mandible, fracture of, treatment, prosthetic, 413
 Manila, sewer system for, 424
 March 4 in Washington, D. C., 384
 Marelin, 42
 Marek's antituberculosis serum, 461
 Marriage—by mutual consent, 1009; early, and nervous disease, 670; laws in the Philippines, 1009; reckless, to check, 302
 Massage—employment of blind for, 749; of heart and cardiac collapse, 78; therapy, 451
 Massachusetts—General Hospital, medical charity at, 497; State Board of Health, tuberculosis exhibition by, 212
 Mast-cells, 1007
 Mastitis, 82
 Mastoid—disease and diabetes, 236; operation and myringotomy, 663
 Masturbation in childhood, 1034
 Materia medica, phosphorized, 210
 Materialism and suicide, 1011
 Maternal impression, 839
 Maternity Hospital and 20% division of fees, 970
 Matrimonial selection, 968
 Maxillary sinus, psammoma of, 414
 Means, William J.: Miscellaneous: Association of American Medical Colleges; report of the Committee on National Uniformity of Curriculums, 680
 Measles—931; and bronchopneumonia, 662; and Koplik's spots, 1006; and lobar pneumonia, 371; experimental, 586; gastrointestinal type of, 838; nail changes after, 332; prodromal rashes of, 372
 Meat diet and gout, 415
 Meatoscopy, ureteric, 369
 Meckel's diverticulum, 163, 327, 417
 Medical—army, appointments, and citizenship, 761; books, reviewing, 929; centers, undergraduates and postgraduate in, 170; charity, 464, 497; college curriculums, national uniformity of, 757; college requirements, 634; colleges and students, rights of, 338; colleges, association of, 600; corps, and U. S. A., duty to, 137; corps, reserve, for army, 379; department, 758, 759; directory, 424; diversity and statistical unity of pneumonia, 717; education, 661, 884, 965; equipment, improper, 450; ethics, 765; ethics, supreme test in, 465; examinations, State, for 1904, 843; experience in Philippines, 287; heroes for Hall of Fame, 127; history, study of, 716; interest in Schiller centenary, 842; law of North Dakota, 763; legislation, injustice in, 11; licensure, reciprocity, 347; men and legislation, 1001; men, young, not properly equipped for navy, 450; Naval School, 637; phases of immigration legislation, 1034; practice act of North Dakota, 590; practice, legal control, 256; profession, an affront to, 338; profession and commercialism, 43; profession and politics, 507; profession, ideals of, 496; profession, interest of, in nursing profession, 689; profession versus commercialism, 48; regulating boards, uniformity of, 757; representative captured, 508; research, awards for, 882; reserve corps for army, 758; School, Naval, 637; School, new Harvard, 717; schools, are hospital expenditures justifiable?, 505; schools and hospitals, 505; schools, cordial relations among, 971; sciences fund, institute of, 638; statistics, comparability of, and progress, 340; statistics of French army, 596; student at 80, 846; students in Austria, 786; teachings, old, seeming decline in faith in, 43; treatment of gastric ulcer, 391
 Medication—specific, in pulmonary tuberculosis, 630
 Medicine—advertisements, patent, and city dust, 364; American, 28; bitter, and digestion, 797; ethical, and publicity, 906; forensic or legal, and psychiatry, 102; internal, psychiatry, and neurology, 101; newspaper "enterprise" in, 600; nonsequestr in, 498; opticians desire to practise by deception, 549; patent, in New Zealand, 596;

patent, secures place in church, 623; preventive, 328; proprietary, clinical reports of, and study of reprints, 951; proprietary, and Cuba, 260; State, pioneer course in, 423; surgery, and jurisprudence, 285
 Medicolegal—aspects of traumatic phthisis, 500; relations of insanity and alcohol, 223; relations of ocular injuries, pensions, and insurance rates, 504
 Meigs, and puerperal fever, 633
 Melancholia—681; hyperacute, 37
 Memorial to Dr. Craig, 593
 Men—over fifty, 337; spleenless, 77
 Meningismus typhosus and meningotyphoid fever, 205
 Meningitis—580, 595, 596, 636, 637, 677, 720, 762, 764, 804, 805; and antitoxin, 343, 604; cerebrospinal, 286, 383, 425, 548, 549, 598, 626, 627, 663, 677, 703, 763, 788, 920; cerebrospinal, and eye symptoms, 627; cerebrospinal, symptoms diagnosis, 626, 1035; cerebrospinal, cryoscopy, 285; cerebrospinal, treatment, 206, 664, 772, 831, 1033; serum, 637; tuberculosis, 669, 879
 Meningotyphoid fever and meningismus typhosus, 205
 Menorrhagia of puberty, 208
 Menstruation—278; concealed, treatment, 962; precocious, 83; uterina during, 831
 Mental—defectives, history of, 85; deficiency in children, and prognosis, 672; deterioration in tropics, 421; deterioration of old alcoholics, 631; development, operation on skull, 202; diseases, treatment, 290, 668; disorders and autointoxication and autointoxication, 121; fossilization in men of science, 423; symptoms and heart disease, 672; wards in general hospital, 958
 Meralgia paresthetica, 203
 Mercury, therapy, 294, 750, 768
 Mesenteric artery, embolism of, suspected, 325
 Mesentery, cysts of, 77; trauma of, 1006
 Mesosigmoiditis and recurrent volvulus of sigmoid flexure, 166
 Metaplasia, of Hodgkin's disease and sarcoma, 544
 Metastasis—carcinoma of ciliary body, 293; gonorrheal ophthalmia, 283; postpartum, panophthalmitis, 964
 Meteorology—relations to chemic pathology and etiology of malaria, 161; of Tibet, 129
 Metabolism—in carcinoma patients, 921; in leukemia, 1016; of vegetarian, 1036
 Methylene—hippuric acid, 924; blue in mental disease, 290; blue, reduction of, by nerve tissue, 249
 Metric system, adoption, 253
 Metritis, puerperal, hysterectomy for, 795
 Mice—field, infecting, 91; tumors of, 836
 Microorganisms—of actinomycosis, 1007; and subkatabolism, 624; in dried spinal cords virulence of, 840
 Microscopy—of stomach contents of, 625; of the lochia, 795
 Midshipmen, physical development of, 425
 Midwife question—667; in England, 504
 Military camps, typhoid in, 506, 507
 Milk—adulteration, 839; and public health, 867; and "wet malt," 467; bottles, paper, 2; condensed, gas in, 136; cooked or uncooked, 960; examination, by city health authorities, 496; exchange drafting new bill, 384; infected, in sickness, 626; laboratory modification of 151; pasteurization of, 165; raw, versus pasteurized, 381; supply, 179, 762
 Miller, Caspar W.: Some further experiments upon rectal alimentation, 187
 Mills, Charles K.: Some forms of insanity due to alcohol, especially in their medicolegal relations, 223
 Mind—reading and n-rays, 378; vigorous, essential in any navy, 631; wellknown laws of, physiologic, aids, 493
 Misstatement of insured, 504
 Mitchell's fluid for ulcerative processes, 582
 Mitchell, S. Weir: Of allorophobia and the power to be conscious of the cat as near, when unseen and unheard, 851
 Mitral—stenosis, 809; tuberculosis, 838
 Modern pediatrics, 55
 Mohammedan pilgrimage, 764, 920
 Mole, hydatid, and chorioepithelioma, 796
 Monaminonitrogen, 493
 Money, paper, redemption of, 1009
 Monogamy, 1009, 1010
 Moody, H. A.: Epidemic cerebrospinal meningitis, 598
 Moorhof's bone-plug, 94
 Moral—and sanitary prophylaxis, society for, 317; standard of women of a race, 1009
 Morbidity—133, 132, 302; and mortality in Chicago, 384
 Morphin—947, 948; Lloyd reaction for, 868, 905, 947; glycosuria, 840
 Morrow, Prince A.: The Society of Sanitary and Moral Prophylaxis; its object and aims, 317
 Morse, John Lovett: Lobar pneumonia in infancy, 163
 Mortality—133, 259, 302, 470; Boston's, 391; Chicago, 596, 674; infantile, 230, 244, 888; in Germany, 96; in tropical and in temperate climates, 10; Japanese army, 801; of Michigan, 90, 697, 805, 1018; of pneumonia in high altitudes, 856; of tuberculosis in childhood, 454; plague, 706; record of Bombay city, 596
 Mosquitos—1, 220, 468, 679, 705, 762; control in California, 888; in Panama, 677; larvae, destruction of, 161, 802; of Florida, 1003; theory, 300

Mouth, cancer about, early diagnosis of, 662
 Movement, therapeutic uses, 702
 Mumps and nephritis, 583
 Murdoch, Frank H.: Orthoform in the diagnosis of gastric ulcer, 294
 Murmurs, cardiac and vascular, in thorax, conduction of, 165
 Murphy button, 784
 Muscles—action, intramuscular hemorrhage, 243; atony of, congenital, 671; atrophy and tabes, 670; excessive action, death from, 491; in coordination, 293; ocular, sensory ataxia of, 966; of heart, diseased, functional test for, 921; pectoral, congenital absence of, 793; system, effect of formic acid, 587
 Mucous colic, 349
 Music, therapeutic uses, 305
 Museums in medical teaching, 537
 Myasthenia gravis, 670
 Mycobacterium tuberculosis, 369
 Mycosis of eyeball, 965
 Myelitis, 376, 585
 Myelocytes in blood, 251
 Myelogenous leukemia, treatment, 210
 Myeloma, multiple, 749
 Myelopathic albumosuri, 370
 Myocardium—degeneration, 248, 413; inflammation of, 291, 848
 Myoidema, 162
 Myotomy and pregnancy, 584
 Myopia—and corneal opacities, 291; and spinal curvature, 708; removal of lens in, 193, 1035
 Myositis—ossificans, 588; rheumatica, 451; suppurative, 414
 Myotonia congenita, 671
 Myringotomy and mastoid operation, when to perform, 663
 Myxedema and tuberculosis of adrenals, 332
 Nagana trypanosomes of white rats, 500
 Nail changes after disease, 332
 Narcosis—apparatus for, plus pressure, 629; ether, by rectum, 788; scopolaminomorphin, 961
 Narcotics—and alcohol, 211; and anesthetics, 525
 Nation, health of, 158
 National—Association for Study and Prevention of Tuberculosis, 841; standpoint, smoke question from, 703
 Navy—medical school, 637; modern surgery in, 6; vigorous minds essential in, 631; young medical men not properly equipped for, 450
 Neck—carcinoma of, 477; septic inflammations of, 168
 Necrosis—fat, 399; aseptic healing, 587
 Neele, hydrops, how to unstop, 900
 Negro population, influence of, 422
 Nephrectomized rabbits, convulsions in, 209
 Nephrectomy—267, 709, 752; in rabbits, convulsions from, 209
 Nephritis—and mumps, 583; chlorid retention in, 933, 974; chronic, and disorders of nervous system, 880; diet in, 625; in obstetrics, 419; in scarlatina, 331; interstitial, 787; kidneys, insufficiency of, 1004; parenchymatous, chronic, 767, 1007; prognosis and treatment of, 330; surgical treatment, 625
 Nephrolithiasis, bilateral, 417
 Nephropexy, pro and con, 788
 Nephroposis, 38, 412
 Nephrotomy, 267
 Nephroureterectomy, 313
 Nerve—affections of, and scarlatina, 991; defects, bridging, 40; diseases, functional and eyestrain, 366, 557; diseases of, and early marriages, 670; diseases, organic and functional, 330; disorders complicating whoopingcough, 370; exhaustion in infants, 331; lesion, family, rarely described, 377; peroneal, paralysis of, 832; plastic operations on, 712; radium, effect on, 877; surgery of, 266, 712; symptoms relating to, in pernicious anemia, 123; system, and chronic nephritis, 880; tissue, reducing methylene-blue, 249
 Neumann's orcin test for sugar in urine, 701
 Neuralgia—aural, of dental origin, 283; facial, treatment, 94
 Neurasthenia—fatal, 1018; treatment, 120
 Neuritis—gouty, 756; multiple, 414, 904; sciatic, following malaria, 77
 Neuroepithelioma, 1018
 Neurofibillar changes and insanity, 377
 Neurology, psychiatry and internal medicine, 101
 Neuronal, 210, 660, 713
 Neuroses, cardiac and gastric, 965
 Neurotic heart, 890
 Nervous, 292, 369
 New York—health of, 709; Herald's Sanitary Commission, 212; model tenements in, 127
 Newborn, enteritis in, treatment, 542
 Newgrowth, tracheal stenosis from, 290
 Newspapers' nastiness, 508
 Newspapers—and quacks, 340; "enterprise" in medicine, 600; local, cards and notices in, 506; supplying with information, 48, 330
 Nichols, John Benjamin: The diet in typhoid fever, 729
 Nightingale, Florence, and nursing, 303
 Nihilism, radiotherapeutic, 110
 Nitroglycerin, 498, 918
 Nomenclature, clinical, 963
 Nonmalignant diseases, treatment, röntgen, 789
 Nonparturient uterus, rupture, 633
 Nonsequitur in medicine, 498

- Norris, Richard C.: Artificial dilation of the cervix in obstetrics, 810
- Northrup, William P.: The theory and practice of percentage feeding in infancy, 150
- N-rays, 47, 348
- Nose—diseases of, treatment, 164; hemorrhage from, postoperative, 440; reflex phenomena and eye-strain, 366; relation with generative organs, 789; sinus disease, diagnosis of, 1005; vaccination, accidental, 710
- Nostrils, both, in syphilitic child, occluded by papillomas, 536
- Nostrums, selling without license, 171
- Notification—laws, nonobservance of, 926; of infectious diseases, 927
- Nuclein, 79
- Nurses—hospitalization among, 591; life, financial aims and practices, 591; manners and disposition, 590; Slocum, rewarded, 677; State registration of, 590; training—schools, foreign, 885; training, Waltham method, 592; visiting, 592
- Nursing—Florence Nightingale, 303; is "an art, not a science," 592; profession, and interest of medical profession in, 589; profession, organization and reorganization, 507; special hospitals and specialism in, 592; trades unionism in, 590
- Nurslings, gastrointestinal diseases, 1608
- Nux vomica, therapeutic uses, 891
- Nydegger, James A.: Suspected embolism of the superior mesenteric artery, 325
- O**besity, 164, 756
- Obstetrics—artificial dilation of the cervix, 810; examinations, 668; modern methods, 663; nephritis in, 419; views that need reviewing, 460, 754
- Obstruction, intestinal, 188, 452, 457, 777, 820
- Occupations and tuberculosis, 112
- Ocean bathing, 624
- Ocular—factors in scoliosis of school children, 562; galvanization, 291; injuries, medicolegal relations, 504; muscles, sensory ataxia of, 966; reflexes (psychoses), 163; signs of cerebellar tumors, 329
- Ohlmacher deposited, 338
- Oil of cade, 462
- Old, strangulated hernia in, 279
- Open air in pulmonary tuberculosis, 875
- Operations—abdominal, results, 866; air into veins during, 792; Alexander, 626, 796; apparatus for narcosis under plus pressure, 629; and insanity, 182; and mammary carcinoma, 386; aseptic, technic, 93; capital, and anesthesia, 367; combined, of arthrodesis, and transplantation of tendon, 725; consent of patient in, 302, 637; ear, bullet in, 451; ear, local anesthesia in, 707; Edebohls' 289; emergency cases in 322; exploratory, and kidney, 453; for appendicitis, 228, 334, 372, 794; for constipation conditions, 394; for fractures, 95; for fracture of patella, 922; for goiter, 266; for intestinal stenosis, 80; for radical cure of hernia, 497; for rhinoplasty, 286; for spina bifida, 629; for sprains, 95; for subcutaneous cyst and fibroma, 877; for undescended testicle, 52; for uterine fibroid, 287; in calculi, 1002; in cataract, 273; in depressed fracture of skull, 202; in gastric disease, 95, 334; injuries to thoracic duct, 31, 373; in movable kidney, 284; in otogenic purulent cerebrospinal meningitis, 206; in perforating gastric ulcer, 80; in prolapse of womb, 816; in septum deformities, 206; in stone in ureter, 180; in intractable pro-nated foot, 652; in tuberculous ileocecal tumors, 394; in varicocele, 458; in vesical diverticula, 51; mastoid, and myringotomy, 663; of Trendelenburg, 794; old and new, and mortality, 181; on anemic patients, 289, 373; on gallbladder and biliary ducts, drainage in, 688; on horseshoe kidney, 457; on kidney and ureter 288, 328; on nerves, 712; on ovaries and tubes, 919; plastic, 582, 712; purgation before and after, 321; radical, on middle-ear, 588; without consent, 302, 637; wounds of thoracic duct, 81, 373
- Ophthalmic, metastatic gonorrhea, 293, 294
- Ophthalmic—college, three courses at, 382; suggestions, 957
- Opium, 380, 848
- Oppenheimer Institute, 750
- Optic factors in scoliosis of school children, 562
- Opticians aspire to practise medicine by deception, 540
- Opitz, "glands of pregnancy," 420
- Organization—in scientific research, 718; is impossible without the ranks, 758
- Origin, not survival of fittest, 718
- Orth, J.: Relation of pathology to other sciences, 300
- Orthoform, 264
- Orthopedic surgery, 265
- Osborn, H. B.: Ectopic pregnancy, 429
- Osler—and euthanasia, 386; and senility, 337; farewell dinner to, 762; his address, 411; his pronouncement, 379; to succeed, 553; vice-president, 840
- Oslerism, 632
- "Oslerize," an unfortunate addition to dictionaries, 337
- Osteitis, acute septic, 766
- Osteoarthritis, spinal, 582
- Osteoarthropathy, pulmonary, limited to terminal phalanges, 751
- Osteogenesis imperfecta, 385
- Osteoma of intestines, 541
- Osteopaths—and barbers, 706; legalizing, 747, 762
- Osteomalacia—and thyroid disease, 125; infantile, 287
- Osteomyelitis, 206, 262, 456
- Osteotomy, pubic, by Gigli's method, 420
- Otitic origin, temporal abscess of, 541
- Otitis media—acute, in children, 586; acute purulent, 926; chronic purulent, and brain abscess, 263; diagnosis and treatment, 765; mucosa in, 263; suppurative, chronic, 262, 664
- Otology and general practice, 832
- Ovaries—abscess posttyphoid, 222; and tubes, conservative operation on, 919; angioma simplex, 420; cyst, 390, 459; dysmenorrhea, relating to, 137; excision of, 230, 962; hematoma of, 93; sarcoma of, and menstruation præcox, 83; sterilization, röntgen rays in, 633
- Overdosage of aspirin, 502
- Overlying, 502
- Ovum, cause, in fetal anomalies, 753
- Oxygen, therapeutic uses, 474
- Oxyuris vermicularis, Salisbury's (1858) Trichina cystica, probably identical with, 682
- Oysters and typhoid, 286
- Ozena, treatment of, 586
- P**ace that kills, 295, 762
- Pagan superstitions and lightning, 466
- Paget's disease—and carcinoma, 168; of umbilicus, 461
- Pain, abdominal, 880, 1006
- Palate, cleft, and hare-lip, 496
- Palier, E.: An experimental study of lactic acid formation, with special reference to the stomach, 22
- Palmar fascia, Dupuytren's contraction of, 792
- Palpation—192; of appendix, 629; renal, albuminuria of, 794; ulnar, 641
- Palsy—cerebral, in children, 37; pseudobulbar, 669
- Panama—1, 179, 421, 845; and Cuba, sanitary conditions in, 179, 506; canal, Bares project for 674; canal commission, 536; canal, earlier conditions of, 220; canal question, 421, 463; diseases of, 121, 160; health conditions in, 595, 761, 970; mosquitos in, 677; sanitary conditions, 242, 925, 1012; yellow fever at, 925, 929
- Pancreas—and diabetes, 397; and pancreatic diseases, 397; cysts of, 95, 782; diabetes, and glycosuria, 396; diseases of, 95, 186; diseases, of, diagnosis, 393; diseases of, simulating cholelithiasis, 396, 397; histologic examination in diabetes, 397; insufficiency, 399, 400; inflammation of, 395, 542; islands of Langerhans of, development and pathology of, 395; lithiasis related to, 928; physiology and pathology of, and diagnosis of disease, 391
- Panophthalmitis, 964
- Paper milk bottles, 2
- Papillomas in syphilitic child, occluding both nostrils, 536
- Paquin, Paul: "Trafficking in tuberculosis," 138
- Paracolon group, carbohydrate reactions of, 1035
- Paralysis—agittans, 77; Brown-Séquard's, 244; diphtheric, 79, 163, 664; facial, 712; following malaria and sciatic neuritis, 77; infantile, of abdominal muscles, 415; Landry's, 359, 579; periodic, of hereditary origin, 671; spastic and syphilis of cord, 377
- Paraphasia, transcortical, 378
- Paraplegia, 671
- Parasite of anemia, 369, 370
- Parasites—of smallpox, vaccinia, and varicella, 248; protozoa and human disease, 838; theory and morphology of carcinoma, 416, 833
- Parathyroid glands, 545, 626, 815, 934
- Paratyphoid, 165, 294, 613, 1035
- Paraurethritis, 120
- Paresis—and ileus, 323; early, curability, 787; of peroneal nerve, 832; postoperative intestinal, 207
- Parotid gland—protozoan-like cells in, 837; inflammation of, 921
- Parrot's disease, 331
- Parthenogenesis, artificial, 837
- Pasteur work in Baltimore, 39
- Pasteurization, 165, 381
- Patella—dislocation, 456; fracture, 922
- Patent medicines, 364, 383, 871
- Pathology—atomy, 175; and other sciences, 101, 309; and psychiatry, 101; changes from prostatic enlargement, 574; chemic, and malaria, 161; clinical, recent developments, 78; findings in lead intoxication, 700; of pancreas, 393; of sciatica, 620; periodic theory applied to, 508; renal, heredity in, 545
- Patients—and physician, 503; "landing," 382
- Patterson, Ross V.: The combined operation of arthrodesis and transplantation of the tendon of the extensor proprius hallucis for the relief of flat-foot, 725
- Pediatrics, modern, 55
- Pelion on Ossa of illogicality, 379
- Pelvis—articulations, 956; dermoid cyst, 420; disease and appendix, 1017; organs, ptosis of, 137; renal, benign villous tumor of, 207
- Penal institutions, tuberculosis in, 800
- Pennypacker, the impossible, 548
- Pennysylvania—child labor in, 885; society to protect children, 302
- Pepsin—lab ferment, clinical tests for, 959; therapy, 542
- Peptic ulcer, 277, 681
- Percentage principle and gruel feeding, 328
- Pericussion, 80, 192
- Perfection, superfluous, evolution, 718, 719
- Perforation—gastric ulcer, 80, 279, 787, 922; intestinal, 229, 405, 793, 922; typhoid, 413, 707, 890, 923; upper abdominal viscera, 95
- Pericarditis, hemorrhagic, 788
- Pericarditis sinistra, 752
- Perineal—prostatectomy, 51, 284, 499; stage in normal labor, 749
- Perinephric abscess, 681
- Perineum—581; lacerations of, repair, 96, 581, 753
- Periodic theory and pathology, 508
- Periosteum bone flap, therapeutic uses, 374
- Peristalsis, 323
- Peritoneum—adhesions, 52, 527; experimental drainage, 121; gauze drainage, 919; implantation tuberculosis of, 1008; lesser cavity, intraabdominal hernia, 628; physiology and pathology of, 922; resistance of, 34, 922
- Peritonitis—acute, general, 50, 287; diffuse purulent, 880, 924, 961; general and appendicitis, 538; general, bacteriology, 538; general, from typhoid infection, 769; pneumococcus, 38; tuberculous, 93, 227
- Peritonsillar abscesses, opening of, 793
- Perityphilitis, 418
- Perkinsism, centenary of, 88
- Perisucht, 13
- Peroneal nerve, paresis of, 832
- Pessary, stem, therapeutic uses, 419
- Peterson, Frederick: Bromids in epilepsy, 1019
- Peyton, David: Treatment of strangulated hernia in the very old, 279
- Pfeiffer's—bacillus and cerebrospinal meningitis, 1035; disease, 956
- Phagocytosis, 586, 840
- Phalanges, terminal, pulmonary osteoarthropathy limited to, 751
- Pharmacy and chemistry, Council on, of A. M. A., 380, 386
- Pharynx, fibropolomatous, tumor of, 199
- Phenacetin poisoning, chronic, 751
- Philadelphia—County Medical Society, 622; post-graduate work in, 558
- Philanthropy—fashionable, criminal in, 803; true, 45
- Philippines—civil service, 513, 552; health of, 871; marriage and divorce laws, 1009; medical and sanitary experiences in, 281; opium in, 330
- Phipps Institute, 295, 304, 844
- Phlebitis, treatment, 702
- Phlebotomy, 1016
- Phosphorus and cerebrospinal fluid, 670
- Phthisis, traumatic, medicolegal aspects of, 500
- Physical—culture city, 469; defects, truancy, and criminal life, 969; diagnosis, 641; economics, 3; endurance of Japanese soldier, 506
- Physicians—American, in Philippine service, 513; American of European birth, 740; among Eskimos of Labrador, 969; and patient, 503; and temperance, 758; as citizen, 872, 915; his consecration to high calling, 421; death of, premature, 883; deatheatre among, 170; heroism of, 495; practising, Widal test for, 499; revocation of license, 502; tactless, and suicide, 44
- Physics—and chemistry of drug action, 78; and psychiatry, 100
- Physiology—aids or practical use of wellknown laws of mind, 498; chemistry, pathology, and psychiatry, 101
- Physiology—comparative, 904; of intestines, 416; of pancreas, 393; surgical, 221
- Picrotoxin and knockout drops, 258
- Pigmentation of human skin and tropic light, 901
- Pilgrimage, Mohammedan, 764
- Pillory, to abolish, 426
- Pilocarpin, therapy, 34, 461
- Pityriasis rosea, 462
- Placenta—cells, deported embolic, 754; extirpation, in extrauterine pregnancy, 572; previa, cesarean section for, 114, 879
- Plague—7, 175, 239, 262, 425, 427, 470, 586, 554, 720, 805, 846, 888, 930; and rats, 972; and smallpox, 554; bubonic, pathology, 202, 586; in South America, 678; latent or dormant, 1008; mortality, 766
- Plasmeba of dengue, 36
- Plastic operations, 582, 712
- Plato and woman in medicine, 380
- Pleura, primary carcinoma of, 541
- Pleural fluid, cytodiagnosis of, 837
- Pleuritic exudate, and rhythmic lateral displacement of heart, 808
- Plumbic acetate in capsules, use, lead-poisoning following, 84
- Plumbism, chronic, treatment, sulfur, 205
- Pneumatocoele, 95
- Pneumococcus—epityphilitis, 712; peritonitis, 38; sepsis, 890
- Pneumonia—122, 201, 216, 302, 510, 581; and icterus, 431; and pregnancy, 237; and tuberculosis, 134; anesthetic, 753; blood changes in, 494; croupous, 1005; etiology and epidemiology, 881; germs, 342; in high altitudes, 122, 356; lobar, and cholelithiasis, 431; lobar, following measles, 371; lobar, in infancy, 153, 849; lobar, irregular features, 203; lobar, treatment, 42, 460, 916; medical diversity and statistical unity, 717; prophylaxis, 808; season, 716; treatment, 42, 328, 460, 820, 956; tuberculous, 454
- Poisoning—acute carbon bisulfid, 871; atropin, 210; bee sting, 125; by gases, 502; by potassium bichromate, 363; by sulfonyl, 102; by wood alcohol, 122, 414; carbonic acid, 125; chronic, acetanilid, 955, 1016; gaultheria, 504; lead, 39, 829; phenacetin, chronic, 751; ricinus, 502; strychnin, 34; veronal, 502
- Poison—dialyzed diphtheria, 711; effect on kidneys, 248; intestinal, pathology, 38
- Poliomyelitis, 205
- Politicians notoriously weak-kneed, 759

- Politics—and medical profession, 507; in State institutions, 3, 464; stenosis of, 547; take hygiene out of, 127
- Polycythemia—and splenic tumor, 789; splenomegaly, without cyanosis, 1035
- Population—negro, large, influence of, 422; of Berlin, 259; of United States, urban and rural, and typhoid, 649
- Pope, Curran: Some observations upon the treatment of chronic diseases, 530
- Porter, John L.: Typhoid coxitis, with report of a case, 240
- Porto Rico, anemia in, 263, 369, 370
- Postdiphtheric paralysis, 163
- Postgraduates—in large medical centers, 170; in Philadelphia, 558
- Postmortem feature of death from lightning, 467
- Postoperative—adhesions, 323; anuria, 419; intestinal hemorrhages, 449, 960; intestinal obstruction, 168; intestinal paresis, 207; sepsis, 407; thyroidism, acute, 197; treatment 160, vomiting, 974
- Postpartum—hemorrhage, 305, 618; metastatic panophthalmitis, 964; temperature, 306
- Posttyphoid ovarian abscess and suppurative cholecystitis, 222
- Potassium bichromate, poisoning by, 363
- Potassium iodid, administering, 582
- Practice—and geography, 799; contract, 768; country and city, rivalry and competition in, 800; country, and specialism, growth of, 799; general and otology, 832; illegal, 425; medical, legal control of, 256; office, 788
- Predisposition, 434, 479, 521
- Pregnancy—abdominal, 957; and bilateral mastitis, 82; and commoner infectious diseases, 962; and cystic tumors of ovaries, 469; and heart disease, 269; and leucin cell proliferation, 797; and myotomy, 584; and pneumonia, 237; and severe hemorrhage from bladder, 83; and suspensioiteri, 10; and urinary retention in tubes, 667; appendicitis in, 208; date of delivery in, 420; ectopic, 137, 204, 429, 459, 572; "glands of," described by Opitz, 420; glycosuria in, 285; hepatic insufficiency in, 624; tubal, 137, 368, 419
- Premature—presbyopia, 103; birth, age of infant, 502
- Preoperative—radiations, 539; treatment of surgical cases, 160
- Presbyopia and subnormal accommodation, 103
- Prescription—of glasses, 367; writing, 76, 253
- Preservatives, food, 450
- "Pressure bandage" in detachment of retina, 293
- Pressure, plus, apparatus for narcosis, 629
- Price, George E.: Malarial infection presenting symptoms of multiple neuritis, 904
- Price, Joseph: Surgical intervention in cases of general peritonitis from typhoid fever and acute gonococcus infection, 769
- Prisoners, employment of, systems of, 87
- Prisons—tuberculosis in, 241, 830; unsanitary, 971
- Profession, medical—and politics, 867; education and arts degrees, 43; ideals, 380, 495; lawlessness in, 926; progress, and working for self, 589; women in, and Plato, 380
- Professors, exchange, between different countries, 297
- Prolapse, 581, 816
- Pronouncement, judicial, dangerous, 254
- Proprietary medicines—clinical reports of, and study of reprints, 951; ethical and unethical, 386; therapeutics, 1031
- Prostate—disease of, 126; enlarged, 417, 574, 625; excision of, 51, 94, 123, 284, 329, 457, 490, 831, 879; hypertrophy, 36, 243, 331, 335, 417; inflammation of, 748; modern surgery of, 752
- Prostatic false route and urethral stricture, 458
- Prostatopelvic carcinoma, 163
- Prosthetic treatment of fracture, 413
- Protein diet, 933
- Proteolysis—defective, 399; power of digestive fluids, 205
- Protoplasm, 858
- Protozoa—of scarlatina, 250; of waters, 262; parasitic, and human disease, 838
- Pruritus—acute, 630; ani, 373, 1006
- Psammoma of maxillary sinus, 414
- Pseudo—angina pectoris and epilepsy, 670; arthritis, 374; bulbar palsy, 669; diphtheria and diphtheria bacillus, 836; diphtheria bacilli, 248, 836; malarial types of infective endocarditis, 454; myelia paresthetica, 378; systemic disease, 670
- Psoriasis, 1631
- Psychiatry and other sciences, 88, 97, 99, 100, 101, 102, 103
- Psychic disturbance and abscess of frontal lobe, 126
- Psycholeptic crisis, 201
- Psychology and psychiatry, 90
- Psychoses—169; errors of refraction in, 806
- Psychotherapy and psychiatry, 100
- Ptoisis—of abdominal aorta, 164; of abdominal and pelvic organs, 137, 412
- Puberty—and epilepsy, 920; menorrhagia of, 208
- Public osteotomy by Gigli's method, 420
- Public—crib, feeding at, 169; Health and Marine Hospital Service, 8; health and milk, 867; health science and other sciences, 875; health, instruction in, 170; the, and the surgeon, 338
- Publication, early, of results of original research, 623
- Publicity and tuberculosis, 121
- Puerperal—fever and gas bacillus, 795, 796; fever, and Holmes, Hodge, and Meigs, 689; fever, prophylaxis of, 764; fever, streptococci, 208, 209; infectious, 795, 962; metritis, hysterectomy in, 795; pyemia, 82; sepsis, 666; sepsis, prevention, 666; sepsis, treatment, 187, 667, 755; tetanus, 362, 564
- Puerperas, care of, 37, 123
- Puerperium—acute cholecystitis in, 625; arthritis in, 1032
- Pulmonary—artery, atresia of, 415; dyspnea, 83
- Pupillary reaction, centers of, 264
- Purgation before and after operation, 321
- Purin bodies—in feces, 252; in urine, 250
- Purpura hemorrhagica, metabolism in, 1016
- Purulent peritonitis, 924, 961
- Pus—in urine, 333; tubes, in male, 708
- Pustule, malignant, 588
- Pyelitis, treatment of, 625
- Pyemia, puerperal, 82
- Pylorus—hypertrophy, in infants, 710; surgery of, 418, 606; stenosis of, in infants, 918; ulcer with hypersecretion, 894
- Pyramidal tracts, primary degeneration of, 669
- Pyramidon, red urine after, 628
- Quack science, 172
- Quackery—980; way to meet, 884
- Quacks—425; and newspapers, 340
- Quadriceps, suprapatellar rupture of, 793
- Quarantine—cases, war in, 886; cattle, ordered, 132; electric shield, Cuban, new hygienic talisman, 296
- Quinin, hypodermicly, therapeutic uses, 209
- Rabbits—nephrectomized, convulsions in, 209; respiratory quotient and external heat, 88
- Rabies—diagnosis, 663; inoculated modified, or real hydrophobia, 165
- Race—blending of, 708; deterioration, 258; differentiation in, 503; human, improvement of, 867; suicide, 7, 89, 217, 673
- Rachitis tarda, 541
- Radasch, Henry E.: An interesting tumor and its relations to heredity, 533
- Radiology and ionization congress, 888
- Radioscopy, therapy, 243, 539, 1005
- Radium—143, 162, 384, 846; and röntgen rays, biologic activity, 756; on nervous system, 877; therapeutic nihilism, 116; therapy, 40, 164, 539, 1006
- Railways—accidents, 34, 132, 594; and insane persons, 503; and sick passengers, 503; cars, suction method of cleansing, 216; damage frauds against, 503; hospitals and surgeons, 47; spine, 789
- Rales, localized, in incipient pulmonary tuberculosis, 879
- Rand, W. H.: Amyl nitrite in malaria, 682
- Ranks, organization is impossible without, 758
- Ransdell, Robert C.: Pneumonia and pregnancy, 237
- Rash—in typhus fever, 666; prodromal, of measles, 372
- Rations for Japanese army, 803
- Rats—and human epithelioma, 247; Nagana trypanosomes of, 560
- Reaction, Lloyd, for morphin and other alkaloids, 868, 905, 947
- Reciprocity, 347, 886
- Reconstruction necessary, not reorganization, 464
- Rectum—alimentation, experiments on, 187; cancer, 229; diseases, treatment, office, 202; gonorrhea in infantile vulvovaginitis, 796; injection by, in cerebrospinal meningitis, 1033; inoperable carcinoma of, and delivery, 584; invagination of sigmoid into, 792; stricture of, 245, 748
- Red Cross—and malaria, 763; reorganization, 300
- Red-tapeism, penalties of, 463
- Reed, Charles A. L.: The smoke question viewed from a national standpoint, 703; report on Panama conditions, 547
- Reed, Walter, memorial to, 258
- Reflex phenomena of nasal origin, and eyestrain, 366
- Reflex—exaggerated in flaccid paraplegia, 671; ocular (psychoses), 163; vertebral concussion, 640
- Registration of births and deaths, 762
- Renal (see also Kidney)—calculi, 243, 286, 1002, 1032; changes in experimental hemoglobinuria, 252; lavage and cystoscopy, 880; palpation, albuminuria in, 794; pathology, heredity in, 545; pelvis, tumor of, benign villous, 207; surgery, 51; tuberculosis, 164, 752, 1006
- Reprints, study of, and clinical reports of proprietary medicines, 951
- Research—original, early publication of results, 623; scientific, by women, 90; scientific, organization in, 718; work, labor-saving organization needed for, 718
- Resection—in tuberculosis of joints, 51, 333; ureter and bladder, in uterine carcinoma, 299
- Respiration, automatic artificial, 789
- Respiratory—change of note, 192; quotient in rabbit, and external heat, 39; tract, infections of, 880
- Rest, 538, 963
- Retina—detachment of, 966; in tabetic amaurosis, 293; "pressure bandage" in, 293
- Retroflexion of uterus, 994
- "Return shock," and death by lightning, 467
- Reviewing medical books, 929
- Reviews:
- Bail, M. V.: Essentials of bacteriology, 257
- Barr, Martin W.: Mental defectives, their history and treatment, and training, 173
- Bartley, E. H.: Manual of physiologic and clinical chemistry, 5
- Battle, W. H.: The surgery of the diseases of the appendix vermiformis and their complications, 260
- Beebe, S. P., and B. H. Buxton: Outlines of physiological chemistry, 257
- Bishop, Louis F.: Blood-pressure as affecting heart, brain, kidneys, and general circulation, 341
- Bohm, A. A.: A textbook of histology, 173
- Brubaker, Albert P.: Textbook of human physiology, 257
- Burkholder, J. F.: Anatomy of the brain, 300
- Burnett, Swam M.: The principles of refraction in the human eye, based on the laws of conjugate foci, 131
- Buxton, B. H.: Outlines of physiological chemistry, 257
- Caldwell, Eugene Wilson: The practical application of the röntgen rays in therapeutics and diagnosis, 89
- Clouston, T. S.: Clinical lectures on mental disease, 341
- Corner, E. M.: The surgery of the diseases of the appendix vermiformis and their complications, 260
- DaCosta, John C., Jr.: Clinical hematology, 551
- Davis, A. Edward: Nursing in eye, ear, nose, and throat diseases, 761
- deSchweinitz, Geo. E.: An atlas and epitome of operative ophthalmology; editor of, 341
- Dexter, Edwin Grant: Weather influences, 89
- Dougllass, Beaman: Nursing in eye, ear, nose and throat diseases, 761
- Dudley, E. C.: The principles and practice of gynecology for students and practitioners, 593
- Dürk, Hermann, Docent Dr.: Atlas and epitome of general pathologic histology, 299
- Fish, Pierre, A.: Elementary exercises for students in materia medica and pharmacy, 5
- French, Herbert: Medical laboratory, methods and tests, 215
- Frost, William Dodge: A laboratory guide in elementary bacteriology, 215
- Gerrard, Percy N.: Beriberi: its symptoms and symptomatic treatment, 5
- Goodhart, Simon P.: Multiple personality, and experimental investigations into human individuality, 341
- Haab, O.: An atlas and epitome of operative ophthalmology, 341
- Halliburton, W. D.: Biochemistry of music and nerve, 594
- Hammarsen, Olof: A textbook of physiological chemistry, 257
- Hare, Hobart Amory: Progressive medicine, 5, 173, 761; A textbook of practical therapeutics, with especial reference to the application of remedial measures to disease and their employment upon a rational basis, 5
- Hektoen, Ludwig: Atlas and epitome of general pathologic histology, 299
- Holland, James W.: A textbook of medical chemistry and toxicology, 635; The urine and clinical chemistry of the gastric contents of common poisons and milk, 89
- Hollis, Austin W.: Medical epitome series: Medical diagnosis, 761
- Holmes, Bayard: Appendicitis and other diseases about the appendix, 269
- Houston, Edwin J.: Electricity in everyday life, 761
- Huber, G. Carl: A textbook of histology, 173
- Hurdon, E., and Howard A. Kelly: The vermiform appendix and its diseases, 635
- Hyde, James Nevins: A practical treatise on diseases of the skin, for the use of students and practitioners, 257
- International medical annual, 594
- Jelliffe, Smith Ely: An introduction to pharmacognosy, 341: The essentials of nervous diseases and insanity, 131
- Jones, H. Lewis: Medical electricity, 173
- Kelly, A. O. J.: International clinics, 551
- Kelly, Howard A.: The vermiform appendix and its diseases, 635
- Landis, H. R. M.: Progressive medicine, 5, 173, 761
- Landois, L.: Textbook of human physiology, 257
- Laumonier, Dr.: New methods of treatment, 131
- Memminger, Allard: Qualitative analysis brief, 131
- Montgomery, Frank Hugh: A practical treatise on diseases of the skin, for the use of students and practitioners, 257
- Moynhall, B. G. A.: Gallstones and their surgical treatment, 341
- Nagel, Joseph: Nervous and mental diseases, 131
- Newman, George: Bacteriology and the public health, 209
- Olsen, J. C.: Quantitative chemical analysis, 173
- Osler, William: Aequanimitas, with other addresses to medical students, nurses, and practitioners of medicine, 551
- Pedersen, Victor Cox: Medical diagnosis, 761; Nervous and mental diseases, 131
- Pusey, William Allen: The practical application of the röntgen rays in therapeutics and diagnosis, 89
- Pyle, Walter L.: A manual of personal hygiene, 215
- Report of the superintendent of government laboratories in the Philippine Islands, 5
- Ricketts, Benjamin Merrill: Surgery on the heart and lungs, 4
- Rostski, O.: Manual of serum diagnosis, 5
- Sargent, Dudley Allen: Health, strength, and power, 635
- Saxe, G. A. de Santos: Examination of the urine, 5
- Shaw, John C.: The essentials of nervous diseases and insanity, 131

- Sidis, Boris: Multiple personality, and experimental investigations into human individuality, 341
- Snow, M. L. H.: Mechanical vibration and its therapeutic application, 5
- Snow, William Benham: A manual of electrostatic modes of application, therapeutics, radiography, and radiotherapy, 209
- Spratling, William P.: Epilepsy and its treatment, 4
- Studies from the Rockefeller Institute for Medical Research, 215
- Syers, H. W.: New method of treatment, 131
- Torralbas, Federico: Sanitation of quarantinable diseases. Introduction by Diego Tamayo, 561
- Van Schaick, George Gray: Regional minor surgery, 5
- Vogel, Carl M.: Essentials of bacteriology, 257
- von Behring, E.: The suppression of tuberculosis, 5
- von Davidoff, M.: A textbook of histology, 173
- Wetherill, Henry Emerson, a book of tests—blood, urine, feces, moisture, 551
- Wilder, Burt G.: The brain of the sheep. Part IV. Physiology practicum, 209
- Williams, William R.: Saunders' question-compend series: Essentials of the practice of medicine, 781
- Witmer, A. Ferree: Essentials of medical chemistry, 131
- Wolff, Lawrence: Essentials of medical chemistry, 131
- Reynolds, Edward: Nephroureterectomy for tuberculous disease, with a description of a new technique, 313
- Reynolds, J. B.: An oppressive tariff, 705
- Rhein, John H. W.: Encephalitis and other nervous affections complicating scarlatina, 991
- Rheumatism—acute, 252; acute and chronic, 409; acute, and endarteritis, 958; acute articular, cutaneous complications, 454; and brachial arteritis, 959; and hypnotism, 469; diet in, 756; so-called, 330
- Rheumatoid arthritis, 249, 714, 882
- Rhinitis, atrophic, 545
- Rhinoplasty, treatment, 266
- Rhinorrhea, cerebrospinal, simulating intracranial tumor, 834
- Rhubarb, 290
- Rib, cervical, and symptoms of subclavian aneurysm, 1036
- Richter's hernia, 373
- Ricinus poisoning, 602
- Riesman, David: Some remarks on physical diagnosis: 1. Transmanual auscultation. 2. Ulnar palpation, 641
- Right-handed, mirror writing in the, 790
- Ringworm, scalp, 461, 835
- Risley, S. D.: The extraction of cataract; choice of operation based upon intraocular conditions, 273
- Ritchie, Parks: Miscellaneous. Association of American Medical Colleges. Report of Committee on National Uniformity of Curriculums, 660
- Robertson, W. E.: Etiology and pathology of Bright's disease, 445; The status of the health inspector, 180
- Robin Hood's barn, 'round, and back again, 463
- Röderer, John F.: Case of puerperal tetanus with recovery, 362
- Röntgen ray—and radium, biologic activity, 756; atmosphere, dangers of, 451, 632; congress, 554; effect on viscera, 544; examination, 193; exposures, sterility from, 255, 632; injuries, 787; proliferating cells particularly susceptible to damage by, 633; stereograms, 537; therapeutic uses, 62, 163, 205, 208, 210, 288, 332, 453, 461, 542, 630, 632, 633, 662, 663, 787, 788, 789, 797, 829, 966, 985, 1016; use, malpractice in, 502; workers protection of, 539; workers, sterility in, 255, 632
- Roof-gardens, 540
- Rosenau, M. J.: Tropical anemia, 882
- Rosenberger, Randle C.: A study of homogenized cultures of tubercle bacilli, 647
- Rothberger's neutral red reaction on gelatin, 838
- Rubidium, 203
- Rupture—of aorta and trauma, 794; of bladder, 267; of diaphragm, 94; of intestine, 230; of quadriceps, suprapatellar, 793; of stomach, 230; of uterus, 289
- Russell, Logan: Cost of living for physicians in Jamaica, 348
- Russian—armies, sick in, 303, 763; army, drunkenness and immorality in, 841; chronic alcoholism among, 631; doctors favor reform, 303; medical body, legacy to, 623; wounded in Manila bay, 970
- Russo-Japanese war, and "explosive" effect of rifle balls, 134
- Salicylic acid, intravenous, diagnostic significance, 798
- Salisbury's (1858) *Trichina cystica* and *Oxyuris vermicularis*, 682
- Salivary—ducts, stricture and disease, 263; glands, mixed tumors of, 711
- Salmon, D. E.: Simple method of disinfecting with formaldehyd, 599
- Salol, 290
- Salt solutions—gastric secretion on, 839; physiologic, therapy, 767
- Sanatorium movement in America, 892, 995
- Sanderson, S. Edward: Acute postoperative thyroidism; report of a case; recovery, 197
- Sanitation—47: Cuban, 90, 748; Cuban, and life insurance, 634, 768; in Cuba and Panama, 242; m d ern, and isolation, 801
- Sanitary—anachronisms should be abandoned, 675; agreement between France and Italy, 368; and medical experiences in Philippines, 281; and moral prophylaxis, society for, 317; census, 595; commission, New York Herald's, 212; conditions in Cuba and Panama, 179; condition of Cuba, 221, 296; deception at Panama, 925; operations, merits, 213; work, Japanese, 596
- Sarcoma—and Hodgkin's disease, 544; of bladder, primary, 207; of bone, 268; of bowels, spindle-cell, 286; of breast, 268; of glands, 268; of liver, primary, 125; of ovary, and menstruation praecox, 88; orbital, 1034
- Saw palmetto, 1034
- "Saviour dear we cling to Thee," 172
- Scabies in United States and Canada, 541
- Scalp, ringworm of, 461, 835
- Scapula, extripation of, in osteomyelitis, 456
- Scarlatina—595; and diphtheria wards, 596; and infectivity, 414; ear complications of, 397; encephalitis, and other nervous affections, 991; nail changes after, 332; nephritis in, 331; protozoan of, 250; suppression, and uremic convulsions, 1005
- Scars in syphilis, 418
- Schiller centenary, medical interest in, 842
- Schistosoma—catto of man and cats, 821; japonicum, new Asiatic blood fluke, 1904, 821
- Scholastic advance, necessity for, 970
- School—and eye and spinal column, 966; books, disinfections, 177; children, fatigue of, 927; children's eyes, 886; contagious diseases, 163; day, to cut, 1001; fatigue, causes of, 927; for infants, 791; methods and disease, 662; medical inspection of, 426; public, gardens, 45
- Schenck, Benjamin R.: Operative technic in stone in ureter, 180
- Schott method, 120
- Schuster, M. P.: Contract practice, 768
- Sciatica, 77, 620, 714
- Sciences—and pathology, 309; and psychiatry, 97; other, and public health science, 975
- Scientific research, organization in, 718
- Scleritis, unilateral annular, 966
- Sclerosis—arterial, 251; multiple, 378; multiple cerebrospinal, 672; traumatic, 241
- Scoliosis of school children, optic and ocular factors, 562
- Scopolaminmorphin narcoses, 961
- Scrofulous ulcers of legs, 375
- Scrotum, elephantiasis of, and truss pressure, 795
- Sebaceous glands of abdominal wall, adenoma of, 167
- Sedgwick, William T.: The relations of public health science to other sciences, 975
- Semmelweis, how the leaders led, 633
- Seminal vesiculitis, 830
- Senile degenerations, and chronic eczema, 616
- Sensation, tactile, 80
- Sensory fibers in stab wounds of spinal cord, 670
- Sepsis—(and Septicemia), 948; and gas bacillus, 546; and sinusitis, gonorrheal, 806; of *Bacillus pyocyaneus*, 81; of bones, 756; of throat and neck, 163; pneumococcal, 890; postoperative, treatment, 407; puerperal, 666, 667, 755; pure, 754
- Septicopyemia, otogenous, 545
- Septum deformities, operation, 206
- Serous effusions, treatment, medical, 767
- Serum—anthrax, 42; anticarcinoma, 247; antidiphtheria, 858; antitetanic, prophylactic value of, 798; antitoxic, 208, 290; antistreptococci, 209, 755, 881; antituberculosis, Marmorek's, 461; hemolytic, 294; horse, humanized, in differentiation of human blood, 1008; immune rabbit, and dysentery bacillus group, 751; meningitis, 637; therapy, 36, 41, 42, 144, 413, 678, 708, 788, 805, 892, 963; therapy in lobar pneumonia, 460; therapy of dysentery, 460
- Sewage, disposal of, effective, 884
- Sewerage of Havana, 213
- Sexes in United States, proportion, 46
- Sexual function and hysterectomy, 36
- Sharpe, Norville Wallace: Hepatic abscess, 146
- Sheldon, John G.: The treatment of appendicitis in the precarious stage, 1022
- Shock, surgical, 36, 752
- Shoemaker, George Erety: Some results of abdominal operations, 867
- Shoulder-joint injuries, loss of function in, 958
- Sick lists, comparison of, 636
- Sickness—infected milk in, 626; undue, in armies, 750
- Sigmoid—flexure, recurrent volvulus, 166; invagination into rectum, 792; surgical diseases, 77
- Silver—nitrate, 294; salts, 835
- Simmons, George H.: Ethical and unethical proprietary preparations, 386
- Sinuses—inflammation of and sepsis, 958; maxillary, pyssmoma of, 414; nasal, diagnosis of diseases, 1005; of nose, accessory, skiagraphy in, 263
- Sinusoidal current alternating in bath, 416
- Skiagraphy, 95, 293
- Skimmianin, an alkaloid of *skimmia japonica*, 798
- Skin—diseases, 79, 643, 798, 835; grafting in cicatricial contractures, 882; human, pigmentation of, and tropic light, 801
- Skull—base of, fracture at, 167; birth fractures of, 419; compound fractures of, 234; fracture of, operation and mental improvement, 220
- Slaughter, R. M.: Years of reputable practice to count in examinations for licensure, 264
- Sleeping-sickness and human trypanosomes, 124
- Smallpox—157, 174, 259, 510, 550, 553, 554, 596, 678, 763, 786, 845, 929, 1013, 1014; and chickenpox, 928; and statistics of contagion, 469, and tramps, 171; and weight variation, 583; in Tibet, 180; laboratory diagnosis of, 707; or itch, 302; parasites of, 248
- Smith, Andrew H.: President Garfield at Elberon, 118
- Smith, Eugene A.: Biliary drainage in operations on the gallbladder and biliary ducts, 688
- Smith, S. MacCuen: Bezold's variety of mastoid disease, complicating diabetes mellitus, 236
- Smoke question from national standpoint, 703
- Soap eating, 342
- Social—evil, 343; necessity, welfare of others, 801
- Society, for sanitary and moral prophylaxis, 317
- Society proceedings:
- American Association for the Prevention and Relief of Tuberculosis, 762
 - Federation of Nurses, 845
 - Antituberculosis Congress, 678
 - Gastroenterological Association, 595, 761
 - Gynecological Society, 974, 1017
 - Laryngological Rhinological and Otological Society, eastern section, 262; general, 1012
 - Medical Society for the Study of Inebriety and Alcohol, 970
 - Neurological Association, 1018
 - Public Health Association, 136, 177, 219
 - Röntgen-ray Society, 781
 - Therapeutic Society, 807
 - Association of American Medical Colleges, 660
 - of American Physicians, 807, 848, 890, 932, 974, 1016
 - Canadian Association for the Prevention of Tuberculosis, 554
 - Cuban Medical Congress, 887
 - Fifteenth International Medical Congress, 594
 - The International Society of Obstetrics and Gynecology, 344
 - Medical Society of Missouri Valley, 48
 - National Association for the Study and Prevention of Tuberculosis, 47, 216, 637, 841, 849, 891, 933, 1000
 - Pan-American Medical Congress, 219, 262, 594
 - Philadelphia County Medical Society, 622
 - Röntgen-ray Congress, 554
 - Society for Experimental Biology and Medicine, 72, 491, 744, 1026
 - for Sanitary and Moral Prophylaxis, 317
 - Southern Surgical and Gynecological Association, 9, 50, 93
 - Tennessee State Medical Association, 681, 765
 - Tristate Medical Association, 175
 - Western Surgical and Gynecological Association, 52, 94, 137
 - The West Virginia State Medical Association, 971
- Sociologic problem of family desertion, 673
- Sociology and psychiatry, 88
- Sodium—bicarbonate, infusion, effect upon blood-pressure, 458; chlorid and hydriods, 288; chlorid, lethal dose of, 640; cinnamate, therapeutic uses, 84, 460; salicylate, 1033
- Sounds, therapeutic uses, 334
- Spasmodic torticollis and ocular abnormality, 557
- Specialism—and country practice, growth of, 799; and special hospitals in nursing, 592
- Spencer, G. W.: Primary tuberculosis of the female breast, with report of a recent case, 432
- Spermatic cord, recurring torsion of, 882
- Spina bifida, and treatment, operative, 629
- Spinal cord—stab wound of, and sensory fibers, 670; dried, virulence of, microorganisms in, 840
- Spine—carcinoma of, 793; curvature of, and eyestrain, 366, 708; curvature, eye and school, 966; curvature, modern treatment, 306; curvature, rotary lateral, 958; osteoarthritis of, 582; railway, 789; tender, 698
- Spirillum pyogenes, 838
- Spirocheta, possible, of syphilis, 1007
- Spivak, C. D.: A case of appendicitis simulating cholelithiasis, 430; Benign strictures of the esophagus; report of cases, 737
- Speech, defective, 4
- Spleen—anemia referred to, 94; disease of, sign of value, 950; in suffocation, 504; malarial, rupture of, 712; office of, 904; red blood-corpuscles in, destruction of, 781; removal of, results, 794; surgery of, 186; tumor of, and polycythemia, 789
- Splenless men, 77
- Splenomegaly polycythemia without cyanosis, 1035
- Splenomedullary leukemia, 538
- Splints, tin, 95
- Spoils, chance to divide, 759
- Spondylitis, tuberculous, 626
- Spondylose rhizomelic, 664
- Spontaneous combustion, 653
- Sporadic endemic dysentery, 1035
- Spores, staining, 587
- Sprains—of knee and ankle, 369; operative treatment, 95; with or without laceration of ligaments, 979
- Spring hill fever, 1005
- Springs in United States, many abandoned, 200
- Spruce, 628
- Sputum, 193
- Squire, A. F.: Ovarian cyst, 390
- Stab of spinal cord, course of sensory fibers in, 670
- Staining—differential, for typhoid bacilli in sections, 587; of living blood and results, 544; spores, 587
- Staphylococcus in croup, 543
- Staphyloorrhaphy, 266
- Starch digestion in young infants, 751

State—aid for charities, 127; and epilepsy, 242; benevolent institutions, the "system" in, 2; care of feeble-minded, 759; charitable institutions, politics in, 464; examinations, fraudulent impersonation at, 549, 550; medical examination for 1904, 845; medicine, pioneer course in, 423; registration of nurses, 580

Statistics—medical, comparability of, and progress, 340; value of death certificates for, 501; vital, State, registrar of, 888

Statisticians, 264

Stegomyia fasciata, 220

Stellwagon, Henry W.: Remarks on the destructive skin diseases, epithelioma, lupus vulgaris, and syphilis, 643

Stenosis—gastric dilation without, 681; intestinal, new, operation for, 80; mitral, 809; of bowel, and perforation, 405; pyloric, intancy, 918; tracheal, from newgrowth, 286; tuberculous, of small intestine, 167

Stephen's munificence, 217

Stereograms, röntgen-ray, 537

Sterility from röntgen-ray exposure, 255, 682

Sterilization—285; mechanical, of rubber gloves, 245; of hands, 40; of ovary or testicle, 633; water, 636

Stewart, A. H.: Methods employed in the examination of milk by city health authorities, 486

Stewart, G. N., and Guthrie, C. C.: Newspaper "enterprise" in medicine, 600

Stiles, Ch. Wardell: Salisbury's (1858) Trichina cystica, probably identical with Oxyuris vermicularis, 682; The new Asiatic blood fluke (Schistosoma japonicum, 1904; Schistosoma cattol, 1905) of man and cats, 821

Stockton, Charles G.: Treatment of cerebrospinal fever, 519

Stomach (see also Gastric)—and lactic acid fermentation, 22; cancer of, surgery, 161; cancer of, symptoms, 790; contents, fasting, microscopy, 625; disease, diagnosis, 1032; diseases, treatment, 334; disorders and diabetes mellitus, 891; gunshot wounds of, 1024; in tuberculosis, 540; motor function of, 584; movements produced in, by electricity, 77; obliteration by caustic, 52; perforation of, subacute, 787, 1024; phlegmonous, 278; rupture of, 230; to locate, 1004; transillumination of, 205; Trichomonas intestinalis (flagellate), 500; trouble, surgical treatment, 713; ulcer of, early case of, 374; ulcer of, simple, 35, 708; ulcer of, surgery, 792

Stone, I. S.: The abuse of purgation before and after operation, 321

Stone—kidney, 52, 126, 932; ureteral, 180

Stool, occult blood in, 711

Stovain, 41, 864

Strabismus, treatment, 157

Strangulated hernia in the old, 279

Strangulation—by lumbricoid worms, 503; death by, 503

Street cleaning, scientific, 85

Streptococcus—arthritis, artificial, 248; dissemination of, 624; from lochia of normal lying-in woman, 706; hemolysis and agglutination of, 840; infection, 160, 290; puerperal fever, treatment, 268, 290

"Strictly ethical," 381

Stricture—of esophagus, 334, 452, 737; of intestine, 628; of rectum, 245, 748

Struma and cataract, 965

Stychnin—injections, 84; in poisoning, 34

Styptol, 83

Subclavian aneurysm, simulated by cervical rib, 1036

"Subconscious self," 161

Subcutaneous—alimentation, 224, 245; injuries of abdominal walls and viscera, 540

Subkatabolism—and heredity, 526; and microorganisms, 524

Substitution, 1035

Suffocation, the spleen in, 504

Sugar in urine, 38, 1008

Suggestion, 787

Suicide—1004; and materialism, 1011; and physical labor, 1011; and tactless physicians, 44; by illuminating gas, 502; by typhoid, 504; clause, 509; increase of, 1010, 1011

Suit, Dr. Doyen's, 155

Sulfonal, poisoning by, 502

Sulfur, therapy, 205, 767

Sulfuric acids, etheral, 451

Summer infant mortality, 244

Sunshine, liquor, 883

Superstitions—gynecologic, 220; pagan, and lighting, 466

Suppuration of ear, 604, 881

Suprarenal—extirpation of, 840; gland, therapy, 248, 201, 583; rests in liver, 251

Supravaginal hysterectomy, and malignant degeneration of cervix, 902

Surgeons—and public, 338; general, and gynecologist, 789; heart of the, 12; railroad, 47

Surgery—and Japan, 889; cure in, disability, mortality and permanency of, 94; expeditious, 1031; gallbladder, 1035; general infiltration anesthesia in, 922; genitourinary, 163, 266, 606; history and development during past century, 180, 181, 227, 265; in kidney diseases, 271; in uterine retrodeviations, 284; medicine, and jurisprudence, 285; modern naval, 6; of appendix, 228; of bones and joints, 231; of deep urethra, 126; of heart, 182; of hydatid cysts, 1006, 1030; of kidney, 51, 267; of liver, 185; of lung, 183; of Meckel's diverticulum, 327; of nerves,

266; of prostate, 417, 752; of spleen, 186; of Tibet, 130; of typhoid perforation, 923; of vascular system, 265; orthopedic, 265

Surgical—anesthesia, 289, 336; cases, preoperative and postoperative, 100; conditions and acid intoxication, 374; diagnosis, blood-examination in, 539; diseases of sigmoid, 77; diseases of the kidneys, 453; intervention, sudden death following, 121; operations, air in veins during, 792; physiology, 220; purposes, magnet for, 343; shock, 36, 752; treatment of Bright's disease, 441; treatment of cancer of stomach, 161; treatment of cerebellar and cerebellopontile angle tumors, 368; treatment of cirrhosis, 39, 346, 960; treatment of facial paralysis, 712; treatment of fibroid tumors of uterus, 401; treatment of gastric ulcer, 792, 958; treatment of general peritonitis, 769; treatment of hemorrhoids, 452; treatment of intestinal obstruction, 457; treatment of kidney lesions, 166, 412; treatment of malignant disease, 160; treatment of nephritis, 625; treatment of otogenous septicopyemia, 545; treatment of panophthalmitis, 964; treatment of prolapsus uteri, 797, 816; treatment of prostatic hypertrophy, 243; treatment of stomach trouble and biliousness, 713; treatment of tuberculosis, 62; tuberculosis, fresh air, treatment, 499; work, gauze in, 206

Susceptibility, 434, 479, 521

Suspensio uteri on pregnancy and labor, 10

Sutures—caut, in recent and old patellar fractures, 373; Connell, intestinal anastomosis by, 243; of femoral artery, 63; of heart wounds, 12

Symptom-complex, Korsakoff's, 671

Syncytioma malignum, 95

Synovitis, 10, 458, 881

Syphilis—79, 648; and epilepsy, 1032; and tabes, 833; birthrate, 450; experimental studies of, 250; hereditary, and cerebrospinal system, 669; hereditary, molar teeth and patellar reflex in, 203; in child, with nasal papillomas, 636; in chimpanzee, 545; in Tibet, 130; late, 920; of biliary passages and fever, 752; of cord, and spastic paralysis, 377; of heart, 206; of liver, 627, 791; of lung, 710, 369; prophylaxis, 201; primary lesion on ocular conjunctiva, 203; scars in, 418; secondary, and diseases of veins, 667; serum therapy in, 36; spirocheta of, possible, 1007; synovitis in children, 458; treatment, 452, 542, 750

Syphiloma of kidney, 748

Syngomyelia, and atrophy of bones, 672

"System," the, in State benevolent institutions, 2, 3

Sweatbox ordeal unhinges mind, 637

Tabes—and cecity, 375; and laryngeal implication, 671; and syphilis, 833; and trauma, 378; dorsalis, 767; dorsalis and jointaffections, 1007; dorsalis and muscular atrophy, 670; juvenile, 377; symptoms, and urinary retention in pregnancy, 667

"Tachyphagia" and "bradyphagia," 216

Tactile sensation, 80

Talley, Dyer F.: Intestinal obstruction, 820

Tariff, oppressive, 705

Tarsal bones, fractures of, 95, 1006

Teachers and temperance workers must get together, 212

Teeth, molar, and patellar reflex in hereditary syphilis, 203

Temperament, 434, 479, 521

Temperance—and hygiene in Great Britain, 760; and physicians, 758; movement, modern, 631; workers and teachers must get together, 212

Temperate and tropical climates and mortality, 16

Temperature, postpartum, unusual case, 306

Temporal abscess of otitic origin, 541

Tender spine, 668

Tendon transplantation, 570, 725

Tenements—and children, 867; commission on, 90; model, in New York, 127

Tenosynovitis, chronic, 71

Tenotomies on eye muscles, 285

Tent, Lapham tuberculosis, 517

Teratomas, histogenesis of, 246

Test—agglutination defects of, 707; indol, improved technic in, 186; Neuman's orcin, for sugars in urine, 791; ring, for albumin, 264

Testicle—sterilization, 633; tuberculous, and röntgen ray, 663; undescended, 52, 418

Testimony—expert, bill to regulate, 174; expert, so-called, scope of, 162; medical, and notes, 504

Tests for hearing, quantitative, 681

"Tetania gravidarum," 755

Tetanus—144; infection, 885; in infants, 903; neonatorum in Cuba, suppression, 885; neonatorum, prognosis, and serum therapy, 963; puerperal, 362, 584; toxins, effect of fluorescent substances on, 252; treatment, by curare, 209

Tetany, pathology of, 830

Therapeutics—and pulmonary tuberculosis, 201; art of, 767; experimental, and radium, 40; inhalation, 210; modern and surgical, 142; of ergot in labor, 1023; of Tibet, 130; proprietary, 1031

Thermic stimulation, and distribution of blood in body, 881

Thermotherapy, 662

Thomas, W. Hershey: Surgical treatment of Bright's disease, 441

Thoracic—abdominal aneurysm, 70; diseases, radial pulse in, 332; duct, operative injuries to, 81, 373

Thorax—conduction of murmurs, 165; rhythmic mechanical compression, 83

Thorium inhalations in tuberculosis, 797

Throat—acute septic inflammations, 168; diseases, 164; effects of tobacco on, 1033

Thrombosis of superficial veins of leg, treatment, 81

Thymus in dysmenorrhea, 923

Thyroid—disease and osteomalacia, 125; extract, therapy, 415; gland and paralysis agitans, 77; gland, diseases, treatment, 1004; in dysmenorrhea, 23; in skin disease, 833; physiology of, 545

Thyroidism, acute postoperative, 187

Tibet, medical facts concerning, 129, 130

Tibia, tubercle of, tear-fracture of, 456

Tic duoloureux, 162

Tissue—amyloid, 588; animal, extraction of alkaloids from, 948; changes after cauterization, 35; connective, dermoid cyst, 420; intramuscular, rate of absorption from, 585; latent infection of, 251

Tobacco—effect on blood, 503; effects on throat, 1033

Tongue—abscess of, 263; carcinoma, 477

Tonsils—bone in, growth of, 243; cancer of, 662; excision of, 266; hypertrophied, 681; infection through, 454, 789

Tooth wash, 714

Torsion of spermatic cord, 882; of uterus, 753

Torticollis, 557

Toxemia—and insanity, 378, 668; diphtheric, 372; of intestinal origin, 919; symptoms in nonulcerative cancer, 834

Toxic effect of uterotropin, 503

Toxins—and antitoxin, of fatigue, 587; and bacteria, 248; bacterial and immunity, 1016; colon bacillus, 707, 748; diphtheria, and liver, 249; dysentery, 586; effect on kidneys, 248; of hay-fever, 835; of tetanus, 252; of tubercle bacillus, 587

Trachea—gunshot wounds of, 94; stenosis from newgrowth, 286

Tracheotomy, 94, 548

Trachoma, 36, 282, 294, 966

Tracts, pyramidal, primary degeneration of, 669

Trades-unionism in nursing, 590

Training-schools for nurses, foreign, 885

Tramps and smallpox, 171

Transcortical paraphasia, 378

Transmanual auscultation, 641

Transplantation—of cord in radical hernia, 712; of cornea, 233; of ureters, 335; of tendon of extensor proprius hallucis, 725; tendon advantages, 570, 725

Transillumination of stomach, 205

Transudates—cytologic examination, 251; effect of suprarenal extract on, 248

Trauma—and aphasia, 1034; and cerebral abscess, 81; and diaphragmatic hernia, 333; and dislocation of the hip, 81; and rupture of aorta, 794; and tabes, 378; and tumor of brain, 207; articular and functional infirmities, 1036; causing ankylosis, 85; causing asphyxia, 245; chronic compression of epigastrium, 123; diabetes mellitus and glycosuria, 833; during coitus, 667; lumbago, 439; of hip-joint, 221; of mesentery, 1006; of vertebral column, 265; phthisis, medicolegal aspects of, 500; rupture of malarial spleen, 712; sclerosis, 241; synovitis of knee-joint, 10; ulcerations, 278

Treatment—and chronicity, 713; practical, 508

Tremor, epileptoid, and flaccid paraplegia, 671

Trendelenburg, operation of, 794

Trichina cystica and Oxyuris vermicularis, 682

Trichlorisopropylalcohol, 582

Trichocephalus in typhoid, 546

Trichomonas intestinalis in man, and disease, 500

Trigeminal neuralgia, 293

Trismus and serum therapy, 963

Tropical—amebiasis, 624; anemia, 982; climates and mortality, 16; light and pigmentation of human skin, 801

Tropics—mental deterioration in, 421; white men in, rules for, 801

Truants—medical treatment for, 300; physical defects, and criminal life, 1009

Truss pressure and elephantiasis of scrotum, 795

Trypanosomes—and diseases, 665; human, and sleeping-sickness, 124; in cultures of Leishman-Donovan bodies, 544; intracorporeal stage, 252; structure and geographic distribution, 837; virulence of, 124

Trypanosomiasis, 124, 125

Tubal—abortions, 209; abscess on ureter, 327; pregnancy, 187, 419

Tubercle—bacilli, cultures of, homogenized, 647; bacilli, human, and bovine, 836; bacilli, infection with, 839; histogenesis of, 250; of tibia, tear-fracture of, 456

Tuberculin—injections, failure of, 923; Mersch's, 84; therapy, 42

Tuberculosis—7, 47, 48, 76, 133, 134, 175, 178, 242, 250, 302, 343, 344, 384, 427, 587, 589, 595, 696, 697, 766, 887, 891, 930, 933, 971, 1012; along female genital tract, 450; and adaptation, 683; and criminals, 800; and erythema perniciosa, 402; and evolution, 749; and its borderland, 242; and Japanese cattle, 13; and life insurance, 933; and mortality in childhood, 454; and occupations, 112; and Phipps Institute, 29; and pneumonia, 134; and prison deaths, 800; and publicity, 121; bacillema, 252; bovine, 420; caseous matter, chemico composition, 252; cavities in lungs, 100; chronic military, and aortic regurgitation, 462; chronic pulmonary, treatment, 963; congenital, 1007; cutis, 796; diagnosis, early, 956, 1000; diazo reaction in, 1005; directory of institutions, dealing with, 6, 171; early infection in, 585; early pulmonary, diagnostic signs of, 331; exhibition by Massachusetts State Board of Health, 212; Hospital and dispensary in, 824; human and bovine, 134, 178, 307; incipient

- pulmonary, localized rales in, 879; infantile, 920; infection in, 892; infection with, in antecedents of tuberculosis, 960; in Boston, 76; in hogs, 238; in penal institutions, 800, 830; knee-joint, 333; laryngeal, 84, 291; meningitis, 669, 879; mortality from, 490; movement, national, 216; mycobacterium, 369; national association for study and prevention, 216, 841; nephroureterectomy in, 313; night sweats in, 755; of adrenals, 332; of aorta, 500; of gastrointestinal tract, 405; of joints, resection in, 51; of knee, excision and erosion, 457; of lungs, 250; of mitral valve and aorta, 888; of peritoneum, implantation, 1008; of testicle, 663; pathology and treatment, 307; peritonitis, 93, 227; plastic arthritis, 732; pneumonia with, 452; politico-sociologic aspects of, 831; prevention of, 826; primary, of female breast, 432; prison treatment, 211; pulmonary, 749; pulmonary, diagnosis of, 37, 1002; pulmonary, heart and circulation, 957; pulmonary, intrapleural complications, 329; pulmonary, route of infection in, 165; pulmonary, suggestive "injection fever" in, 454; pulmonary, treatment, 84, 201, 630, 875; radial pulse in, 332; renal, 164, 752, 1006; resolutions concerning, 7; scare, 422; separate institutions for, 468; serum in, 892; simulated by syphilis of lung, 369; spondylitis, 662; spread by house fly, 475; stenosis of small intestine, 167; stomach in, 540; surgical, 490, 933; tent, Lapham, 517; "trafficking in," 138; treatment, 42, 62, 452, 460, 499, 5-2, 583, 797, 798, 892, 933, 955, 966, 1030
- Tubes, pus, in males, 708
- Tumor—of heart, primary valvular, 372; of lung, primary malignant, 330; of pharynx and larynx, fibrolipomatous, 199; of renal pelvis, benign villous, 207; splenic, and polycythemia, 789; of uterus, fibroid, treatment, surgical, 401
- Tumors—abdominal, 627, 932; cystic, of ovaries, 459; malignant, 268; of brain, 207, 328, 329, 368, 451, 834, 1003, 1018; of conjunctiva, pigment, 292; of lacrimal glands, 711; of liver, 206; of mice, 836; of salivary glands, 711; relation to heredity, 533; tuberculous iliocecal, 334
- Turbinate, lower, cauterization of, tissue changes after, 35
- Typhoid—7, 175, 469, 510, 540, 762, 805, 845, 930, 971, 1013; and appendicitis, 50, 923; and filtered water, 133; and oysters, 286; bacilli, 54, 839; bacilli, differentiation, 1008; bacilli in sections, differential stain, 587; bacilli in water, agglutinability of, 136; bacilli in water, and copper foil, 275; bacillus in water, longevity, 250; bactericidal reaction of blood-serum in, 455, 587, 881; changes in circulation, 588; cholecystitis, 664; coxitis, 240; diagnosis, by Ficker's diagnosticum, 244; diet in, 726; Eberth's bacillus in ovarian cyst, 840; etiology of, trichocephalus in, 546; excretion and copious water drinking, 540; experimental, 250; filtrates, 714; general peritonitis, 769; immunity in, 835; in relation to population, 649; in U. S. military camps, 506, 507; laryngeal complications of, 958; mixed, and paratyphoid infection, 165; perforation in, 413, 707, 793, 890, 923; sequels, cardiac and vascular, 38; suicide by, 504; treatment, 42, 86, 543, 963; unnecessary evil, 926; urine, rare modification of, 960
- Typhus—blood reaction, 204; rash in, 666
- Typographic blunders, 928
- Ulcers—catarrhal, 278; due to organic vascular lesions, 278; duodenal, 229, 417, 455; gangrenous, 278; gastric, 35, 277, 279, 374, 1003; gastric, in Philadelphia, 455; gastric, and dyspepsia, 203; gastric, and hematemesis, 891; gastric, and trauma, 123; gastric, diagnosis, 264; gastric, phlegmonous, 278; gastric, treatment, 41, 80, 391, 581, 708, 792, 958, 963; leg, 375, 961; of pylorus, 894; specific, 278; traumatic, 278; varicose, 278
- Ulcerative processes, new remedy, 582
- Ulnar—arteries, aneurysms, 541; palpation, 641
- Ultraviolet rays, therapeutic uses, 368
- Umbilicus, Paget's disease of, 461
- Undergraduates and postgraduates in large medical centers, 170
- United States—accidents in, 760; military camps, typhoid in, 506, 507; Public Health and Marine-Hospital Service, 3; sexes in, 46; urban and rural population of, and typhoid, 649
- University of Pennsylvania commencement, 971
- Unmarried women, charity for, 259
- Untruth, compound variety of,—food preservation, 676
- Uremia—convulsions and scarlatinal suppression, 1005; infection of urinary tract, simulated by colon bacillus, 819
- Ureter, carcinoma of, 288
- Ureters—calculi in, 180, 243, 1002; catheterization, 453, 456; excision of, total, 711; meatoscopy, 369; operations on, 328; position of, in tubal abscess, 327; resection, in carcinoma of uterus, 289; transplantation of, 335; wounds of, 267
- Urethra—deep, surgery of, 126; stricture and prostatic false route, 458
- Uric acid—and gout, 371, 453; acid question, review of, 128
- Urinary tract, diseases of, diagnosis in, 52, 819
- Urine—and rheumatoid arthritis, 249; blastomycosis of, 838; changes in hyperchlorhydria, 500; clinical examination of, 537; examination in women, 559; examination and diagnosis of renal calculi, 1002; incontinence, 584, 808, 956, 1021; purin bodies in, volumetric determination of, 250; pus in, 333; rare modification in typhoid, 960; red, after pyramidon, 628; retention in pregnancy, 667; sugar, estimation, 38; sugar, and Neumann's orcin test, 791; sugar, minute traces, 1008
- Urotropin, toxic effect, 503
- Urticaria, menstrual, 831
- Usefulness, mark up the age of, 632
- Uterogestation, prolonged, 490
- Uterus—adenomyoma of, 10; cancer of, 10, 289; complete descent of, 797; complete inversion, 459; curettage, 202; extirpation in extrauterine pregnancy, 572; fibroid tumors of, 10, 284, 287, 401, 403, 601, 754; gravid, abdominal herniation of, 208; hemorrhage of, 93, 1017; inflammatory disease of adnexa, 957; nonparturient, rupture of, 933; pregnant, fibromyoma of, 419; retroflexion of, movable, 460; r-troversion of, treatment, 284, 934; rupture of, 289, 933; torsion of, 753; unimpregnated, contractility of, 796
- Uvula, epithelioma of, 789
- Vaccination takers, suggestion to, 844
- Vaccination—133; accidental, of nasal mucosa, 710; and parochial schools, 469; compulsory, 34, 343; false certificates of, 96
- Vaccine—animal, 219; bodies, structure of, 586; virus, federal control of, 1031
- Vaccinia—and variola, comparative histology of, 246; parasites of, 246
- Vaginal—cesarean section, 93, 498; hysterectomy, and cancer of cervix uteri, 209; route in removal of uterine fibroids, 754
- Varicella, parasites of, 248
- Varicocele, 458, 711
- Variola—536, 624, 845; and vaccinia, comparative histology of, 246
- Varicose—ulceration, 278; veins, 702
- Vascular—murmurs in thorax, 165; sequels of typhoid, 38; system, surgery of, 265; tone and baths, 963
- Vasomotor factor in clinical measurement of blood-pressure, 38
- Vegetarian, metabolism of, 1036
- Veins—air in, during surgical operations, 792; diseases of, and secondary syphilis, 667; endothelial separation in, 1008; of leg, superficial, thrombosis of, 81; portal collateral circulation, 167; portal, in operations at hilum of liver, 792
- Venereal—diseases, prevention of, 296; warts, 81
- Ventral decubitus and drainage for peritonitis, 880
- Ventrofixation and torsion of uterus, 753
- Veronal, 41, 502, 963
- Vertebral—column, traumatism of, 265; concussion reflexes, 640
- Vesical—calculi, surrounding a goose quill, removal, 207; diverticulum, operation, 51
- Vesicorectal anastomosis, 244
- Vesiculitis, seminal, 830
- Vicious advocacy, example of, by America's "food poisoners," 676
- Village and town hospitals, 886
- Vineberg, Hiram N.: Extrauterine pregnancy at full term; total extirpation of the uterus and placenta by a new technic; recovery, 572
- Vincent's angina, 921
- Viscera—abdominal, and penetrating wounds of chest, 80; abdominal, malposition, 958; injuries, subcutaneous, 540; röntgen-ray, 544
- Vital statistics, 342, 888
- Vivisection, 425
- Volvulus, recurrent, of sigmoid flexure, 166
- Vomiting, postoperative, 974
- von Escherich, Theodore: The foundations and aims of modern pediatrics, 55
- Vulva, fibromas of, 368
- Vulvovaginal region, gonococcus in, 664
- Vulvovaginitis, 666, 796
- Wakefield, Homer: A dissertation of temperament, diathesis, dyscrasia, predisposition, cachexia, susceptibility, idiosyncrasy and heredity, 434, 479, 521; Katabolism and eyestrain, 518
- Walsh, Groesbeck: The bactericidal element in catharsis, 945
- Walsh, James J.: Graves' disease and parathyroid therapy, 815
- Wallace, John F., remarks by, 179
- Waltham—baby hospital, 593; method of training nurses, 592; method of visiting nurses, 592
- Wondering, automatic, 501
- War, Russo-Japanese, 925
- Warning, 467
- Warts—multiple, 462; venereal, 81
- Washington—and Bright's disease in high official circles, 895; Sanitary Housing Company, 45
- Water—bacteria in, and copper, 803; bacteriologic examination, 247; boiling, therapeutic uses, 336; drinking and disease, 203; drinking, copious, and excretion in typhoid, 540; drinking, purification of, copper in, 802; injection, anesthesia by, 624; laboratory analysis of, 425; purification, 177, 258; sterilization, 636; supplies, copper as algicide and disinfectant, 837; supply and health, 623; supply, Chicago's, 48; supply of New York, 90; supply, St. Louis, purification, 177; typhoid bacillus in, longevity of, 250; typhoid and colon bacilli in, and copper foil, 275
- Watson, Edward Willard: Reciprocity, 390
- Webster, George W.: National control of leprosy, 11
- Webster, J. Clarence: A consideration of fibroid tumors of the uterus, based upon a study of a series of 210 cases treated surgically, 401
- Weich, J. S.: Dysentery in Cook County Hospital, 942
- Welch (William M.) Medical Society, 7
- Weight and smallpox, 583
- Welfare of others, social necessity, 801
- Wells, Brooks H.: The gynecologist and the general surgeon; their respective fields, 739
- West, Charles I.: The suture of heart wounds, 12
- "Wet malt" and milk, 467
- White—and "yellow" peril, 211; men in tropics, rule for, 801
- Whoopingcough, 41, 376, 963
- Widal reaction, 455, 499, 921
- Wilcox, Reynold Webb: Postoperative nasal hemorrhage; calcium chloride; secondary anemia; rapid recovery, 449; The treatment of chronic diarrhea, 885
- Wiley, Charles F.: Landry's paralysis, with a report of a case, 359
- Wiley, Dr., experiments of, 169
- Wiley, H. W.: Adulteration of drugs, 724
- Willard, De Forest: Knee injuries and how to manage them, 979
- Williams, Edward T.: The alleged destruction of the red blood-corpuscles in the spleen, 781; The office of the spleen; an essay in comparative physiology, 904
- Wilson, H. Augustus: The advantages of tendon transplantation, 570; The combined operation of arthrodesis and transplantation of the tendon of the extensor proprius hallucis for the relief of flat-foot, 725
- Wilson, R. J.: How to unstop hypodermis needle, 600
- Witnesses, credibility of, 842
- Wolfe, Samuel: Retiring address of the chairman of North Branch of the Philadelphia County Medical Society, 622
- Wolff, Arthur J.: Diphtheria antitoxin in cerebrospinal meningitis, 772
- Women—appendicitis in, 137; of genius, are men, 558; physical decay in, and higher education, 367; urinary examination in, 559
- Wood alcohol, poisoning by, 122, 414
- Wood, Alfred C.: Gallstone obstruction of the bowel; report of a case; removal of one stone from the bowel and a second from the gallbladder; recovery, 777
- Word—and works, 172; blindness, congenital, 965
- Worms, lumbricoid, strangulation by, 503
- Wounds—abdominal, 230, 794, 1002; adhesions, granulation, 663; blastomycetic growth, 81; device for carrying those suffering from, 594; gunshot, 368, 785, 794, 1024; of chest, perforating diaphragm, 80; of heart, suture, 12; of intestines, gunshot, 368; of stomach, gunshot, 1024; of ureters, 267; received in Russo-Japanese war, 134; treatment of, 714, 785
- Wright, W. E.: A remarkable recovery, showing the value of oxygen in bronchopneumonia, 474
- Wrist-joint, Colles' fracture, and other injuries in vicinity of, 457
- Writing—mirror, in right-handed, 790; prescription, modern, 253
- Wyman, Walter: Health of the nation, 158
- Xanthelasma and chronic icterus, 1016
- Yellow fever—6, 90, 91, 174, 175, 178, 216, 219, 287, 705, 762, 888, 907, 925, 929; and malaria, 836; treatment, 923; peril, 216; peril and white, 211
- Yohimbin, 460
- Yolk cure, 35
- Zinc sulfate, 835
- Zomotherapy in tuberculosis, 538

BINDING LIST APR 1 1934

R
15
A8
v.9
Biological
& Medical
Serials

American medicine

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE

